

FOOD SECURITY AND NUTRITION MONITORING SYSTEM SOUTH SUDAN – JANUARY 2016



World Food Programme



vam
food security analysis

Highlights

The food security situation in most parts of South Sudan¹ deteriorated in November/December 2015 compared to the same season the previous year (December 2014). On average, 49% of households in South Sudan are food insecure: 37% are moderately food insecure and 12% severely food insecure. This is an increase from the proportion of food insecure households in 2014: 32% were moderately food insecure and 6% severely food insecure. Similar to previous rounds of the FSNMS, the prevalence of food insecurity is higher among female headed households.

The majority (55%) of the surveyed households reported inadequate food consumption levels, with this season reporting the highest levels of severe food consumption in the last two years (at 27%). Among the poor food consumption group, diets are predominantly based on cereals and tubers (consumed on average 5 days a week) followed by condiments and vegetables (eaten 2 days a week). The main drivers of inadequate food consumption are low physical and economic access to food due to low internal availability and poor purchasing power among populations as well as declining local production and disrupted market operations due to conflict, economic crisis and displacements.

Most households in South Sudan consume food sourced through purchases from markets (43%). However high prices for food were seldom mentioned among the shocks (only 8%), primarily because prices have been consistently high in 2015, bringing a sense of “normalcy”. Nonetheless it is an important factor, disproportionately affecting states where people are more dependent on markets for food supply such as Western Bahr el Ghazal (63%), Northern Bahr el Ghazal (54%) and Central Equatoria (50%).

Furthermore, the prevalence of malnutrition is very high particularly in the Greater Upper Nile States, Warrap, Northern Bahr el Ghazal where the prevalence of Global Acute Malnutrition (GAM) is above Emergency thresholds (GAM >15%). Malnutrition in South Sudan is related to inadequate food consumption, morbidity and sub-optimal complementary feeding practices. The nutrition situation in South Sudan calls for continuing interventions necessarily in the Greater Upper Nile States, Warrap and Northern Bahr el Ghazal states to address the high level of child under nutrition. Interventions should incorporate/strengthen components to address factors underlying high malnutrition, notably poor feeding of infants and young children and morbidity.

A description of the sample:

Data collection for FSNMS Round 17 was carried out from the end of November to early December 2015, which is the harvest season. Data was collected from 28 clusters (sites) randomly selected from nine states (Unity excluded due to security challenges that limited accessibility) based on probability proportional size (PPS). A further 15 randomly selected households were surveyed in each cluster.

While the findings continue to highlight the high food insecurity and under nutrition levels in the Greater Upper Nile States, competing levels of food insecurity and under nutrition are also observed in the Greater Bahr el Ghazal region. This underpins the impact prevailing economic crisis and recurrent shocks affecting households' food security and nutrition in the Greater Bahr el Ghazal states that were already grappling with chronic food security issues. For Greater Upper Nile states, the situation is to some extent moderated by presence of significant food assistance without which the population would have much worse food security and nutrition indicators.

¹ The assessment was conducted before the official declaration of the new 28 states. Considerations will be made in future assessments for lower level representation in line with the new states, contingent on to resource constraints.

Current food security situation

On average, about one in two households (49%) in assessed areas are food insecure, of which 37% are moderately and 12% are severely food insecure. This marks an increase in the proportions of the households that are food insecure compared to food insecurity at 32% moderately and 6% severely food insecure reported during the same period in 2014. Three states in the country display a pattern of very high food insecurity levels: Lakes (72% food insecure), Northern Bahr el Ghazal (60%) and Western Bahr el Ghazal (55%), followed by Jonglei (50%), Upper Nile (51%) and Western Equatoria (52%). The Greater Bahr el Ghazal states reveal food insecurity levels higher than even the conflict states, implying that although conflict has been a main driver of food insecurity in the country, there are some other significant factors, related to chronic erosion of populations' ability to access food currently compounded by heightening economic crisis. These high levels of food insecurity are reported at a time that the country should typically be experiencing increased food availability, as it coincides with the main harvest. This further underscores the relatively poor production during the year. For Upper Nile and Jonglei states (areas affected by the conflict), the survey notes that food aid plays an important role in the three conflict states provided in the form of general food distributions. This somewhat moderated the levels of food insecurity in the assessment areas within these two states.

In general, the food insecurity situation is attributed to both low diet quantity and poor diet quality (see the HDDS graph in the nutrition section) where the food insecure states – Lakes, Northern Bahr el Ghazal, Upper Nile and Jonglei – have extremely low dietary diversity. Multiple shocks such as localized insecurity/violence, dry spells at the beginning of the season that affected part of Equatorias, the prevailing economic crisis characterized by inflationary pressures, high food prices, lack of employment opportunities, low purchasing, collectively explain the high levels of food insecurity within the country.

Figure 1 shows the prevalence of food insecure households at county level across the country, comparing the average food insecurity levels of October 2011-October 2014 to the current situation. The figure shows persistent high levels of food insecurity in southern parts of Eastern Equatoria, southern and central parts of Jonglei (Pochalla, Urur and Duk), Aweil East in Northern Bahr el Ghazal, Panyikang and Maiwut in Upper Nile and Jur River and Raga counties in Western Bahr el Ghazal, with a prevalence above 50%. These areas have been affected by recurrent shocks, primarily related to high food prices and vulnerability to natural hazards (floods and drought), in addition to animal diseases.

Figure 1: Prevalence of food insecurity in South Sudan²

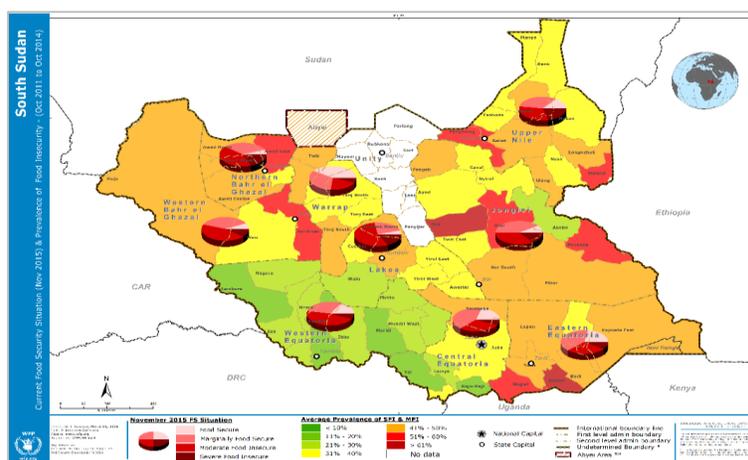
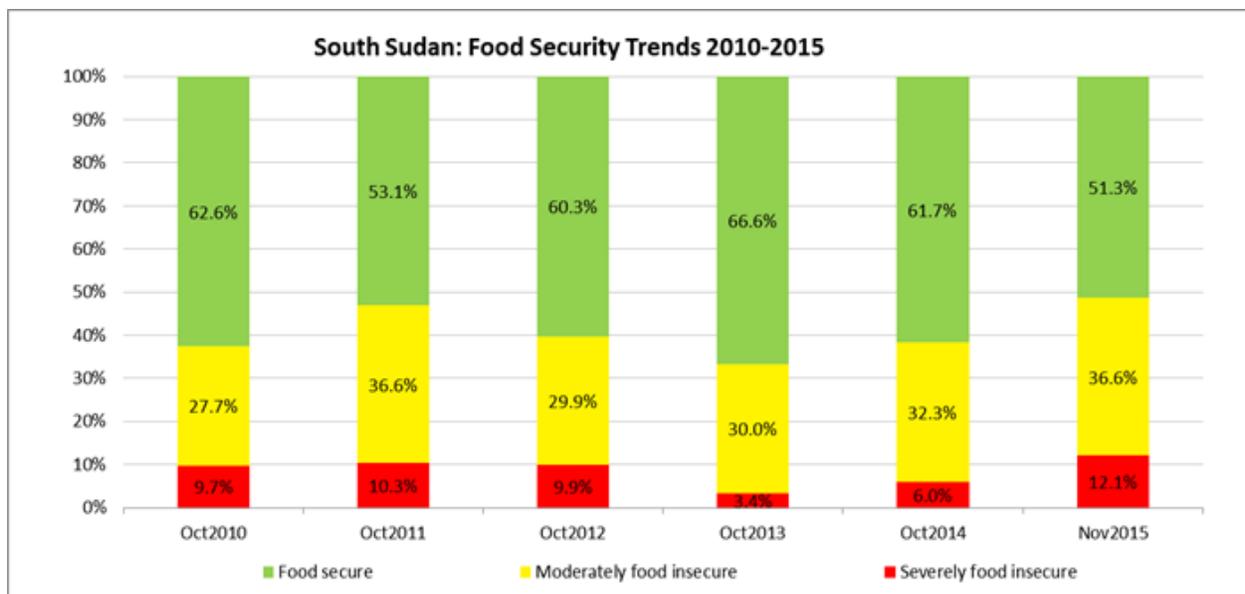


