WFP
World Food Programme

South Sudan Food Security Monitoring (FSMS) Report

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The FSMS partners:

vam
food security analysis

Acknowledgement

This report is a collaborative effort of the Republic of South Sudan ministries, UN agencies and NGOs, including Food Security Technical Secretariat (FSTS), National Bureau of Statistics (NBS), Ministry of Agriculture and Forestry (MoAF), Ministry of Animal Resources and Fisheries (MoARF) and Relief and Rehabilitation Commission (RRC). The activity was funded by the World Food Programme (WFP) and Food and Agriculture Organization (FAO).

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1.0 Introduction

Violence broke out in Juba on 15 December between Government and opposition forces and quickly spread to other locations in South Sudan. Five months later, the security situation remains fluid, with insecurity affecting Jonglei, Upper Nile and Unity states in particular. The violence has caused extensive infrastructure damage and massive destruction of livelihoods in both rural and urban areas, but more intensely in Bor, Malakal and Bentiu. Markets and trade routes have been disrupted and large portions of the population of the three most conflict affected states are either minimally undertaking or completely unable to agricultural activities in the current season due to displacement, violence and uncertainty.

Securing access to affected populations has been a major challenge, especially during the early months of the conflict. Obstacles have included active combat, looting of aid supplies, and bureaucratic impediments by both sides to the conflict.

By January 2014, it was estimated that over three million people were at immediate risk of food insecurity and more than 90% of them were in Jonglei, Unity and Upper Nile. These states had the highest levels of acute and emergency food insecurity - Jonglei (70% of a population of 1.7 million), Unity (65% of a population of 1.1 million) and Upper Nile (46% of a population of 1.3 million). As South Sudan enters the rainy season, community coping mechanisms are increasingly stretched. Family food stocks normally run out during the hunger gap (May-August), leaving many households in market dependent states without sufficient food. The conflict, coupled with declining humanitarian access and space, has posed a major challenge to both the provision of humanitarian assistance and prepositioning of assistance before most conflict affected states become are inaccessible.

An FSMS assessment was undertaken by WFP in collaboration with the Food Security and Livelihoods Cluster from 28 February 28 to 15 March in order to provide an update of the food security and livelihoods situation in South Sudan. The FSMS covered 7 states that were not directly affected by the ongoing conflict at the time of assessment and completed with Emergency Food Security Assessments from the three remaining states. The methodology for the assessment is detailed Annex 1.

2.0 Food Security situation

2.1 Food security prior to conflict

The levels of moderate to severe food insecurity in October 2013 generally showed a decrease, from 55% in 2009 to 33% in 2013 for the entire country. This improvement was attributed to the enhanced crop production resulting from a broadly favourable rainfall pattern in 2013 and the declining staple food prices relative to the peaks of 2012. Individual states that had not shown significant improvement included Eastern Equatoria, Jonglei and Western Bahr-el-Ghazal. This deterioration was attributed to isolated inter-communal and inter-ethnic conflicts during 2013 and the influx of returnees from Sudan[1].

2.2 Current Food Insecure Population

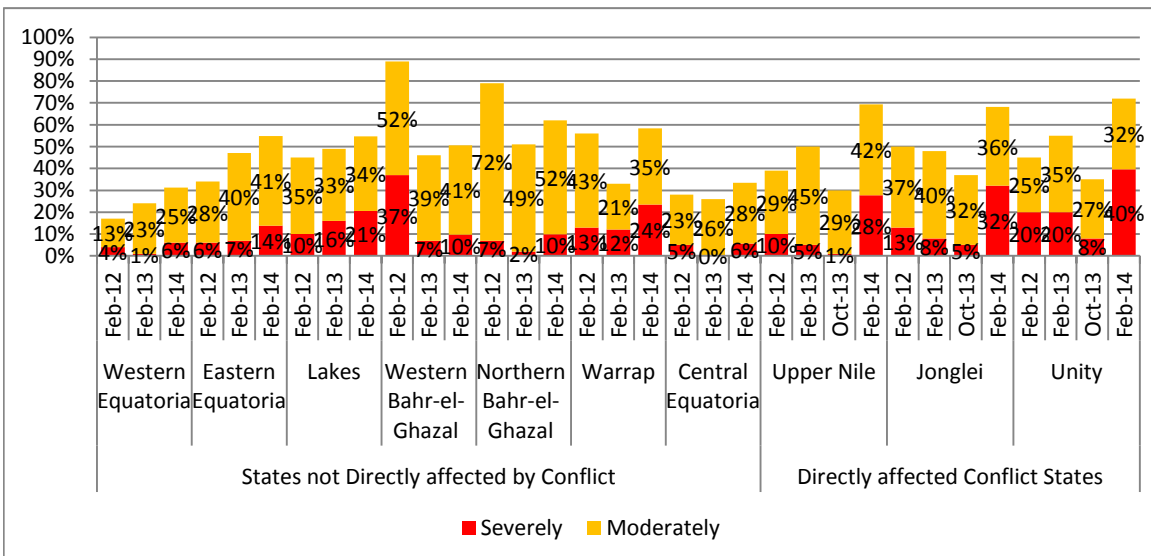
The survey shows a worsening of the food security situation across all the provinces in February 2014 compared to the same period in 2012 and 2013. Jonglei, Unity and Upper Nile were the worst affected. The proportion of severely food insecure increased from 1% prior to the conflict to 32% in Upper Nile; from 5% to 32% in Jonglei and from 8% to 40% in Unity. The conflict clearly contributed to this huge increase. The markets in Jonglei, in most parts of Unity and western parts of Upper Nile have remained closed, businesses have been vandalized and commodities looted. In addition to traders losing capital to restock, most of the supply routes to the three states are closed, worsening the existing cereal deficit from individual production.

However, even in the other seven states, food security has deteriorated compared to February 2013. The worst among the seven are the ones bordering conflict states including Lakes, Warrap, Eastern Equatoria,

[1] FSMS October 2013

Central Equatoria and Northern Bahr-el-Ghazal **(Figure 1).** The decline in food security is attributed to the conflict (which has affected the availability of commodities in markets), the closure of the border with Sudan (which has affected the flow of commodities in northern regions bordering Sudan), the influx of IDPs[2] into Lakes, Warrap and Eastern Equatoria resulted in sharing of dwindling available harvest and marketed stocks within the region as demand increased. At least 51% of the Juba Protection of Civilian sites around the country are severely food insecure.

Figure 1: Comparison of food security status by State



2.3 Distribution of the food insecure population

The total population that is severely food insecure and requires emergency food assistance has increased to 2.4 million compared to the IPC estimated figure of 1.1 million in January 2014. This increase is attributed to conflict related displacements of an estimated over one million people within South[3], reduced market functionality especially in the three conflict affected states and food prices that have increased compared to February 2013 and is expected to worsen during the lean season. For example, in Juba, the price of white sorghum increased by 91% compared to February 2013 and by 36% compared to December 2013. Juba's markets are a major source of food commodities for most states.

An estimated 970,000 people are severely food insecure in the seven non conflict affected states at the start of the lean season. This number has increased drastically compared to 390,000 people at the peak of the harvest time in October 2013.The highest concentration of food insecure people in the seven states is in Warrap (281,600), followed by Eastern Equatoria at 205, 700. The lowest is in Western Equatoria, with an estimated 63,750 people. An estimated 196,800 children under the age of five are at risk of food insecurity in these states as they are residing in households facing severe food insecurity (**Table 1**).

In Jonglei, Upper Nile and Unity, an estimated 1.4 million, are in humanitarian crisis requiring urgent assistance compared to 1.1 million people identified in January 2014 (**Table 1**). Unity has the highest population of severely food insecure, estimated at 619,000, followed by Jonglei and then Upper Nile. The number of severely

[2] IDPs refer to persons displaced and have been living within the communities on average for the last 3 months and returnees refer to persons who have returned from Sudan and other countries and have been living in the communities on average for the last 5 months.

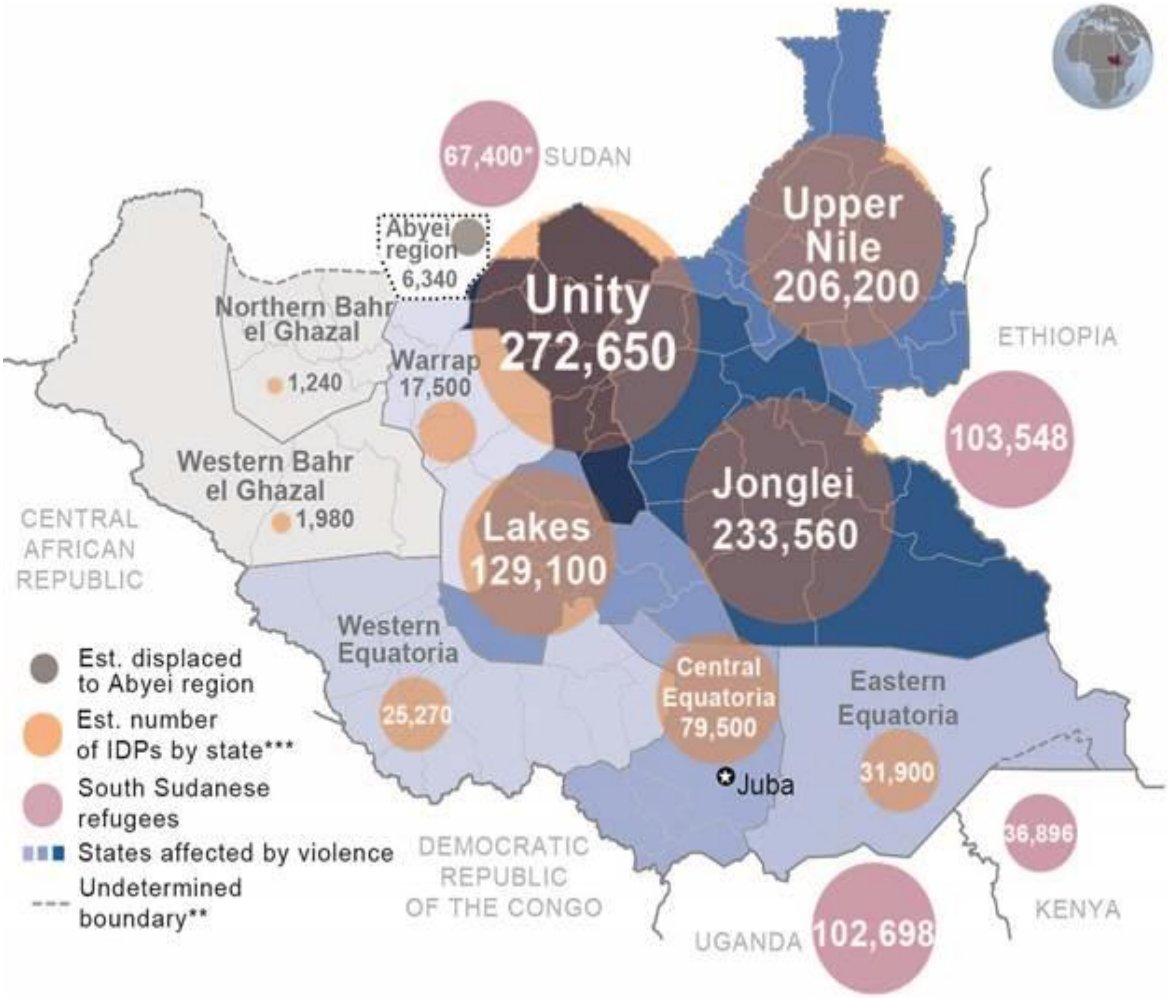
[3] Refugees are distributed as 44,111 in Sudan, 69,456 in Ethiopia, 80,880 in Uganda and 26, 190 in Kenya as of 13 March 2014- UNHCR

