



South Sudan

Food Security and Nutrition

Monitoring Bulletin

Round 19

Data collected in December 2016



vam
food security analysis



This is an output from collaborative activity of WFP, FAO, UNICEF, Government of South Sudan and NGO partners from the Food Security and Livelihood cluster in South Sudan.

Contents

Key Findings	2
Food Security Overview	3
Food Consumption	4
Sources of Food	5
Household Profile	6
Livelihoods & Income	7
Expenditure	8
Agriculture	9
Livestock	10
Markets & Household Food Access	11
Macroeconomic Crisis Affecting Food Security	12
Assistance Received	13
Household Shocks & Coping	14
Maternal, Infant & Young Child Nutrition & Health	15
Outlook	18
Methodological Note	19
Annexes	20

Key Findings

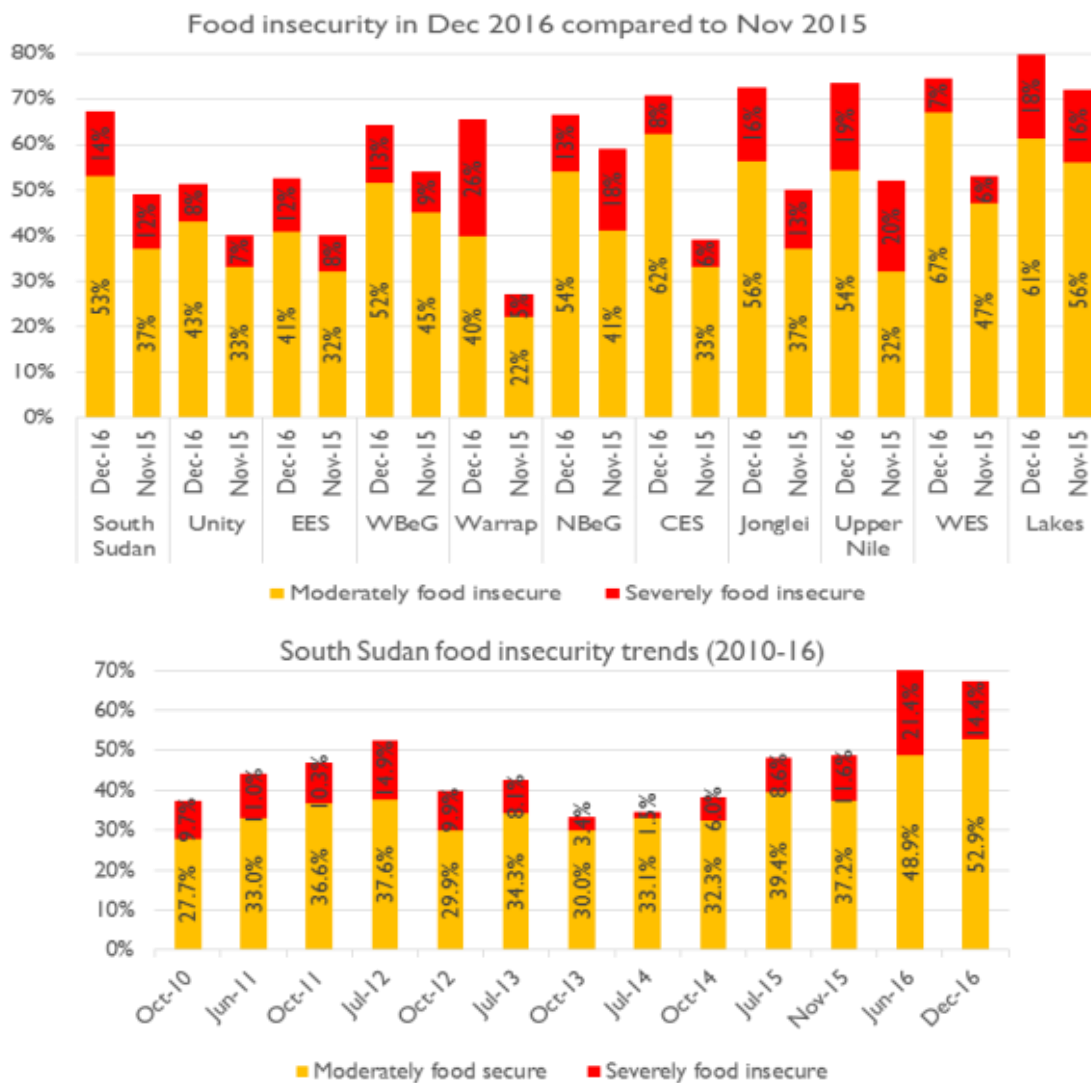
- ◆ Overall, South Sudanese households have faced the worst food security situation in the immediate period after the harvest season. The level of food insecurity has increased in all the ten states¹ compared to the same time in the previous year (2015).
- ◆ More than two-thirds (67 percent) of the households across the country are facing moderate to severe food insecurity. This is the highest level of food insecurity during this time of the year since FSNMS started reporting in 2010. Some three-fourths of the households recorded below acceptable food consumption scores; 44 percent of those had poor consumption and 30 percent had borderline. Considering the household hunger scale, some two-thirds of the households were in a moderate to severe hunger (58 percent moderate and 6 percent severe) up from 55 percent at the same time one year ago.
- ◆ In addition to traditionally food insecure areas such as in the Greater Upper Nile region; high food insecurity levels were also observed in the Equatorias region, an indication of the impact of prevailing insecurity in this region.
- ◆ Overall, households were spending about 76 percent of their monthly expenditures on food, significantly higher than the same period last year (57 percent).
- ◆ Households have been facing challenges in sustaining income through their livelihoods. 78 percent of the households reported switching from some of their livelihood activities in the past three years. Thus significant drops in income from agriculture and livestock was reported. 93 percent of the respondents reported their income either reduced or remained the same compared to one year ago. This had an adverse impact on household food security at a time when the food prices have sky rocketed with year on year increase of about 500 percent in December 2016.
- ◆ Overall, high food prices was the number one shock reported by most households, followed by insecurity and lack of access, and human sickness.
- ◆ As a result of food insecurity, some 64 percent of households were found to be adopting food based coping strategies while 58 percent were adopting livelihood based coping strategies; overall half of the households were adopting crisis to emergency coping strategies with significant negative impacts on their livelihoods. The frequency of food based coping practices was significantly higher than the same period last year.
- ◆ Overall, global acute malnutrition (GAM) rate was at 12.5 percent about the same level as during the same time last year (13.0 percent). However a worsening nutrition situation atypical of a harvest season is observed in the Greater Equatoria region. While the FSNMS does not provide county level results, very high GAM rates were observed in counties in Southern Unity based on SMART surveys and MUAC screening, indicating a worsening nutrition situation.

¹The designations employed and the presentation of material in this document do not imply the expression of any opinion on the part of WFP concerning the legal or constitutional status of any county or state or concerning the delimitation of its frontiers or boundaries.

Food security overview

Using the CARI (Consolidated Approach to Reporting Indicators of Food Security) methodology, 67 percent of households were found to be food insecure in December 2016; among them 14 percent were severely food insecure and 53 percent were moderately food insecure.

This is slightly less than the percentage of food insecure households during the lean season of 2016 (70 percent). However, this is much higher than the same period last year (49 percent), and is the highest ever food insecurity recorded by the FSNMS during this time of the year – after the harvest period. Compared to the same time last year, populations facing severe food insecurity have increased from 12 percent to 15 percent, while those under moderate food insecurity have increased significantly from 37 percent to 52 percent. Compared to the lean season (in 2016), the severe food insecurity has decreased (from 21 percent to 15 percent), while the moderately food insecure population has increased (from 49 percent to 52 percent).



The level of food insecurity has increased significantly in all the states compared to the same period last year. In addition to traditionally food insecure areas, a high level of food insecurity was also noticed in the greater Equatorias region. Such a high level of food insecurity in this part of South Sudan – normally the ‘bread basket’ of the country in the period after the harvest – contributed significantly to the overall magnitude of food insecurity in the country.

Continued economic crisis including hyperinflation, depreciation of the South Sudanese pound (SSP), soaring food prices, a high cereal crop deficit², prevailing insecurity and droughts in part of the country have contributed to this high level of food insecurity.

Such a level of food insecurity in the aftermath of harvest is of special concern, and signals potential for a very serious humanitarian situation in the lean season of 2017.

² The harvest estimates suggest a higher overall food deficit than last year, reaching to about half a million metric tonnes in cereal deficit.

Food consumption

The food consumption situation is very precarious in South Sudan with remarkable decline in acceptable consumption compared to the same period last year.

Only one fourth (26 percent) of the households were found as having acceptable food consumption, while 44 percent had poor consumption and 30 percent were in borderline consumption group.

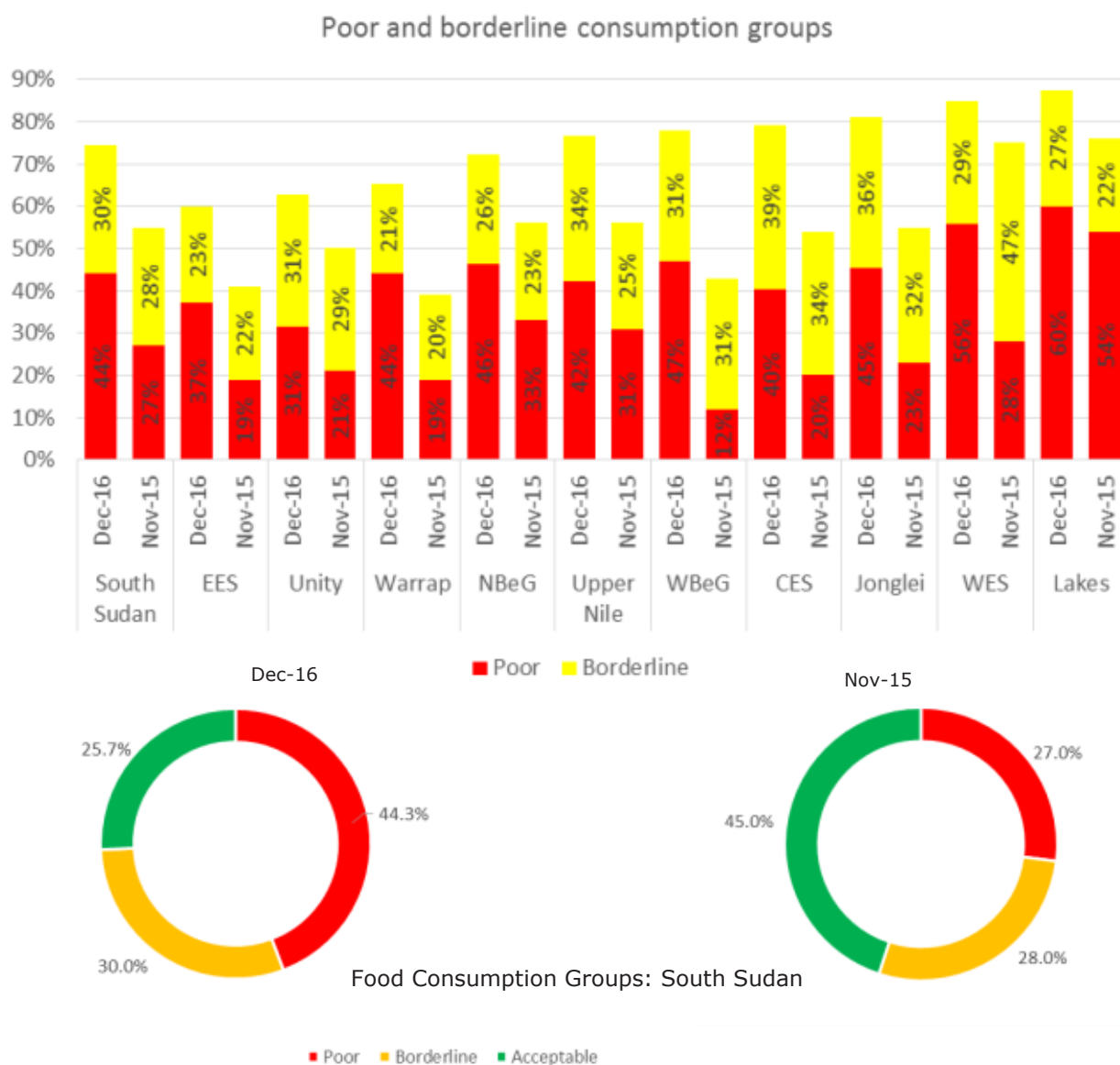
Compared to the same period last year, proportion of households with poor consumption has gone up from 27 percent to 44 percent, while those with acceptable consumption declined from 45 percent to 26 percent. There was a slight increase in households with borderline consumption from 28 percent to 30 percent.

