South Sudan Annual Needs and Livelihoods Assessment 2009/2010

Western Bahr el Ghazal State Report

A collaborative assessment by the Ministry of Agriculture and Forestry (MOAF),
World Food Programme (WFP),
World Vision International (WVI)
Food and Agriculture Organization (FAO),
Southern Sudan Relief and Rehabilitation Commission (SSRRC),
South Sudan Commission for Census, Statistics and Evaluation (SSCCSE)

February 2010
Note on Geographical References

Western Bahr el Ghazal denotes one of the ten states administered by the Government of the Southern Sudan. The administrative units and their names shown on this map do not imply acceptance or recognition by the Government of Southern Sudan nor United Nations and its partners. This map aims only to support the work of the Humanitarian Community.

Acknowledgements

With gratitude, WFP acknowledges the support of all the state ministries, NGOs, UN agencies, local authorities and individuals who participated in planning, conducting and providing information that formed the basis for the production of this report. WFP compiled the report with technical assistance from VAM unit (Vulnerability Analysis a Mapping Unit) and is greatly indebted to all (too many to list here) who participated in the assessment exercise and without whom the task would not have been possible.

National counterparts included the SSRRC, SSCCSE, Ministry of Agriculture and Forestry, MOH, Upper Nile University, SMoA. Participating NGOs included WVI, ACF-USA, CORDAID, TEAR FUND, IRD, Womanaid, Farm Africa, VSF-Germany, SAFORD, and YARRDS. UN agencies included FAO, UNICEF, UNRCO, UNMIS, and UNHCR.
List of Acronyms

ACF  Action Conte La Faim
ANLA  Annual Needs and Livelihoods Assessment
CFSAM  Crop and Food Supply Assessment Mission
CFSVA  Comprehensive Food Security and Vulnerability Analysis
CPA  Comprehensive Peace Agreement
CSI  Coping Strategies Index
FAO  Food and Agriculture Organization of the United Nations
FCS  Food Consumption Score
GAM  Global Acute Malnutrition
GDP  Gross Domestic Product
GoSS  Government of Southern Sudan
IDPs  Internally Displaced Persons
IOM  International Organisation for Migration
IRD  International Relief and Development
MOAF  Ministry of Agriculture and Forestry
MOH  Ministry of Health
MT  Metric Tonnes
NBEG  Northern Bahr El Ghazal
NDVI  Normalized Difference Vegetation Index
NGOs  Non-Governmental Organizations
PCA  Principal Components Analysis
SAFORD  Sun Rise Agency For Relief & Development
SAM  Severe Acute Malnutrition
SDG  Sudanese Pounds
SHHS  Sudan Household Health Survey
SIFSIA  Sudan Institutional Capacity Programme Food Security Information for Action
SMoA  State Ministry of Agriculture
SSCCSE  South Sudan Commission for Census, Statistics and Evaluation
SSRRC  South Sudan Relief and Reconstruction Commission
TOT  Training of Trainers
UNHCR  United Nations High Commissioner for Refugees
UNMIS  United Nations Mission in Sudan
UNRCO  United Nations Resident Coordinator's Office
UNU  Upper Nile University
VAM  Vulnerability Analysis and Mapping Unit
VSF  Veterinaries San Frontiers
WFP  World Food Programme
WVI  World Vision International
YARRDS  Youth Agency for Relief, Rehabilitation & Development for South Sudan
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I  Executive Summary

The 2009/10 Annual Needs and Livelihood Assessment (ANLA) was conducted to assess the food security situation in Western Bahr el Ghazal, establish the likely impact and extent of different shocks on food security, and identify vulnerable sub-groups within the state in order to inform stakeholders and decision makers on assistance needs, response options, and targeting. To this end, a household survey, focus group discussions and key informant interviews were held in 10 purposively selected locations in the state.