food insecure people is in line with the levels of displacements and the number of conflict incidences (**Table 1 and Figure 2**). The number of food insecure in these states will vary in the coming months depending on the level of conflict as well as the ability of households to access food from both markets and humanitarian assistance. A gap analysis looking at the needs compared to planned interventions, by NGOS, UN and the Government is needed in order to establish the areas were gaps exist and provide programme recommendations.

Table 1: Food insecure populations in March 2014

	State	Severely food insecure	Moderately food insecure	Number of Children Under Five at Risk
7 States not directly affected	Western Equatoria	63,800	267,900	12200
	Eastern Equatoria	205,700	611,700	43,400
	Lakes	173,700	287,000	40,500
	Western Bahr-el-Ghazal	65,700	274,500	14,100
	Northern Bahr-el-Ghazal	100,900	531,100	20,300
	Warrap	281,600	417500	50,600
	Central Equatoria	79,300	390,400	15,700
	Total	**970,700**	**2,780,100**	**196,800**
3 States directly affected by conflict	Jonglei	490,400	701,600	167,500
	Upper NIle	332,500	481,600	97,900
	Unity	618,600	415,400	212,100
	Total	**1,441,500**	**1,598,700**	**477,500**
Grand Total		**2,412,200**	**4,378,800**	**674,300**

Figure 2: Displacement and Magnitude of violence March/April 2014



*The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations. **Final boundary between the Republic of South Sudan and Republic of Sudan has not yet been determined. Final status of the Abyei area is not yet determined. *New arrivals from South Sudan (NOT REFUGEES). ***Verification of the IDP figures is a work in progress.*
Data Sources: OCHA, UNMISS, IOM, UNHCR, RRC and partners. Refugee figures as of 7 May 2014 . *OCHA South Sudan, 8 May 2014.*

2.4 Current Food Security Distribution by County

The most food insecure counties depict severity increasing moving from the west (with less food insecure population) to the northeast where food insecurity is highest, due mostly to a combination of conflict and underlying vulnerabilities. The number of food insecure also increases as one moves to counties bordering the conflict states and becoming even more pronounced in areas closer to the active conflict states **(see Figure 3).** This observation is not surprising as western parts of the country had better agricultural production in 2013, whilst counties in Warrap, Lakes, Northern Bahr-el-Ghazal, Unity, Jonglei, eastern Upper Nile and northern Eastern Equatoria showed relatively poor agricultural production (mainly as a resulting of floods in 2013). The increased conflict related displacements (**Figure 4**) coupled with market disruptions resulting in increased food prices and market food shortages have worsened the situation (**Figure 2**).

Figure 3: Population Severely Food Insecure by County

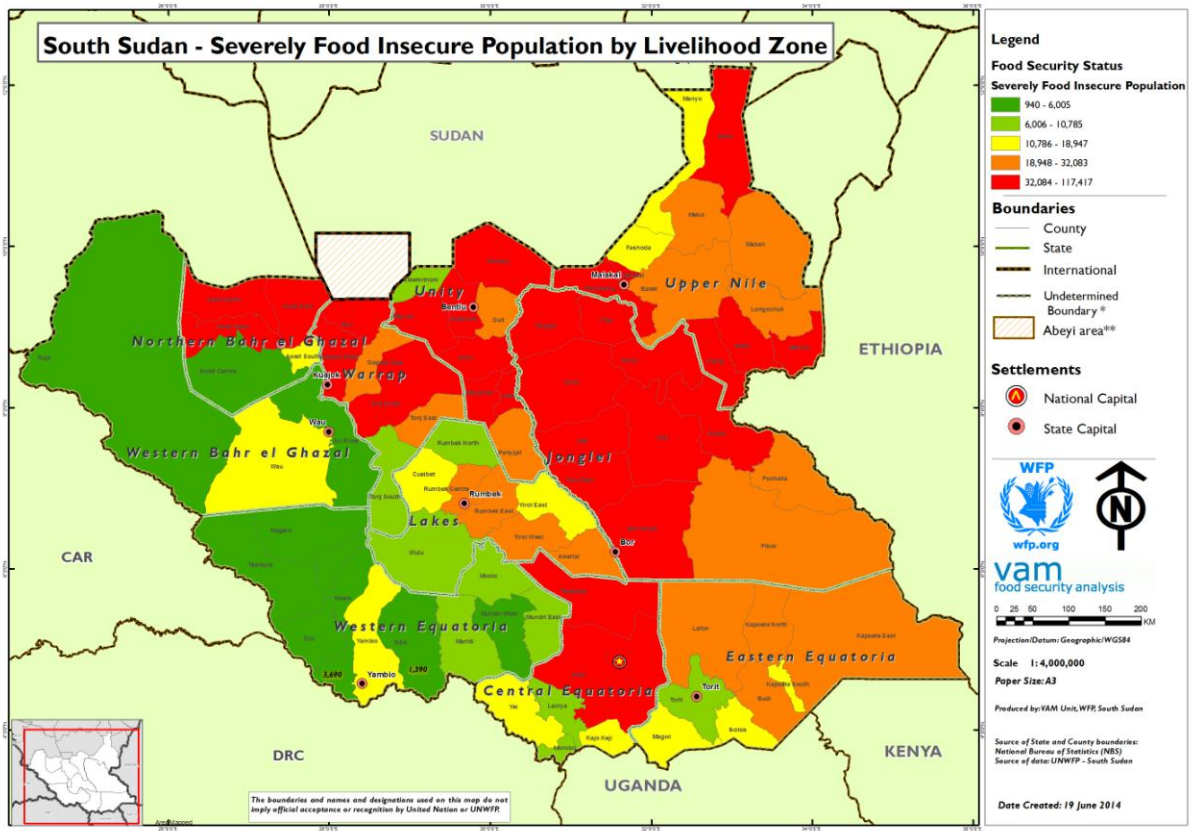
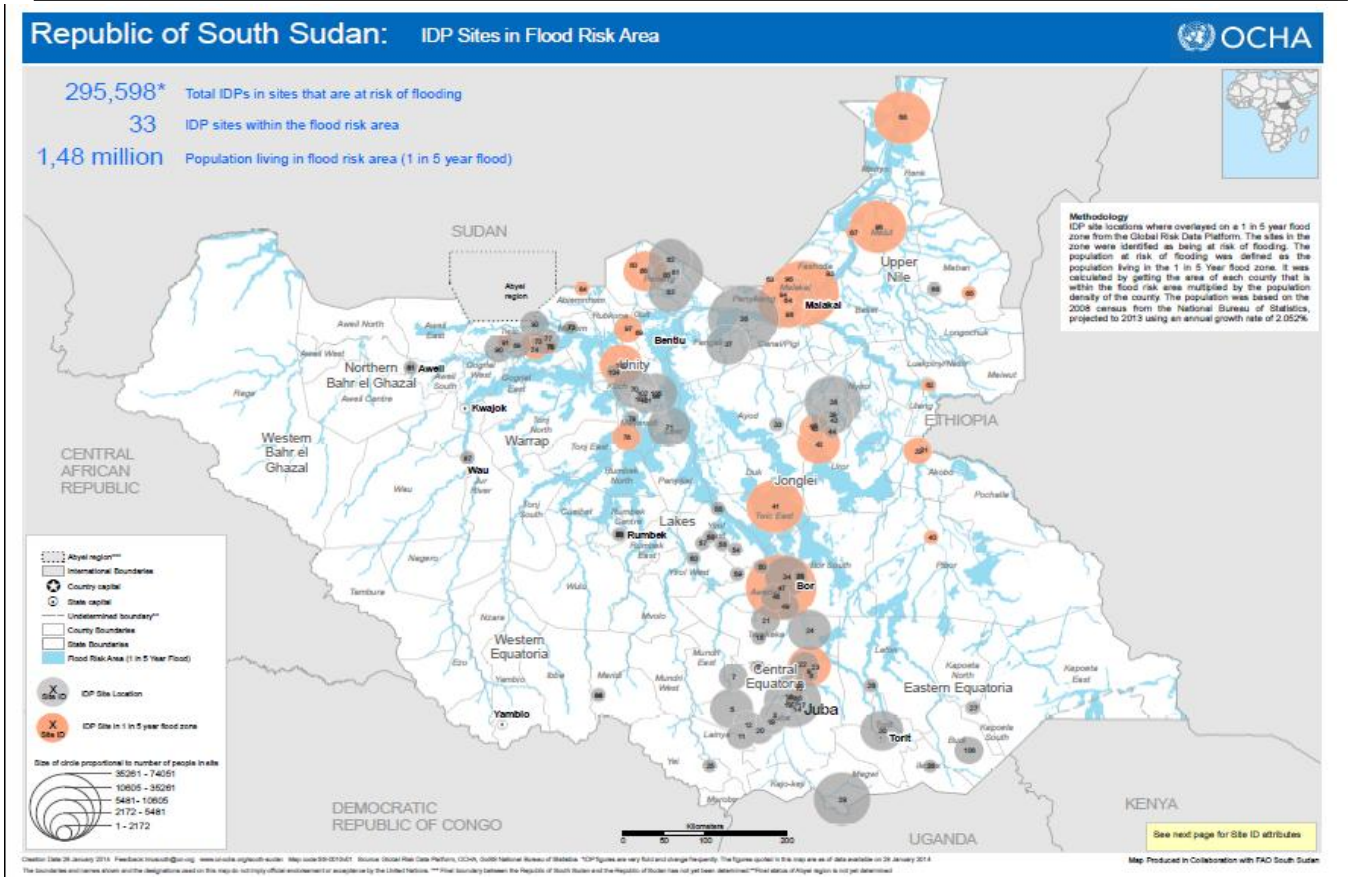