Looking at the sub-national level, the food consumption situation has worsened across all states, compared to the same period last year.

Economic crisis, coupled with insecurity in the Greater Equatorias region have mainly contributed to this worrisome situation, even in the aftermath of the harvest. For instance, the proportion of households with poor food consumption has increased from 28 percent to 56% in Western Equatoria, from 20 percent to 40 percent in Central Equatoria and 19 percent to 37 percent in Eastern Equatoria. Other notable increases were observed in Western Bahr el Ghazal (12 percent to 47 percent), Warrap (19 percent to 44 percent) and Jonglei (23 percent to 45 percent).

On average, adult members of the households were eating only 1.5 meals per day, while the children were eating 1.7 meals per day, compared to 1.7 and 2.0 meals per day respectively during the same time last year.

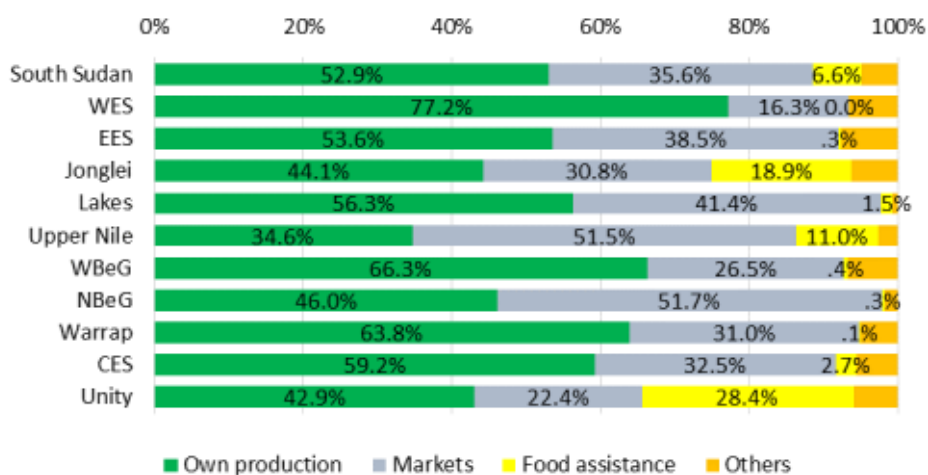
As per the household hunger scale, some two-thirds (64 percent) of households faced moderate (58 percent) to severe hunger (6 percent), significantly higher than the same time last year when 55 percent faced moderate (51 percent) to severe (4 percent) hunger.



Sources of food

Overall, 53 percent of households reported own production as the main source of the cereals and tubers consumed. This proportion was highest in Western Equatoria (77 percent) followed by WBeG (66 percent) and Warrap (64 percent); while it is lowest in Upper Nile (35 percent), followed by Unity (43 percent) and Jonglei (46 percent). On the other hand, dependence on markets is also significant. Overall, 36 percent of the households reported market as the main source of cereals and tubers consumed; the proportion was lowest in WES (16 percent) and highest in Upper Nile and Northern Bahr el Ghazal (52 percent each). The next major source of this food group was food assistance; overall 7 percent of households report food assistance as the main source. The proportion was highest in Unity (28 percent), followed by Jonglei (19 percent) and Upper Nile (11 percent).

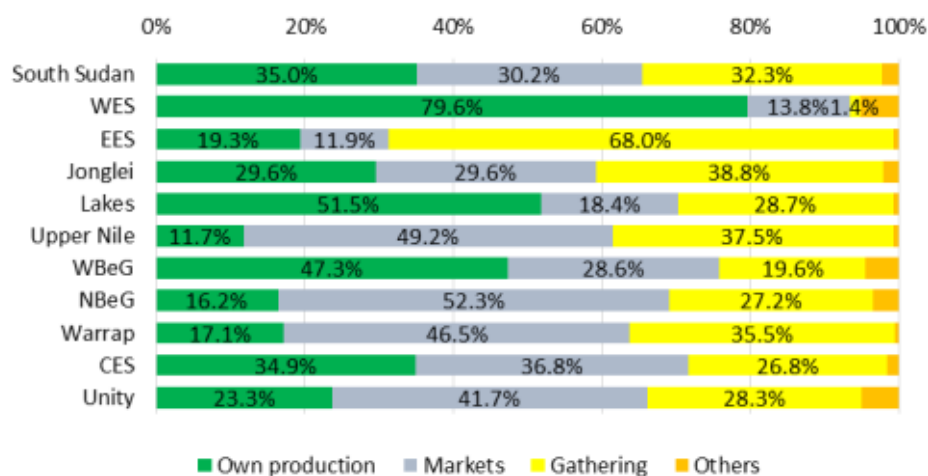
Source of cereals and tubers



Similarly, 72 percent of milk and dairy products, 46 percent of legumes and nuts, 69 percent of oils and fats, 55 percent of meat/fish / poultry, and 35 percent of vegetables and 53 percent of fruits were from own production.

In the case of vegetables and leaves, in addition to own production and markets, there is also significant proportion attained through gathering (32 percent). This proportion was also significant for fruits at 20 percent.

Source of vegetables and leaves



For milk and dairy products, 72 percent reported own production as the main source – which was highest in Eastern Equatoria at 88 percent and lowest in Western Equatoria at 41 percent - while the markets was the main source for 21 percent.

In the case of meat, fish and eggs, in addition to markets (55 percent) and own production (17 percent), hunting/fishing is the main source employed by 16 percent of households. Hunting/fishing is most prominent in Upper Nile (44 percent) and Unity (41 percent), followed by Jonglei (17 percent), Lakes (14 percent) and CES (12 percent).

The dependence on markets versus own production, showed a pattern similar to this time of the year in previous years.

Households dependent on markets for their food needs have been very vulnerable due to soaring food prices and lack of cash income, and in many cases poor availability of food in the nearest markets.

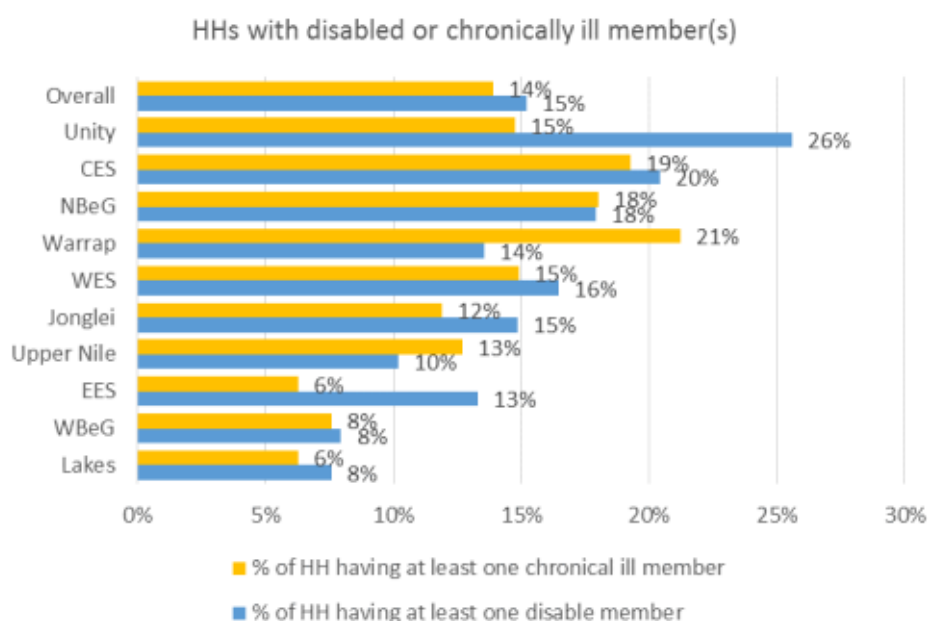
Household profile

Overall, 68 percent of the heads of households were males, while the rest were headed by females. Northern Bahr el Ghazal had the highest proportion of female headed households (65 percent), followed by Unity (46 percent); while this proportion was lowest in Lakes (11 percent), followed by Eastern Equatoria (13 percent). This proportion is around 28 to 34 percent in other states.

Most (95 percent) of the household heads were aged 16-60 years, while 4 percent were above 60 and 1 percent were under 18. 92 percent of the households interviewed were residents, while 6 percent were IDPs and rest were the returnees and others.

89 percent of the respondents were living in their own house, while 7 percent were in temporary shelter and 3 percent were with host families. Some 19 percent of the households reported that they were hosting IDPs or refugees. This proportion was highest in Unity (31 percent) followed by Upper Nile (24 percent) and WES (21 percent).

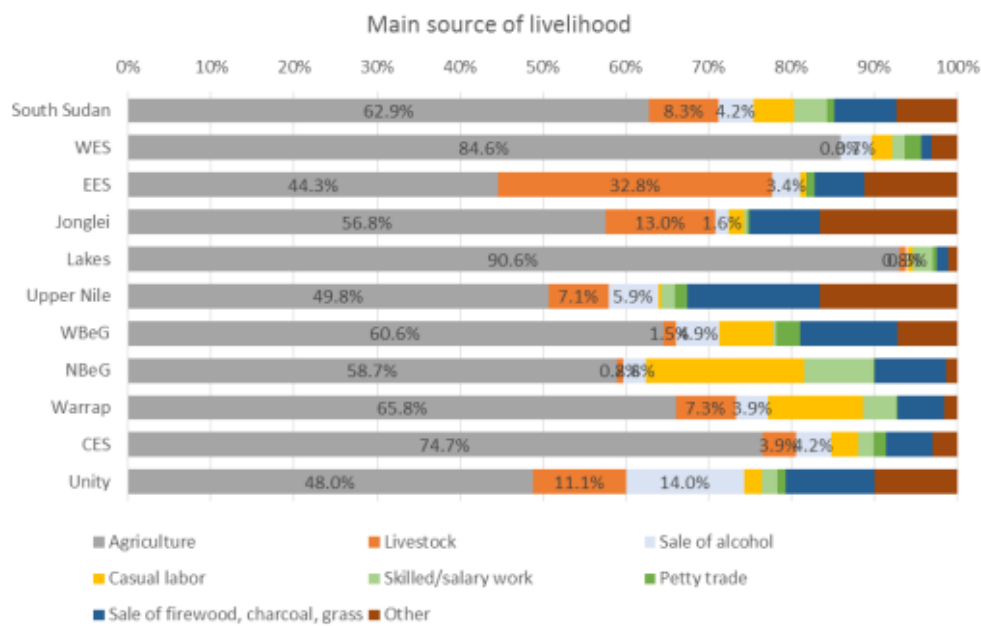
Some 15 percent of the households had at least one disabled member in the family, 14 percent had at least one chronically ill member. Unity had the highest proportion (26 percent) of the households with at least one handicapped member, followed by Central Equatoria (20 percent); Lakes and Western Bahr el Ghazal had relatively low proportion (8 percent), while others had between 10 and 18 percent. Similarly, Warrap had the highest proportion (19 percent) of the households with at least one member chronically ill, followed by CES (19 percent) and Northern Bahr el Ghazal (18 percent). Eastern Equatoria (6 percent), Lakes (6 percent) and Western Bahr el Ghazal (8 percent) had relatively lower proportion, while this value was between 11 and 15 percent in other states.



Household characteristics	
Average HH size	7.8
Head of the HH	Male (68 percent), female (32 percent)
Age of the HH head	19-60 years (95 percent), > 60 (4 per-
Housing status	Own house (89 percent), temporary shelter (7 percent), with host families (3 per-
Residence status	Residents (89 percent), IDPs (6 percent),
HHs hosting IDPs or refugees	19 percent
Disability	15 percent HHs with at least one disabled
Illness	14 percent with at least one member chronically ill

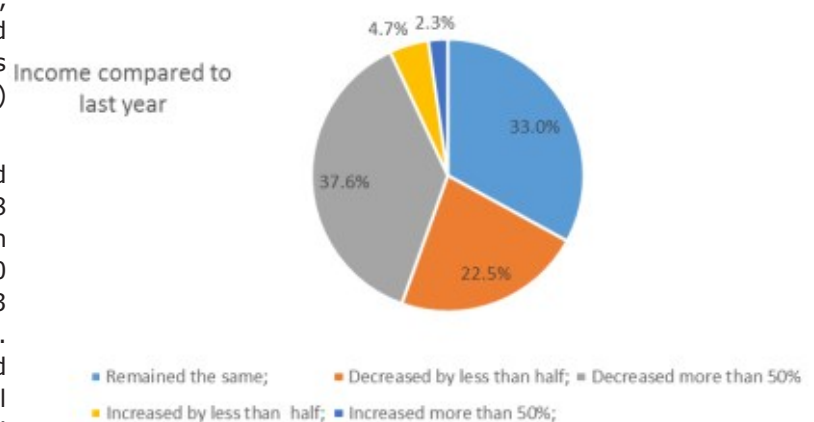
Livelihoods and income

Overall, some 63 percent of households reported agriculture as the primary source of income, followed by livestock (8 percent). Other sources of livelihood include sale of firewood/grass/charcoal (7 percent), casual labour (5 percent), skilled labour and salaried work (4 percent), petty trade (1 percent) and others (7 percent). Lakes had the highest proportion of households (91 percent) with agriculture as the main livelihood, followed by Western Equatoria (85 percent) and Central Equatoria (75 percent). This proportion was lowest in Eastern Equatoria (44%), followed by Unity (48%). On the other hand, Eastern Equatoria had the highest proportion (33 percent) of households with livestock as main livelihood, followed by Jonglei (13 percent) and Unity (11 percent). Sale of firewood, grass and charcoal was most significant in Upper Nile (15 percent), Western Bahr el Ghazal (11 percent) and Unity (11 percent); sale of alcohol was most significant in Unity (14 percent). Casual labour as a source of livelihood was most significant in Northern Bahr el Ghazal (19 percent), followed by 11 percent in Warrap and 6 percent in Western Bahr el Ghazal; it was less than 5% in other states.