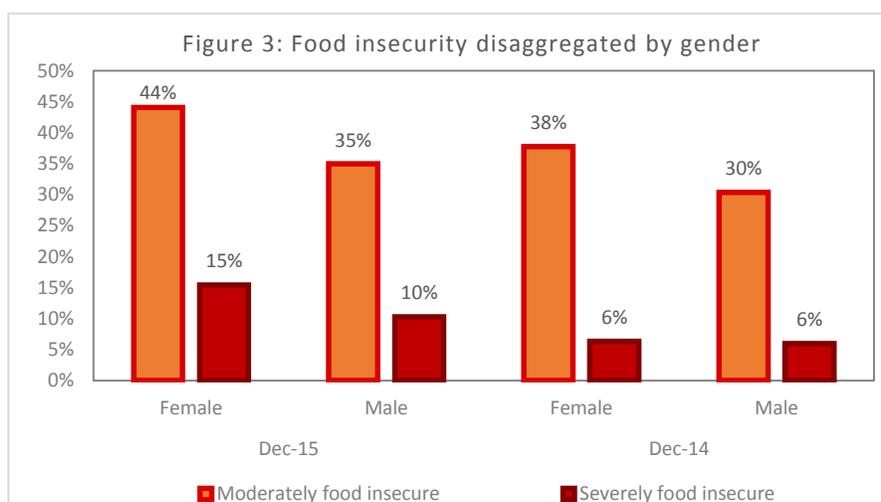
Figure 2: South Sudan food security trends 2010-2015

² In the map on Figure 1, Unity State is blank as data collection there was not carried out due to security challenges that limited accessibility



At state level, the highest levels of severe food insecurity are seen in Upper Nile, Jonglei, Lakes and Northern Bahr el Ghazal. Parts of Lakes have been affected by conflict spill-over. Northern Bahr el Ghazal is one of the states further away from import trade routes, exposing households to the impact of high food prices. These record values occurred in November, just after harvest time when household stocks have just been replenished.

Figure 2, shows a trend analysis of food security from 2010 to 2015 for the harvest season. The highest levels of food insecurity are reported in November 2015 with 12.1% of households severely food insecure. The number of severely food insecure households in South Sudan have doubled since October 2013.



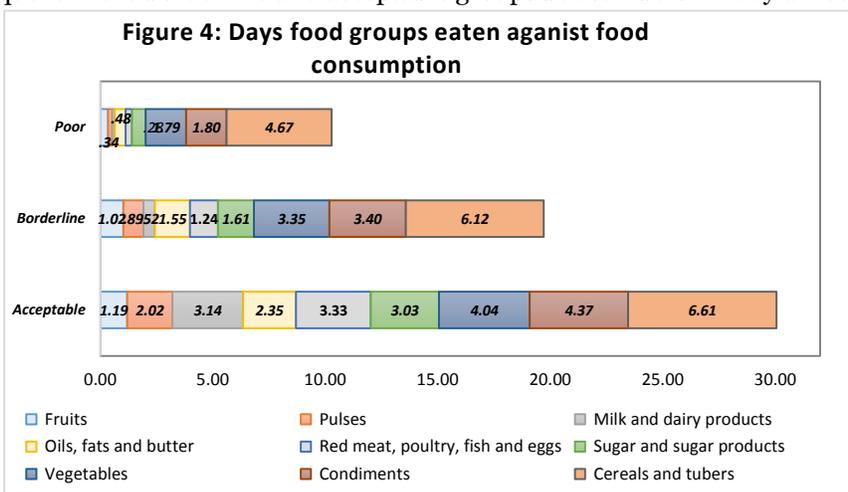
Food insecurity also has a gender dimension. Currently, 15% of female headed households are severely food insecure – more than in male headed households (10%) **Figure 3**.

Household food consumption and food sources

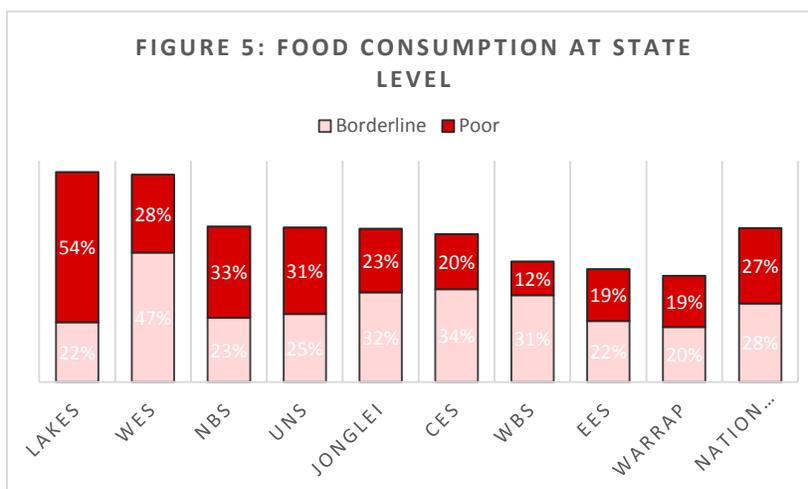
The December 2015 assessment reveals that of the surveyed households, 55% have an inadequate food consumption score with 28% reporting a borderline food consumption score and a further 27% having poor food consumption scores—a severely deprived diet primarily consisting of staple cereals or tubers and grossly lacking in other nutrients. The poor food consumption group consume cereals/tubers on average 5 days in a week followed by condiments and vegetables eaten 2 days a week.

Among the acceptable food consumption group, cereals and tubers are consumed nearly on a daily basis in addition to meat, vegetables, milk and condiments that are consumed more than 3 days a week. The consumption of milk, pulses, fruits and meat which was almost non-existent among the poor food consumption groups, is more frequent in the borderline and acceptable groups but still below 1 day a week on average among the borderline groups (**Figure 4**).

FSNMS data revealed consistent gender differences in food consumption patterns, with female headed households frequently registering more inadequate consumption than their male counterparts. Households headed by females who are aged below 17 years or above 60 years have worse food consumption scores than the economically active group (18-60 years).



Lakes, Northern Bahr el Ghazal and Upper Nile have the highest proportions of surveyed households with inadequate dietary intake, with Lakes being the most affected. Some 54% of surveyed households in Lakes report poor food consumption and a further 22% indicate borderline food consumption. Surprisingly, Western Equatoria, which has previously reported good food consumption levels, is currently indicating a high proportion of households with inadequate food consumption with borderline and poor food consumption scores at 47% and 28%, respectively (**Figure 5**). This observation is attributed to the current violence and insecurity in most parts of this state which has not only affected their production capacity but also displaced households.



Surveyed households report frequency of meals at 2, although quantity and quality remains the biggest issues. The mean household dietary diversity score (HDDS) for the sampled households is 2.3 (based on seven food groups). This HDDS is low and implies that the nutritional adequacy of the diet of assessed households is lacking other food groups/nutrients. The poorest intake of diversified food groups is in Lakes and Northern Bahr el Ghazal with a mean HDDS of 1.7 and 2.0, respectively. Intake of vitamin A rich foods is highest Western Equatoria (45%) and Central Equatoria (41%) while the least intake of the same is reported in Northern and Western Bahr el Ghazal (12% households reported in each of these two states). Vitamin A foods are essential for growth and development especially in young children and also for the immune system.

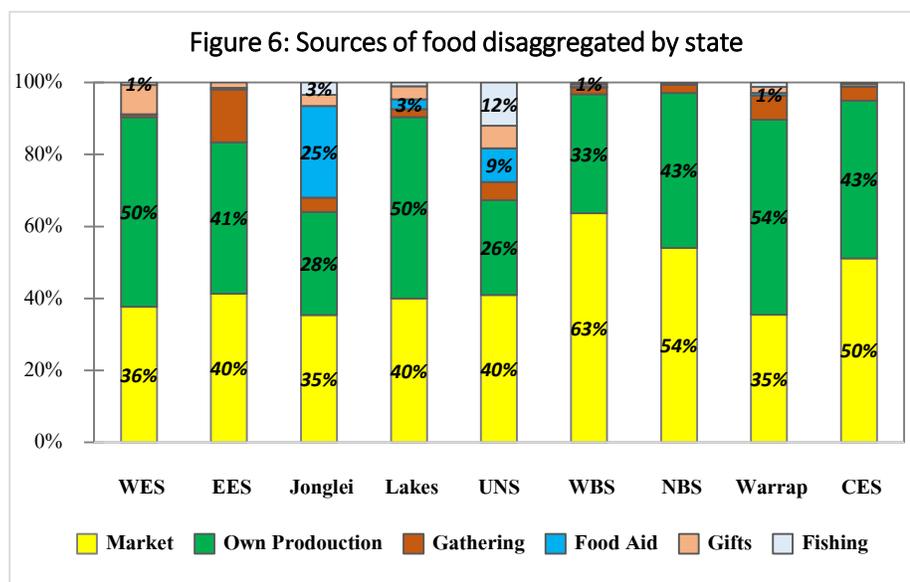
The diet of many households in parts of the country lacks diversity. The main staple items – sorghum and green leafy vegetables/wild vegetables – make up the dominant types of food groups, in addition to the condiments that most people consume daily (**Figure 4**). Severely food insecure households have poor food

consumption and their daily diet tends to consist of mainly cereals and tubers, vegetables twice a week and condiments—that have no much nutrient value, with very little other food groups consumed. Meat, fish, and eggs, essential sources of protein and vitamins, are rarely consumed by severely food-insecure households. A diet of this type is clearly lacking in sufficient nutrition, and people in those households would be expected to suffer from micronutrient deficiencies.

