# JUBA URBAN FOOD SECURITY & NUTRITION ASSESSMENT

A collaborative activity of the National Bureau of Statistics with support from FAO, UNICEF, WFP and Juba Administrative Authorities

August 2015









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## **EXECUTIVE SUMMARY**

In August 2015, an assessment was conducted in Juba urban areas to understand the food security and nutrition status of the Juba urban population. The assessment would establish the status of the Juba urban population and determine the role of the ongoing economic downturn on household vulnerability. The assessment employed both qualitative and quantitative methods. Key results are as follows:

#### **Overall Food Security and Nutrition situation**

Prevalence of food insecurity in Juba urban population is 23%, a considerably high proportion for a population that presumably has better access to markets and basic services than rural areas. Global Acute Malnutrition (GAM) among children 6 to 59 months was estimated at 12.2%, whilst wasting among women stood at 10.4%. The evolution of the food security situation is worrying in light of the ongoing economic downturn, since this is a population that depends primarily on markets. The key food security outcomes are linked to food availability, access and utilization, as follows:

#### **Food Availability**

Commodity supply in markets: Traders reported significant reduction in stocking levels of key staple commodities. Though there is still food available in the market, 84% reported that the level of their stocks at the time of the assessment was less than the same time the previous year. Some 50% of people reported that the traded volume of sorghum and wheat flour decreased by more than 50%. Also, the number of traders has reduced compared to the same period in 2014, further affecting flow of supplies. This has an overall impact on the availability of food in the market.

#### **Food access**

- *Commodity prices:* The prices of the various food items including rice, maize flour, sorghum and wheat flour, were significantly higher at the time of the assessment than the previous year in all surveyed markets. Increased food prices present food access constraints, especially for the urban poor.
- Crop and Livestock Production: The Juba urban population accesses food mainly from the market, with about 98% of households reporting markets as their primary source of food. Only 13% of the Juba urban population cultivated in the last season, while a meagre 4% own livestock. The dependence on markets amidst rising costs of commodities as a result of economic downturn affects households' ability to secure adequate food.
- Wealth: Food access among the poor is constrained. Findings indicate that the poor are significantly more food insecure than wealthier households; denoting the food access difficulties that poor households face.
   Findings show that 43% of the Juba urban population are poor based on the ownership of a range of assets.
- Livelihood sources: Although the majority of households depend on reliable income sources, the disproportionate increase in commodity prices against earnings markedly reduces households' purchasing power. Additionally, households that depend on unreliable livelihoods mainly constitute the poor. Therefore, the poor may not be able to sustainably secure their access to food.
- Expenditure: Despite having a relatively low (8%) proportion of households with high to very high expenditure shares on food, high reliance on borrowing prevails among the Juba urban population. More than half of the households reported borrowing to feed household members. Borrowing is an unsustainable means of coping for a lack of food that leaves households indebted. Households that borrowed money in the last 12 months had a threefold risk of being food insecure compared to those that did not borrow any money.

#### **Food Utilization**

- Household Food Consumption: Some 40% of the population reported indequate food consumption levels.
  Only 31% met FAO's minimum recommended intake for South Sudan of 1,717 kilocalorie per person per day.
- Water, Sanitation and Hygiene: Access to drinking water from protected sources was deplorably low at 28%, although the practice of treating drinking water is widespread (among 97% households). However, the majority of he households own a toilet facility (82%), which are mainly traditional/open pit latrines.

- Child Illness: Almost half (44.6%) of children in respondents' households suffered from at least one of the common childhood illnesses. Children that suffered from at least one illness had a higher risk of being wasted than those that suffered from no illness.
- Child care and other factors: The proportion of children initiated to breastfeeding within the first hour of birth stood at 54.2% while exclusive breastfeeding for children aged 0 to 5 months is at 34%. Furthermore, only a small proportion of children aged 6 to 23 months are meeting the WHO recommended minimum meal frequency (23.3%), minimium dietary diversity (27.6%) and minimum acceptable diet (8.7%) while the proportion accessing iron rich foods is appallingly low at 3%.

#### Stability

*Shocks and coping:* Dominant shocks that affected the Juba urban population relate to the ongoing macro-economic challenges. More than half of households experienced shocks related to high food and fuel prices. Experiencing a shock was associated with increased vulnerability. Results indicate worsening household food consumption and nutrition as households regress to more severe coping mechanisms. In the face of the prevailing shocks, vulnerable households struggle to maintain optimal food access.

The food security and nutrition situation of the Juba urban population is concerning and may deteriorate in light of the ongoing economic events. Targeted interventions to avert a likely worsening situation are necessary. Treatment of malnutrition cases in the immediate term is important while measures are put in place to prevent malnutrition. In the medium term, implementing safety net programmes to build the urban population's resilience is vital. Interventions should necessarily target the urban poor who are generally characterised as lacking assets, lacking access to basic services/facilities and engaging in unreliable/unsustainable livelihood sources. Targeting households with malnourished children for the safety net programmes may support efforts to improve the overall nutrition status and prevent incidences or reoccurences of malnutrition.