Some 78 percent of households reported that they had switched from some income generating activity in the last three years. Some 38 percent reported drop in agriculture and sale of crops and 12 percent reported drop in livestock keeping and sales. Drop in agriculture was more significant in Central Equatoria (52 percent), Warrap (50 percent), Western Equatoria (46 percent), Northern Bahr el Ghazal (43 percent) and Jonglei (38 percent). Drop in livestock was more significant in Jonglei (22 percent) and Eastern Equatoria (15 percent).

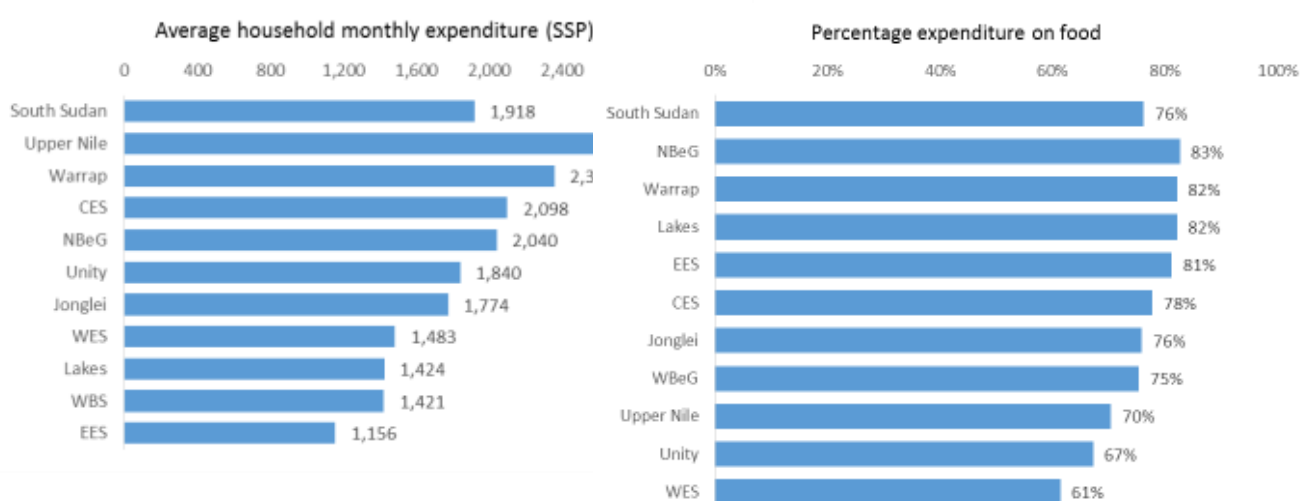
93 percent of the respondents reported that their income has either reduced (38 percent had income reduced by more than 50 percent, and 22 percent had it up to 50 percent) or remained the same (33 percent) compared to same time last year. Proportion of households reporting reduced income was highest in Northern Bahr el Ghazal (78 percent), followed by Jonglei (75 percent), and Upper Nile (74 percent). Overall, insecurity was the reason cited by most households (25 percent) for the change in income, followed by loss of crops (20 percent), inflation (15 percent), drought (14 percent) and floods (9 percent). In Warrap, floods were reported as the main reason (25 percent) while for Northern Bahr el Ghazal loss of crops/harvests (41 percent) and high prices (30 percent) were cited as main reasons for those who had drops in income.



Expenditure

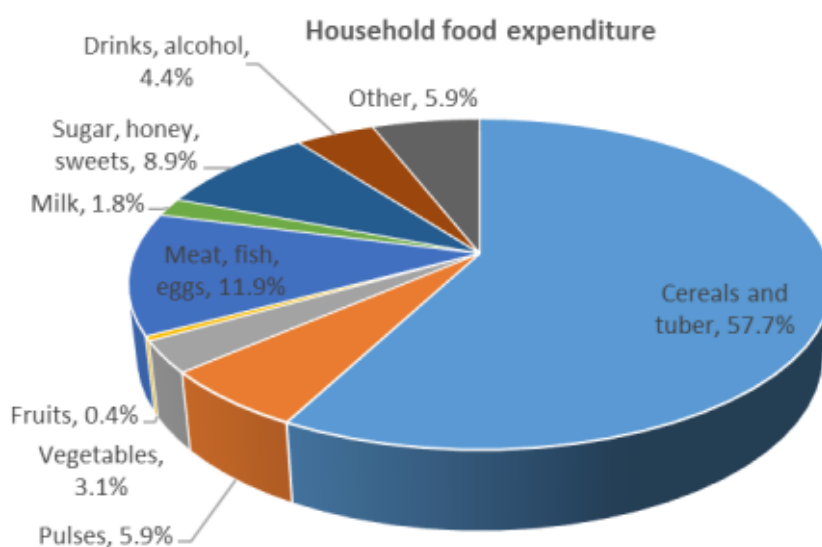
An average household's monthly expenditure was SSP 1,918³, higher than the average expenditure reported in the lean season of 2016, which was SSP 1,400. Upper Nile had the highest monthly expenditure (SSP 3,002), followed by Warrap (SSP 2,356), Central Equatoria (SSP 2,098) and Northern Bahr El Ghzal (SSP2,040), while it was lowest in Eastern Equatoria (SSP 1,156). High expenditures in Upper Nile could be attributed to high market prices, and higher dependence on the market for food.⁴ In the case of Unity and Jonglei, food assistance, scarcity of supplies in markets as well as distance to markets may be attributed to relatively lower monthly expenditures, where a significant proportion (28 percent in Unity and 19 percent in Jonglei) of households reported food assistance as the main source of cereals consumed.

More than three-fourths (76 percent) of the monthly expenditure of an average household in South Sudan was on food, significantly higher than the same period last year (58 percent). This share has been highest in Northern Bahr el Ghazal (83 percent) and lowest in Western Equatoria (61 percent). In general, poor households spend a higher proportion of their expenditure on food. Share of expenditure on food in a given period is governed by a number of factors including household food gap from own production, disposable income, food assistance, prices and availability in the market.



An average household spends 58 percent of its monthly food expenditure on cereals and tubers; 12 percent on meat, fish or poultry; 9 percent on sugar, honey or sweets; 6 percent on pulses, and 4 percent on drinks and alcohol. The expenditure on vegetables, milk and fruits is very little, at 3 percent, 2 percent and 0.4 percent, respectively.

Among the non-food items, more than half (57 percent) of the expenditure was on clothing and shoes; followed by transport and communications (13 percent), and firewood/charcoal/fuel (10 percent).



³ These figures are from December 2016 and subject to rapid changes because of inflation. The official exchange rate in December 2016 was SSP 77.50 per US Dollar (USD), while the exchange rate at the market was SSP 89.05 per USD.

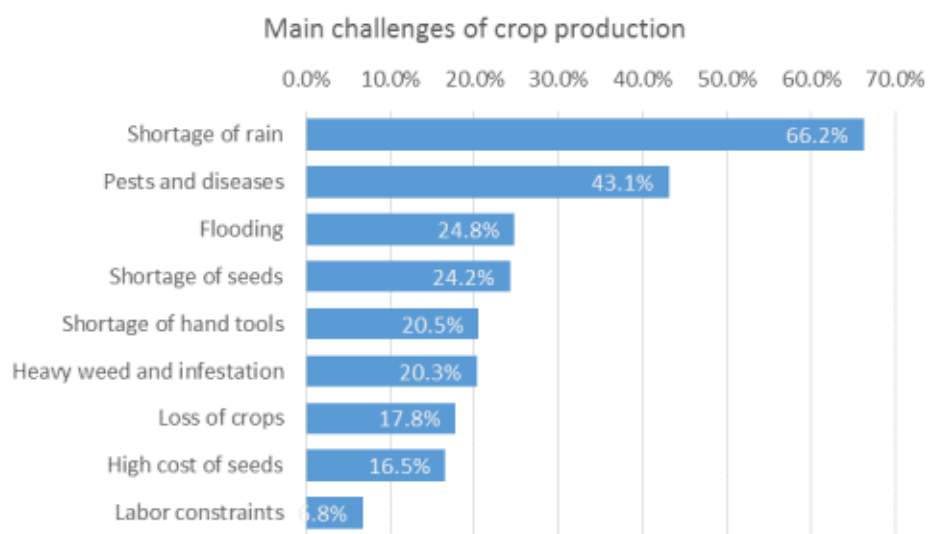
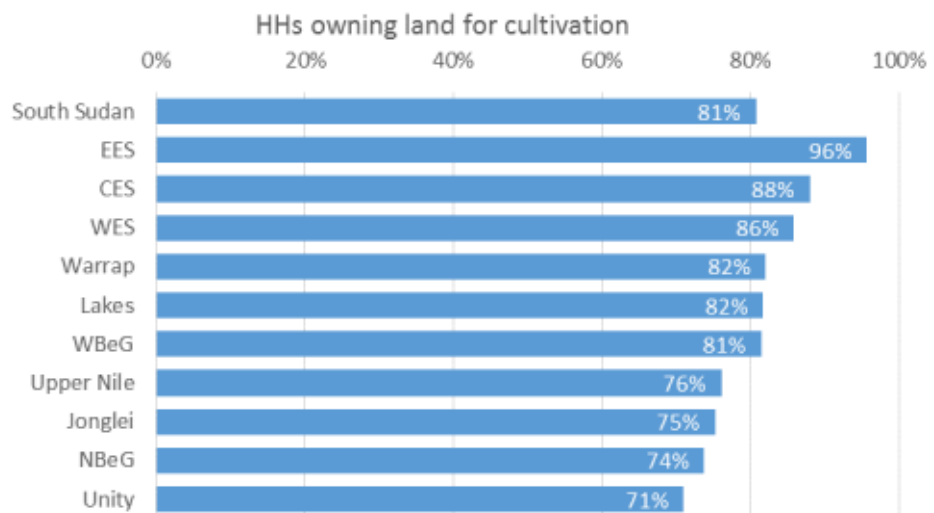
⁴ Market was reported as the main source of food for 52% of HHs in Upper Nile and NBeG, compared to average of 36% across the country.

Agriculture

About 81 percent of households reported to have land for cultivation, and among them 90 percent reportedly planted crops in the 2016 season. Eastern Equatoria had the highest proportion (96 percent) owning agricultural land followed by Central Equatoria (88 percent) and Western Equatoria (86 percent), while Unity had the lowest (71 percent), followed by Northern Bahr el Ghazal (74 percent). Most are subsistence farmers, with 56 percent owning 2 *fedans*⁵ or less and 25 percent owning 3-4 *fedans*, with only 8 percent owning more than 8 *fedans*. Average area cultivated per household was sorghum (1.43 *fedans*), maize (0.47), cassava (0.20), vegetables (0.12) and millet (0.11), which is similar to last year.

The majority of farmers relied on their own stock (50 percent) or purchase (30 percent) for the seeds. Other sources include gifts (8 percent), NGOs (5 percent), FAO (5 percent) and others (9 percent).

Shortage of rain (reported by 66 percent), pests and diseases (43 percent), flooding (25 percent), shortage of seeds (24 percent), high cost of seeds (16 percent) and shortage of hand tools (20%) were reported as main challenges in crop production. Shortage of rain was reported by most respondents (93 percent) in Eastern Equatoria, followed by Central Equatoria (83 percent) and Lakes (82 percent), while floods were most reported by Jonglei (56 percent), Upper Nile (50 percent) and Unity (48 percent). Pests and diseases were most prominent in Western Equatoria (70 percent).