Food secure households have a more balanced diet—consuming foods from all the seven food groups including from vitamin A sources. The highest dietary diversity is prevalent in Western Equatoria with 79% of households with a diverse diet (i.e. four food groups consumed). Moderately food insecure households consume vegetables, meat, dairy, pulses and fruits more days than severely food insecure households, but at much lower levels than by the groups with acceptable food consumption.

The source of food as an indicator is not reflective of quantities, but is useful for describing the relative importance of specific sources (such as own production, market purchases, gifts, etc.) in the population. Some 43% of foods consumed are sourced through purchases from markets (Figure 6).

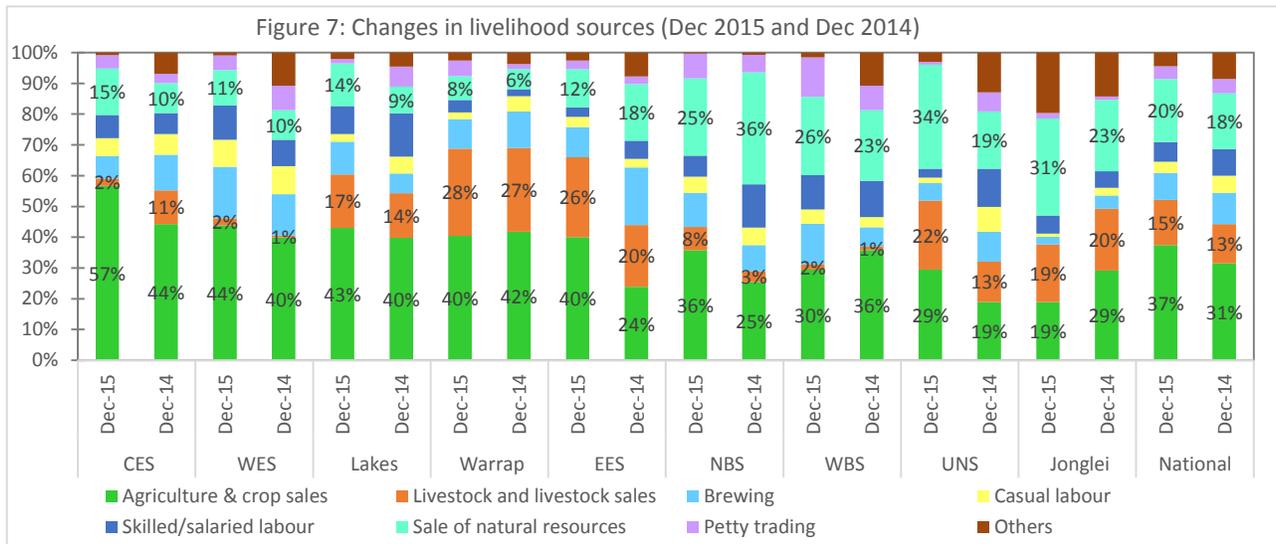
High food prices in the markets therefore influence food security situation in states that are highly dependent on markets e.g. Western Bahr el Ghazal (63%), Northern Bahr el Ghazal (54%) and Central Equatoria (50%). The second source of food in most households is own production, prominent in Warrap (54%), Lakes and Western Equatoria (both 50%), with states reporting least dependence on own production as a source of food in Upper Nile (26%) and Jonglei (28%).



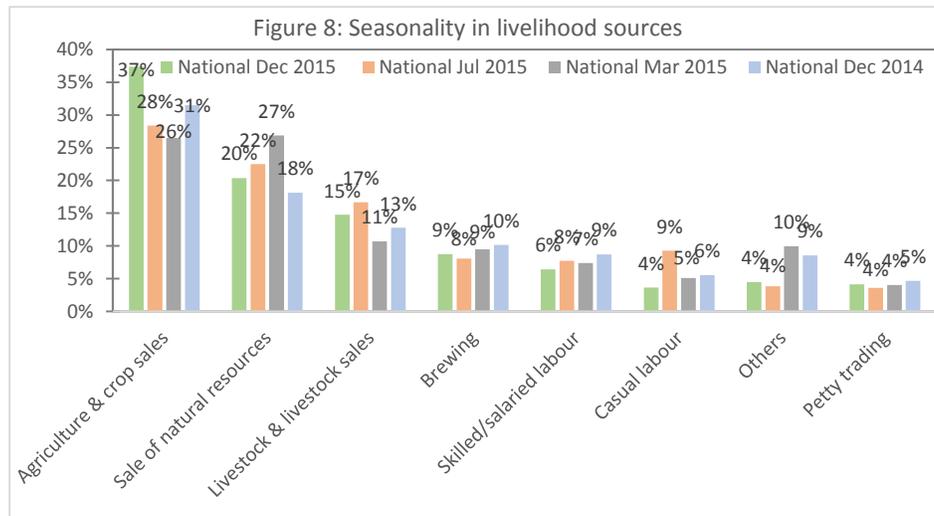
Food aid is high in Jonglei and Upper Nile with 25% and 9%, respectively, as compared to the rest of the country. The food aid contribution is limited to the three conflict states of Upper Nile, Jonglei and Unity. Within these, food aid importance is variable: it is the major provider of sorghum for 10-25% of households in Upper Nile, 40-50% in Unity and 50-60% for Jonglei. This has been accompanied by a reduction in importance of markets as a sorghum supplier. In Upper Nile, the proportion of households sourcing sorghum from markets around October, fell from 80-90% pre-conflict to 40-45% post-conflict. Fishing (12%) is a significant source of animal protein in Upper Nile.

Household income sources

The main livelihood activity mentioned by surveyed households on average contributed 70% of the overall livelihood of the household. The most common activity reported by the interviewed households was agriculture, indicated by 37% of the assessed households as their primary livelihood activity. Overall, 50% of households mentioned agriculture among their three main income activities. The proportion of households involved in agriculture was lowest in Jonglei (19%), Upper Nile (19%) and Western Bahr el Ghazal (30%). Persistent conflict in the three states of Greater Upper Nile and lately in parts of Equatorias have greatly undermined agricultural activities. Thus an alternative livelihood activity for households in these states was reliance on sale of natural resources (20%), an activity the peaks during the dry season (Figure 7).



Compared to previous years, reliance of agriculture, though low, somewhat improved in these three states since same period last year. The survey also reveals that reliance on skilled/salaried and casual labour is still on a downward spiral that begun in 2013, a consequence of the economic crisis and insecurity in some parts of the country that has curtailed opportunities for job creation (Figure 8).



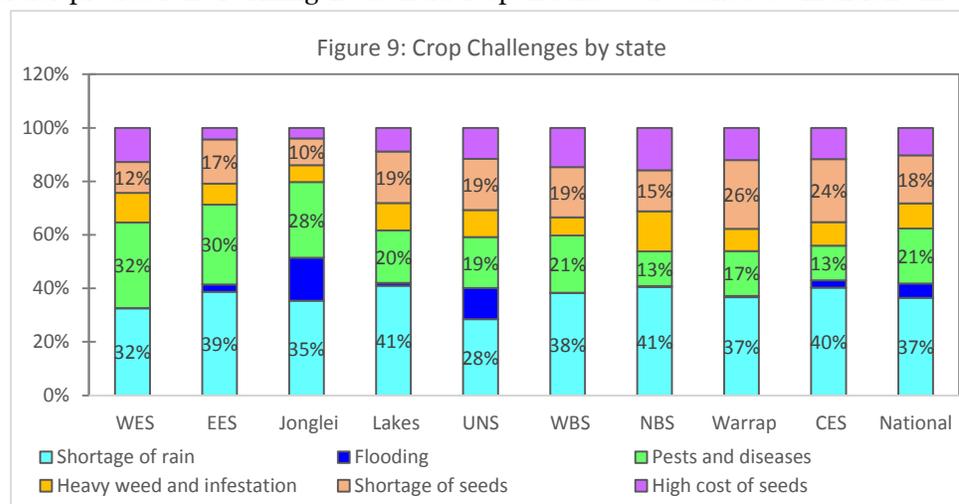
Agricultural practices at household level

The FSNMS also assessed the sources of seeds for the most frequently cultivated crops. Reserves from previous harvests (own seed stocks [47%]) was the main sources of seeds/planting material for all crop varieties followed by market purchases of seeds (30%), exchanges/gifts (7%), distribution by FAO (4%) and NGOs (6%) and other sources playing a marginal role (see **Table 1**).