## BACKGROUND

The world is steadily becoming urban. A UN report on World Urbanization Prospects projects that more than 50% of the world's population will be dwelling in cities and almost all the growth of the world's population between the years 2000 and 2030 is expected to be absorbed by the urban areas of less developed regions<sup>1</sup>.

Populations in urban areas are increasingly facing survival constraints that may be linked to heightened urban vulnerability. Urban vulnerability has often been traced to various factors such as gender, physical or mental disability, ethnic or racial background, and household structure. Rural and urban households also differ in terms of their exposure to shocks that threaten their food security – both in terms of the probability of an event, its magnitude and their options for coping with these shocks. Urban households, for example, are particularly vulnerable to inflation, food price increases, basic non-food price increases, exchange rate/depreciation, policies and regulations, unemployment, crime, illness/death, diseases including HIV/AIDS and epidemics, separation/divorce, general economic decline, conflicts and population influx, and natural disasters.

Juba is the capital and largest city of the Republic of South Sudan. It also serves as the capital of Central Equatoria, one of the ten states of South Sudan. The city is situated on the White Nile and functions as the seat and metropolis of Juba county. The 2008 South Sudan census projected a population of 403,776 people in Juba is 2012.

The situation of the Juba urban population remains concerning, the ongoing conflict, coupled with the economic crisis that the country has witnessed in the past months, are infringing on livelihoods. The urban population, which relies predominantly on markets, is particularly vulnerable<sup>2</sup> as the major source of livelihood is disrupted. Moreover increasing commodity prices are not supported by increasing/better employment opportunities, implying that households may not be able to meet their basic needs.

Based on the existing vulnerabilities in urban areas, a baseline assessment was conducted in Juba Urban areas to determine the food security and nutrition situation. The assessment provides plausible information on the food security and nutrition situation and effect of the macro-economic events on the livelihoods of the urban population. Additionally, this assessment will inform future urban assessments as well as guide programming among this population.

The assessment was conducted in August 2015, involving interviews in some 750 households and 50 market interviews. A two stage sampling design was employed including selection of 54 Enumeration Areas (EAs) using probability proportional to population size in the first stage and selection of households using systematic random sampling in the second stage. The survey provided representative estimates of key variables/indicators for the Juba urban population.

<sup>&</sup>lt;sup>1</sup> Srinivas, Hari, 2007. Cities and urban vulnerability in the context of urban environmental management

<sup>2</sup> Vulnerability refers to the conditions which increase households' susceptibility to having insufficient food access in the event of a

hazard. The term Risk is used to describe the probability of insufficient access to food resulting from interactions between natural or human-induced hazards and household vulnerability.



## RESULTS

## FOOD SECURITY SITUATION

The food security situation was measured and classified using the Consolidated Approach to Reporting Indicators of

Food Security (CARI) methodology. This entails grouping households according to their levels of food security based on their food consumption indicators, proportion of budget allocated to food coping purchase and capacity (measuring economic vulnerability and asset depletion). From the CARI analysis, households are grouped into four categories: severely food insecure (SFI), moderately food insecure (MFI), marginally food secure (MFS) and food secure (FS).



Fig. 1: Food Security Situation

The overall prevalence of food insecurity was estimated at 23% (severe food insecurity at 0.3% with a moderate food insecurity of 22.4%). This is slightly lower than among the rural residents of Central Equatoria state, who reported nearly 29% as either moderately or severely food insecure<sup>3</sup>. The level of food insecurity reported in the Juba urban population is significantly lower than levels observed across the country (food insecurity levels are at 46%). However, considering that nearly a quarter of the urban residents in Juba are classified as food insecure (a figure that tallies closely with the levels of urban poverty), this is concerning for an area where food is largely available in the markets with relatively better access when compared to rural counterparts.

Households were significantly more likely to be food insecure when they borrowed any money in the 12 months before the assessment (OR=3.2) or experienced shocks that impact households income, such as loss of employment, reduced household income. Also, households that reported having suffered high food prices and theft of productive assets had a higher risk of food insecurity when compared to those households that did not suffer these shocks.

<sup>&</sup>lt;sup>3</sup> Food security findings used for comparing with the urban study findings are referenced from the July/August Food Security And Nutrition Monitoring system that covers the South Sudan rural population

## HOUSEHOLD DEMOGRAPHICS

A total of 5,047 individuals were found in sampled households with 49.7% of them being males. The average household size is 6.7 persons, which is similar to the national household size in urban areas of 7.1<sup>4</sup>. Age disaggregation of the household members indicates that about 40% of the members are either below 14 years or are elderly (above 65 years), constituting a relatively lower dependency ratio<sup>5</sup> (of 63) compared to the national dependency ratio among the urban population (estimated at 88). This is also represented in the population distribution that indicates that the more productive segment of the population (people aged 20 to 39 years) is higher amongst the Juba urban (38%) than in the national urban population (26%).