The findings suggest that 18% of households (or approximately 66,540 people) in Western Bahr el Ghazal are severely food insecure with an additional 24% of households (or approximately 89,029 people) moderately food insecure and the remaining 58% of households (or approximately 214,422 people) food secure. The primary (or proximate) cause of food insecurity in 2009 was the erratic and delayed rains in June and July and the resulting failure of the August 2009 harvest. This not only reduced the ability of households to meet their food needs through ‘own production’, but through market purchases as well owing to inflated cereal prices brought about by the decreased supply and increased demand for cereals in the market.

The dim prospects for the November/December 2010 harvest of medium and long-term varieties further suggests that the situation is unlikely to improve prior to the August harvest in 2010 and may well deteriorate. As such, approximately 4,919 metric tonnes are needed to protect the lives and livelihoods of the 155,569 severely and moderately food insecure – a figure that constitutes 42% of all households in the state. The severely food insecure are the most vulnerable and in need of immediate assistance in order to bridge the extended hunger season between now and August 2010. However, the moderately food insecure are also vulnerable and at risk of becoming severely food insecure during this period if their livelihoods are not supported and protected. As such, a combination of food assistance and the timely provision of agricultural inputs are needed alongside continuous monitoring of the food security situation in the state.

Finally, the potential for insecurity and conflict associated with the upcoming elections merits mention as this could well exacerbate the already tenuous food security situation in Western Bahr el Ghazal. More generally, the presence of a functioning government in the state provides some reason for optimism regarding the prospects for stability and sustained growth. However, internal conflicts within and beyond Western Bahr el Ghazal constitute an ever-present threat to food security – be it directly through the displacement of households and destruction of livelihoods or indirectly through the additional burden IDPs place on already burdened host communities. Those who have returned to Western Bahr el Ghazal to rebuild their lives and livelihoods in the wake of the 2005 CPA and the end to Sudan’s decades-long civil war also add to the burden on these communities and constitute a vulnerable sub-group themselves.
2 Background / Context

Western Bahr el Ghazal is located in southwest Sudan and is bordered by South Darfur and Northern Bahr el Ghazal to the North, Warrap to the east, Western Equatoria to the south and the Central African Republic to the west. As with the rest of southern Sudan, those who inhabit the state are in the process of rebuilding their lives and livelihoods and recovering from the ravages Sudan’s decades-long civil war.

In terms of livelihoods, households in the state are predominantly agriculturalists who supplement crop production with fishing, livestock production and honey collection (see next section). A substantial number of returnees have come back to the state to rebuild their lives and livelihoods. As such, they not only remain vulnerable themselves, but also constitute a burden to already burdened host communities and households who are struggling as a result of the extended hunger season described in this report.

There has been some progress in re-establishing trade links - both within the state and with neighbouring states. This has been possible due to the combination of relative calm and security, the states opportune location as a thoroughfare to other southern states such as Lakes, Central Equatoria and Western Equatoria and improvements to road networks. The road between Wau and Aweil and Wau and Khorgana, Bassia and other cities is particularly notable in this regard.

3 Methodology and Objectives

The principal aim of the 2009/10 Annual Needs and Livelihood Assessment (ANLA) was to assess the food security situation in Western Bahr el Ghazal, establish the likely impact and extent of different shocks on food security, and identify vulnerable sub-groups within the state in order to inform stakeholders and decision makers on assistance needs, response options, and targeting. To this end, multiple and complementary data collection methods were employed, including a household survey, focus group discussions and key informant interviews. The purpose of this approach was to allow for the triangulation of findings from these different methods - that is, to allow for more in-depth and meaningful interpretation of quantitative household survey data and to substantiate the qualitative (and anecdotal) findings gleaned from focus groups and key informants. These primary data sources were supplemented by secondary data sources, including the 2009 CFSAM.

3.1 Sampling Stage I – Selecting Sites

At the first stage of sample selection, 10 locations (villages) were purposively selected for inclusion in the assessment based on a combination of a) their accessibility and b) the extent to which they collectively ‘represented’ the food security situation in the state. The locations selected come primarily from Wau County and include Bagare, Kayango, Khorgana, Besselia, Kangi, Tharkueng, Marial Bai, Mapel, Achong Chong, and Barzia. Although the purposive selection of these sites imposes some limitations in terms of interpreting the findings (see 3.4), it was a pragmatic necessity owing to the inaccessibility in some locations.
3.1.1 Sampling Stage II – Selecting Key Informants and Focus Group Participants

Within each of these locations, focus group discussion participants and key informants were selected purposively – the former as representative of the community (and various sub-groups within it) and the latter as uniquely positioned to provide insights about the community. Interview/discussion guides were then used to capture information on livelihood patterns, economic differentiation of households, food access and hazards/shocks affecting food security.