	Own stocks	Purchase	Gifts	FAO	NGO	Others
WES	49%	40%	9%	0%	0%	2%
EES	47%	35%	6%	3%	3%	6%
Jonglei	26%	9%	5%	16%	23%	20%
Lakes	53%	26%	14%	2%	3%	3%
UNS	35%	23%	10%	8%	11%	13%
WBS	57%	30%	2%	1%	2%	8%
NBS	52%	43%	3%	1%	0%	1%
Warrap	58%	28%	8%	0%	3%	2%
CES	53%	41%	2%	1%	3%	1%
National	47%	30%	7%	4%	6%	6%

Agricultural constraints ailing the sector immensely contribute to the deficit experienced in domestic food availability. For South Sudan to realize significant production to bridge the huge deficits and reduce dependency on food imports, the country has to pragmatically address the constraints impeding the sector and preventing commercial production. Farming household respondents were asked to mention three agricultural

constraints that they encountered in the 2015 agricultural season. As shown in **Figure 9**, the main agricultural constraints are: shortage of rains affecting more than 37% of households, followed by pests and diseases (21%), shortage of seeds (18%) mainly in Warrap (26%) and

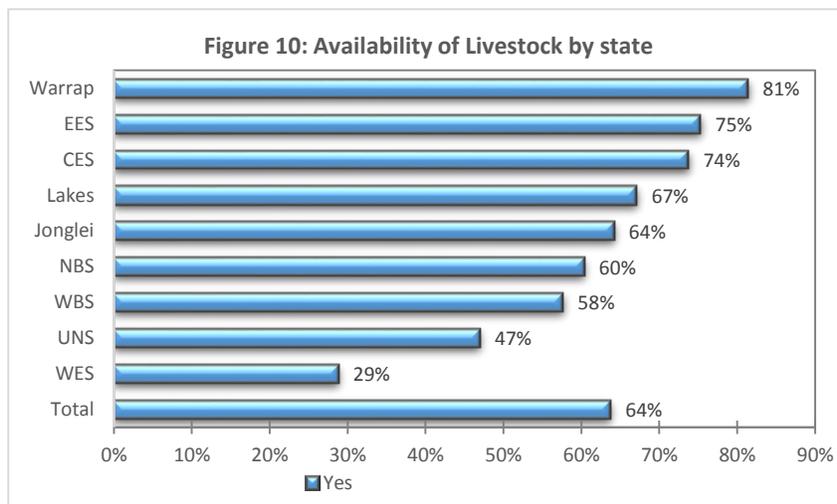


Central Equatoria (24%) followed by Upper Nile, Lakes and Western Bahr el Ghazal (19% each). The assessment confirms that the country largely relies on subsistence farming for a number of reasons. The limited use of agricultural inputs, including of improved seeds, remain a major constraint for the improvement of agricultural productivity in large parts of the country—and more pronounced in Warrap and Central Equatoria where 26% and 24% respectively reported the two constraints. In addition to their production, households involved in agriculture were asked to specify how many months their harvest from the previous season lasted. For households that cultivated during the past season, the harvests lasted for 1.8 months on average.

The survey found significant differences between households with food stocks available at the time of the interview and those without stocks, with households without food stocks reporting higher expenditure shares on food compared to households with stock. However, compared to other states households in the Greater Bahr el Ghazal states had the highest food expenditure share, this is due to the fact that these two

states have a cereal deficit, hence resilience to non-availability by heavy reliance on markets. The highest proportions of households without stock from previous harvest were in: Eastern Equatoria (43%), Northern Bahr el Ghazal (41%) but were also more likely to have spent the highest shares on food than any other state. On the other hand, states that reported relatively higher levels of households with some stocks (irrespective of quantity) from previous harvest (Western Equatoria and Warrap) showed the lowest expenditure shares on food.

The assessed locations reveal that livestock ownership is widespread in most parts of South Sudan. Some 64% of the sampled households own farm animals such as cattle, goats, sheep, poultry, etc. Regardless of the type of farm animal owned, the proportion of households owning livestock was highest in Warrap (81%) followed by Eastern Equatoria (75%), and Central Equatoria (74%), Lakes (67%), Jonglei (64%), Northern Bahr el Ghazal (60%) and Western Bahr el Ghazal (58%). The least number of households owning livestock are located in Western Equatoria (29%) and Upper Nile (47%) (**Figure 10**). The number of animals owned was also assessed. On average, assessed households have 19 cows, 18 sheep, 14 goats and 9 poultry per household. States that report high numbers of cattle reported high intake of milk and dairy products especially in Warrap, Upper Nile and Unity, which reported consumption of milk and dairy products at about twice a week.



Market functioning in the country

Harvests had started in many areas of South Sudan during the period of the assessments. However, the prevalence of food insecurity remained high especially in the conflict areas of Greater Upper Nile as well as in Lakes and parts of Western Equatoria, due in part to below average harvests because of localized insecurities/violence episodes. This disrupted land preparation, planting, weeding and harvesting in addition to the long dry spells at the beginning of the season and erratic rainfall distribution.

findings from the December 2015 FSNMS also indicate that prices for staple and other essential commodities continued to increase atypically. Market dependence was also high at a time when harvest was expected with some 43% of the assessed households indicating markets as their source of foods. The highest reliance on markets is reported in Western Bahr el Ghazal (63%) and Northern Bahr el Ghazal (55%). The prevailing price levels across all markets across the country are higher than last year's as well as the five-year average (2010-2014). The staple food prices were also higher than the same period last year (October to December 2014). Elevated prices of commodities will continue to rise due to a combination of factors: expectation of below average harvest countrywide, constrained trade flows, insecurity along trade routes, high transport costs and the devaluation of the local currency. In mid-December, the Government of South Sudan devalued the South Sudanese Pound to match the parallel market rate of 1 US Dollar for SSP 18.5. This resulted in revaluation of pump station prices for fuel from SSP 6/litre to SSP 22/litre. Food prices also increased substantially as traders reflected on the impact of devaluation. For instance, retail prices of white sorghum increased by 50% in Wau market, 34% in Konyokonyo, Juba and by 30% in Aweil market. The assessment

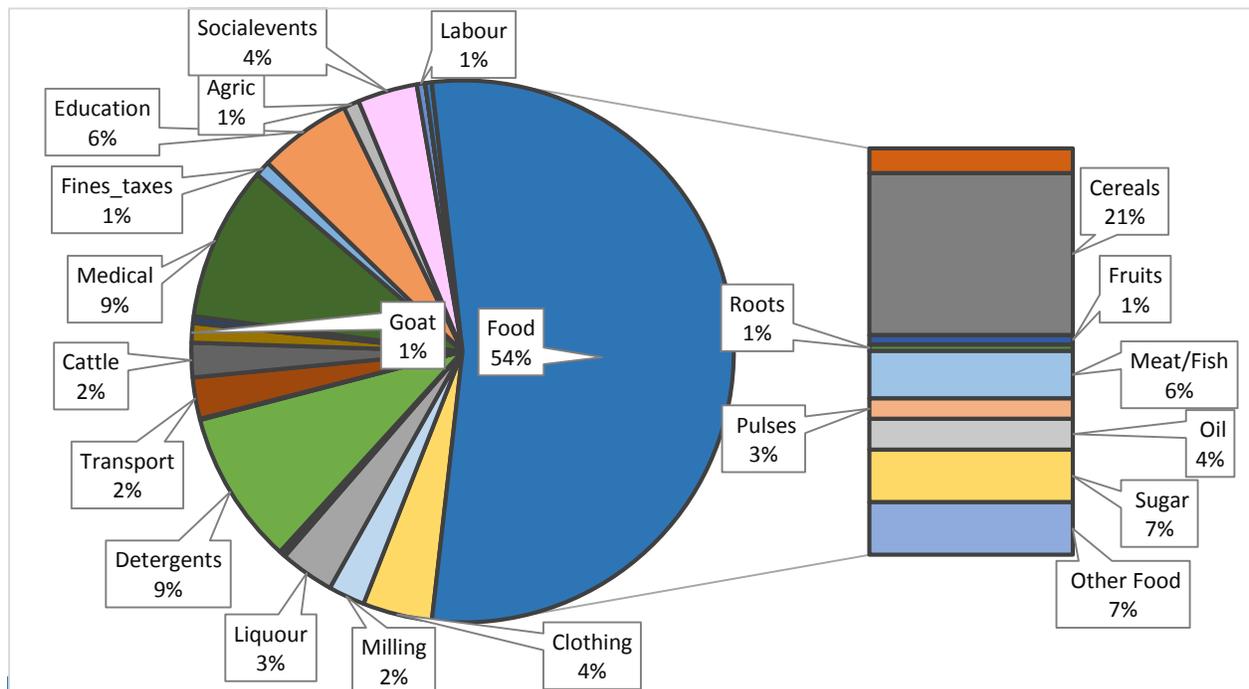
reveals that households whose share of expenditure on food is higher than 65% indicated higher vulnerability to price and market shocks. The limited supply of food commodities to most markets due to insecurity along the major trade routes compounded by devaluation of the local currency was regarded as key drivers to the escalating commodity prices.