Some 15% of households reported presence of a disabled, chronically ill or mentally ill member in their midst. Among the household heads, 34.7% were female. The data further reveals that households headed by males had significantly better food consumption than those headed by females (OR=1.4). This may relate to ability of males to engage in a wider range of income earning opportunities and gender roles of women that present competing priorities in addition to fending for their households.

## **OTHER HOUSEHOLD CHARACTERISTICS: MIGRATION, EDUCATION.**

About two-thirds (61.6%) of households reported at least one member having suffered from at least one of the common illnesses. Four of ten who suffered illnesses sought treatment. Some 17% of households experienced in/out





migration of a member within the 12 months preceding the assessment, with more people migrating into Juba urban areas (19%) than out-migrants (14%). On average two household members migrated.

Out migration is reported to be motivated by desire to get enrolled into a learning institution (18%) and to search for employment (17%). Migrants went mainly to other urban centers (31%) and neighboring countries (27%).

Based on the reasons for migration and the fact that some household members are returning, it is likely that the situation outside urban areas is worsening and pushing populations to search for a better quality of life in urban areas. Also, out migration may be motivated by worsening food security situation in households. Households that had a member that migrated out

had twice the risk of being food insecure when compared to those households without a member that migrated.

<sup>&</sup>lt;sup>4</sup> National baseline household survey, National Bureau of statistics, Report for South Sudan, 2012

<sup>&</sup>lt;sup>5</sup> Dependency Ratio is the ratio of the population 0 to 14 years added to the population aged 65 years and above to the population 15 to 65 years old

Education of household members 6 to 18 years indicates high dropout rates. Only 24% of 14 to 18 years are in secondary compared to 77% 6 to 13 year olds in primary (Figure 3). Main reasons reported for dropping out of school were high tuition (28%), no guardian or support (24%), child pregnancy/marriage (14%) and economic difficulties (13%). However, there is similar representation of males and females at most education levels except at the highest level, where there are more males than females (Figure 4).

Among the household heads, one in every five did not attend school. Education had a significant association with food security and food consumption; households with heads who never attended school had nearly twice the likelihood of having inadequate food consumption as those of household heads that attended school.



Fig. 4: Sex by Education level attained

Regarding house ownership, 65% of Juba urban population live in their own houses while 30.3% rent, and 3.5% stay in temporary shelters. Households primarily (90%) rely on charcoal as a source of cooking fuel while some 6% depend on firewood. Power supply for lighting still remains a challenge in Juba town, with over a third (39%) depending on candles and some 21.5% managing to light their houses with torches. Less than a fifth (18%) use generators, similar to the national urban estimate of 17%.

## FOOD CONSUMPTION

Food Consumption Scores (FCS) are based on a seven-day recall period that captures the diversity and frequency of food intake. Some 40% (11.5% poor FCS; 28% borderline FCS) of the Juba urban population reported inadequate food consumption levels. The level of inadequate food consumption is however lower than what is observed in rural parts

of the state and in relation to the rest of the country with levels ranging from 53% to 56% during the same period of survey.

The survey reveals that the Juba urban population has access to better quality diets than rural populations (Figure 6). Only about 8% of the population consumed less than the four recommended food groups, depicting better dietary diversity than in rural parts of Central Equatoria state (18%), in which in turn is much better than the rest of the country (38%). Access to functional markets that offer a wide range of commodities likely contribute to households' ability to access varied sources of food. In rural locations, market functioning has been disrupted by conflict and transport of basic supplies hindered by fuel shortages.



Fig. 5: Food Consumption

Further analysis of the consumption of key food groups necessary for good nutrition (including protein, vitamin A and iron [Figure 6]) indicates that about 85% of the population consumed all these food groups at least once a week, implying a lower predisposition of the population to micronutrient deficiencies when compared to rural populations.



Fig. 6: Household Dietary Diversity; Consumption of Vit A & Protein rich foods

Households which owned poultry or other assets and were headed by males had significantly better food consumption. Households that owned assets had a higher chance of consuming adequate food than those without assets. Also, likelihood of adequate food consumption was up to five times more when the household owned poultry, had access to protected water and owned a toilet, compared to households who owned no toilet, poultry or had no access to protected water.

Food consumption outside the house is a common practice, especially among working household. A seven day recall of foods consumed outside the house indicates mean food consumption score of 17. This indicates fair food consumption for the persons that ate outside the house. However, it should be noted that this is individual consumption and that only 94 persons reported consumption outside the house out of the 750 households interviewed.

#### Household diet adequacy

The FAO minimum recommended consumption for South Sudan is 1,717 kilocalories per person per day<sup>6</sup>. Only 31% of the households interviewed met the recommended kilocalorie intake for South Sudan, implying that majority (69%) of households in Juba urban areas suffer food deprivation. National deprivation for South Sudan has been estimated at 47%, hence, the diet adequacy of the Juba urban population is lower than the national level estimate. The average daily consumption is 1,909 Kcal.