3.1.2 Sampling Stage II – Selecting Households

Within each selected location, 30 households were selected for participation in a household survey for a total sample size of 300 households overall in the state. The selection of households was done randomly in an effort to balance out the risk and potential sources of bias inherent in relying on purposive selection of households through community leaders.

Randomization was achieved using a variation of the pencil spin method popularized by UNICEF for use with the Expanded Program for Immunization (EPI) surveys (box 1). A structured questionnaire was then used to capture information on various aspects of food security. The primary aim of the survey and questionnaire was to generate an estimate of the proportion of households whose lives and livelihoods are at risk by categorizing each household as severely food insecure, moderately food insecure or food secure. A secondary aim was to identify the characteristics of households in each of these groups in order to inform targeting.

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**Box 1 – Steps Used to Randomly Select Households for Inclusion in Survey**

- Use community members to locate the approximate center of each selected site/boma
- Spin a pencil to identify the direction to walk to select sample households
- Count and number all households encountering from the center to the perimeter of the site/boma walking in the identified direction
- Divide this number (X) by the number of households desired (n=30) in order to determine the sampling interval (X/30=SI)
- Select a random starting household between 1 and the SI
- Add the SI to the starting household to select the 2nd household, the SI to the 2nd household to select the 3rd household and so on until 30 households are interviewed
- If number of households in that direction < 30, interview all and repeat process to choosing a 2nd direction in order to identify the remaining households for inclusion
3.2 Partnership and Consultation Process

The assessment brought together a number of government line ministries, international non-governmental organizations (NGOs) and UN agencies under the auspices of a food security technical group, including SSRRC, SMAARF, Cordaid, FAO, RRR and the Tearfund. This collaborative consultation process began at the planning and data collection stages - including the identification of sample sites - and continued through the process of data analysis and forming conclusions in Wau.

3.3 Livelihoods and Livelihood Zones

The bulk of Western Bahr el Ghazal falls within the Ironstone Plateau. A portion of the southern and northern parts of the state fall within the Green Belt and Western Flood Plains livelihood zones respectively. However, neither of these zones constitutes more than 10% of the state.

Crop production is the primary livelihood within the state. Major crops include sorghum (the state’s staple), sesame, groundnuts, okra, beans, cassava, millet, and maize. Crop production via intercropping is mainly at the subsistence level with surplus crops sold for income only in good years. Owing erratic and delayed rainfall (see section 5) most households were not able to produce enough to meet their own food needs during the August harvest, increasing reliance on markets purchases for staple cereals (mainly sorghum) at the very time low supply and high demand in markets have driven up prices.

Poultry and livestock production - shoats and cattle - can be found on a small scale, but are not significant contributors to diets and income in most parts of the state. In those parts of the state where it does make some contribution in these regards, cultural prohibitions against quantifying the number of livestock held limited the ability to capture livestock holdings via the household survey. However, key informants suggest that few households in these areas own more than 1 to 2 head of cattle. Some fishing is also practiced in the state along river Tharkueng.

3.4 Limitations and Constraints

The purposive selection of sites based on accessibility and a subjective determination of livelihood zone representative-ness was a pragmatic necessity and was informed by the costly, time-consuming and difficult experience of attempting to reach and locate randomly selected sites during last year’s food security assessment. Nevertheless - and as noted earlier - this does impose a number of analytic limitations and constraints on the household survey data.