Household expenditure patterns

Analysis of households expenditure shows food expenditure share accounts for over 50%, with some 20% (or 37% of food expenditures) of overall household expenditures dedicated to cereals. Other major food expenditure items were: sugar (7%), meat and fish (6%), oil (4%), pulses (3%) and roots and tubers (1%) among others. Of the non-food items, the largest share of the expenditure is on soap and health, each at 8%, followed by education (5%), clothing (4%), celebrations (3%) alcohol and tobacco (3%) (Figure 11). Share of expenditure on food is highest in Western Bahr el Ghazal, Eastern Equatoria, Northern Bahr el Ghazal and Jonglei, all reporting more than 30% of households spending food expenditure share greater than 75%. On average, the highest food expenditure share was recorded in Western Bahr el Ghazal with 68% food expenditure share, followed by Northern Bahr el Ghazal with 60%. The mean expenditure on food is slightly higher among male headed households, 51% as compared to their female counterparts 41%, likely to be a reflection of gender disparities in purchasing power.

Moderately and severely food insecure households show a higher mean of cereal expenditure (58%) as opposed to the food secure households (food secure and marginally food secure). In contrast, not surprisingly they have a lower average expenditure on fish, oil and sugar.

Figure 11: Household expenditure patterns

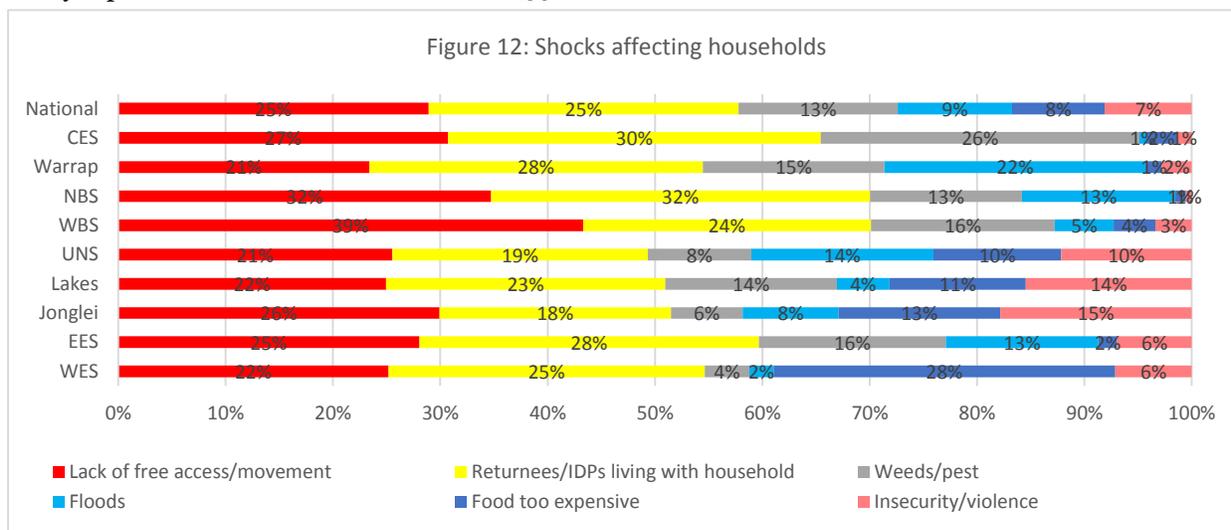


Shocks experienced by households

The most commonly reported shocks were: lack of free access/movement (25%), returnees/IDPs living within household (25%) and infestation of weeds and pests (13%). Other shocks reported by sampled

households were floods (9%), high food prices (8%), and insecurity and violence (7%). Lack of free access/movement was mostly experienced in Western Bahr el Ghazal, Northern Bahr el Ghazal with 39% and 32%, respectively. Staying with returnees/IDPs is prevalent in Northern Bahr el Ghazal (32%) and Central Equatoria (30%). Western Equatoria and Jonglei have the highest number of households being affected by high food prices at 28% and 13%, respectively (**Figure 12**).

Furthermore, these shocks have been divided into idiosyncratic (human sickness, living with returnees/IDPs in household) -those affecting individual households and covariant (insecurity, food too expensive, lack of free access, livestock diseases, floods, late food aid distribution, delay in rains and weeds/pest) -those that affect several/all households in a community, area, or region. Covariant shocks are frequently cited in Lakes state, with 74% of the households being affected. Yet, idiosyncratic shocks are mostly reported in Northern Bahr el Ghazal (35%).



Coping strategies in response to food insecurity

Reduced coping strategies (rCSI)

Reduced coping strategy index (rCSI), takes into account both the frequency and gravity of the diet-related coping mechanisms/behaviours used while facing shortage of food in the households over the seven days prior to the interview. The most commonly reported diet-related coping strategies were: reliance on less preferred or less expensive food (used on average 2.5 days in the week prior to the survey) followed by limiting portion size (at 2.4 times/days in a week), and reducing the number of meals (used 2.2 days).

There were variations in the use of diet-related coping strategies across the states as illustrated in Table 2. Warrap (95%) and Lakes (90%) reported the highest proportions of households, mostly relying on less preferred and less expensive food with an average of 3.9 and 3.0 days a week, respectively. Limiting of portion size is mostly practised in Warrap (95% of households), Lakes (94%), Jonglei (89%) and Upper Nile (86%) with an average of 3.0, 2.9, 2.7 and 2.1 days in a week, respectively. Reduction of number of meals was pronounced in Eastern Equatoria (3.3 days a week) followed by Lakes with an average of (2.6 days/week).

Table 2: Consumption related coping strategies by state

	<i>Rely on less preferred and less expensive food</i>	<i>Borrow food, or rely on help from friends or relatives</i>	<i>Limit portion size at meals</i>	<i>Restrict consumption by adults in order for small children to eat</i>	<i>Reduce number of meals eaten in a day</i>
<i>WES</i>	1.3	1.1	1.6	1.3	1.9
<i>EES</i>	2.6	0.8	3.0	1.4	3.3
<i>Jonglei</i>	2.9	1.2	2.7	1.9	2.1
<i>Lakes</i>	3.0	0.8	2.9	1.7	2.6
<i>UNS</i>	2.0	0.9	2.1	1.8	2.0
<i>WBS</i>	1.9	0.7	1.5	1.0	1.4
<i>NBS</i>	1.9	0.9	1.6	1.0	1.6
<i>Warrap</i>	3.9	1.2	3.0	2.1	2.2
<i>CES</i>	2.5	1.1	2.6	1.6	2.4
<i>National</i>	2.5	1.0	2.4	1.6	2.2

Livelihood coping strategies

The livelihood coping strategies have an impact on medium to long term sustainability of livelihoods. Nevertheless, households adopt them to limit and enhance adequate household's access to food. Overall, some 8% of households use stress coping strategies (mostly spending of savings [26%]) and borrowing of money (22%). Northern Bahr el Ghazal was more likely to have increased unusual high sale of livestock followed by the Greater Upper Nile states, the same with borrowing which was most common in Western Bahr el Ghazal.

Furthermore, about 21% used crisis strategies (like selling productive assets, reduction of health and education expenses). Consumption of seed stocks reserved for next cropping season was high in Upper Nile (47%), Lakes (42%), Western Bahr el Ghazal (40%), Jonglei (36%) and Northern Bahr el Ghazal (32%). This is likely to have had a negative impact on the quality and availability of seeds for the next cropping season (represented in **Table 1**), since most households rely on own stock as the main source of seeds. Both Northern and Western Bahr el Ghazal were likely to have sold productive assets or reduced expenses on education and health than any other state.

Significant high levels (29%) of assessed households used emergency livelihood strategies (mostly begging) (**Table 3**) though with geographical disparities. In Western Bahr el Ghazal, migration of entire households was highly pronounced—probably a reflection of food insecurity induced by localized violence, while Northern Bahr el Ghazal showed disproportionately higher sale of the last animals, an indictment of severity of the food security situation in a pastoral setup.