Household Food Stock

Agricultural households reported that on average, the stock of sorghum they had could last for 1.72 months, maize for 0.73 months, beans for 1.9 months. The net available stock is lower than that at the same time in the previous year (sorghum: 1.25, maize: 1.66 and beans: 2.34). As the households deplete their stocks, they have to rely more on the market purchases, making them highly vulnerable due to lack of disposable income to afford the high food prices.

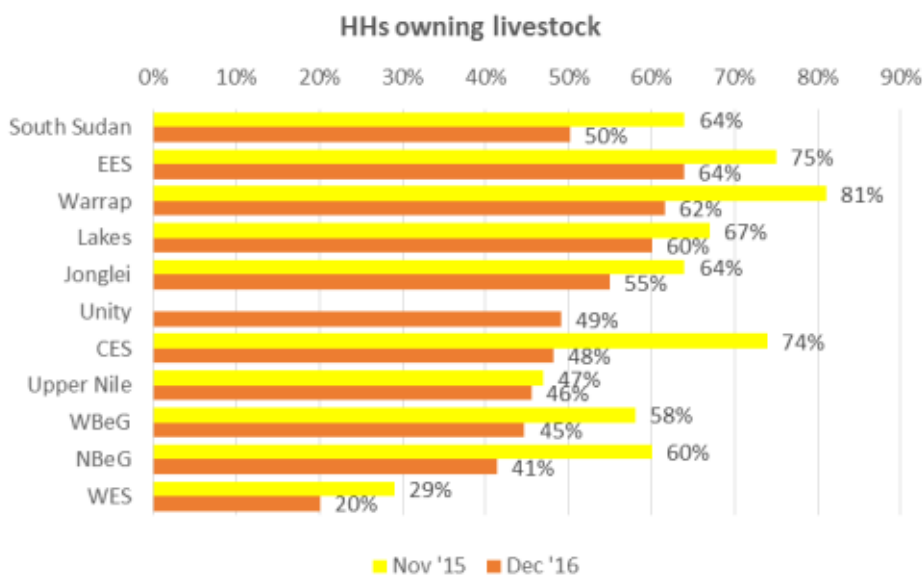
⁵Fedan is a measure of area used in South Sudan, 1 *fedan* = 0.42 hectare

Livestock

Livestock is an important contributor to household food security in South Sudan. A significant reduction in livestock ownership has been noted. While almost two thirds (64 percent) of households owned at least one livestock herd or farm animal during the same time last year, only half (50 percent) of households owned livestock in December 2016.

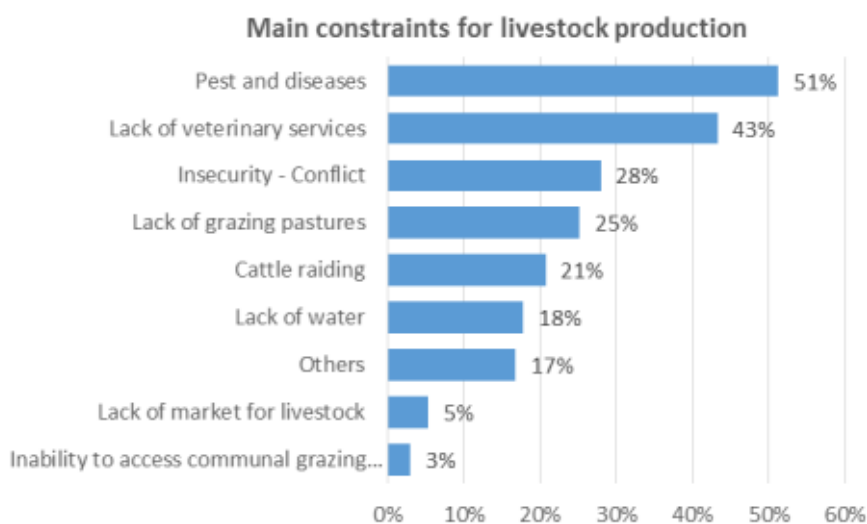
In December 2016, the proportion of households owning livestock was highest in Eastern Equatoria (84 percent), followed by Warrap (62 percent) and Lakes (60 percent), while it was lowest in Western Equatoria (20 percent) followed by Northern Bahr el Ghazal (41 percent) and Western Bahr el Ghazal (45 percent).

Overall, an average household would keep 37 cattle, 18 sheep, 26 goats and 6 poultry. Livestock ownership was highest in Eastern Equatoria (232 cattle, 130 sheep, 170 goats, and 7 poultry), while it was lowest in Western Equatoria, followed by Northern Bahr el Ghazal.



Significant concern on livestock health was noted. Overall, 30 percent of the owners reported having their livestock in good condition, 43 percent in moderate condition and others were either in borderline or thin with ribs or bones visible. Some 44 percent reported that this is not normal during this time of the year. The body condition was of particular concern in Jonglei, where only 9 percent had good smooth appearance and 53 percent had moderate condition. This was followed by Eastern Equatoria, where only 15 percent had good smooth appearance and 47 percent with moderate condition, and 62 percent of respondents said that it is not normal at this time of the year. There was also a decrease in livestock ownership to 64 percent compared to 75 percent during the same time last year. This should be understood in the context of the prevailing drought condition in part of Eastern Equatoria.

Pest and diseases, lack of veterinary services and insecurity were reported as the top three main constraints in livestock production. Responses reporting lack of water as the main constraint were highest (40%) in EES.



Analysis showed that those owning livestock had relatively better food security situation (61 percent food insecure) compared to those with no livestock (79 percent food insecure).

Markets & Household Food Access

Markets are the main sources of food consumed by the households. The market is the main source of cereals and tubers consumed for 36 percent of households; oil, fat and butter for 70 percent, legumes, nuts for 47 percent, vegetables for 30 percent, milk and dairy for 21 percent and fruits for 19 percent.

However, there are considerable problems in availability of food in the market, and more so in the economic as well as physical access. Only 38 percent of the households said cereals are always available in their markets and 14 percent reported these are often available. On the other hand, 34 percent said these are available only sometime and 14 percent reported these not available at all. Months of reduced availability are generally during the period May to August.

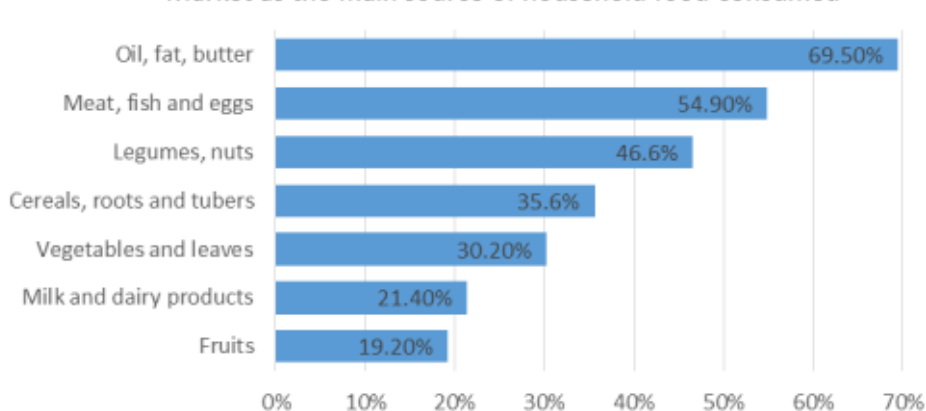
Average cost of two way transport to the market has been SSP 303, the highest cost was in Western Bahr el Ghazal at SSP 491, followed by Eastern Equatoria (SSP 434) and Jonglei (SSP 366), while the lowest was in Warrap (SSP 41), followed by Northern Bahr el Ghazal (SSP 61) and Upper Nile (SSP 262).

58 percent of households mentioned the distance to the market as the main constraint in accessing market, followed by high transport cost (31 percent), lack of transport (30 percent), insecurity (22 percent) and seasonal road disruption 13 percent).

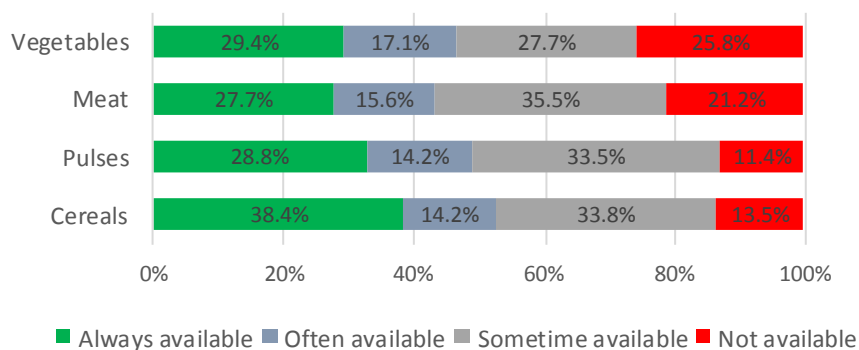
However, the economic access is by far the number one concern for a vast majority of the households given the hyper-inflation in the country and stagnant incomes. As a result, many of the households were adapting various coping strategies, one third (33 percent) of households reported that in the past six months, they stopped or reduced buying meat or sugar, rice (30 percent), sorghum grain (18 percent), maize flour (18 percent), wheat flour (17 percent), vegetable oil (16 percent). On the other hand, half (51 percent) said that they are now buying sorghum grains, maize grains or flour (19 percent) instead of meats or rice.

Some 85 percent of the households reported using credit or borrowing money in the past three months to buy food and about half (47 percent) expect it to take four months or more to pay back the debt. Only 2.5 percent of the households reported holding a bank account, which shows the lack of any significant income or access to banking facilities.

Market as the main source of household food consumed

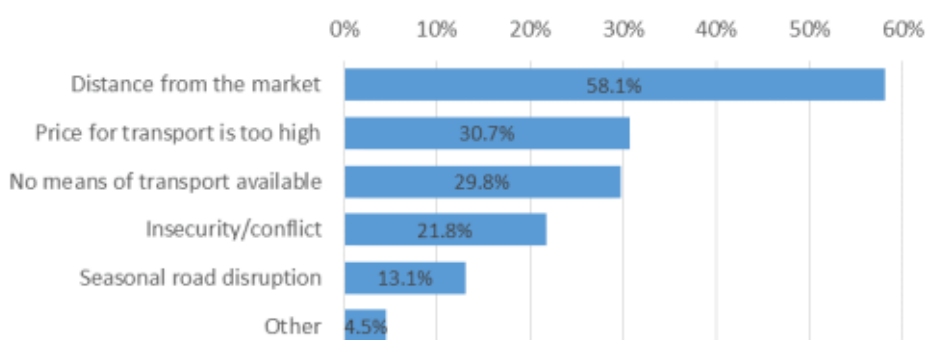


Availability in the markets



■ Always available ■ Often available ■ Sometime available ■ Not available

Main constraints in accessing markets

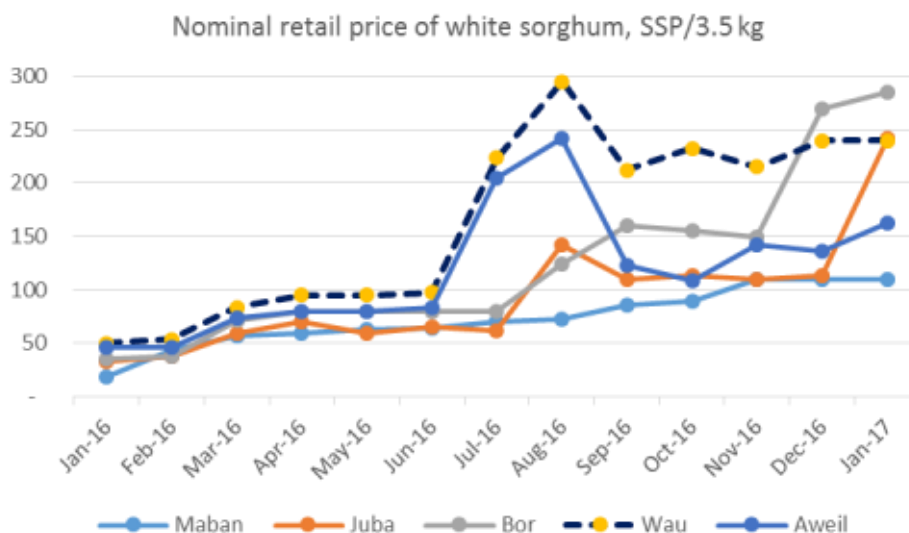
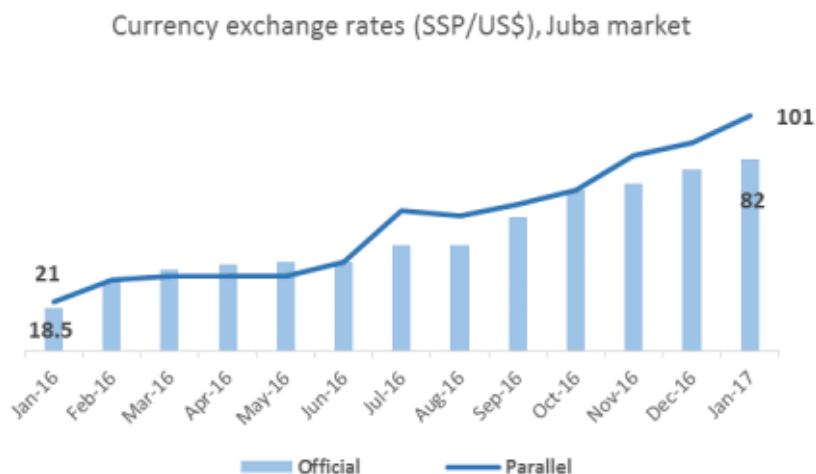


Macroeconomic crisis affecting food security

Ongoing macro-economic crisis, which has been further worsened by the conflict and insecurity, have contributed to food insecurity levels that have steadily increased over all seasons since 2014 reaching the highest peak ever at the post-harvest period in 2016.