The purposive selection of sites is not to say the sites and household included are not representative, but rather that the subjective basis for their representative-ness does not adhere to the strictures required to employ statistical/probability theory as a basis for extrapolating findings from the sample (n) to the population (N). It was however done in the field through a consultative process with agencies who know the areas very well. In previous years attempt to do randomly select locations have been precluded by accessibility, which is a major factor during the time of the ANLA and falls at the end of the rainy season. This year, locations that were known to be inaccessible were not considered for inclusion and thus it is possible that the results are underestimating the extent of food insecurity.

The purposive selection of sites based on accessibility and a subjective determination of livelihood zone representative-ness was a pragmatic necessity and was informed by the costly, time-consuming and difficult experience of attempting to reach and locate randomly selected sites during last year’s food security assessment. Nevertheless, this necessity and pragmatism does impose a number of analytic limitations and constraints on the household survey data.
4 Demographics

Approximately 54% and 46% of households included in the household survey were male-headed and female-headed respectively. Although this constitutes a slight shift from the 2008 assessment in which these percentages were reversed and may be a reflection of changing population dynamics, the sampling approached used in this year’s assessment suggests that caution is warranted in interpreting it as such. Moreover, the magnitude of the difference for both years is small enough to suggest that it is more appropriate to conclude that the proportion of male-headed and female-headed households in the state is roughly the same and unchanged between 2008 and 2009. Similarly, the average household size of 7.1 in 2009 is roughly the same as the average of 7.0 members in 2008.

Among households interviewed some 22% indicated that they were returnees - meaning that they had returned to the state within the last 12 months. An additional 2% of households were IDPs and the remaining 76% residents (figure 1). As further evidence of the significant returnee population in the state, some 34% of resident households indicated that they were hosting returnees. In addition, some 7% of resident households indicated hosting IDPs suggesting that they constitute a small, but still significant sub-group within the population – be they on their own or within host households. Moreover, the number of IDPs in the state are purported to have increased in 2009 as a result of inter-ethnic conflict and cattle rustling in neighbouring states.

5 Food Availability

5.1 Rainfall Patterns

In a normal year, rainfall in the state begins in April or May and ends in October or November. However, this year was characterized by a fairly normal start to the rains, followed by an atypical dry spell in June and July in most parts of the state. As explored in subsequent sections, this erratic and delayed rainfall led to late planting and loss of crops by some farmers and was identified by nearly 80% of households as a major shock impacting their food security and livelihoods. Indeed, at the time of the assessment, the cumulative rainfall for the state as a whole was only 40% of that in a normal year (Sudan Seasonal Monitor, 2009).
5.2 Agriculture

In nearly all counties, short, medium and long-term sorghum varieties were planted following the onset of rains in April and May. However, the atypical and prolonged dry spell in June and July caused widespread crop failure such that both production and yield during the August 2009 harvest were far below that of the previous year. As evidence of this, less than 10% of households indicated that they had food stocks at the time of the assessment.

Some households replanted medium and long-term varieties. However, many did not owing to lack of seeds and continued uncertainty about the prospects for the November/December harvest. As a result, there was a significant and widespread decrease in the area under cultivation (figure 3). In addition, those who did replant reported that some of their crops had been invaded by *striga* weed, reducing expectations for the November/December harvest further still. As further evidence of this, less than 50% of households surveyed anticipated being able to store and build their stocks from crops harvested in November/December. The opportunities and constraints for agricultural production were identified by communities visited as follows:

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Access to agricultural land</td>
<td>1. Erratic rainfall</td>
</tr>
<tr>
<td>2. Security in the area is stable</td>
<td>2. Pests and diseases</td>
</tr>
<tr>
<td>3. Ready market for products (Aweil)</td>
<td>3. Inaccessibility in rainy season (some areas)</td>
</tr>
</tbody>
</table>
5.3 Livestock Production

As noted earlier, livestock production is fairly minimal in the state. Nevertheless, it does contribute to the food security and livelihoods of some households – particularly as a buffer when (as is the case this year) crops fail. In general, livestock body condition is purported to be stable in comparison to previous years. The prolonged dry spell in June and July has had a negative impact on vegetation and pasture conditions to some degree. However, pasture was not nearly as badly affected as crops.