Figure 4: Map showing IDP settlements and flood risk locations



Analysis by their current status (IDPs or residents) indicates that IDPs are worse-off, with 36% of IDPs classified as severely food insecure compared to 29% of returnees, and only 8% of residents were food insecure. Female-headed households showed higher levels of severe food insecurity (13%) than male-headed households (7%)[4].

2.5 Future Food Security Prospects

In typical years, food security in most states generally deteriorates at the peak of the lean season, in June. In June 2013, 8% and 34% of households were severely and moderately food insecure, respectively. This indicated an overall improvement in the food security situation compared to the same period in 2012. In June 2013 there was a reduction in prevalence of severe food insecurity for most states except Unity (16%), Warrap (9%), Lakes (15%) and Eastern Equatoria (10%)—all with levels above the national average (8%), though similar levels as the same period in 2012. And even despite some improvement in severe food insecurity, the proportion of moderately food insecure households was still high on average at 34%, implying that most South Sudanese were still vulnerable to food insecurity caused by minor shocks. For instance, in 2013 there was a persistent and worsening localized food situation in Pibor County (south-eastern Jonglei), where populations were affected by fighting between the military and non-state armed actors and a resurgence of inter-communal clashes[5].

Given that the food insecurity levels had worsened in February 2014 compared to the same time last year, there is a high possibility the seasonal deterioration usually seen around May–July (peak of the lean season)

[4] FSMS June 2013
[5] WFP (FSMS), June 2013

could be worse in 2014. Historically however, there has never been any famine experienced in South Sudan during the rainy season (coinciding with lean season) as households have developed coping mechanisms such as intensified fishing, consumption of green vegetables and wild foods, reliance on milk (for those with animals) to avert hunger during this period, before eventually benefiting from the early harvest.

In 2014, however a number of factors that could aggravate the already poor food insecurity situation during the lean and rainy seasons should be monitored. These factors include:

a)the impact of potential floods, given that the Greater Horn of Africa Climate outlook in March 2014[6] indicated the possibility of normal to above normal rainfall for some parts of South Sudan. Higher than normal rainfall could result in flooding, leading to a secondary displacement of conflict related IDPs but also to additional displacements unrelated to the conflict. This is even more likely in flood prone areas of Northern Bahr-el-Ghazal, Lakes, Warrap, Unity, Jonglei and Upper Nile, some of which still have water not fully receded from last year's flooding. An estimated 1.48 million people are living in flood risk areas (the 1 -5 years flood risk mapping) and nearly 296,000 IDPs in an estimated 33 sites are at risk of floods (**Figure 4**);

b) The ability of the humanitarian partners to scale up the humanitarian response eg. Seeds distribution before planting season, food aid etc to the affected population, be it through the river corridors from Ethiopia, Juba or Malakal, air drops from both Ethiopia and Juba and land transport to accessible areas before the onset of the heavy rains in May/June 2014;

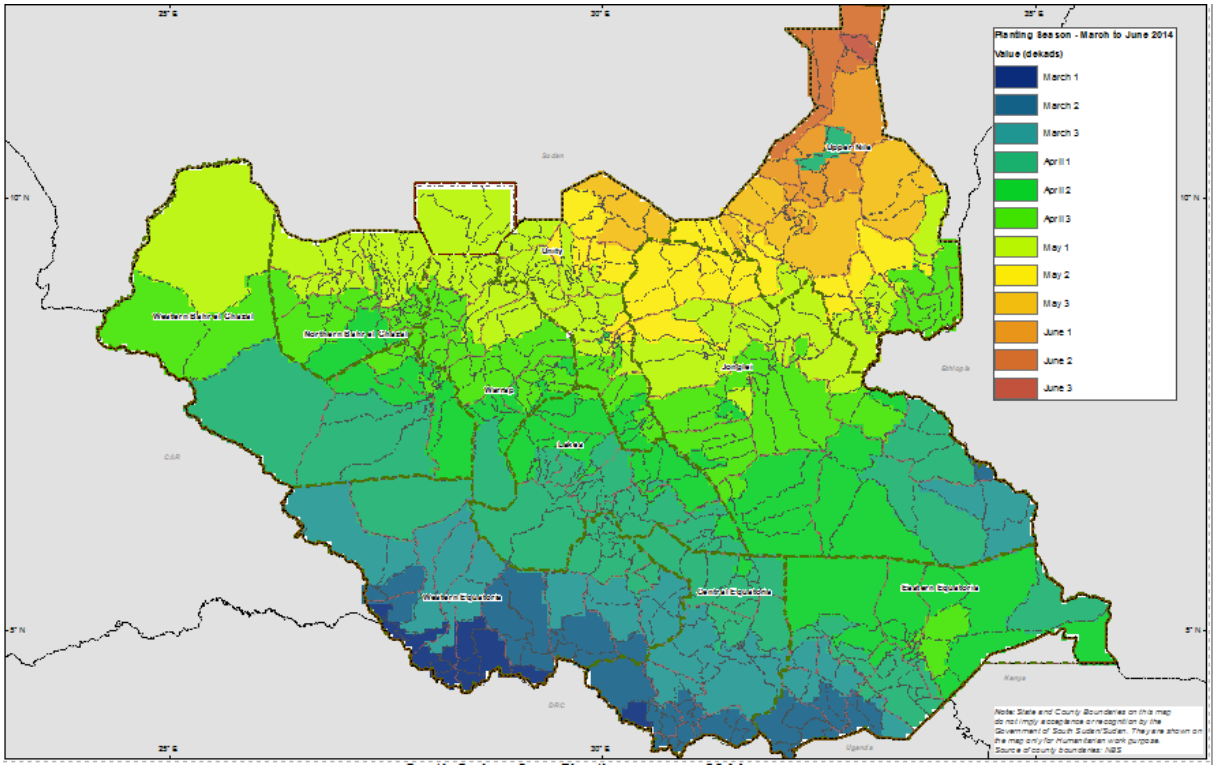
c) The ability of households to plant crops especially in Unity, Jonglei and Upper Nile at the start of the planting season in May/June 2014 (see planting dekads **Figure 5**);

d) The markets functionality especially in the conflict affected states and

e) A reduction of conflict especially at the start of the planting and rainy season in May/June thereby reducing further population displacements and giving households enough stability to work the land. Almost two thirds of households in the states (Lakes, Warrap and Central Equatorial) bordering the three conflict states reported insecurity as a shock.

[6] 36th Greater Horn of Africa Climate Outlook Forum (GHACOF 36) was convened from 26th to 28th February 2014, at the Imperial Botanical Beach Hotel, Entebbe, Uganda by the IGAD Climate Prediction and Applications Centre (ICPAC) and partners to formulate a consensus climate outlook for the March to May 2014 rainfall season over the GHA region

Figure 5: Timing for usual Onset of rainfall in South Sudan

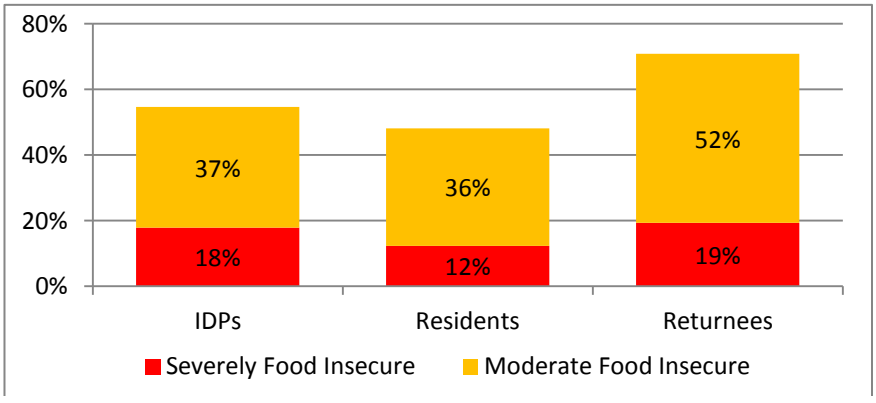


3.0 Characteristics of the food insecure population in The Seven States

3.1 Food security status by residential Status

The status of food security varies with one's residential status. Returnee and IDPs households tend to be more food insecure, at 71% and 55% respectively, compared to residents (48%)[7]. Because resident households have built resilience measures, they are better situated to cope with their environment compared to IDPs and returnees. Furthermore IDPs do not have access to stable income sources and some were not able to bring their stocks with them when they were displaced, making them more vulnerable **(Figure 6)**.