The inflation rate in South Sudan measured through the Consumer Price Index data released by the National Bureau of Statistics, declined significantly in the last quarter of the year reaching 479.7 percent in December 2016 from the peak level of 836 percent in October 2016. Inflation rates remain the highest in the world, attributed to fuel prices that increased by 623 percent in December 2016 compared to the same period in 2015; fuel shortages; ever increasing food prices rising at a faster pace than the wage rates, with cereals prices increasing in December 2016 by over 440 percent on a year to year basis;

the continued depreciation of the South Sudanese Pound (SSP), falling from SSP 18.50/US\$ in January 2016 to SSP 74/US\$ in November 2016 and SSP 100/US\$ in January 2017 (representing a 440 percent loss in value over one year), and shortage of foreign currency which had negatively affected the humanitarian situation. High dependency on oil and decline in oil production and revenue; under-developed industrial base for basic goods and high import dependency; and a low performing agricultural sector with the cereal deficit increasing in 2016/17 by over 110,000 mt compared to last year have further affected livelihoods for the South Sudanese population. Poor infrastructure worsened by instability and insecurity impede movement of food and goods into and within the country constraining market supply and, therefore affecting food security in South Sudan.



Assistance received

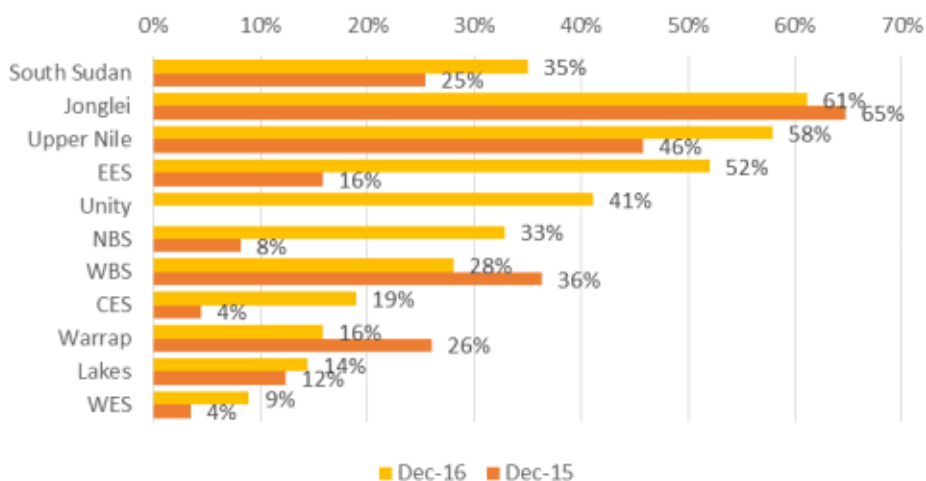
Some 35 percent of households reported receiving humanitarian assistance in the past six months prior to the survey, which is an increase compared to 25 percent during the same period in the previous year. Jonglei had the highest proportion (61 percent) of the respondent households who received assistance, closely followed by Upper Nile (58 percent), Eastern Equatoria (52 percent) and Unity (41 percent) and Northern Bahr el Ghazal (33 percent). On the other hand, Western Equatoria had the lowest proportion (9 percent), followed by Lakes (14 percent), Warrap (16 percent), and Central Equatoria (19 percent).

Among those who received assistance, some 75 percent benefited from general food distribution (GFD), 16 percent from food for assets; school meals (8 percent), nutrition support (15 percent), health amenities (31 percent), agricultural inputs such as seeds (22 percent) and agricultural tools (19 percent).

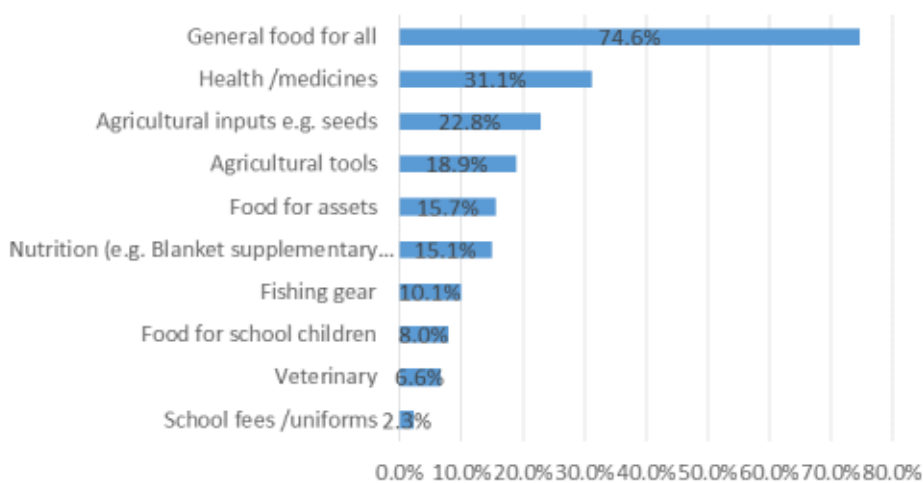
Among those who received assistance, Upper Nile (97 percent), Jonglei (96 percent) and Unity (95 percent) had the highest proportion reportedly receiving GFD, followed by Northern Bahr el Ghazal (79%). Western Bahr el Ghazal had the highest proportion (60 percent) receiving nutrition support. On the other hand, Upper Nile had highest proportion of households receiving agricultural support (35 percent receiving agricultural inputs and 32 percent receiving tools).

Clearly, humanitarian assistance, particularly the food assistance has been very important in stabilizing the food security situation, and thus its continuity is very important. 85 percent of the households reported that they have already used up the last of the food assistance received, with only 15 percent having some stock remaining.

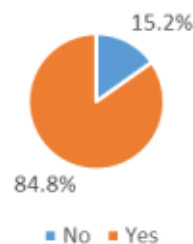
Assistance received in the past six months



Type of assistance received



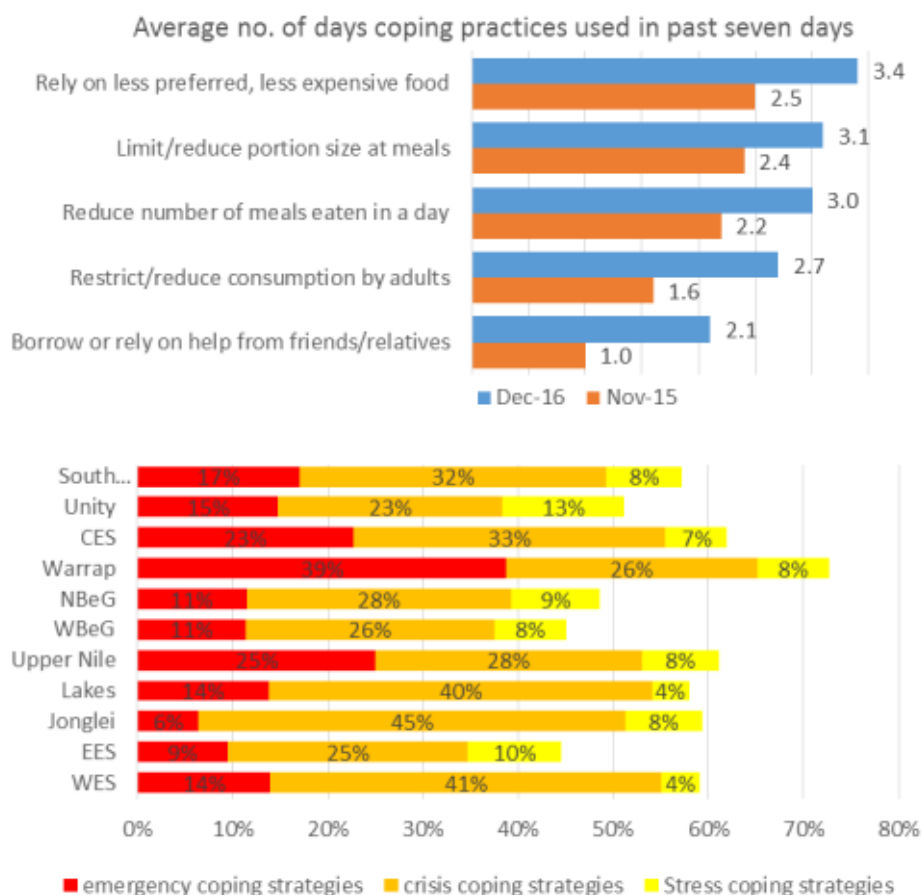
Did the HH finish the last of the food assistance received?



Household shocks and coping

High food prices (reported by 61 percent), insecurity/violence (45 percent) and lack of free access or movement (11 percent), human sickness (44 percent) and inadequate rain (21 percent) were the main household level shocks. Other shocks included floods (12 percent), death of household member (8 percent), weeds/pest, looting or theft or loss of assets, death of livestock and loss of income. Much higher proportion of households reported high food prices and insecurity/violence as shocks compared to last year (8 percent and 7 percent respectively).

The precarious food security situation in the face of such shocks, led households resort to a number of coping strategies. Some 64 percent of households were thus found to be adopting food based coping strategies. Among them the most common strategies were limiting or reducing portion size at meals (93 percent), reducing number of meals eaten in a day (91 percent), relying on less preferred, less expensive food (87 percent), reducing consumption by adult members in order for small children to eat (82 percent) and borrowing food or relying on help from friends/relatives (40 percent). In terms of frequency, relying on less preferred food was practiced most (average of 3.4 days in one week prior to the survey), followed by reducing portion size (3.1) and number of meals (3.0). Others included restrict/reduce consumption by adults in order to let children eat (2.7) and borrow or rely on help from friends or relatives (2.1). A significant increase was noted in frequency of all coping practices compared to the same period in 2015.



Similarly, 59 percent of households were resorting to livelihood based coping strategies. Among them, 17 percent had to resort to emergency coping strategies while 32 percent were resorting to crisis and 8 percent were practicing stress coping strategies.

Given the high level of food insecurity and shocks, it is not surprising its impact on coping mechanisms. While the food based coping strategies can be seen as a proxy of their current severe food insecurity, the livelihood based coping strategies, particularly the emergency and crisis strategies practiced by households are likely to erode their resilience and thus with a possible consequences for the longer term.

Maternal, infant, and young child nutrition and health

Acute malnutrition of children 6-59 Months

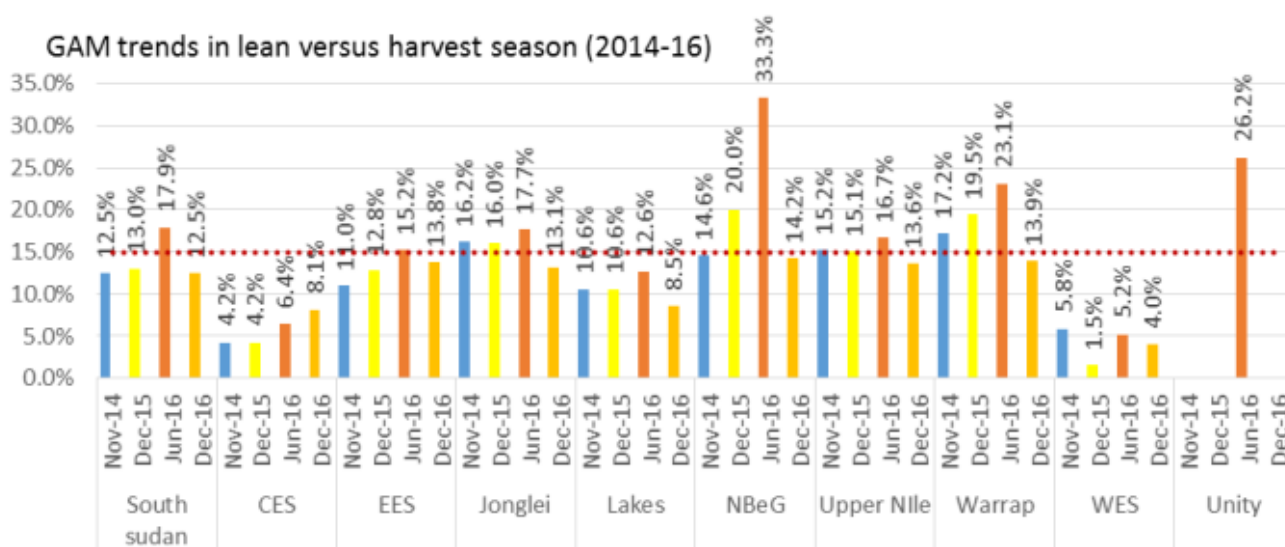
Seasonal reduction in the global acute malnutrition (GAM) has been observed compared to the peak of the lean season of 2106, with some improvement as can be expected in the post harvest period. This demonstrates the role of food access in the period just after the harvest in improving nutrition, albeit gains may not be sustained, owing to projected earlier than usual start of the lean season. The overall GAM (12.5 percent) is around the same level as seen during the same period last year and in the harvest season of 2014.