5.4 Fishing

Fishing from rivers and streams does contribute significantly to the food security and livelihoods of some households in the state. This is particularly true of households in close proximity to the river Tharkueng. Fish is consumed fresh during rainy season or dried and stored for consumption during dry season. As such, it makes a significant contribution to the diets of some households (see 7.1). However, fishing as an income generating activity and livelihood source is in decline owing to an increasing reliance on alternative livelihood activities such as timber sales and charcoal production.

6 Markets and Prices

At the time of the assessment, market prices for food commodities were between 30% and 40% higher in most markets than they were at the same time last year. As an example of this, the price of sorghum was about 7 Sudanese Pounds per malua (3.5 kgs) at the time of the assessment in comparison to 5 Sudanese Pounds at the same time last year. As noted earlier, this is attributable to erratic and delayed rains, the resulting failure of the August harvest as this both reduced supply and increased demand in the market. Predictions of poor production/yields for the November/December harvest have also kept prices abnormally high. On a positive note, market activity and integration has improved in most parts of the state as a result of improvements to trade infrastructure. The major source of commodities in the state continues to be northern Sudan.
7 Household Food Security Situation

7.1 Food Consumption

Household food consumption data were collected using a 7 day recall period. Based on the frequency and dietary value of individual food items consumed, these data were then used to calculate a Food Consumption Score (FCS) for each household. Using established thresholds, these scores were then used to classify each household as having poor, borderline or acceptable consumption. The results of this analysis suggest that nearly 23% of households in the state have poor consumption with an additional 29% having borderline consumption (figure 4). The average frequency of consumption for individual food items is shown in figure 5.

These state-level aggregates and averages are useful for gauging the overall nature and magnitude of the food consumption problem. However, they also mask significant variation in this regard among the 10 locations included in the sample. For example, the proportion of households with poor consumption in Mapel, Achong Chong, and Kayango was notably higher than average at 37%, 40% and 42% respectively, whereas the proportion in Barzia, Tharkueng, and Bagare was notably lower at 7% or less. Barzia and Tharkueng are particularly notable here as 70% (or more) of the households surveyed in each had acceptable food consumption.
7.2 Food Access

7.2.1 Food and Income Sources

The two main food sources among households included in the sample were ‘market purchases’ and ‘own production’ which accounted (on average) for 49% and 35% of food consumed by households. Other sources – such as hunting, gathering, and gifts – each accounted for 5% or less (figure 6). In turn, this underscores the deleterious impact of the erratic and delayed rains and subsequent failure of the August 2009 harvest as this not only eroded the ability of households to meet their food needs through ‘own production’, but their ability to purchase food in markets as well by decreasing supply, increasing demand, and driving up cereal prices.

![Figure 6 – Food Sources as a % of Foods Consumed](image)

Household income sources were highly variable. Causal labour and the sale of cereals, charcoal, and alcohol figure prominently, but no single source was identified as a ‘main source’ by more than 20% of households interviewed. On the surface, this diversity would appear to reduce vulnerability at the community - if not household - level. However, based on a subjective judgment of the reliability and sustainability of various income sources, nearly a quarter of households (24%) appear reliant on income sources that (even if diverse) are unreliable and unsustainable. An additional 40% rely on sources that are moderately reliable and sustainable.

7.2.2 Expenditure

The percentage of total expenditure spent on food provides a proxy indicator of food security status, as well as a measure of constraints on the ability of households to meet their food and non-food needs. Households spending in excess of 65% of their total expenditure on food are clearly vulnerable in this regard as such a high percentage suggests that the household is forced to choose between meeting their food and non-food needs or reduce consumption of one or both below their needs. The analysis of data for Western Bahr el Ghazal suggests that a quarter (25%) of households surveyed fall into this category. An additional 21% indicated that they spent between 50% and 65% of their total expenditure on food and are thus also vulnerable in terms of their ability to meet their food/non-food needs (figure 7).
An analysis of absolute expenditure further suggests that nearly half (47%) of households surveyed in the state spend less than 1.6 SDG per day. It also suggests that the purchasing power of over a fifth (21%) is inadequate to purchase more than ½ of a minimum food basket with an additional 20% only able to purchase between ½ and 1. As with food consumption, there is significant variation among the locations surveyed in terms percentage of total expenditure spent on food, total expenditure in absolute terms, and purchasing power vis-à-vis a minimum food basket. Achong Chong and Kayango were once again amongst the worst off, as was Kangi.