Wealthier households reported higher kilocalorie consumption than poorer ones (Figure 7). Also, kilocalorie deprivation was significantly correlated with inadequate food consumption. Deprived households had a five-fold likelihood of having inadequate food consumption as that of households that met the required kilocalorie consumption. This indicates that the quality of diets among the kilocalorie deprived households was significantly worse than among the households that

Fig. 7: Wealth by Kilocalories Consumed

meet the recommended kilocalorie consumption (as consumption relates with quality of diets).

food

<sup>&</sup>lt;sup>6</sup> Report on Food Security and Nutrition in South Sudan, How a new country can feed its people, 2012

#### Sources of food

Food source	Juba Urban (%)	Rural FSNMS (%)
Market	98	50.1
Own production	1.4	31.6
Gifts	0.3	2.7
Borrowing	0.01	0.4
Food aid	0.04	5.9
Work for food	0.1	0.6

Table 1: Sources of food

More than 98% of households reported markets as their main food source (Table 1). A negligible proportion (<2%) obtain food from their own production, help from friends/relatives and food assistance. This is in line with the minimal agricultural production that is seen among the Juba urban population. It is also notable that the assessment was conducted before the onset of harvests, thus even the households that reported

cultivating still indicated markets as their primary source of food. Food assistance programmes have not targeted urban population so low reliance on food aid and remittance was not surprising.

## ASSETS AND WEALTH

Wealth<sup>7</sup> was computed by households' possession of a range of assets, housing facilities and access to water and sanitation facilities. Accordingly, households were ranked into five quintiles. The distribution shows 43% of the Juba urban population constitute the poor and very poor population, matched by the rich and very rich.

The 2009 National Bureau of Statistics poverty estimations using the national poverty line of SDG 73 per person per month<sup>8</sup>, reported the national urban poverty level of urban populations in South Sudan at 24%. The findings depict





Fig. 9: Wealth by Food Consumption

increasing levels of poverty levels among the Juba urban population which may relate to the ongoing economic events and their impact on the Juba urban population. Poverty influenced household food security: wealthier households had better food consumption than poorer ones (Figure 9).

<sup>7</sup> Computation of wealth used factor analysis to glean the variables whose distribution provided the best distinction between the better off and worse off households. The variables used to compute the wealth score included ownership of television, sponge mattress, cash/other savings, motor bike, wheel barrow, house, cellphone, electricity/gas oven, DVD player, iron, generator, kind of toilet, type of water source accessed, and components of wall. roof and floor of dwelling.

<sup>8</sup> Poverty estimations based on amount of money households spend on food per person per month according to the National Baseline Household Survey

## LIVELIHOODS



The mean household income in the month preceding the assessment was 1,666 South Sudanese Pounds (SSP). In addition, household incomes were reported to have remained more or less the same in 64% of the households, reduced in 29% and increased in 7% of the households in the past six months. The fact that for the majority of households, incomes have not increased against escalating commodity prices indicates reduced purchasing power.





salaried/skilled labor, renting out rooms/apartments).



However, it is worth noting that about 30% of households rely on moderately reliable income sources (casual labor and petty trading) while reliance on unreliable and unsustainable sources prevails in less than 5% of this population. Engagement in fishing is minimal (1%), despite available fishing opportunities. Although the majority of the population depends on reliable and sustainable sources, their purchasing power has continued to diminish amidst increasing commodity prices.

Findings further indicate that the poor mainly depend on unreliable and unsustainable/unreliable income sources. Figure 10 shows that livelihoods such as kinship/gifts/remittances, sale of natural resources and alcoholic beverages are dominated by the poor. This places the poorest at higher vulnerability, as dependence on these livelihoods over time and space cannot be assured. Furthermore, the results depict low levels of livelihood diversification among Juba urban households as the majority (66.4%) have only one source of livelihood. Households with two livelihood sources made up 25% of respondents while those with three sources were 4%.

### **URBAN AGRICULTURE**



Only a small proportion (13%) of the surveyed households reported participation in cultivation of crops. This is negligible compared to rural areas whose participation in crop farming is as high as 95%. The most commonly produced crops among urban dwellers are vegetables, other crops (mainly sorghum and ground nuts) and maize reported by 40%, 20% and 18%, respectively by respondents involved in some farming. Among those that cultivated this season, 70% report less than 0.5 feddans. Cultivation is mainly at subsistence levels, with only about 20% selling part of their cereal harvest. Pests and diseases were found to be the main constraints affecting crop farming.

A meagre 4% reported owning livestock in their households, mainly poultry and goats. Households that rear

livestock reported lack of veterinary services (24%), pastures (21%), grazing land (14%), and insecurity (10%) as the main constraints to livestock production. Ownership of some livestock was found to have a significant association with food consumption; the risk of having inadequate food consumption among households that do not own livestock was five times the risk among those that owned poultry. Participation in fishing activities by Juba urban households was found to be very minimal (1%).

## **EXPENDITURE AND CREDIT**

Among the households interviewed, about 19% had access to credit. Major sources of credit included traders or shop keepers (37%), relatives (25%) and banks (15%). Households with access to credit had a significantly better food security status than those that did not. One-fifth of the households had borrowed cash in the 12 months preceding the assessment, further implying a relatively good accessibility to credit services, albeit from rudimentary sources that would rarely support household investments.