Remarkable seasonal improvement is noted in the Greater Bahr el Ghazal region that may be attributable to the substantial scale up of food and nutrition assistance in the region, complimented by the harvest. However, state level GAM mainly remains similar to levels observed in the same season previous years

However, a worsening nutrition situation atypical of a harvest season is observed in the Greater Equatoria region, a deterioration associated with widespread insecurity, lack of access, disruption of the 2016 agricultural season and the economic crisis.

While no GAM is reported from the FSNMS for Unity due to lack of adequate sample coverage, SMART surveys and mass screening conducted in several parts reveal disturbing proxy GAM levels, indicating severe deterioration of the nutrition situation particularly in the central and southern parts.

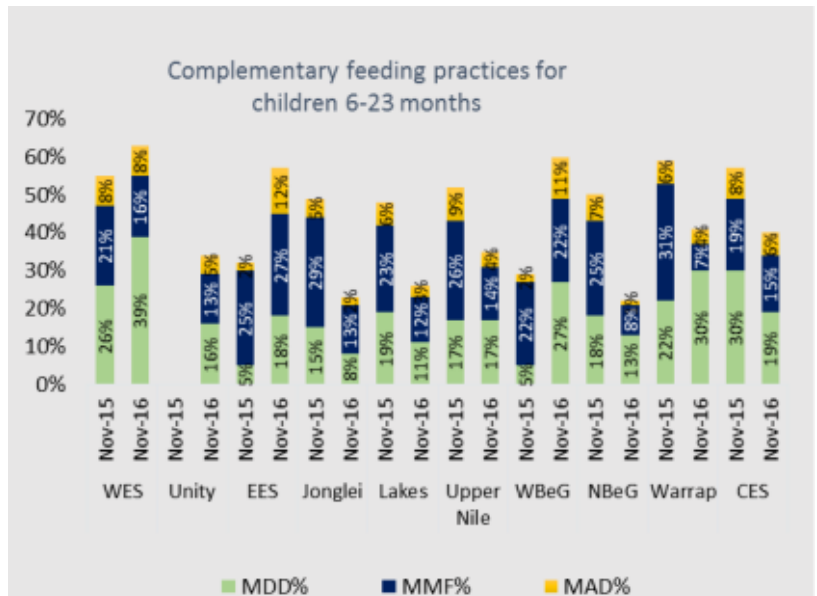
Overall, the nutrition situation continues to be distressing in South Sudan.



Infant and young child nutrition

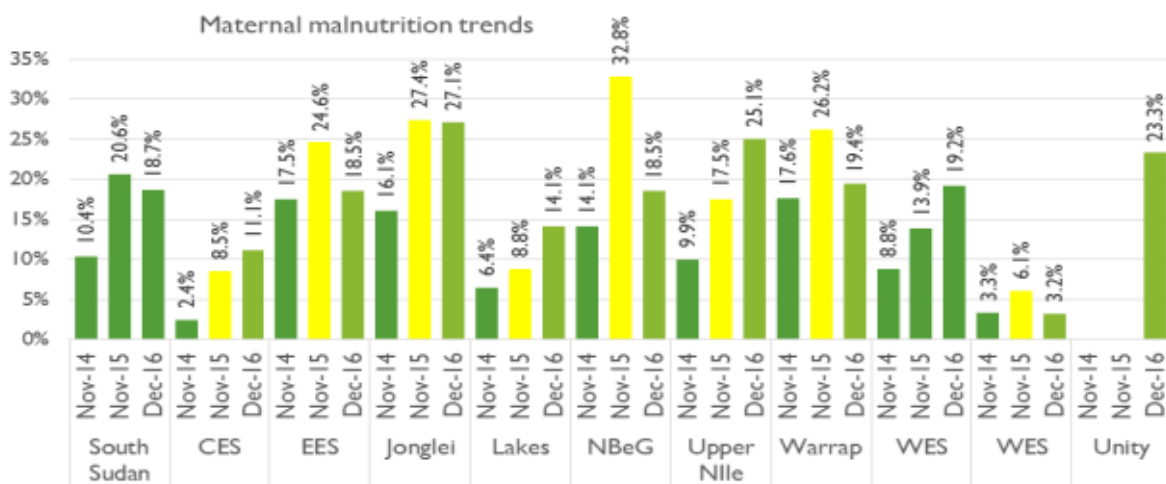
The status of complementary feeding of children 6 to 23 months in South Sudan remains extremely poor. Intake of the recommended food groups (Minimum Dietary Diversity – MDD) is very low (18 percent), denoting poor quality of feeding, especially in Warrap, Northern Bahr el Ghazal and Jonglei. The proportion of children who received solid, semi-solid, or soft foods the minimum recommended number of times or more (Minimum Meal Frequency – MMF), a proxy for energy intake, is appalling at 16 percent, while the composite indicator of quality and quantity of complimentary feedings (Minimum Acceptable Diet – MAD) shows a disturbing situation at 6 percent.

Furthermore, there has been a notable reduction in the proportion of children meeting the WHO recommended feeding quality and quantity standards in many areas, an indication of the deteriorating child feeding situation in South Sudan. This is against a backdrop of worsening food security status and the significant correlation found between household food security and the child diet. Thus, it is important to provide support to address food gaps particularly in households with children under two in the most affected areas, particularly in the Greater Bahr el Ghazal and Greater Upper Nile regions.



Maternal nutrition

Looking at the maternal nutrition status over the past years in the same season, an increase in wasting of women is noted in Upper Nile, Western Bahr el Ghazal, Lakes and Central Equatoria, with the Greater Upper Nile registering the highest prevalence of maternal wasting. Situation in Jonglei remains alarming. Warrap, Northern Bahr el Ghazal and Eastern Equatoria have registered some improvements. Maternal nutrition is associated with poor child nutrition outcomes, hence child nutrition status may be affected adversely if the maternal nutrition status continues to worsen.



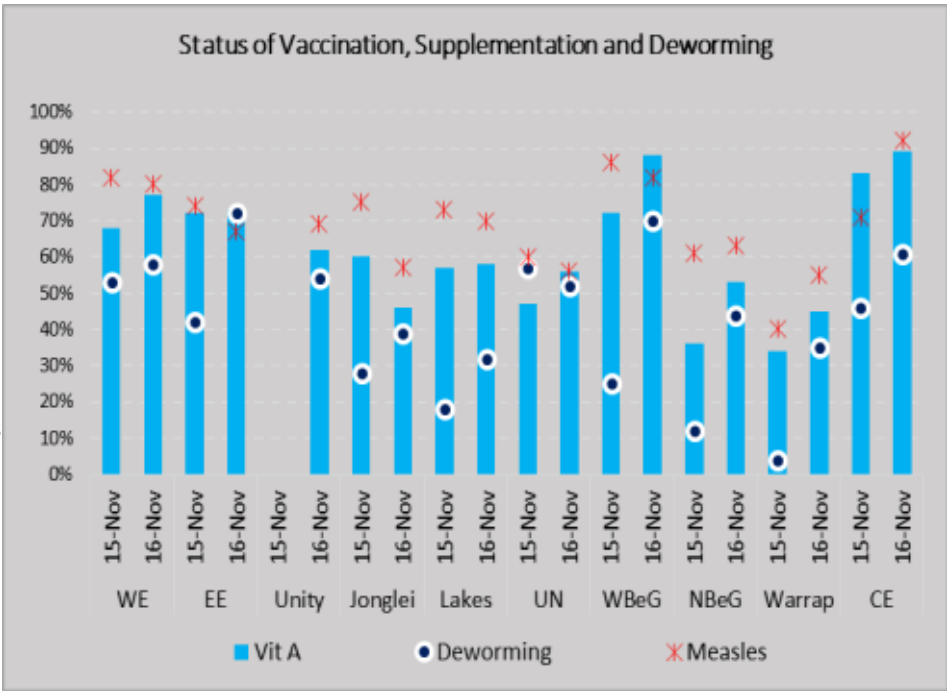
Child morbidity

One in two children in South Sudan suffered from at least one illness two weeks prior to the survey. Same season trend suggests a reduction in the proportion of children that suffered from any illness, compared to last year. Also, compared to the last rain season, there has been reduction in overall prevalence of morbidity, although an increase is observed in Eastern Equatoria, Jonglei, Lakes and Warrap. Among the children that suffered any morbidity, malaria/fever was the most prevalent, affecting about 70 percent of the children; the Equatorias were the worst affected. With the coming rains, incidence of malarial and diarrhoeal diseases is likely to increase and hence disease prevention measures are necessary.

Percentage of children 6-69 months that suffered from any illness					
	Nov-15	Same season trend	Nov-16	Rain vs. dry season trend	Jun-16
Unity	58%	↓	47%	↓	43%
EES	59%	↓	56%	↑	59%
Jonglei	67%	↓	47%	↑	49%
Lakes	60%	↓	40%	↑	44%
Upper Nile	59%	↓	47%	↓	37%
WBeG	59%	↓	52%	↓	36%
NBeG	56%	↓	49%	↓	23%
Warrap	43%	↓	31%	↑	42%
CES	53%	↓	47%	↓	34%
WES	59%	↓	66%	↓	56%

Vaccination, supplementation and deworming coverage

Overall, higher vaccination coverage is observed since 2015. However, there is a need to boost coverage of deworming and vitamin A supplementation across the country, especially in Jonglei, Lakes, Warrap and Northern Bahr el Ghazal. Also, measles coverage across the country lags behind the required 90 percent to 95 percent vaccination level necessary to protect a population against its spread/outbreak. Findings highlight the need to address measles vaccination/vitamin A supplementation coverage gaps to support improved nutrition.



Food Security and Nutrition Linkage

Findings reiterate the correlation between nutrition and food security in rural South Sudan and emphasize the need to improve food security for better nutrition outcomes. Correlations between food security/nutrition status and several socio-demographic factors, namely sex, age of household head, or elderly, household resident status, and gender, underline the relevance of the socio-demographic factors in targeting/prioritizing of assistance. Findings also demonstrate the role of access to income in mitigating hunger/undernutrition and emphasize the need to support improved livelihoods and resilience. Furthermore, there is need to promote better quality diets and optimal child care practices in order to support improved food security and nutrition across South Sudan.

An analysis on food security and nutrition linkage is provided in Annex VI.

Outlook

The results presented above from the analysis of data from FSNMS indicate towards a very serious humanitarian situation in South Sudan in terms of food security and nutrition, as the lean season approaches. In summary, following are the main reasons for this:

- ◆ The food security and nutrition situation is already severe, with the highest ever food insecurity in the post harvest period since FSNMS started reporting in 2010. Projection of this trend shows that the food insecurity level during the lean season will reach the highest ever recorded.
- ◆ The agricultural production in the recent harvest season was not optimal and far from adequate to meet the needs of the population, with estimates indicating a cereal crop deficit of almost half a million metric tons in 2017, higher than last year by about 110,000 mt.
- ◆ The regional food supply situation is also not favourable due to overall lower production in the region and the impact of drought in neighbouring countries.
- ◆ There is no sign of improvement in the macroeconomic situation. The depreciation of the Sudanese pound, hyperinflation and the trend of soaring food prices is likely to continue while there is no likelihood of commensurate increase in household income.
- ◆ Conflict and insecurity continues to affect many parts of the country, disrupting livelihoods, markets and mobility, and there is no sign of any improvement in this situation.
- ◆ Humanitarian access for supporting vulnerable populations remains a challenge particularly in areas where people are most in need.