Figure 6: Food security by residential status

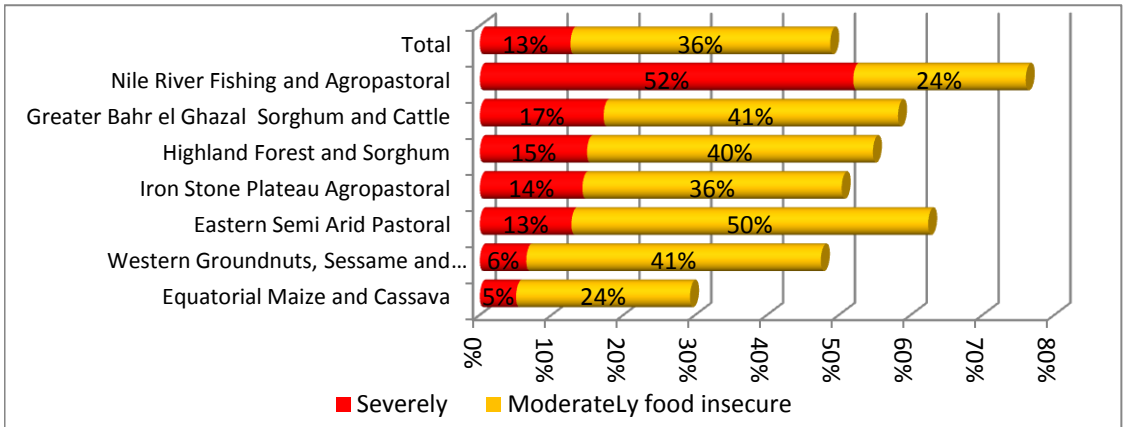


[7] IDPs refer to persons displaced and have been living within the communities on average for the last 3 months and returnees refer to persons who have returned from Sudan and other countries and have been living in the communities on average for the last 5 months.

3.2 Food Security by Livelihood Zone

Food insecurity is much worse for households living in Nile river fishing and agro pastoral livelihood zones with 52% of the population severely food insecure. The main reason is due to a high concentration of IDPs along the Nile basin, an area prone to flooding. In fact these were adversely affected by floods in 2013 that led to a relatively poor harvest. The riverine areas have been unable to take advantage of recession agriculture in the dry season due to the conflict. The other livelihood zone severely affected by food insecurity is the Greater Bahr-el-Ghazal sorghum and cattle livelihoods as this zone suffered from restricted trade with Sudan which normally accepts most of its exports. Meanwhile the Eastern Semi-Arid Pastoral has the highest proportion of the population that is moderately food insecure, which shows the chronic nature of food insecurity in this zone. The least affected zones are the Equatorial maize and cassava (covering the southern part of the country especially Western Equatoria, parts of Central and Eastern Equatoria) and Western groundnuts, sesame and sorghum (covering the northwest) as these zones were the least affected by the conflict and had lower cereal deficits than last year (**Figure 7**).

Figure 7: Food Security status by Livelihood zone



3.3 Food Security by Household Demographic Characteristics

The female-headed households are slightly more food insecure than their male counterparts. However there has been increase in food insecurity for both female- and male-headed households to 14% and 12%, respectively compared to 12% and 10% respectively during the same time in 2013[8]. Food insecurity also correlates with the increase in the size of the household, as larger households (with more than 3 members) tend to be more food insecure than smaller ones. At least 20% of households with more than 8 members are hosting IDPs and/or returnees compared to 5% for the households with 3-5 members and 9% for the households with 6-8 members. Hosting IDPs and returnees is likely contributing to their food insecurity as they have to share the limited food available. The dependency ratio in the households (those with elderly persons or children under five to those 18 to 60 years old in a household) does not seem to be related to the status of food insecurity of the household (**Table 2).**

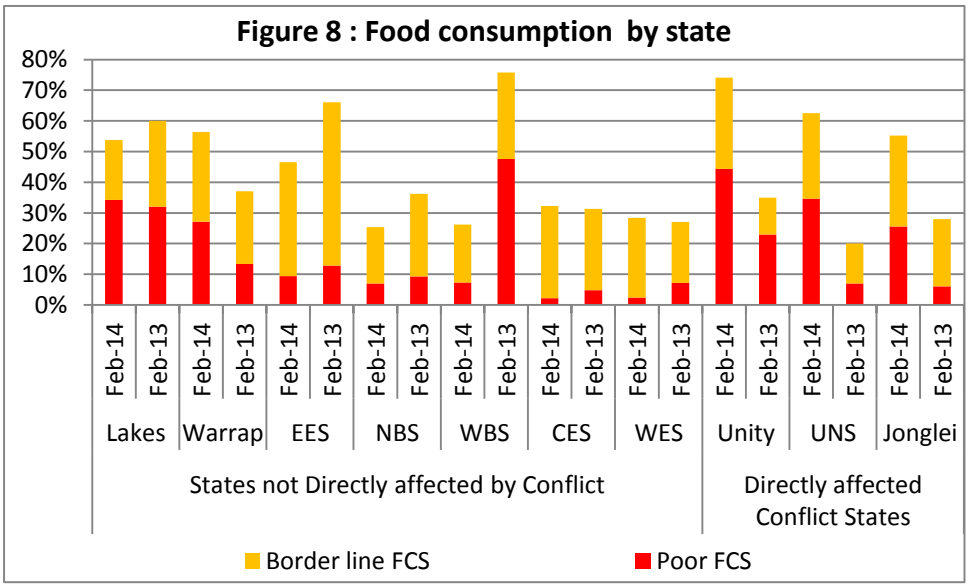
[8] Food Security Monitoring (FSMS), Feb 2013.

Table 2: Demographic characteristics and food security status

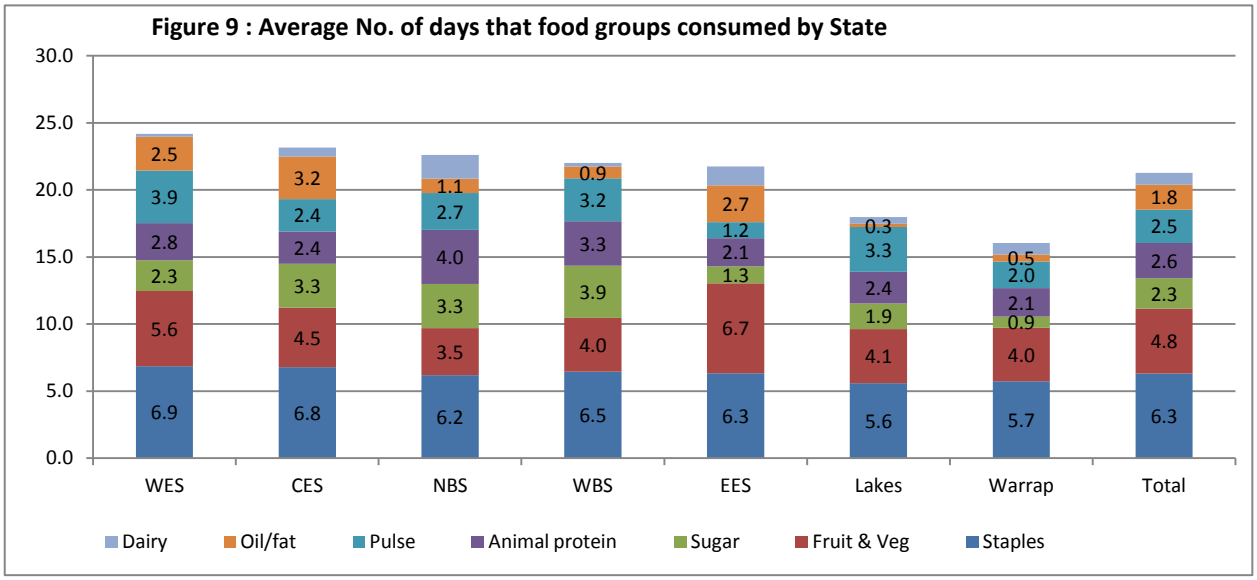
HH Characteristic		Severely Food Insecure	Moderate Food Insecure
Sex of Head of Household	Male	12%	36%
	Female	**14%**	37%
Household Size	at least 2 members	**3%**	**56%**
	3 to 5 members	13%	38%
	6 to 8 members	12%	36%
	more than 8 members	**14%**	34%
Household Dependency ratio (Number of 18 to 60 years to children and elderly)	low dependency	12%	34%
	at least 2 members	13%	39%
	2 to 3 members	13%	33%
	more than 3 members	13%	39%
Household housing children or Elderly persons	HH with children under 5	12%	37%
	HH with elderly	13%	30%
	HH with both elderly and children under 5	12%	34%
	HH without children under 5 and elderly	14%	37%

3.4 Food consumption

Food Consumption Scores (FCS), based on seven-day recall period, show that about 39% of households in South Sudan have inadequate food consumption, with some 13% indicating poor food consumption (i.e. a lopsided dietary intake consisting mainly of cereals which is inadequate to meet the requirements for a healthy life) while 26% have borderline food consumption in the seven states that were not directly experiencing the conflict at the time of the survey (**Figure 8)**. However, in the three Greater Upper Nile states, the prevalence of inadequate food consumption averaged 62% (33% with poor food consumption and 29% with borderline food consumption). These results indicate a significant deterioration in consumption within the Greater Upper Nile states as well as in Warrap State, an observation attributed to low dietary diversity and unreliable income activities in addition to rampant inter-communal conflicts. There were, however no significant changes in the consumption profile of other states compared to the same period in the previous year. Poor food consumption, a reflection of low dietary diversity is a major contributor to food insecurity: 96% of severely food insecure had poor food