Table 3: Livelihood coping strategies by state

	<i>STRESS COPING (8%)</i>				<i>CRISIS COPING (21%)</i>			<i>EMERGENCY COPING (29%)</i>		
	<i>Sell more animals than usual</i>	<i>Sent household members to eat elsewhere</i>	<i>Spent saving</i>	<i>Borrow Money</i>	<i>Consume seed stocks held for the next season</i>	<i>Sold productive assets</i>	<i>Reduced expenses on health and education</i>	<i>Entire household migrated</i>	<i>Begged</i>	<i>Sold last female animals</i>
<i>WES</i>	2%	9%	18%	19%	28%	14%	16%	11%	27%	1%
<i>EES</i>	13%	4%	8%	16%	21%	2%	8%	0%	20%	2%
<i>Jonglei</i>	24%	15%	21%	23%	36%	11%	22%	18%	21%	15%
<i>Lakes</i>	17%	14%	36%	23%	42%	5%	29%	13%	25%	11%
<i>UNS</i>	24%	10%	37%	16%	47%	1%	8%	9%	8%	13%
<i>WBS</i>	23%	42%	37%	52%	40%	38%	42%	41%	46%	18%
<i>NBS</i>	29%	19%	53%	42%	32%	30%	55%	10%	22%	28%
<i>Warrap</i>	3%	3%	9%	4%	3%	1%	17%	2%	9%	1%
<i>CES</i>	8%	5%	22%	21%	25%	4%	22%	2%	23%	4%

Nutrition status of children 6 to 59 months and women 15 to 49 years

Based on a total of 4,313 children included in the anthropometric analysis, the Global Acute Malnutrition (GAM) was 13.0% (11.7% – 14.5%) (WHZ<-2 and/or oedema) whilst severe acute malnutrition stood at (3.0%) (2.3% - 3.8%) WHZ<-3 and/or oedema (excluding Unity). Overall, the situation remains worrying with GAM persistently above the emergency threshold in the Greater Upper Nile, Northern Bahr el Ghazal and Warrap states. The high level of malnutrition in these states is related to inadequate food consumption, morbidity and sub-optimal feeding practices. Assessment findings indicate that poor complementary feeding practices and morbidity predisposed children to malnutrition. Children that suffered at least one common childhood disease and those that did not receive the minimum acceptable diet had a significantly higher likelihood of being malnourished compared to their counterparts that did not suffer illness or had received the minimum acceptable diet. This is against a backdrop of high morbidity levels (56% of children under five suffered at least one illness two weeks prior the assessment) and a negligible proportion of children 6 to 23 months (6%) receiving at least the recommended minimum acceptable diet.

Table 4: Prevalence of acute malnutrition by state

State	Nutrition Outcome (% 95%CI)				WHO Classification of GAM WHZ
	GAM WHZ	SAM WHZ	GAM MUAC	SAM MUAC	
CES	4.2 (2.6 - 6.7)	0.6 (0.2 - 1.8)	5.0 (3.3 - 7.4)	1.3 (0.5 - 3.2)	
EES	12.8 (9.2 - 17.4)	3.0 (1.5 - 5.9)	10.1 (6.6 - 15.1)	2.9 (1.5 - 5.7)	
Jonglei	16.5 (12.4 - 21.7)	6.4 (4.2 - 9.8)	8.4 (5.8 - 12.0)	6.1 (4.2 - 8.7)	
Lakes	10.6 (7.7 - 14.5)	1.6 (0.7 - 3.6)	2.4 (1.3 - 4.2)	1.2 (0.4 - 3.3)	
NBS	20.0 (16.0 - 24.6)	4.9 (3.2 - 7.5)	9.9 (7.9 - 12.5)	2.2 (1.2 - 4.2)	
Upper Nile	15.1 (10.9 - 20.5)	3.3 (1.7 - 6.5)	10.0 (5.9 - 16.1)	5.0 (2.1 - 11.2)	
Warrap	19.5 (14.8 - 25.2)	3.8 (2.2 - 6.6)	3.4 (1.6 - 6.9)	0.7 (0.2 - 3.0)	
WBS	8.5 (5.3 - 13.5)	1.1 (0.4 - 3.0)	4.4 (2.3 - 7.9)	1.4 (0.4 - 4.4)	
ES	1.5				
Overall (Weighted)	13.0 (11.7 - 14.5)	3.0 (2.3 - 3.8)			

Similar to previous findings, Northern Bahr el Ghazal and Warrap have the highest GAM levels at 20% and 19.5%, respectively. The levels of undernutrition in the Greater Bahr el Ghazal states remain perplexing, requiring a detailed understanding.

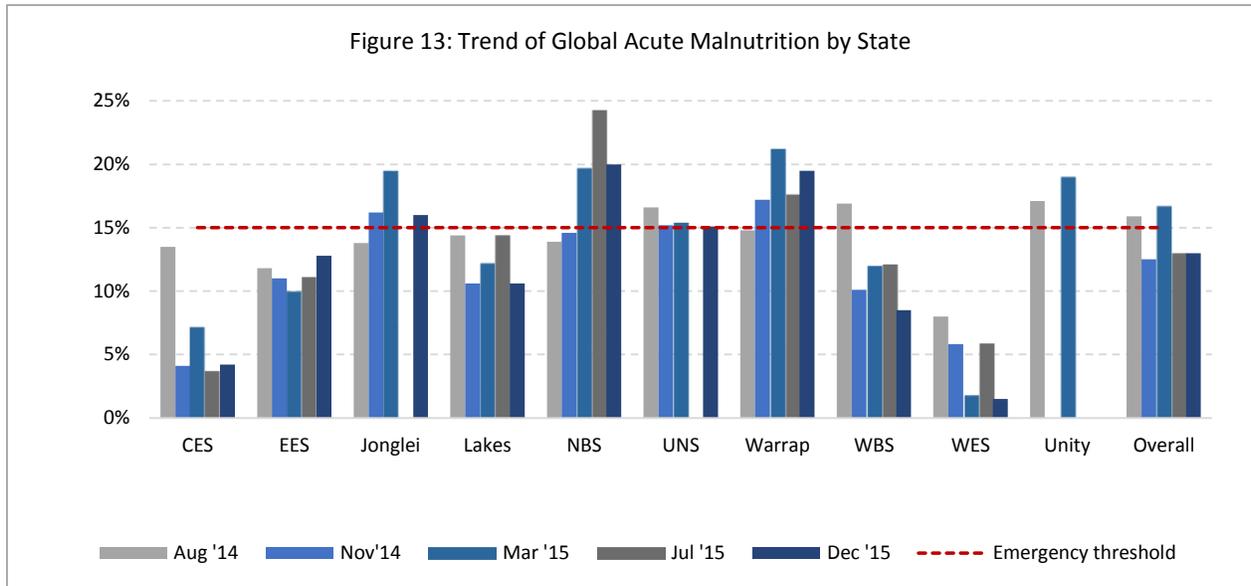
Towards the end of year, it is anticipated that households are able to access more food from harvests and hence expected to have better food security and that may contribute to better nutrition status. However, results neither showed improvement in nutrition nor the food security situation.

The December Integrated Food Security Phase Classification (IPC) indicates overall worsening of the food security situation in Northern Bahr El Ghazal and Warrap states as a result of reduced harvests, owing to the prolonged dry spell that affected production. In addition, inter-clan fighting also affected agricultural activities, (a main source of income in the State) during the production season.

The ongoing conflict is a key driver of the high levels of acute malnutrition in the Greater Upper Nile states; the conflict has hindered humanitarian access, affected crop and livestock production, disrupted market functioning and trade flows, and led to major population displacements. Populations in the Greater Upper Nile states have continued to face fighting that has displaced large populations, compromised livelihoods

and resulted in loss of livestock. The situation is further exacerbated by the lack of maternal and child health and care as well as suboptimal child feeding practices.