In conclusion, the outlook points towards a very grave food insecurity and nutrition situation in South Sudan until the height of the lean season in 2017, with a high likelihood of the worst situation since independence. A very serious humanitarian crisis is likely to occur unless immediate and serious steps are taken to support the vulnerable populations.

Methodological Note

The nineteenth round of the FSNMS survey conducted in December 2016., involved survey of households across the country with a sampling plan provided by the National Bureau of Statistics in order to obtain statistically representative results by each (former) state. A two stage cluster design was employed with the first stage involving selection of cluster/ enumeration areas and the second stage involving selection of households. A total of 351 clusters were thus selected with 15 households from each cluster. Thus the sample covered a total of 5,175 households with an estimated 5,192 children under the age of five in those households.

Distribution of household samples

Former state	No. of households	
	Planned	Actual covered
Central Equatoria	615	424
Eastern Equatoria	510	415
Western Equatoria	495	413
Jonglei	585	546
Lakes	570	561
Unity	495	396
Upper Nile	555	560
Western Bahr el Ghazal	420	264
Warrap		1,015
Northern Bahr el Ghazal		1,787

Note: Warrap and NBG were covered under IFANSCA

The survey instrument consisted of food security as well as nutrition module including anthropometry of children under five. Thus this was considered in the sampling. A three-day training of trainers (ToT) was first held in Juba in order to have a common understanding among the trainers on the survey instruments. This was later followed by the training of enumerators in each former state. The trainings were provided by WFP, FAP and UNICEF.

Computer tablets were used for data collection in the field and uploading into the server. In areas where it was not possible to use tablets for security reasons, survey was conducted in hard copy questionnaire and the data entered through the tablet later on.

There were considerable constraints in field survey, notably in the Greater Equatoria, Western Bahr el Ghazal and Unity due to prevailing insecurity. Partner organizations from the food security and livelihood cluster provided enumerators, and this was particularly valuable in covering some of the areas which were otherwise difficult to access.

A detailed study 'Integrated Food and Nutrition Security Causal Analysis (IFANSCA) was conducted in Warrap and Northern Bahr el Ghazal during the same time. This involved a survey of 2,802 households in these two former states. The household survey tool of IFANSCA also included the modules of FSNMS, and thus data collected from IFANSCA were considered for FSNMS for these two states, by applying appropriate weight.

Weight proportional to the populations of each former state was applied in order to obtain overall results for South Sudan during the analysis.

The ten former states of South Sudan have been used for the purpose of this analysis in order to have a basis for comparison with the results from earlier analysis and also due to the technical considerations as the shape files of official boundaries as well as population data are not yet available as per the new states classified by the Government of South Sudan. Thus, use of the State and county names in this report does not imply the expression of any opinion on the part of WFP and collaborating organizations concerning the legal status of any county/state.

Annex I—Household hunger scale

	Severe	Moderate	Slight	None
WES	2.5%	37.2%	11.7%	48.6%
EES	0.5%	30.6%	12.5%	56.4%
Jonglei	4.0%	76.7%	4.4%	14.8%
Lakes	6.8%	74.7%	3.7%	14.9%
Upper Nile	6.1%	76.8%	4.6%	12.5%
WBeG	2.7%	24.6%	6.8%	65.9%
NBeG	12.6%	53.7%	4.9%	28.8%
Warrap	6.2%	50.9%	7.0%	35.9%
CES	2.1%	57.3%	12.8%	27.9%
Unity	15.0%	63.1%	4.0%	17.9%
South Sudan	5.9%	57.8%	7.2%	29.1%

Annex II—Household shocks

	South Sudan	WES	EES	Jonglei	Lakes	Upper Nile	WBeG	NBeG	Warrap	CES	Unity
Insecurity/violence	45.0%	93.3%	28.0%	66.3%	43.9%	60.9%	36.7%	1.3%	32.0%	51.6%	41.4%
Food too expensive/High food prices	60.6%	39.2%	60.2%	50.5%	72.1%	60.4%	64.0%	80.5%	51.3%	67.7%	55.1%
Lack of free access/movement	11.2%	24.8%	20.0%	9.7%	7.0%	10.5%	12.5%	1.0%	6.8%	14.1%	12.9%
Livestock diseases	12.8%	1.5%	23.1%	17.9%	5.2%	15.4%	6.4%	12.8%	21.9%	3.9%	11.9%
Floods	12.2%	.2%	.2%	27.7%	7.8%	24.6%	0.0%	5.8%	25.2%	0.0%	14.5%
Human sickness	43.8%	41.9%	49.2%	44.5%	36.6%	27.9%	41.3%	60.8%	41.4%	47.1%	41.7%
Returnees/IDPs living with household	2.4%	1.0%	.5%	2.0%	0.0%	.5%	2.7%	.3%	2.0%	5.7%	9.5%
Social Event (Ceremonies, weddings, funerals)	1.4%	1.0%	1.2%	.2%	1.3%	.5%	1.9%	.1%	4.5%	.5%	4.0%
Delay of rains/ late start / dry spell	20.9%	12.2%	30.1%	10.6%	36.0%	16.1%	23.9%	18.8%	9.3%	43.0%	6.6%
Weeds/pest	6.3%	.7%	5.8%	4.2%	9.1%	1.6%	13.6%	17.7%	5.0%	5.5%	1.1%
None	3.8%	.2%	1.2%	3.3%	6.0%	2.3%	12.5%	1.9%	9.7%	0.0%	6.3%
Death of household member	7.9%	18.1%	9.6%	8.6%	2.6%	1.4%	4.9%	4.0%	12.9%	6.0%	13.2%
Death of Livestock	4.3%	1.0%	7.2%	6.6%	.5%	4.5%	.4%	2.6%	8.1%	.8%	8.7%
Looting / theft/ loss of assets	5.8%	19.6%	2.2%	.9%	2.9%	1.1%	4.5%	5.3%	6.2%	5.2%	17.7%
Loss of income / employment	4.0%	5.0%	0.0%	.5%	1.6%	1.2%	8.3%	11.1%	3.1%	2.1%	11.6%
Other	5.9%	5.0%	15.2%	.9%	5.0%	1.2%	4.5%	10.9%	2.0%	10.4%	3.4%

Main Shocks

Annex III—Main coping strategies practiced by households

	Rely on less preferred and less expensive food		Borrow food, or rely on help from friends or relatives		Limit portion size at meals		Restrict consumption by adults in order for small children to eat		Reduce number of meals eaten in a day	
	Nov '15	Dec '16	Nov '15	Dec '16	Nov '15	Dec '16	Nov '15	Dec '16	Nov '15	Dec '16
WES	1.3	2.7	1.1	2.2	1.6	2.9	1.3	2.4	1.9	2.9
EES	2.6	4.9	0.8	2.0	3.0	4.5	1.4	3.0	3.3	4.3
Jonglei	2.9	3.4	1.2	2.0	2.7	3.3	1.9	2.9	2.1	2.9
Lakes	3.0	2.6	0.8	2.2	2.9	2.3	1.7	2.3	2.6	2.4
UNS	2.0	2.4	0.9	1.8	2.1	2.4	1.8	2.0	2.0	2.2
WBS	1.9	4.4	0.7	1.8	1.5	3.3	1.0	2.9	1.4	3.7
NBS	1.9	3.4	0.9	1.9	1.6	2.5	1.0	2.0	1.6	2.4
Warrap	3.9	3.8	1.2	2.4	3.0	3.3	2.1	3.1	2.2	3.4
CES	2.5	3.9	1.1	2.0	2.6	3.7	1.6	3.3	2.4	3.8
Unity		3.9		2.5		2.8		2.9		2.9
National	2.5	3.4	1.0	2.1	2.4	3.1	1.6	2.7	2.2	3.0

Annex IV—Sources of Household Food Consumption

	South Sudan	WES	EES	Jonglei	Lakes	Upper Nile	WBeG	NBeG	Warrap	CES	Unity	
Cereals, grains, roots and tubers,	Own production (crops and animals)	52.9%	77.2%	53.6%	44.1%	56.3%	34.6%	66.3%	46.0%	63.8%	42.9%	
	Exchange of labor for food	.8%	1.2%	1.3%	.5%	.4%	.7%	.4%	.7%	.8%	1.0%	
	Gifts from neighbors/relatives	2.7%	4.7%	4.5%	4.6%	.4%	1.8%	4.0%	.9%	1.7%	3.3%	
	Market/shop purchase (Cash and credit)	35.6%	16.3%	38.5%	30.8%	41.4%	51.5%	26.5%	51.7%	31.0%	32.5%	22.4%
Legumes / nuts	Food assistance	6.6%	0.0%	.3%	18.9%	1.5%	11.0%	.4%	.3%	.1%	2.7%	28.4%
	Gathering	.6%	.3%	.3%	0.0%	0.0%	0.0%	1.6%	.1%	2.1%	.3%	.3%
	Own production (crops and animals)	44.0%	71.9%	23.6%	15.7%	50.9%	28.7%	56.0%	37.8%	36.9%	51.3%	52.1%
	Exchange of labor for food	.6%	1.0%	0.0%	0.0%	0.0%	0.0%	2.2%	.8%	.9%	.8%	0.0%
Meat, fish and eggs	Gifts from neighbors/relatives	4.0%	2.0%	0.0%	8.7%	.9%	2.3%	6.0%	4.1%	5.2%	4.2%	
	Market/shop purchase (Cash and credit)	46.6%	24.1%	69.1%	63.0%	45.3%	67.4%	34.3%	56.5%	56.1%	17.7%	
	Food assistance	3.3%	0.0%	0.0%	12.6%	.9%	0.0%	0.0%	.4%	.2%	1.9%	24.0%
	Gathering	.8%	0.0%	5.5%	0.0%	1.9%	.8%	0.0%	0.0%	.5%	1.5%	0.0%
Vegetables and leaves	Own production (crops and animals)	17.1%	9.7%	71.4%	8.1%	14.8%	11.7%	2.8%	3.6%	15.6%	20.3%	
	Exchange of labor for food	.4%	0.0%	0.0%	0.0%	0.0%	.8%	.9%	.3%	.6%	1.7%	
	Gifts from neighbors/relatives	5.2%	5.8%	0.0%	11.7%	7.4%	2.6%	1.8%	.9%	12.0%	.9%	4.2%
	Market/shop purchase (Cash and credit)	54.9%	68.8%	19.3%	49.1%	64.2%	38.9%	80.7%	92.2%	62.5%	65.4%	29.7%
Oil / fat / butter	Gathering	.8%	0.0%	0.0%	.9%	0.0%	3.0%	0.0%	.3%	.4%	.8%	
	Own production (crops and animals)	35.0%	79.6%	19.3%	29.6%	51.5%	11.7%	47.3%	16.2%	17.1%	34.9%	23.3%
	Exchange of labor for food	.2%	0.0%	0.0%	0.0%	0.0%	.8%	0.0%	.3%	.3%	0.0%	1.7%
	Gifts from neighbors/relatives	1.7%	3.8%	.7%	2.0%	.7%	0.0%	4.5%	3.1%	.3%	1.1%	0.0%
Oil / fat / butter	Market/shop purchase (Cash and credit)	30.2%	13.8%	11.9%	29.6%	18.4%	49.2%	28.6%	52.3%	46.5%	41.7%	
	Gathering	32.3%	1.4%	68.0%	38.8%	28.7%	37.5%	19.6%	27.2%	35.5%	26.8%	28.3%
	Own production (crops and animals)	15.4%	22.2%	40.9%	11.1%	27.8%	12.5%	8.2%	2.6%	25.1%	5.6%	8.9%
	Exchange of labor for food	.4%	0.0%	0.0%	0.0%	0.0%	.8%	1.6%	0.0%	.8%	0.0%	2.4%
Oil / fat / butter	Gifts from neighbors/relatives	2.4%	4.1%	0.0%	4.4%	3.7%	.4%	1.6%	2.0%	4.1%	2.4%	
	Market/shop purchase (Cash and credit)	69.5%	72.5%	59.1%	68.3%	59.3%	67.0%	72.1%	90.1%	67.9%	46.8%	
	Food assistance	10.5%	0.0%	0.0%	14.4%	7.4%	17.4%	4.9%	3.3%	.5%	6.7%	37.1%
	Gathering	1.0%	.6%	0.0%	.7%	1.9%	1.1%	9.8%	2.0%	.8%	.6%	0.0%

Annex V—Global acute malnutrition across South Sudan

State	n	Nutrition Outcome (95% CI)				ENA Penalty	SD	WHO Classification of GAM WHZ
		GAM WHZ	SAM WHZ	GAM MUAC	SAM MUAC			
Central Equatoria	457	8.1 (4.8 - 13.3)	2.3 (0.9 - 5.5)	7.0 (4.2 - 11.5)	2.4 (0.9 - 6.3)	19	1.08	
Eastern Equatoria	390	13.8 (10.6 - 17.6)	3.4 (2.0 - 5.8)	6.9 (4.0 - 11.6)	1.5 (0.6 - 4.2)	12	1.03	
Jonglei	672	13.1 (10.8 - 15.8)	3.0 (1.8 - 5.1)	7.3 (5.2 - 10.2)	1.5 (0.8 - 2.8)	29	1.10	
Lakes	556	8.5 (6.3 - 11.3)	2.3 (1.4 - 3.8)	5.3 (4.2 - 7.9)	1.4 (0.7 - 3.1)	25	1.13	
NBeG	1256	14.2 (12.3 - 16.3)	2.4 (1.7 - 3.2)	7.7 (6.4 - 9.4)	1.8 (1.1 - 2.9)	11	1.03	
Upper Nile	631	13.6		9.8 (6.2 - 15.1)	2.1 (1.0 - 4.1)	58	1.20	
Warrap	2038	13.9 (12.2 - 15.8)	3.2 (2.4 - 4.2)	4.6 (3.5 - 6.0)	1.2 (0.7 - 2.1)	7	1.04	
WBeG	254							
Western Equatoria	344	4.0 (2.0 - 8.0)	0.3 (0.0 - 2.5)	2.3 (1.0 - 5.2)	0.6 (0.1 - 2.4)	25	1.13	
Overall (Weighted)	6598	12.5% (11.4 - 13.7)	3.4%(2.8 - 4.1)					
				Insufficient sample size for GAM estimate				
		13.6		Calculated GAM used as standard deviation was above 1.2.				