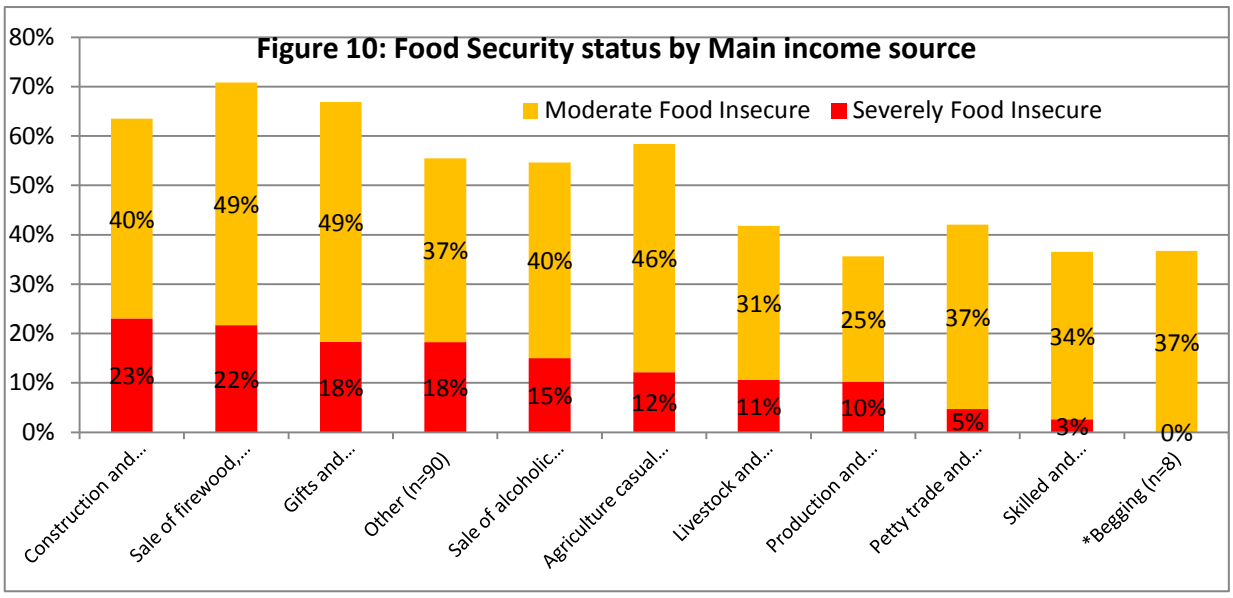
consumption whereas none of the food secure households did. Conversely, whereas none of the severely food insecure households had acceptable consumption, 82% of them had acceptable scores. Returnee households showed higher proportions (19%) in poor food consumption compared to residents (6%).



Households' diets is largely composed of cereals/staples (consumed at least 6 days per week) followed by vegetables/fruits (about 5 times per week) while animal protein sources are only consumed less than three days in a week. As shown in **Figure 9**, the highest dietary diversity is observed in Western Equatoria, Central Equatoria and Northern Bahr-el–Ghazal all three of which have high proportions of agricultural crop production livelihoods, while the low diversity was seen in Warrap and Lakes—primarily dominated by pastoral livelihoods. This underscores poor dietary diversity as a likely factor contributing to food insecurity.

3.5 Food security and Main Income source

Food security varies with the main income source of a household, with those depending on construction and non-agricultural based incomes having the highest proportion of severe food insecurity, estimated at 23%. Second highest are households whose main income source is sale of firewood, charcoal and grass at 22%. The limited labour opportunities could be associated with the high levels of food insecurity amongst these two groups. Households with more stable income sources such as salaried work and petty trade, including sale of fish, have the lowest proportion of severe food insecurity. The less reliable the main source of income is, the more vulnerable the household is likely to be **(Figure 10).**



3.6 Food Security and Coping strategies

To cope with food insecurity, households employ different consumption coping and livelihoods expansion mechanisms. The coping strategies usually adopted by households include relying on less preferred foods; limiting portions at meal time; restricting consumption of adults to ensure small children eat; and reducing the number of meals. These consumption mechanisms have been combined to a reduced coping strategy index (rCSI). Based on the rCSI, it is clear that over 40% of the severely food insecure and above a third of the moderately food insecure employ severe coping mechanisms.

Additional livelihoods coping mechanisms, including borrowing food or relying on friends; selling more animals than usual; sending family members to eat elsewhere; and spending savings, indicates that a household is under stress (stress coping). On the other hand, consumption of seed stocks for next season; selling productive assets; and reducing expenses on health and education is an indication that the household is in crisis (crisis coping). When the entire household migrates there is increased begging and selling of last female animals which indicate that the household is using an emergency coping. These analyses show that a fifth of severely food insecure households are employing the three levels of livelihood coping whilst over a third of the moderately insecure and the food secure are also using these mechanisms. This clearly indicates that a large proportion of households are sacrificing future livelihoods to increase their immediate consumption (**Table 3**).

Table 3: Coping mechanisms and food insecurity

	Coping Mechanisms	Severely Food Insecure	Moderate Food Insecure	Food Secure
Coping (rCSI)	low coping (n=124)	18%	42%	39%
	high coping (n=768)	23%	36%	42%
	severe coping (27)	**43%**	**35%**	**22%**
	very severe coping (n=5)	0%	**62%**	**38%**
Livelihoods Coping	HH not adopting coping strategies (n=1507)	8%	35%	58%
	Stress coping strategies (n=228)	**22%**	**41%**	**37%**
	Crisis coping strategies (n=231)	**23%**	**44%**	**33%**
	emergencies coping strategies (n=304)	**24%**	**35%**	**41%**

3.6 Food Security Status and Cereal Sources by State

Cereals and tubers are a major component of household diets in South Sudan. The Equatorial maize and cassava livelihood zone has the highest proportion of dependence on own production (71%) as a main source of cereals and tubers for household consumption. Other areas such as the central region (Iron Stone Plateau); the Highland forest and sorghum zone (covering

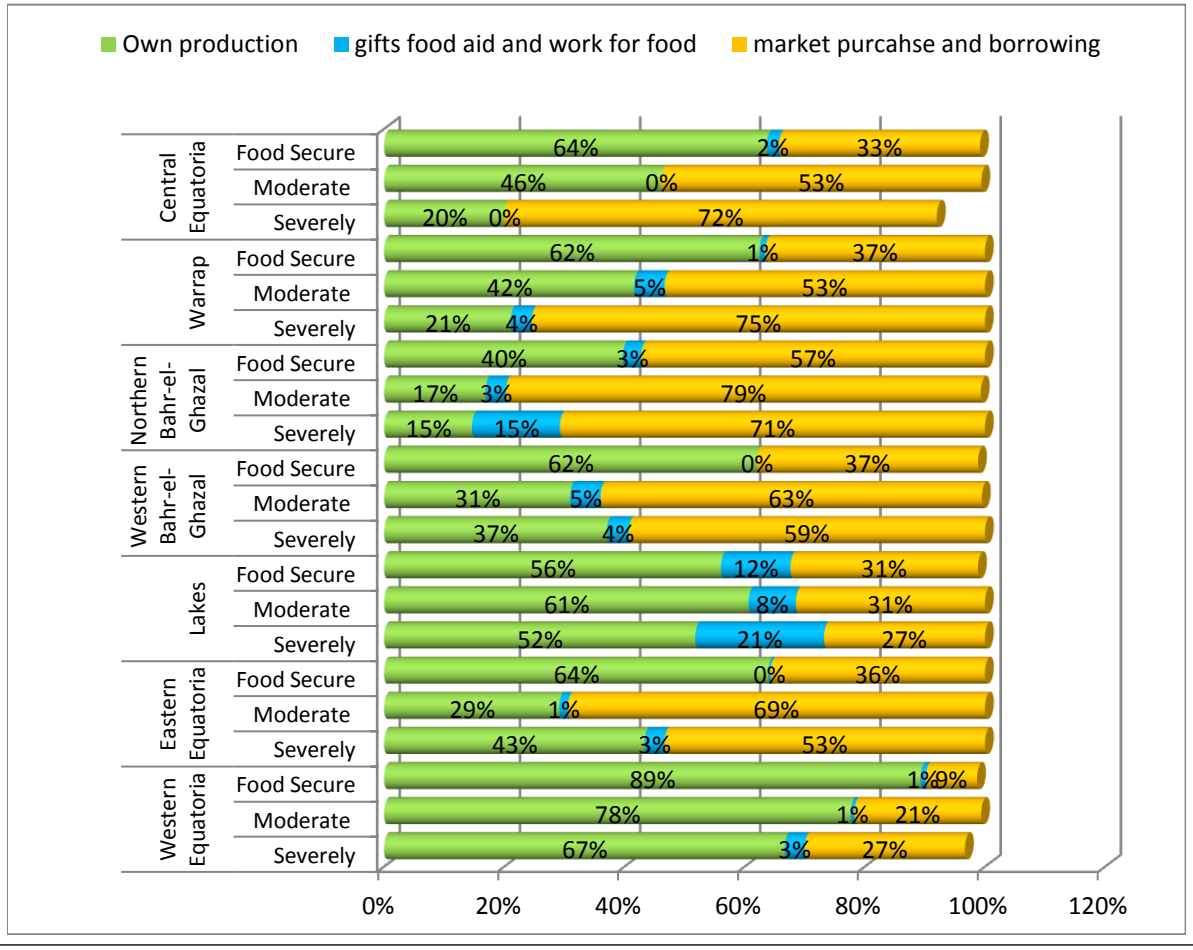
Table 4: Cereal and tuber sources by Livelihood zone

Livelihood Zone	Own production	food aid and work for food	hunting and gathering	market purcahse and borrowing
Equatorial Maize and Cassava	71%	1%	1%	27%
Iron Stone Plateau Agropastoral	62%	7%	2%	30%
Highland Forest and Sorghum	52%	3%		45%
Western Groundnuts, Simsim and Sorghum	53%	3%	1%	42%
Eastern Semi Arid Pastoral	36%	1%		63%
Greater Bahr el Ghazal Sorghum and Cattle	37%	3%		59%
Nile River Fishing and Agropastoral	47%	25%	3%	25%

Central Equatoria) and Western groundnuts and sorghum (covering the western parts of the country , mainly Western and Northern Bahr-el-Ghazal) source more than 50% of their cereals and tubers from their own production. Own production i.e. reliance on self production by a household, contributes the least to available cereal and tubers in the eastern semi-arid, the Northern part (Greater Bahr-el-Ghazal sorghum and cattle zones) (**Table 4**). This shows that some areas across the countries rely more on the markets for their cereal sources than others. Markets will play a major role in areas where cereal and tuber own production is much lower.