Expenditure share on food was categorized into low (>50%), medium (50% to 64.9%), high (65% to 74.9%) and very high (>75%). Overall, the expenditure share on food among Juba Urban population is 36%, with cereals shares being the most dominant expenditure item (12%). These figures are significantly lower than the share of food expenditure reported in rural areas of South Sudan (40% and 54%, respectively for rural Central Equatoria and the rest of the country according to the July/August FSNMS 2015 Report). This reflects the relatively better consumption and food security situation reported in the Juba urban as compared to the rest of the country.



Fig. 13: Household expenditure breakdown

However, this lower expenditure share on food supports a finding that only 8% of households with high and very high food expenditure percentages, a surprising result for a population that relies predominantly on markets. The Juba urban population allocates a significant share of their expenditures on education, health and cooking fuel, a positive finding in terms of access to other basic services.

Results indicate substantial levels of borrowing, as household expenditures were reported in cash and credit. More than half of the households borrowed food or money at least once in the last three months to feed household members. Households borrowed money to cover various expenses, mainly food (32%), health (25%) and education (15%). The average value of debt respondents reported was about 1,000 SSP which they indicate will be paid in one and a half years. Despite the positive expenditure findings, households relying on credit for food reflects households' economic vulnerability. Furthermore, households that borrowed money had a threefold risk of being food insecure compared to those that did not borrow any money.

# COPING STRATEGIES INDEX AND SHOCKS EXPERIENCED BY HOUSEHOLDS

The dominant shocks that affected the Juba urban population relate to the ongoing macro-economic events. More than half of the households experienced shocks related to high food, commodity and fuel prices, inflation and the depreciation of the local currency (SSP), with a resultant reduction in households' incomes. Other notable shocks included prolonged dry spells, serious illnesses, theft of household assets (probably as a consequence of economic hardship that has increased crime rates) and loss of employment by household member. Shocks that had a significant

association with food insecurity included illness of household member, theft of productive assets, unusually high food prices, reduced income of a household member and loss or reduced employment of a household



Fig. 14: Shocks faced by households

Member. The risk of being food insecure in households that experienced these shocks was about two to four times the risk of those that did not.

Households were questioned on how they coped if they had experienced difficulties in accessing food or money to purchase food in the seven days prior to assessment. A coping strategies index (CSI) was computed based on the standard five consumption related strategies: relying on less preferred and less expensive foods, reducing number of meals eaten in a day, limiting portion sizes at meals, borrowing or relying on food from friends and relatives and restricting consumption by adults in order for children to eat. The mean CSI was 7, which is lower than that reported across rural areas in all states, indicating lower diet-related coping among the Juba urban households.

The CSI was further grouped into perceived high, medium and low. In general, the majority of households (80%) employed what would be regarded as low CSI, typically switching to less preferred food commodity or reducing the meal portions or reducing of number of meals (Figure 15, Consumption based coping). The proportion of those reporting diet-related strategies, like restricting consumption by adults in order for children to eat, was insignificant. These levels are comparable to those among the rural population with majority of households employing low to no coping. The most commonly practiced coping strategy was relying on less preferred foods followed by limiting portion sizes at meals, employed by 39% and 37% of all households respectively, for an average of three days in the past week.



Fig. 15: Livelihood & Consumption based coping

Livelihood coping strategies was used to understand longer-term coping capacity of households. A livelihood based coping strategies module was adopted to categorize the urban population into stress, crisis and emergency coping strategies, based on perceived severity weight. Begging, engaging in degrading jobs and withdrawing children from school were considered as emergency coping strategies. Consuming seed stock, sending household members to eat elsewhere and selling productive assets were ranked as crisis coping strategies. Spending savings, borrowing money, reducing expenses of other basic needs, and purchasing food on credit were included as stress coping strategies.

Findings indicate that just slightly over half of the interviewed households did not engage in any livelihood coping strategy. More livelihood coping is observed among the Juba urban than rural populations. The most common livelihood coping strategies employed include borrowing money, spending savings and buying food on credit reported by 25%, 18% and 15% households, respectively. Furthermore a household employing either stress, crisis or emergency coping was significantly more likely to have reported inadequate food consumption levels. The likelihood increased with the severity of coping strategy (OR = 1.3, 1.8 and 2.3 respectively for Stress, Crisis and Emergency coping respectively). Wasting among children under five was also significantly more prevalent among households that employed emergency coping strategies (OR=2). This implies worsening household food consumption and nutrition as households regress to more severe coping mechanisms.

## ASSISTANCE

The level of humanitarian assistance among the Juba urban population was reportedly minimal, with less than 5% of interviewed households having received food, cash, health care, micro-credit, agriculture related support or government support to poor households. Cash for Work activities were the highest, benefiting 11% of the population, followed by health care (received by 6% of the population). The level of assistance among the Juba urban population is not surprising, as urban populations tend to rely less on assistance.