7.2.3 Food Access

A composite indicator of food access classifying households as having poor, average or good access was derived by combining the categorical variable for ‘expenditure on food as a percentage of total expenditure’ and the subjective valuation of the reliability and sustainability of income sources noted earlier. Based on this, 23% of households included in the survey had poor food access with an additional 30% having average food access (figure 8). In turn, this suggests that over half of households in the state are vulnerable in this regard. Unsurprisingly given the results for expenditure, the proportion of households categorized as having ‘poor food access’ was notably above average in Kayango, Kangi and Achong Chong.
7.3 Coping Strategies

Three of four households surveyed indicated that they had engaged in consumption coping strategies in the last 7 days to manage food short-falls. The most frequently employed of these were reducing the number of meals eaten in a day, limiting portion size at meals, and relying on less preferred and less expensive foods. A second tier of consumption coping strategies in terms of how frequently they were employed include restricting consumption of food by adults so that small children can eat, borrowing food or relying on help from family and friends, and collecting (and consuming) unusual amounts and/or types of wild foods.

The frequency with which individual households adjusted their consumption patterns in these ways to deal with food shortfalls and the perceived severity of each of these strategies were combined to derive a Coping Strategies Index (CSI) score for each household. Households that employed consumption coping strategies perceived to be severe and/or employed these and other consumption coping strategies frequently have higher CSI scores than those who employ less severe consumption coping strategies and/or employed these and other consumption coping strategies infrequently. As such, CSI is a measure of food insecurity – the higher the CSI for a household, the more food insecure.

Based on these scores and locally developed thresholds, 15% of households surveyed exhibiting either frequent/severe consumption coping or moderately frequent/severe consumption coping. Such behaviours themselves are not atypical and, in fact, are typically engaged each year. However, the timing (after the August harvest) underscores the degree to which the failure of that harvest due erratic and delayed rains has extended the hunger season and forced households to adopt ways of coping with food short-falls that - despite being reversible – hold the potential to undermine nutritional status.

7.4 Food Security Groups

As described in box 2, this section of the report brings together the categorical indicators of food consumption, access and coping outlined in the preceding sections (7.1 to 7.3) within a single composite food security indicator – namely, food security groups. On the basis of this, it is estimated that 18% of households in the state are severely food insecure, 24% moderately food insecure and the remaining 58% food secure (figure 9).
Box 2 – Defining Food Security Groups

The food security groups presented in this section of the report were created by combining household measures of food consumption, food access (income and expenditure) and coping strategies. For food consumption, households were categorized as having poor (0 to 21), borderline (21.5 to 35) or acceptable (>35) consumption on the basis of their Food Consumption Scores – a weighted index that takes account of both frequency of consumption and various foods contribution to dietary adequacy. For food access, a combination of the reliability of income sources (good = 4, medium = 2, poor =1) and poor (>65%), medium (50%-65%) and good (<50%) percentage of total expenditure spent on food were used and then cross-tabulated to define poor medium, and good food access groups. For coping strategies, Coping Strategies Index (CSI) scores that capture both the frequency and severity of coping were used to define high, medium and low coping based on locally-established thresholds. All three of these categorical variables were then combined to define food security groups as depicted in the example below:

<table>
<thead>
<tr>
<th>Ability to access food</th>
<th>Poor Coping Strategies Index</th>
<th>Food Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Poor 0%</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Borderline 1%</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Acceptable 1%</td>
</tr>
<tr>
<td>Medium</td>
<td>High</td>
<td>Poor 0%</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Borderline 1%</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Acceptable 2%</td>
</tr>
<tr>
<td>Good</td>
<td>High</td>
<td>Poor 0%</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Borderline 2%</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Acceptable 4%</td>
</tr>
</tbody>
</table>