Food sources vary with the level of household food insecurity. In general, the food secure rely more on their own production as a source of their cereals and tubers compared to the severely food insecure. Over half of the cereals come from the market for the severely and moderately food insecure across all states except in Western Equatoria and Lakes. Markets therefore play an important function for cereal access for the most vulnerable. Hence availability and price of cereal and tubers in markets will have a great impact on the level of household food security. Food aid, gifts and food for work are important cereal sources in Lakes and Northern Bahr-el–Ghazal, where it contributes 15-21% of the total cereal and tuber sources for the severely food insecure **(Figure 11)**.

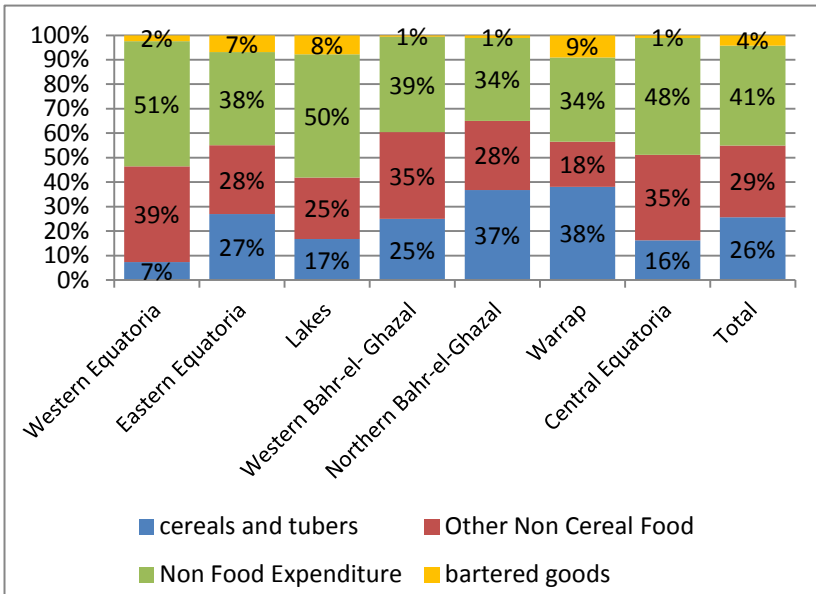
Figure 11: Main cereal and tuber sources by State and food security status



3.8 Food Expenditure

On average, expenditure on food is estimated at 55% of the basket, of which cereals represent 26%. The largest expenditure on food proportion is in Northern Bahr-el–Ghazal, estimated at 65%, followed by Western Bahr-el-Ghazal at 60%. These states depend on imports from Sudan for purchases. The Lakes and Western Equatoria have the lowest expenditure on food and depend more on own production for their cereals **(Figure 12**). Generally the higher the household expenditure on food, the more they are likely to become vulnerable to food security, especially given that most of the households are poor and do not have diversified and high income levels.

Figure 12: Proportion of Expenditure by State



Compared to the same time last year, the relative expenditure share on food versus total expenditures and the share of cereal expenditure versus other foods have increased in Western Equatoria, Western Bahr-el-Ghazal, Warrap and Central Equatoria. The increase in the share of cereal expenditure to total food expenditures in Warrap and Central Equatoria could be associated with an increase in cereal prices as well as an increased demand as households hosted IDPs **(Table 5).** The increase in household expenditure on food and cereals in particular could result to increased pressure on household food security.

Table 5: Food Expenditure and Cereals change compared to previous months

	Period	Western Equatoria	Eastern Equatoria	Lakes	Western Bahr-el-Ghazal	Northern Bahr-el-Ghazal	Warrap	Central Equatoria
Relative food expenditure (% share on food)	Feb-12	39%	53%	49%	76%	72%	66%	46%
	Jun-12	45%	56%	61%	64%	76%	61%	49%
	Oct-12	44%	57%	48%	56%	51%	40%	46%
	Feb-13	41%	58%	62%	58%	69%	60%	48%
	Feb-14	**46%**	55%	42%	**60%**	65%	57%	**51%**
Staples expenditure (% share on cereals)	Feb-12	5%	20%	28%	39%	45%	32%	14%
	Jun-12	16%	40%	43%	36%	55%	46%	21%
	Oct-12	9%	35%	32%	34%	19%	9%	18%
	Feb-13	9%	38%	49%	29%	41%	32%	15%
	Feb-14	**13%**	39%	36%	**36%**	**52%**	**60%**	**28%**

Source: FSMS and February 2014 analysis

3.9 Relative commodity expenditure

Cereals and tubers have the greater share of total food expenditures. Meat and fish followed by sugar take the second and third greatest share, respectively. Fruits and vegetables and cooking oil have relatively low expenditure. This indicates a household basket lacking enough mineral rich foods and fat. For those that produce their own cereals and are able to purchase some protein, augmenting one's food basket with other food items would help improve the nutrition status of these households. However, it should be noted that whilst overall food security has deteriorated, many households in the non-conflict affected seven states are still able to afford the basic food basket **(Figure 13)**

Figure 13: Proportion of food expenditure

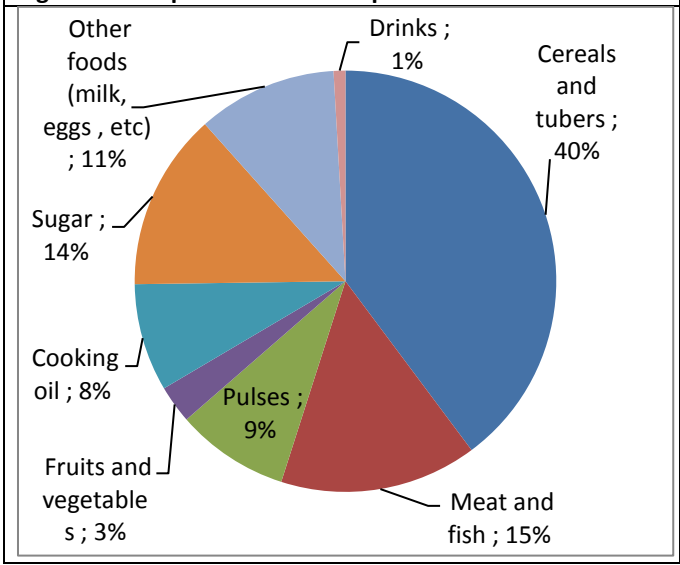
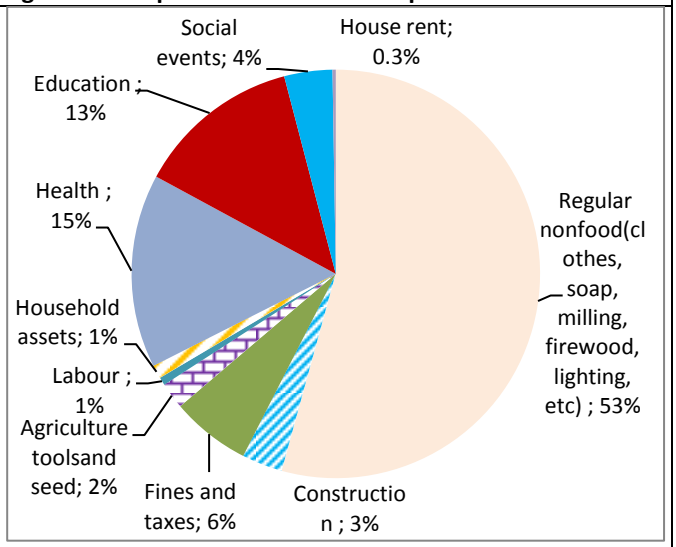


Figure 14: Proportion of non-food expenditure



3.10 Relative non-food items expenditure

Regular household expenses such as clothes, soap, milling and firewood take the greatest share of non-food budget expenditure. This is followed by health and education. Agriculture tools and seed are among the lowest of households' non-food expenditure budgets. It could be that households retain seed or may be indicative of households not investing in innovative agricultural practices, thereby affecting agricultural production (**Figure 14**).

4.0 Shocks

As from previous rounds of the FSMS since October 2010, the main shocks affecting most households are human sickness and high food prices. Livestock diseases, which affect about a fifth of households, have been a problem reported in past FSMS rounds. In February 2014, livestock diseases were more pronounced in Eastern Equatoria and Warrap. This is a significant issue for households that depend on livestock. The percent of households reporting insecurity is high in those States which border conflict states **(Table 6).** The proportion of households reporting other shocks has not changed much even compared to the other FSMS rounds. This indicates that the shocks households are facing have not been addressed adequately.