## JUBA URBAN MARKETS

Assessment of Juba urban markets was conducted using a combination of gualitative and guantitative methods. Among those interviewed were retail and wholesale traders, in addition to key informant and focused group discussions with the Chamber Of Commerce and the Trader Association.

#### Markets and food availability

The main business for majority of traders interviewed (72%) across the selected sites is consumer sales (retail), while 28% are wholesalers. About 32% are trading in permanent and 28% in semi-permanent structures.



Fig. 16: Commodities traded in Juba markets

on the market is pronounced.

The main five food items traded across the assessed markets included rice, maize flour, sorghum and wheat flour (Figure 16). Commodities traded in the market were mainly sourced from wholesalers. Findings indicate that there has been an overall reduction in volumes traded, particularly of key food commodities in the past six months. About half of interviewed traders reported that the traded volume of sorghum and wheat flour decreased by more than 50%. Furthermore, about one third of traders reported that the volume of traded rice decreased by more than 50%. Reduction in traded volumes could be related to the absence of hard currency and high prices, scarcity of foreign exchange and competitiveness of imports associated with instability of fuel supply that affected transport charges. As such, the impact of the prevailing macro-economic shocks on the availability of key staples Stock level and seasonality: According to traders, most commodities are imported, with the highest flow of supply observed during the months of January to March, June to July and November to December. However, supply from local production follows the seasonal patterns. This assessment was conducted before the arrival of the first harvest and outside the periods for peak flow of supply, hence household stocks during this period were at very low levels. Additionally, stock levels have been affected by high inflation rates which affect the importation of the commodities; the majority of traders (84%) reported that the level of their stock at the time of the assessment is less



the level of their stock at the time of the assessment is less than that last year.





Supply and demand: The majority of traders reported that, much like the inadequate flow of food commodities supply they faced in 2014, the flow of supply is continuing to decline due to dollar scarcity and insecurity. Also, the number of traders has declined if compared to the same period last year, as indicated by 50% of the respondents, exacerbating the problem of inadequate flow of supplies. Furthermore, close to 50% of the traders reported being out of stock of key traded commodities, additionally reflecting a shortfall in the supply of commodities. These factors, coupled with a shortage of foreign exchange and poor road conditions, further hampered the commodity supply flow and led to decreased availability of food in local markets. As a result, substantial increase in price of food items has been observed; a shock that was experienced by majority of households and negatively impacted households' food security.

#### Markets and food access

Market and trade plays a vital role in urban households' food security; assessment findings indicate that 98% of households access food mainly from the market. As such, a favorable market system will enhance household access to food and may boost food security.

Price trends of the main commodities: The study looked at price trends of various food items across the different visited markets. It was observed that prices of various food items including rice, maize flour, sorghum and wheat flour, are significantly higher at the time of assessment than last year in all markets.

Konyokonyo is the reference market for the Juba area. Observations from the field indicated that Konyokonyo price increases were due to a sustained demand against a low local supply, high transport costs and scarcity of hard currency. The retail price of white sorghum stood 28 SSP per malwa (3.5 kg), followed by maize flour at 19 SSP per kg

and rice at 20 SSP per kg, which are all higher than the prices reported during the same period last year. In addition, wheat flour price has increased by more than two-fold compared to the same period last year. As shown by Figure 18 below, the 2015 prices for wheat flour were relatively stable in the first quarter but then started to increase at the peak of the lean season, and continued to rise after that; this is in line with the current dollar scarcity.

The price of rice, another cereal that is widely traded and consumed has also showed an increasing trend. The price of rice in the first quarter of 2015 followed the seasonal trend but started to increase sharply from March as a result of increase in prices by the wholesalers. This is also related to challenges in accessing hard currency.

Different reasons were given for the change in prices. It is speculated to be mainly due to change in wholesale prices (58.7%) and change in commodity supply. The disruption of commodity supply as a result of dollar scarcity is one of the key drivers of high commodity prices. About half (44%) of the traders are organized under union and set prices collectively for their commodities, while 28% of the traders come up with their own prices for commodities and 12% base their prices on those of other traders (Figures 20 and 21 below).



*Fig. 20: Who decided commodity prices* 

Fig. 21: Reasons for change in prices

#### **Terms of Trade**

Findings indicate deteriorating terms of trade. Terms of trade for an average sized goat to cereal grain has declined over the course of 2015. Revenue from selling a goat in August 2015 would enable a household to buy 9 kg of maize grain which is about half of what could be bought in August 2014 (16 Kg). Similarly, the terms of trade for daily wage against cereal grain has declined with a daily wage able to fetch only 1 kg of cereal grain in August 2015 compared to 3 kg it could fetch during the same



Fig. 22: Terms of Trade

period last year. This generally shows that the purchasing power of households that depend on casual labor

and sale of livestock has declined substantially and could affect household food access.

The declining purchasing power is related to the disproportionate increase in commodity prices when compared to household earnings. Notably, the condition of casual labourers is worsened by the ongoing economic downturn, which has reduced job opportunities.