Annex VI—The food security—nutrition linkage

Based on bivariate analysis, diverse interlinkages between food security and nutrition are observed (See Annex). Findings reiterate the significant association between nutrition and food security in rural South Sudan and emphasize the need to improve food security for better nutrition outcomes or vice versa. Various access and utilisation factors bear significant relationship with nutrition and food security.

Some **Socio-demographic factors** bearing significant association with nutrition and food security emerge from the analysis. A household had a significantly higher likelihood of being food secure when they were headed by a male, had a non-elderly head, were a resident or owned the house in which they live, whilst children were less likely to be malnourished when they belong to a household where females make decisions about food assistance. Findings also restate the typical correlation of child age and malnutrition. These correlations underline the relevance of considering such socio-demographic factors in targeting/prioritizing of assistance.

Food access issues bear significantly on the nutrition and food security situation of the rural South Sudan population. The likelihood of food security was significantly higher in households that depended on more reliable and sustainable livelihood sources, experienced increase in income when compared to same season last year and engaged in negligible consumption based coping. Also, significantly better food security and nutrition status of children was observed in households that reported to have experienced minimal hunger, no stress coping or owned any animals. These findings demonstrate the role of access to income/livelihoods in mitigating hunger/coping and improving food security and nutrition outcomes and emphasize the need to support improved livelihoods and resilience.

Food utilization factors were also highlighted as influencing not only nutrition but also food security status of households. Households had increased likelihood of food security and good child nutrition when they consumed at least two meals. In addition, significantly better nutrition was observed in households that had acceptable food consumption, consumed more diversified diets, vitamin A rich foods or more animal protein. Also children were more likely to have better nutrition status when they received vitamin A supplementation and measles vaccination. Notably, children 6 to 23 months fed on significantly better diets (in terms of quality and quantity) when they belonged to food secure households. These findings confirm the need to promote not just access to food but also better quality diets and optimal child care practices in order to support improved food security and nutrition across South Sudan

**Factors significantly associated with acute malnutrition at bivariate level
(P<0.05 and odds ratio confidence interval excluding 1)**

	B	S.E	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Adults consumed more than one meal yesterday	.243	.079	9.525	1	.002	1.276	1.093	1.489
Children consumed more than one meal yesterday	.241	.081	8.868	1	.003	1.272	1.086	1.491
Females make decision on food assistance	.328	.159	4.248	1	.039	1.389	1.016	1.898
Household experienced low to no hunger	.355	.083	9.453	1	.002	1.291	1.097	1.518
Household owns poultry	.257	.116	4.903	1	.027	1.293	1.030	1.622
Household consumed Vitamin A rich foods at least once in last 7 days	.361	.111	10.531	1	.001	1.435	1.154	1.785
Household consumed animal protein foods at least once in last 7 days	.212	.101	4.441	1	.035	1.237	1.015	1.506
Child more than 2 years old	.466	.129	133.11	1	.000	1.593	1.238	2.049
Child vaccinated against measles	.487	.124	15.490	1	.000	1.627	1.277	2.074
Bin VitAsupplem	.367	.114	10.357	1	.001	1.443	1.154	1.804
Household did not experience stress coping	.253	.078	10.534	1	.001	1.288	1.105	1.500
Household consumed better diverse diets	.252	.080	9.790	1	.002	1.286	1.099	1.505
Household consumed acceptable food consumption	.216	.091	5.667	1	.017	1.241	1.039	1.481
Child received Vitamin A supplementation in last 6 months	.67	.114	10.357	1	.001	1.443	1.154	1.804

Factors significantly associated with food insecurity at bivariate level (P<0.05 and odds ratio confidence interval excluding 1)

	B	S.E	Wald	df	Sig.	Exp(B)	95% C.I. for EXP (B)	
							Lower	Upper
Main income source reliable and sustainable	.406	.068	35.797	1	.000	1.501	1.314	1.715
Household head male	.386	.056	48.286	1	.000	1.471	1.319	1.640
Household head less than 60 years	.952	.314	9.180	1	.002	2.591	1.400	4.795
Household resident	.738	.116	40.564	1	.000	2.092	1.667	2.625
Household living in own house	.801	.105	57.838	1	.000	2.228	1.812	2.738
Adults consumed more than one meal yesterday	1.03 5	.053	382.010	1	.000	2.815	2.537	3.123
Children consumed more than one meal yesterday	1.15 8	.064	330.776	1	.000	3.184	2.810	3.607
Household experienced no to low consumption coping in the last 7 days	.585	.059	99.019	1	.000	1.795	1.599	2.014
Household experienced low to no hunger	1.17 6	.053	488.152	1	.000	3.241	2.920	3.597
HH income decreased of remained constant compared to same season last year	.369	.100	13.699	1	.000	1.446	1.190	1.758
Household owns cattle	.700	.079	77.814	1	.000	2.014	1.724	2.353
Household owns sheep	.544	.068	64.034	1	.000	1.723	1.508	1.969
Household owns goat	.365	.073	24.926	1	.000	1.441	1.248	1.662
Household owns poultry	.207	.071	8.468	1	.004	1.231	1.070	1.415
Bin_ChildwastingWHZ	.258	.087	8.843	1	.003	1.294	1.092	1.533
Child in household consumed the WHO recommended minimum dietary diversity	.671	.161	17.424	1	.000	1.956	1.427	2.680
Child in HH consumed the WHO recommended minimum meal frequency	.747	.159	22.202	1	.000	2.112	1.547	2.882
Child in HH consumed the WHO recommended minimum acceptable diet	1.16 9	.257	20.617	1	.000	3.218	1.943	5.330

Annex VII—Agriculture

Household cultivation status and main challenges of crop production

	South Sudan	WVES	EES	Jonglei	Lakes	Upper Nile	WBeG	NBeG	Warrap	CES	Unity
Households who have land for cultivation	80.8%	85.9%	95.7%	75.3%	81.7%	76.1%	81.4%	73.8%	82.0%	88.0%	71.0%
Households with cultivable land who planted crops in the 2016 season	90.4%	93.9%	96.0%	82.0%	92.3%	85.0%	92.6%	91.6%	93.3%	92.6%	87.0%
Shortage of rain	66.2%	64.0%	93.0%	54.2%	82.0%	56.8%	58.7%	74.4%	41.7%	83.1%	49.1%
Flooding	24.8%	1.2%	.2%	56.2%	11.7%	49.8%	1.1%	12.0%	36.8%	1.0%	48.5%
Pests and diseases	43.1%	69.7%	47.7%	40.7%	41.5%	42.5%	50.0%	35.0%	42.0%	47.7%	22.7%
Heavy weed and infestation	20.3%	16.4%	7.0%	21.4%	12.8%	14.5%	28.4%	43.3%	23.5%	17.7%	24.3%
Shortage of seeds	24.2%	14.6%	22.9%	22.5%	30.3%	27.9%	26.9%	19.6%	24.1%	21.6%	32.7%
High cost of seeds	16.5%	18.6%	8.7%	11.0%	14.9%	13.7%	27.7%	19.0%	17.2%	29.7%	9.2%
Shortage of hand tools	20.5%	12.4%	16.6%	18.7%	12.3%	22.7%	21.6%	10.7%	19.3%	31.0%	34.8%
Loss of crops	17.8%	16.4%	34.5%	10.8%	19.8%	7.1%	15.9%	22.8%	12.9%	23.2%	16.1%
Labor constraints	6.8%	6.0%	3.1%	3.3%	14.6%	.9%	4.2%	6.9%	10.6%	10.9%	6.9%

Area planted (in fedan) by type of crop

	South Sudan	WES	EES	Jonglei	Lakes	Upper Nile	WBeG	NBeG	Warrap	CES	Unity
Sorghum	1.39	0.67	1.46	1.28	1.95	0.79	2.00	1.94	2.32	1.00	0.47
Maize	0.45	0.61	0.13	0.46	0.25	0.92	0.23	0.06	0.11	0.55	1.41
Millet	0.10	0.37	0.02	0.10	0.21	0.03	0.05	0.04	0.11	0.09	0.06
Cassava	0.20	0.94	0.02	0.03	0.25	0.06	0.33	0.04	0.02	0.48	0.03
Rice	0.05	0.18	0.00	0.02	0.23	0.01	0.00	0.03	0.03	0.03	0.06
Beans	0.10	0.13	0.02	0.06	0.21	0.08	0.26	0.02	0.03	0.19	0.05
Groundnuts	0.49	1.03	0.05	0.15	1.03	0.06	1.24	0.54	0.60	0.71	0.04
Vegetables	0.11	0.17	0.06	0.10	0.19	0.02	0.31	0.11	0.05	0.14	0.07
Other	0.08	0.10	0.03	0.01	0.19	0.05	0.20	0.10	0.04	0.13	0.04
Total	2.97	4.20	1.79	2.21	4.51	2.02	4.62	2.88	3.31	3.32	2.23

Annex VIII—Livestock ownership

	South Sudan	WES	EES	Jonglei	Lakes	Upper Nile	WBS	NBeG	Warrap	CES	Unity
Households who own any livestock, herds or farm animals	50.2%	20.1%	63.9%	54.9%	60.1%	45.5%	44.7%	41.4%	61.6%	48.2%	49.1%
Average of number of house possess livestock (out of the households having livestock)											
Cattle	40.39	.23	232.00	12.86	5.55	11.07	98.87	3.58	13.32	5.57	17.75
Sheep	20.55	.17	129.59	1.33	1.83	2.25	66.45	2.36	4.96	1.45	4.23
Goats	27.51	6.19	170.46	5.82	5.55	4.73	47.07	5.53	6.47	5.71	6.10
Poultry	6.20	11.46	6.59	3.09	6.86	2.95	10.90	5.90	7.36	9.77	3.70
Other	.21	.19	.39	.08	.10	.72	.22	.01	.06	.32	.05
Average TLU											
TLU ¹	16.70	.20	123.03	5.38	2.85	4.02	36.11	1.39	6.51	2.35	6.64
Percentage of household own livestock (TLU)											
No livestock	50.7%	80.1%	37.1%	46.0%	40.5%	56.1%	56.1%	58.9%	38.7%	53.1%	52.5%
Negligible holding (<0.5 TLU)	6.5%	10.2%	4.8%	1.8%	8.1%	.9%	15.9%	12.4%	4.3%	10.9%	2.1%
Low holding (0.5 to 1 TLU)	4.6%	4.5%	1.2%	2.7%	9.4%	2.3%	3.8%	5.7%	3.1%	9.6%	2.4%
Medium holding (> 1 to 4 TLU)	12.8%	4.0%	4.1%	15.6%	19.1%	13.0%	12.1%	12.7%	14.0%	13.8%	15.0%
High holding (> 4 TLU)	25.4%	1.2%	52.8%	33.9%	23.0%	27.7%	12.1%	10.2%	39.9%	12.5%	28.0%

¹The TLU (Tropical Livestock Unit) values are: Camel=1, cattle=0.7, goat/sheep=0.1 and poultry=0.01. Source FAO (1987), Livestock Production in tropical Africa