Table 6: Proportion of households reporting different shocks by state

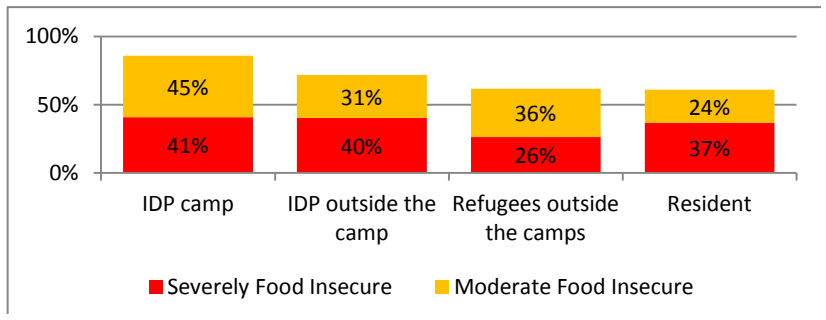
Shocks	WES	EES	Lakes	WBS	NBS	Warrap	CES	Total
Insecurity	6%	18%	64%	1%	1%	34%	33%	21%
Food too expensive	42%	50%	50%	81%	82%	85%	36%	63%
lack of free access/movement	4%	5%	15%	12%	3%	4%	21%	9%
livestock diseases	25%	33%	17%	14%	5%	42%	20%	23%
floods	1%	1%	7%	2%	38%	16%	2%	11%
Human sickness	82%	72%	59%	82%	84%	50%	79%	72%
Returnees/IDps living with Household	2%	3%	4%	1%	3%	6%	5%	4%
late food distribution	1%	2%	15%	20%	8%	9%	0%	8%
Social events	43%	10%	1%	12%	2%	8%	3%	10%
Delay of rains	10%	17%	39%	6%	26%	7%	9%	16%
Weeds/pests	20%	5%	3%	13%	7%	0%	4%	7%
Others specify	10%	17%	3%	37%	6%	5%	12%	13%

5.0 Characteristics of the food insecure population in the Three States

5.1 Food security by residential status

The most food insecure populations are IDPs, both in and out of camps while the least food insecure are refugees living outside of camps. This may be attributed to IDPs sharing their food assistance with their hosts especially by those residing outside the camps (**Figure 15**).

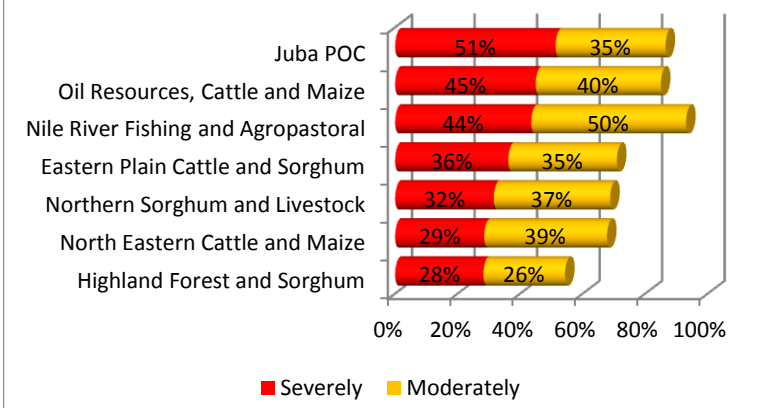
Figure 15: Food security by resident type



5.2 Food Security by Livelihood Zone

Within the three most conflict affected states, some 45% of households in the Oil resources, cattle and maize livelihood zone are severely food insecure. The livelihood zone with the second highest severely food insecure population is the Nile river fishing while that with the least food insecure households is the Highlands forest and sorghum (**Figure 16**).

Figure 16: Food security by Livelihood zone



5.3 Demographic characteristics and food security status

The food insecurity situation of female-headed households are more severely food insecure compared to the male headed. Households with disabled and chronically ill members are more severely food insecure compared to the other households. Those living in temporary shelters are more likely to be severely food insecure than those who live in their own houses. Households in temporary shelters are usually IDPs.

There is not a strong correlation between household size and food insecurity level, though households' with the least amount of members seem to be slightly worse. Similarly households with elderly members and those with children under fives do not seem more prone to food insecurity **(Table 7).**

Table 7: Demographic characteristics and food security status

Characteristic		Severely Food Insecure	Moderate Food Insecure
Sex of Head of Household	Male	31%	38%
	Female	**36%**	36%
Presence of disabled and chronically ill	Disabled	**38%**	32%
	Chronically ill	**38%**	33%
	Both	8%	46%
	None	31%	39%
Type of accommodation owned	Own House	26%	34%
	Hosted by someone	**41%**	38%
	Temporary shelter	**36%**	41%
	Other	**61%**	28%
Size of household	at least 2 members	**38%**	34%
	3 to 5 members	35%	36%
	6 to 8 members	35%	35%
	more than 8 members	32%	37%
Members who joined the household	at least one member	**36%**	41%
	2 members	**34%**	34%
	more than 2 members	32%	34%
Under five children in household	No under five	35%	37%
	at least 2 under five	29%	40%
	more than 2 under fives	36%	34%

5.4 Food security and Main Income source

The most severely food insecure households are those that depend on highly unstable main income sources—primarily begging, gifts/ remittances and borrowing with prevalence of severe food insecurity estimated at 50%. Households that rely on the sale of charcoal, wood and grass and sale of food aid as income sources are also more likely to

Figure17: Proportion of severely food insecure and the main livelihood

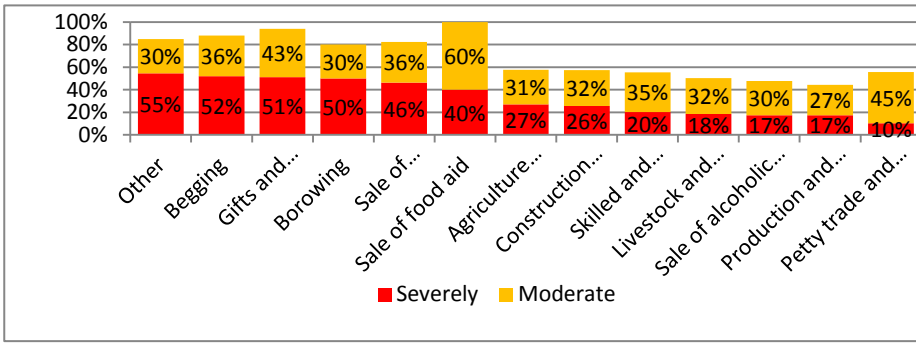
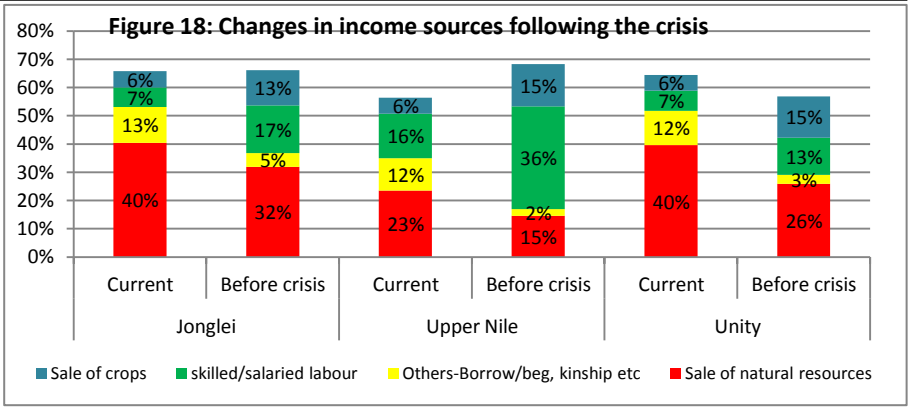


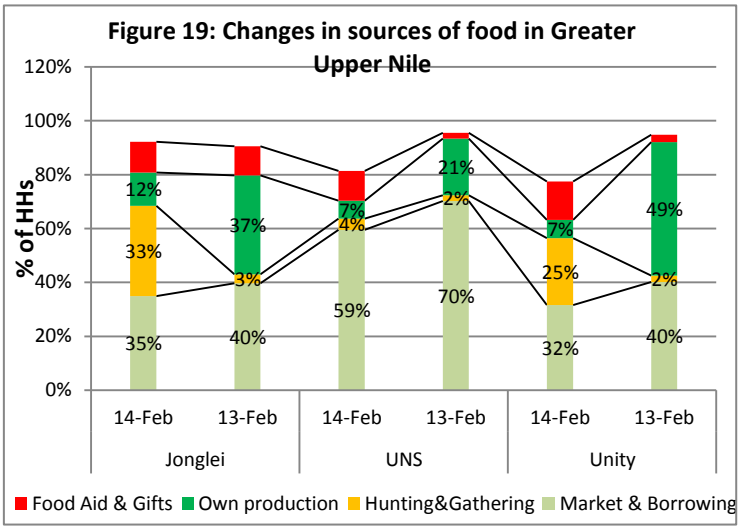
Figure 18: Changes in income sources following the crisis



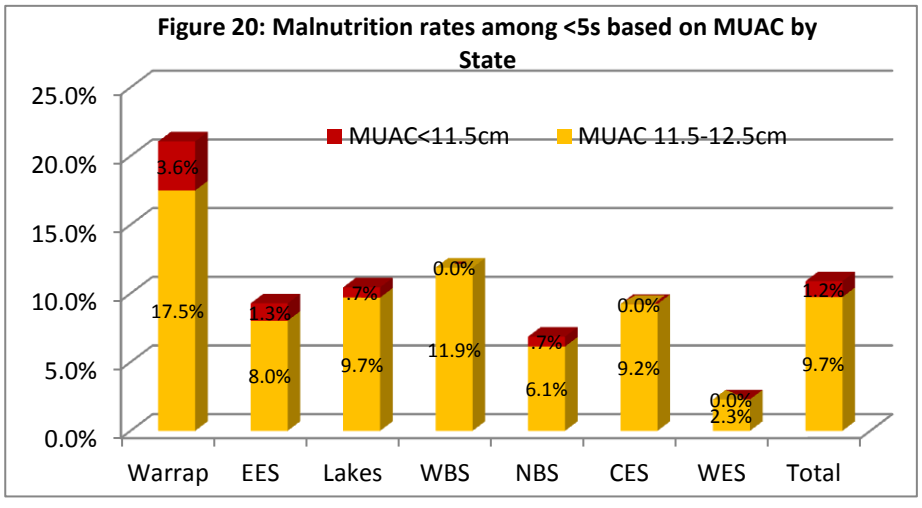
be severely food insecure with prevalence at 46%. The least food insecure households are those that depend on petty trade as well as those that are involved in crop production **(Figure 17**). Furthermore, there was increased reliance on sale of natural resources as well as begging/borrowing and kinship support compared to pre-crisis period (**Figure 18).** On the other hand reliance of skilled/salaried labour and sale of crops have substantially declined.