## NUTRITION STATUS OF CHILDREN 6 TO 59 MONTHS AND WOMEN 15 TO 59 YEARS OLD

Based on a total of 676 children ages 6 to 59 months included in the anthropometric analysis, GAM was 12.2% (9.7%-15.3%) (WHZ<-2 and/or oedema) whilst severe acute malnutrition (SAM) stood at 2.8% (1.8%-4.3%) (WHZ<-3 and/or oedema). The nutrition situation among the Juba urban population is significantly worse than that of rural parts of Central Equatoria, with GAM of 3.7%. The GAM based on mid-upper arm circumference (MUAC) was 3.9% (2.5%-5.9 95% CI). Similar to findings in many studies, prevalence of malnutrition among boys is higher than that among girls.

	ALL GAM WHZ (% 95%CI)	BOYS GAM WHZ (% 95%CI)	GIRLS GAM WHZ (% 95%CI)	ALL GAM MUAC (% 95%CI)
	n = 647	n = 324	n = 323	n = 666
Prevalence of global malnutrition	(79) 12.2 %	(42) 13.0 %	(37) 11.5 %	(26) 3.9%
(<-2 z-score and/or oedema)	(9.7% - 15.3% )	(9.5% - 17.5% )	(8.2% - 15.8% )	(2.5% - 5.9%)
Prevalence of moderate malnutrition	(61) 9.4 %	(35) 10.8 %	(26) 8.0 %	(13) 2.0%
<pre>(&lt;-2 z-score and &gt;=-3 z-score, no oedema)</pre>	(7.2% - 12.2%)	(7.8% - 14.8% )	(5.3% - 11.9%)	(1.0% - 3.5%)
Prevalence of severe malnutrition	(18) 2.8 %	(7) 2.2 %	(11) 3.4 %	(13) 2.0%
(<-3 z-score and/or oedema)	(1.8% - 4.3% )	(1.0% - 4.4% )	(1.9% - 5.9% )	(1.0% - 3.6%)

Contrary to food security findings that depict a relatively better situation in Juba urban than the rest of Central Equatoria state, malnutrition is higher amongst the urban residents of Juba. This underpins the fact that the problem of under nutrition may not be exclusively related to food consumption. Non-food factors also contribute to undernutrition among the Juba urban population.

Key among these factors is poor access to safe water and high levels of morbidity among children under five and the general population. A significant correlation was found between children having suffered from at least one of the childhood illnesses and being wasted, with the risk of being malnourished among children that suffered from at least one illness being twice the risk of those that did not suffer from any illness. Results also indicate that wasting in children under five years was significantly associated with household ownership of a toilet, goat, poultry, and some high value assets (like TV, sattelite dish and generator). Households that owned a toilet facility, a goat, poultry or a high value asset were less likely to have a malnourished child than a household that did not possess these assets/facilities. The survey also found that risk of having an acutely malnourished child among households that employed emergency coping was twice that of households that did not engage any emergency coping.

#### Women Anthropometry

Out of the 607 women aged 15 to 49 years old that were assessed, 5.9% were pregnant, 25.2% were lactating and 68.9% were neither pregnant nor breastfeeding. Wasting based on MUAC (<230mm) was prevalent in 10.4% of women, significantly lower than that observed among women residing in rural parts of the country that reported a prevalence of 19.6% in a survey conducted during the same period (according to the July/August 2015 FSNMS). Wasting was 10.6% among the pregnant and lactating women. Women wasting was associated with child malnutrition; a child of a wasted mother has twice the chance of being wasted as a child of non-wasted mother. This correlation has been observed in some studies conducted in South Sudan and reaffirms the factors that affect the nutrition of children in households also affect mothers.

#### Infant and Young Child Nutrition

Core Indicators	Age group (months)	Ν	Percent (95% CI)
Timely initiation of breastfeeding	0-23	249	54.2% (47.8 - 60.5%)
Exclusive breastfeeding	0-5	47	34.0% (20.9 - 49.3%)
Continued breastfeeding at one year	12 -15	60	91.7% (81.6% - 97.2%)
Introduction of solid, semi- solid or soft foods	6 - 8	46	63.0% (47.5 - 76.8%)
Minimum dietary diversity	6 - 23	257	27.6% (22.3- 33.5%)
Minimum meal frequency	6 - 23	257	23.3% (18.3 - 29.0%)
Minimum acceptable diet	6 - 23	257	7.8% (4.8 - 11.8%)
Consumption of iron-rich or iron-fortified foods	6 - 23	257	3.1% (1.4 - 6.0%)

work. Table 2: Infant and Young Child Feeding

Breastfeeding in the first hour of birth stands at 54.2%, revealing a gap in new born care and nutrition that needs to be addressed at the health facility and community levels. Although data on exclusive breastfeeding (EBF) is not statistically representative, it still provides useful indicative statistics. The prevalence of EBF among children 0 to 5 months is 34%, indicating a major infant feeding problem that could prevent children from having a good start in life. WHO recommends feeding children exclusively on breast milk up to six months to support optimal growth and development. The nature of livelihoods in urban areas is likely to be hampering mothers from optimally feeding their children, since they may have to leave their young children at home to resume