The nutrition findings in the Greater Upper Nile and Greater Bahr el Ghazal states corroborate the food



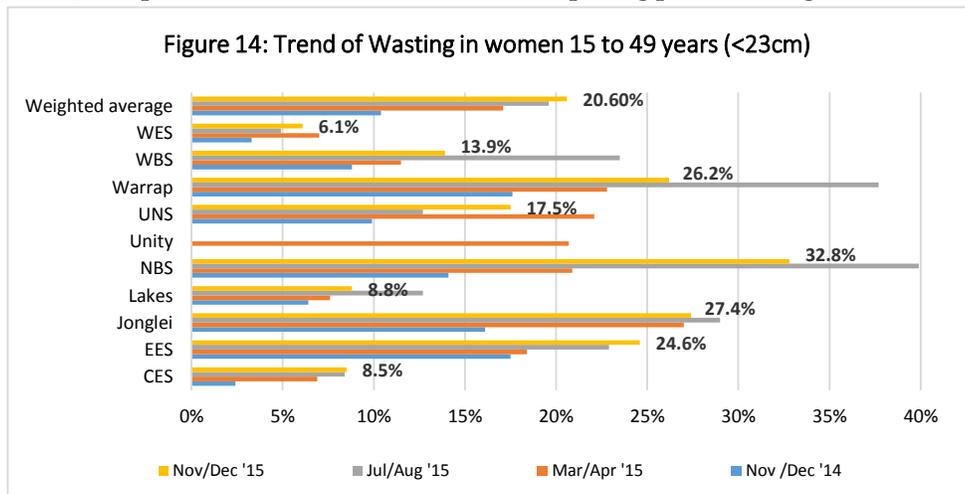
security findings. Some of the worst food security indicators are observed in the two regions. Northern Bahr el Ghazal, Jonglei and Upper Nile have repeatedly featured as having the worst food consumption, dietary diversity and diet related coping strategies, all of which compromise their food security situation.

Overall, the nutrition situation in most parts of South Sudan calls for continuing interventions targeting the Greater Upper Nile states, as well as Warrap and Northern Bahr el Ghazal, to address the high level of child under nutrition.

Women Nutrition

Wasting based on MUAC (<230mm) was prevalent in 20.6% of the women, depicting persistent high levels

of under nutrition among women of reproductive age. Consistent with previous FSNMS findings, states with the highest prevalence of wasted women coincide with those with the highest levels of under nutrition among children 6 to 59 months, including: Northern Bahr el Ghazal (32.8%), Jonglei (27.4%), Warrap (26.2%) and Eastern Equatoria state (24.6%). Among the women assessed, 10.8% were pregnant, 48.5% were lactating. Wasting was 20.9% among the pregnant and lactating women and does not



differ significantly from wasting among the non-pregnant non-lactating women (18.6%), implying that programmes that address female nutrition need to target all women of reproductive age.

Retrospective morbidity of children below 5

Results from recall of illnesses that children suffered two weeks prior to the assessment showed generally high levels of morbidity across surveyed areas of South Sudan. Overall, close to six in every ten children (56%) under five years suffered from at least one of the childhood illnesses in the weeks preceding the survey. The common diseases children suffered from included fever/malaria (50%), diarrhoea and cough (22% each).

Compared to the prevalence of under five morbidity in the last assessment, results demonstrate a mixed trend. Overall, there has been a reduction in the prevalence of diarrhoea and fever/malaria, probably attributable to drier conditions in December when data was collected compared to the rainier July to August period. Diarrhoea and malaria tend to be more prevalent during the rainy seasons. On the contrary, prevalence of cough showed a rising trend which is also related to thriving better in drier conditions.

The analysis also indicates that children that suffered from at least one of the illnesses were significantly more likely (1.3 times more likely) to be acutely malnourished compared to those that did not suffer any illness. Therefore, addressing gaps in disease prevention measures will likely result in gains in addressing the nutrition situation in South Sudan.

Fig 15: Retrospective morbidity; Jul/Sep Vs Nov/Dec '15

	Diarrhoea	Fever	Cough
WES	↓	↓	↓
EES	↑	↓	↑
Jonglei	↑	↓	↑
Lakes	↓	↓	↑
UNS	↓	↑	↑
WBS	↓	↓	↑
NBS	↓	↑	↑
Warrap	↓	↑	↑
CES	↑	↓	↑
Legend	>50%	20 - 50%	<20%

Infant and Young Child Feeding

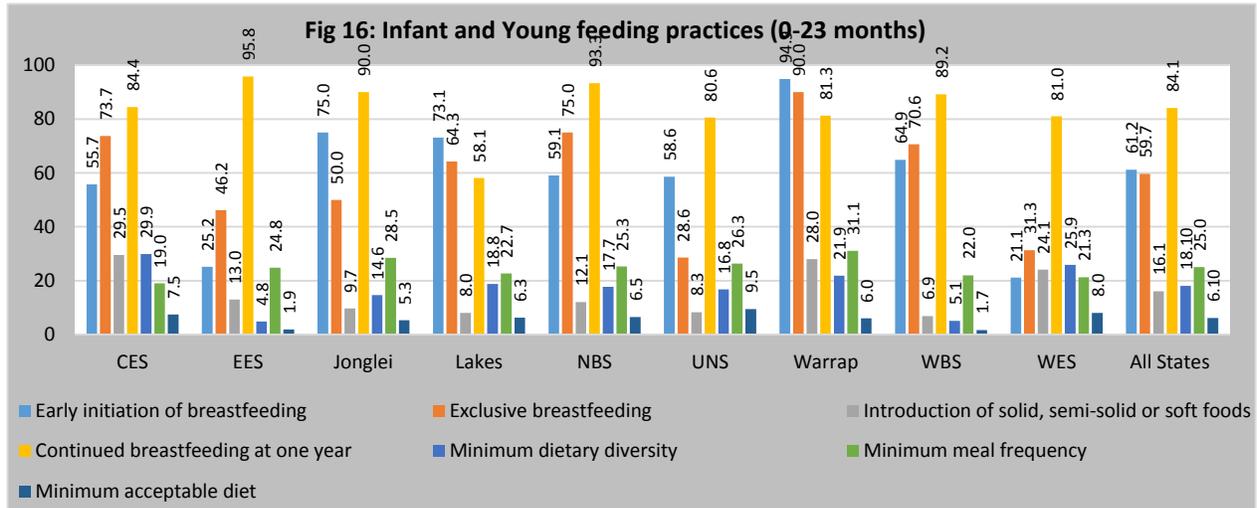
Breastfeeding: Breastfeeding is a universal practice in the survey areas, with an average of about 85% of children continuing to breastfeed at first year of age (12-15 months). However, other key feeding indicators are sub optimal.

Initiation of breastfeeding: The first hours and days of the baby life is a critical period for the survival of the new baby. The assessment shows that about 61.2% of new-born babies were put to the breast within one hour of birth. Highest level of breastfeeding initiation was found in Warrap (94.9%) and Jonglei (75%) while the lowest rate of initiation was found in Western Equatoria (21%), Eastern Equatoria (25%) and Central Equatoria (56%). According to the international guidelines, a newborn baby should be put to the breast within the first one hour after delivery.

Exclusive breastfeeding (EBF): As per World Health Organisation (WHO), an infant should be exclusively breastfed for the first 6 months. While breast-feeding among young children is common, exclusive breast-feeding practices is not as much. The assessment found that 59.7% of children aged between 0-5.9 months were exclusively breastfed, with the highest EBF prevalence observed in Warrap (90%), Northern Bahr el Ghazal (75%), and Central Equatoria (74%). The lowest rate of EBF was found in Upper Nile (29%), Western

Equatoria (31%), and Eastern Equatoria (46%). However, an improvement has been registered when results are compared to the 2010 national Household survey (EBF 45%).

Complementary feeding: The status of complementary feeding of children 6 to 23 months is distressing. Majority of the children are not receiving the recommended quality and quantity of feeds. The key indicators included are introduction of solid, semi-solid and soft foods at 6-8 months of age, minimum dietary diversity, minimum meal frequency and minimum acceptable diet.

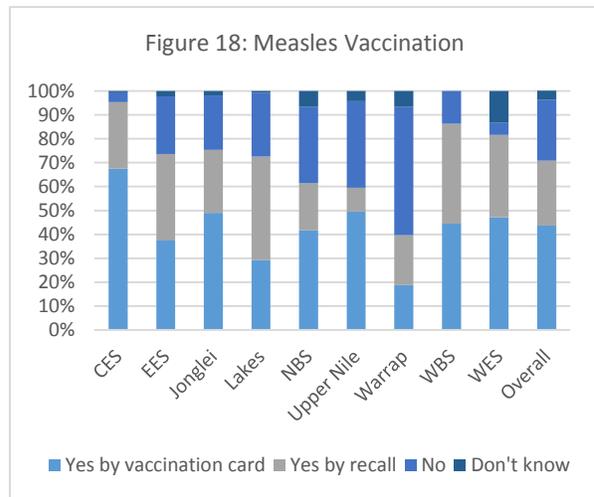


Introduction of solid, semi-solid and soft foods (6-8 months): Alongside breast feeding, it is recommended to start complementary foods (solid or semi-solid foods) at age six months. About 16% children age 6-8 months were fed solid/semi-solid foods with the highest prevalence observed in Central Equatoria (30%) and lowest in Western Bahr el Ghazal (7.5%).