5.5 Changes in main Source of food in Greater Upper Nile Region

Reliance on hunting/gathering (usually a coping mechanism) and food assistance as sources of food increased substantially compared to same time last year while own production decreased substantially **(Figure 19).** Market as a source of income also declined due to access issues. Typically, market are usually the main source of food accounting for at least 65% of food consumed at household in Greater Upper Nile Region during this period in time. However, reliance on market is no longer tenable not only due to low functionality of markets but also due to low purchasing power by the residents.



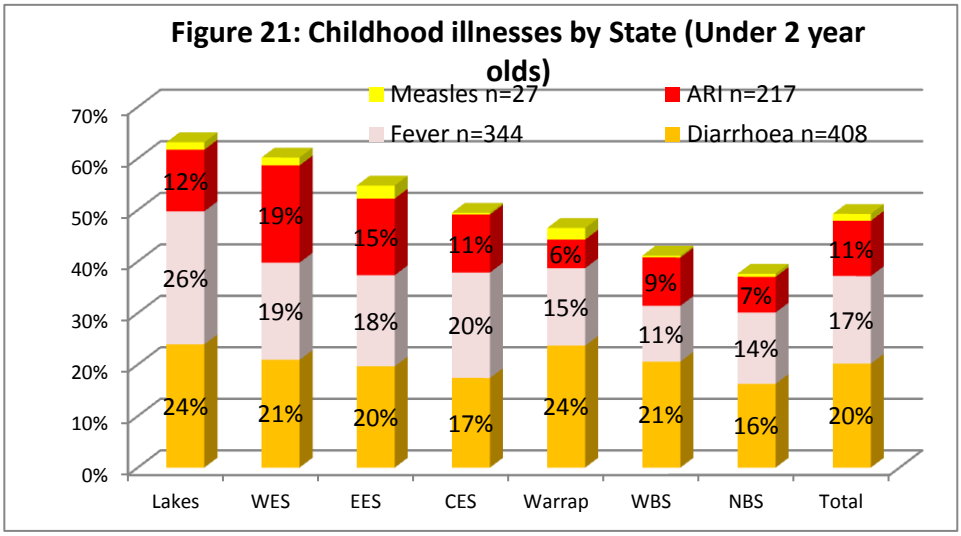
6.0 Nutrition



An estimated 10.9% of 2,350 children (6-59 months) measured in the February 2014 FSMS assessment are acutely malnourished according to Mid Upper Arm Circumference (MUAC) thresholds of <12.5cm for total acute malnutrition (**Figure 20**). This shows a slight deterioration from 8.6% (based on MUAC measurements) in October 2013, primarily attributed to challenges of the ongoing crisis. The prevalence of severe acute malnutrition (using MUAC cut-off of <11.5cm) increased to 1.2% from 0.6% reported in October 2013. Among the states, the highest prevalence of acute malnutrition (based on MUAC) were seen in Warrap, at above critical levels, while the rest of the states had prevalence ranging from 2.3% (in Western Equatoria) to

about 11.9% in (Western Bahr-el–Ghazal). Severe acute malnutrition is significantly higher in Warrap and Eastern Equatoria (above 1%) compared with the rest of the country, which has an average of 0.5%.

Out of 1,523 non-pregnant women aged 15 to 49 years measured some 5.6% were acutely malnourished based on MUAC <230mm. About 0.3% showed severe acute malnutrition (MUAC <210cm). These rates represent an improvement compared with February 2013 which showed a prevalence of 8.6% and 0.5% for acute malnutrition and severe acute malnutrition respectively. The highest prevalence of acute malnutrition among women is witnessed in Warrap (11.3%) while the lowest was recorded in Western Equatoria (0.4%).



Of the 1,339 children aged 6-24 months surveyed, only 28% were still breastfeeding[9]. Only 17% of children aged 6 -24 months had adequate dietary diversity (i.e. consumed four or more food groups), a slight deterioration from the 20% reported in February 2013. In Western Equatoria and Central Equatoria at least a quarter of the children aged 6-24 months showed adequate dietary diversity, while Warrap and Lakes had the lowest rates (10% or low). The food most often consumed by children 6-24 months are cereals/tubers (43%), followed by dairy products (29%) while the least consumed were eggs (4%) and fruits and vegetables (11%).

Overall, diarrhoea was the most prevalent illness among children aged 6-24 months in the two weeks preceding the assessment, followed by fever (17%) and acute respiratory infections (11%). Lakes State had a relatively high prevalence of childhood illnesses while Northern Bahr-el-Ghazal had the least (**Figure 21**).

7.0 Household stocks and market operations in Greater Upper Nile Region

Households have depleted their stocks with less than 24% reporting having at least some minimal food stock at household. Furthermore, at least 45% of the households in Greater Upper Nile Region reported having consumed their seed stocks. In Unity, at least 60% reported having consumed their seed stocks. It was also clear that the conflict has severely affected the household access to the most important asset in rural areas—land for cultivation. Some 25% of households reported no access to farming land—due to insecurity. This is going to negatively impact on agricultural participation in the coming season. Sorghum and Maize remained the preferred crops for the upcoming planting season by the respondents for most households although their ability will largely depend on whether conflict continues, provision of planting seeds and ability to access the plots (a factor of conflict). While livestock is a major source of livelihood for significant proportions of

[9] Breastfeeding prevalence is under-reported since the 0-6 months old are not included, an age group that would ideally exclusively breastfeed

populations in Greater Upper Nile, it is notable that at least half of IDPs (51%) indicated not being with their animals or that their livestock body condition had deteriorated due to limited care as a result of the conflict.

Typically, residents of Greater Upper Nile Region increasing rely on market sources of food during the post-harvest and early lean season, as a result of the huge deficits experienced by these states. In 2013 season, the deficit in these three states accounted for over 60% of the overall national deficit. However, despite severely diminished stocks at household level, most markets are currently not functional as a result of the ongoing conflict. In fact, 88% of population in Greater Upper Nile States report that prices of basic commodities have increased by 28 -67% since January 2014. Moreover, the respondents report that at least 33% of traders tend to source their commodities from outside South Sudan with Upper Nile reporting twice as much as other states (64%)—primarily through eastern part of Upper Nile, an occurrence that has been grounded due to the prevailing insecurity. Thus, more than half (58%) of respondents indicated uncertainty in replenishment of basic commodities in the markets. This will further deprive residents of an important source of food. It is further noted that the raging conflict has severely compromised the purchasing power of the residents occasioned by loss of their assets during the crisis.

8.0 Conclusion and Recommendations

Food security has deteriorated since the crisis begun in mid December 2013 beyond the seasonal variations. The main drivers of poor food insecurity in February 2014 are: the continuing crisis marked by conflict in the three Upper Nile States that has caused widespread insecurity, uncertainty, fear, loss of assets and livelihoods and hindered access, limited humanitarian access due to the conflict, loss of limited stocks and other livelihoods from previous seasons and non-functional markets in most parts of Jonglei, Unity and Upper Nile States. The most affected populations are IDPs as well as resident populations in the areas where conflict is still continuing. There are also fears of interference with the planting season in the three Upper Nile states if the conflict and displacement continues. There is therefore an urgent need for concerted effort to curtail further decline in food security situation—especially before the beginning of lean season in May 2014. To further reduce the food insecurity, especially in conflict affected states, the following measures are necessary:

a) An urgent halt to conflicts along the corridors leading to areas where the vulnerable populations are concentrated;

b) A process agreed upon by government and opposition forces to establish access corridors that can be used to channel humanitarian support without much hindrance and

c) Exploration to convert part of the in-kind rations to cash/voucher so that beneficiaries can buy the foods in areas where markets are functional in order to increase food variety and improve household nutrition;

d) Urgent provision of planting materials in readiness for the planting season;

e) Provision of fishing gears to populations residing in the riverine areas;

f) Provision of non-food items including shelter for the IDPs; among other urgent interventions.

ANNEX 1: SAMPLING FOR THE FSMS BY THE NATIONAL BUREAU OF STATISTICS, FEBRUARY 2014

Sentinel sites were selected using two-stage stratified randomly sampling based on probability proportional to size (PPS) from the NBS sampling frame. The basis for stratification was the states. The NBS technical personnel undertook the sampling process. At the second stage of sampling for households, a minimum of 25 households (statistical minimum) were selected from each of the selected locations/sites/EAs through systematic random sampling technique. A total of 93 sentinel sites/enumeration areas were selected from the 7 states with a minimum of 25 households interviewed in each site. Thus, 2,300 households were interviewed in the 7 states.

The following formula is used for determining this sample size:

$$n = \frac{z^2 \times P \times (1-P) * deff}{d^2 \times (1-r)}$$

Where:

n = required sample size (number of sample households)

z = value in the normal distribution that provides 95% level of confidence

(z = 1.96)

P = Proportion of population 15+ who are aware of food security= 0.5. This on

Assumption that the population is normal distributed.

r = rate of non-response (r = 0.10, or 10%)

deff = design effect (deff =2)

d = desired margin of error (d =0.07)

Sampling methodology

Two stage stratified sample design will be adopted for the household to be interviewed. In the first stage of selection, Enumeration Areas(EAs) will be selected by using probability proportional to the size of households and in the second stage unit, the households will be selected by using systematic sampling scheme. The study will be based on 2008 Population and Housing Census Frame. In total there will be 4375 households selected in all the ten States (25 households from each of 175 EAs).

Distribution of sample rural EAs and households by States for food security monitoring, 2014

S/N	STATE	SAMPLE RURAL EAs	SAMPLE RURAL HOUSEHOLDS
1	Upper Nile	18	450
2	Jonglei	29	725
3	Unity	13	325
4	Warrap	24	600
5	Northern Bahr El Ghazal	18	450
6	Western Bahr El Ghazal	10	250
7	Lakes	12	300
8	Western Equatoria	11	275
9	Central Equatoria	18	450
10	Eastern Equatoria	22	550
	Total	**170**	**4375**