Findings from the 24-hour recall of complimentary feeding (Table 2) indicate that 27.6% of children met their minimum dietary diversity of at least 4 food groups, depicting a gap in the consumption of diverse diets among children 6 to 23 months, which is similar to national estimates of 28.4% (FSNMS November 2014). The minimum meal frequency was low, at only 23.3%, though similar to national estimates of 26.6%. Furthermore, a meagre 7.8% were meeting the minimum acceptable diet, again similar to 8.7% estimated nationally. The severely low consumption of iron rich/iron fortified foods is worth highlighting, only 3.1% children ages 6 to 23 months consumed iron-rich/iron-fortified foods; that is likely to predispose children to micronutrient deficiencies, particularly iron deficiency.

#### Water, sanitation, Hygiene and child morbidity

The majority of households (82%) in urban Juba own toilet facilities; including 71% owning traditional or improved pit latrines and 11% having flush toilets.

Conversely, only 27.6% have access to protected water sources. The National Baseline Household Survey estimated 53% accessing improved water sources. About two-thirds (67%) rely on surface water as a main source of drinking water, which is subject to contamination and therefore regarded as unsafe or unimproved. Fortunately, nearly all (96.7%) households treat drinking water through chlorination (75.1%) or boiling (11.6%). The extent of chlorination also shows an upward of primary health care services by the urban population unlike in rural areas. Access to safe water/sanitation was significantly associated with good nutrition and/or food security.

A retrospective assessment of morbidity among children two weeks prior to the assessment reveals a high disease burden, with close to half (44.6%) of children under five having suffered from at least one of the common child illnesses. Fever was the most prevalent morbidity, affecting



38% of the children followed by other illnesses (mainly body rash, allergies and common cold) reported at 25%, cough (22%) and diarrhea (16%). Morbidity predisposes children to malnutrition, with children that suffered from at least

one illness at two times greater risk of being acutely malnourished when compared to those that suffered from no illness.

#### Vaccination, Supplementation and Deworming

Nearly all children (96%) received the measles vaccination at the time of the interview. A substantial proportion of children (73.6%) also received vitamin A vaccination in the six months prior to the survey. However, only 40% had received deworming in the last six months. The practice of children under five sleeping under a mosquito net is widespread, with 88% of children under five reporting have slept under a mosquito net the night before the interview.

## CONCLUSIONS AND RECOMMENDATIONS

- 1. Wealth plays a fundamental role in ensuring household food security; wealthier households had better diets whilst the kilocalorie consumption of deprived (mainly constituting the poor) was significantly lower than that of the population that consumed at least the minimum recommended kilocalorie intake. Therefore, urban interventions should specifically target the urban poor; who are mainly characterized as lacking assets, access to basic services/facilities and engaging in unreliable/unsustainable livelihood sources. Support to enhance the socio-economic status of poorer households may improve food consumption/security among them.
- 2. Households experiencing shocks (mainly related to the current economic problems) were more likely to be food insecure and have a malnourished child. Therefore, programmes for enhancing resilience of households to shocks (safety net programmes) may provide a longer term remedy to the growing level of urban vulnerability. Households with malnourished children need to be targeted for the interventions.
- 3. The study reveals high school dropout rates, yet education increases chances of household to be food secure. Therefore, support to education to enable children to graduate at higher levels is paramount.
- 4. The Juba urban population primarily depends on markets with minimal engagement in agriculture, which may be a missed opportunity as households that engaged in livestock production registered better food security and nutrition outcomes. Therefore promotion of urban agriculture especially rearing of poultry and small ruminants as well as back yard gardening particularly for high value crops (vegetables, tomatoes etc) may yield gains in addressing food insecurity through increasing amount of disposable income for households and reducing market reliance.
- 5. Significant effort should also be geared towards promoting river/cage fish farming. Programmes aimed at enhancing agricultural productive capacity should also incorporate elements of market linkages and post-harvest handling.
- 6. Overall GAM prevalence is concerning. Some of the suspected drivers for malnutrition include access to safe water, child illness, maternal nutrition, household owning private toilet, ownership of assets and livestock. Therefore:
  - Treatment of malnutrition cases is necessary; a strong health and nutrition education component delivered with the nutrition treatment programme is essential for sustainable gains;
  - Disease prevention strategies are critical given a very high proportion of children suffered from illnesses (fever, diarrhea, acute respiratory infections);
  - Increased consumption of animal protein may effectively boost nutrition status of children, hence households should be urged and supported to keep livestock to provide animal source protein for children; and
  - Support improved access to safe water among the Juba urban population.
- 7. The majority of children 6 to 23 months are not meeting the recommended complimentary feeding guideline despite households having access to diversified diets. Thus, programmes that target children under two years should strengthen education and counselling of mothers on appropriate infant and young child feeding. Also, support to boost the food security of the poorest households may boost feeding of infants and young children.

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