Minimum Dietary Diversity (MDD): The proportion of children 6 to 23 months who received at least four food groups a day preceding the assessment was only 18%, indicating the poor diversity of complimentary foods provided to majority of children 6 to 23 months. The highest MDD was registered in Central and Western Equatoria States, though still a meagre 30% of the children receiving the recommended MDD. Eastern Equatoria (4.8%), Western Bahr el Ghazal (5.1%), Jonglei (14.6%) and Lakes (18.8%) registered the worst dietary diversity.

Minimum mean frequency: This indicator captures proportion of breastfed and non-breastfed children 6 to 23 months of age who receive solid, semi-solid, or soft foods the minimum number of times or more. Meal frequency is considered a proxy for energy intake from foods other than breast milk. Findings on MMF are also poor with only about a quarter of the children having received the WHO recommended MMF.

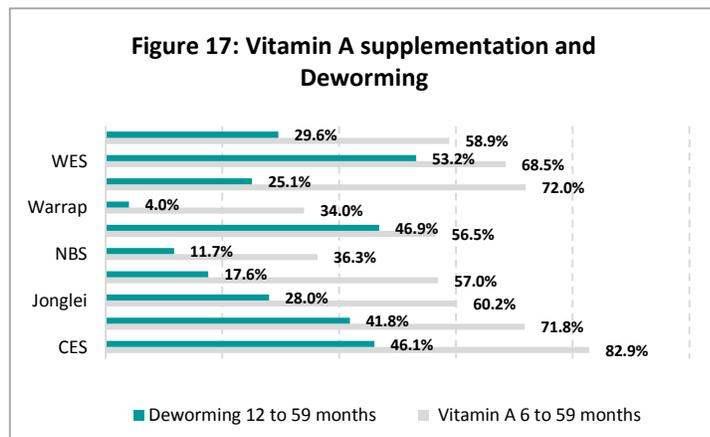
Minimum Acceptable Diet (MAD): The composite indicator of quality and quantity of complimentary feeds provided to children 6 to 23 months shows a disturbing situation; only 6.1% of children 6 to 23 months received the MAD.



The low meal frequency and dietary diversity among children 6 to 23 months denote a shortfall in the kilocalorie consumption of children 6 to 23 months that could be impacting on their growth and development, hence the need to promote and support appropriate infant and young child feeding cannot be overemphasized.

It is important to note that the sample used for the state level estimates may not be adequate for some indicators, hence use of the infant and young child feeding results should be made cautiously.

Childcare Practices



The assessment established whether children received the key recommended vaccination and supplementation including measles vaccination, vitamin A supplementation and deworming. Findings revealed gaps in deworming of children, as only 1 in 3 children 12 to 59 months in survey states were dewormed in the 6 months preceding the assessment. The lowest deworming coverage was observed in the Greater Bahr el Ghazal states: Warrap (4%), Northern Bahr al Ghazal (11.7%), Lakes (17.6%) and Western Bahr el Ghazal (25.1%).

Similarly, the lowest coverage of vitamin A supplementation among children 6 to 59 months was observed in the Greater Bahr el Ghazal and Upper Nile states including Warrap (39.7%), Upper Nile (59.5%) and Northern Bahr el Ghazal (61.3%). Furthermore, vaccination coverage shortfalls are also observed for measles vaccination. Some 58.9% of the children 9 to 59 months received measles vaccination. In general, the states with the lowest vaccination and supplementation coverage also have the highest GAM, hence ensuring that children especially in the Greater Upper Nile and Bahr el Ghazal states receive timely recommended vaccination and supplementation may support improved nutrition of children in South Sudan.

Humanitarian assistance

Of the assessed households, about three-quarters reported having received some form of humanitarian assistance (food, agriculture support, health, nutrition, non-food items, etc) in the 3 months prior to the assessment. The majority of humanitarian assistance was channelled to the Greater Upper Nile states, with the least recipients located in the Equatoria states. Of those that received a humanitarian assistance, 77% reported receipt of food assistance.

However, there were important differences across states. In the Greater Upper Nile states of Jonglei and Upper Nile, an overwhelming majority (>90%) of those that had received assistance reported food followed by Lakes (at 87%) while least receipts of humanitarian assistance were observed in Eastern Equatoria and Western Bahr el Ghazal with (<25% of food aid recipients).

Households that showed inadequate food consumption were 0.8 times more likely to have received food assistance than those that reported adequate food consumption levels. The most common delivery mode for food assistance was through general food distributions followed by supplementary feeding programmes for under-fives and school feeding at 12% and 2% respectively.

Food Security outlook

The food security situation in South Sudan is likely to worsen in the dry season or first quarter of 2016 due to a combination of factors: continuing economic crisis currently compounded by spiralling prices after the official devaluation of the currency; lower levels of local production compared to 2014 and increasing incidences, population displacements in most parts of the country and spread of localized insecurity—that hampers trade flows, disrupts meaning livelihood activities, impeding investments and therefore revenue generation, among other factors. The current household stocks are unlikely to last no longer than March 2016 in most parts of the country due to below normal production or relatively previous poor agricultural season. The presence and/or increasing levels of population displacements in hitherto areas of relative tranquillity remains a major threat to food insecurity. There are increasing levels of vulnerability in poor urban settlements and poor rural residents especially in heavily market dependent areas of the country due to the ongoing economic crunch. These populations will continue to depend on constrained livelihood opportunities characterized by high usage of coping mechanisms including the asset stripping coping strategies as explained above in addition to kinship support and humanitarian assistance, where access is possible. In spite of the peace agreement, the continuing fragile political environment, ethnic attacks, etc. will still weigh heavily against market functionality, agriculture and livestock production activities thereby negatively impacting on the household's food access. The devaluation of the South Sudanese Pound is likely to further erode the purchasing power of households especially states that rely heavily on markets as their main source of food and income.

Methodology

The Food Security and Nutrition Monitoring System (FSNMS) is a collaborative effort involving over 35 organizations (government, UN, NGOs and community-based organizations) that aims to provide periodic food security findings that are representative at national and state levels. It provides and allows monitoring of trends and changes in key food security and nutrition indicators over time. Data were collected from 28 clusters (sites) randomly selected from each of the nine states based on probability proportional to sizes (PPS), factoring in population movements in the case of Greater Upper Nile states. A further 15 randomly selected households were surveyed in each site selected. One community/key informant interview (where applicable) was conducted at each selected cluster/site to provide supplementary information that would explain some of the quantitative findings.

A major limitation for this study was the inability to survey Unity state, primarily due to the prevailing insecurity. Additionally, data collection process experienced accessibility and security challenges especially in Eastern Equatoria (Kapoeta) and the whole of Western Equatoria with about 5-8% of the selected sites not surveyed and the data equally arriving late. However, the number of sites

In understanding the food security situation, the below basic indicators were used:

Food consumption was derived using a seven-day recall period. Food items were weighted based on their nutritional value to establish a food consumption score that classifies the households having either acceptable, borderline or poor food consumption.

The reduced Coping Strategies Index was derived from the severity and the frequency of the consumption coping strategies applied by households in the last seven days prior to the assessment. More severe coping strategies are often those with irreversible effects on the households' livelihoods.

Livelihood coping mechanisms was also analyzed with the coping mechanisms categorized into: emergency, crisis and stress coping mechanisms.

Household food security categories were established according to a composite index derived from household's food consumption indicators and coping capacity (using indicators measuring economic vulnerability and asset depletion). From the CARI analysis, households are grouped into five categories: severely food insecure (SFI), moderately food insecure (MFI), marginally food secure (MFS) and food secure (FS).

State abbreviations

Western Equatoria (WES), Eastern Equatoria (EES), Central Equatoria (CES), Upper Nile (UNS), Western Bahr el Ghazal (WBS), Northern Bahr el Ghazal (NBS)

surveyed were still sufficient to provide valid and representative information.

Data collection from a total of 3,587 households was undertaken in Nov/Dec 2015, followed by analysis and reporting in Dec 2015/January 2016. Of the assessed households, 25% were female headed. The average household size is seven persons. Preliminary analysis was however, available in December 2015 for use in IPC analysis conducted at the end of the year.

For additional information, please contact Juba.VAM@WFP.org

A collaborative activity of UNICEF, FAO, WFP, VSF-SUISE, IRC, SP, CARE,SSRRC/SSRA, OCHA, RRC, FADA, OFAD, HeRRY, SMARF, SMAFC&RD, SMoH, FACDDO, Don Bosco, SSGID, SSMDP, WVI, GOAL, MEDAIR, RI, ADRA, UNKEA, SMAR, GAA, PIN, JAM, NBS, SALF, Save the Children, RRA, FEWSNET, SMoH, SRRC, , ATITA, AAH, CRS, SMoAF, Plan International, SMoA, caritas Suez, ACF, MOEST, UNHCR, NPA, GAA, Nile Hope, World Concern, SCC, LDA, UCDC, CDOT, CDTY & NCDA

FSNMS, Nov/Dec 2015