Again, these state-level aggregates mask the significant variation in this regard among locations included in the sample. Indeed, the percentage of severely food insecure households range from 0% in Bagare and 3% in Basselia and Barzia up to 35%, 37% and 40% in Kayango, Achong Chong, and Kangi respectively. Caution is clearly warranted in interpreting or making too much of these differences owing to the small sample size and sampling approached used. As such, it would be inappropriate to conclude that some counties are better or worse off on the basis of this (location level data) alone. However, it
does underscore the fact that – though less than a fifth of households in the state appear to be severely food insecure – the proportion of severely food insecure households is potentially much higher in some communities. Additional investigation needed to determine which communities and by how much.

7.4.1 Food Security Groups by Gender of the Head of Household

In line with expectations, the proportion of severely food insecure is higher among female-headed households (22%) than male-households (14%). The proportion of moderately food insecure is also higher among female-headed households (28%) than male-headed households (20%). As a result, a far higher percentage of male-headed households are food secure (figure 10). This is clearly suggestive in terms of comparative vulnerability of male and female headed households. Nevertheless, the magnitude of these differences and lack of precision of these estimates once again suggests that caution is warranted in interpreting this and making conclusions on the basis of it alone.

Figure 10 – Food Security Group by Gender of Head of HH

7.4.2 Food and Income Sources by Food Security Groups

Because food security groups were defined by a combination of categorical food consumption, access and coping indicators, it is self-evident that households categorized as severely food insecure are comparatively worse off in terms of consumption, access and coping. Nonetheless, it is useful to examine differences in the food and income sources of households by food security group as a means of highlighting what differences (if any) exist in their characteristics. The first of these comparisons – food sources – is depicted in figure 11 and illustrates the extent to which all households rely on markets and own production to meet their food needs. Indeed, the only notable difference between groups is the extent to which severely food insecure households rely on gifts from others, including (presumably) households in the other two groups.
The income sources of severely food insecure households are – by definition – less reliable and less sustainable than the income sources of other groups. However, it is still useful to examine what the differences in income sources actually are between these groups as a means of translating an analytic device (food security groups based partially on the reliability and sustainability of income sources) into potential criteria for identifying and targeting households. The most notable difference is not in the range of income sources among households in each group, but the variable degree to which various groups rely on specific sources (figure 12).

Though clearly important among all groups, casual labour figured more prominently as an income source among households in the severely food insecure group than households in other groups. So too did the sale of firewood and grass. Severely food insecure households are also the only households that count begging among their income sources – again (presumably) from households in other groups. Conversely, food secure households are set apart from other households by their continued heavy reliance on the sale of cereals despite the widespread crop failure across the state and moderately food insecure households by their disproportionate reliance on the sale of alcohol. The sale of charcoal is also notable as it is not only figures prominently as an income source among households from all three food security groups, but has long-term costs in the form of environmental degradation.
8 Hazards, Opportunities and Community Priorities

As noted earlier in the section on rainfall, the atypical dry spell that occurred in June and July and the widespread crop failure stemming from it was perceived as a major shock by the vast majority of households, as were the abnormally high prices of cereals and other food commodities resulting from it (figure 13). Only 9% of households identified returnees and IDPs living within the household as a major shock. Nevertheless, this is notable as it constitutes a nearly 1/4th of the approximately 38% of households hosting returnees, IDPs or both. Human sickness (see section 9) was also identified as a major shock in 2009 by a significant proportion of households. As further evidence of this, communities also identified improved health services and water as priorities, alongside the need for seeds and other agricultural inputs and food.
9 Health and Nutrition

As noted above, human sickness is perceived as a significant shock by households in the state. The most common diseases are purported to be malaria, respiratory track infections (RTIs), skin diseases and diarrhoea. In addition, nearly a quarter (24%) of the households surveyed reported having one or more chronically ill household members.

Improving water and sanitation were also identified as community priorities. This is a reflection of the fact that nearly 50% of households in the state use water directly from untreated sources without boiling or treatment. Similarly, less than 10% of households in the state have access to toilets and nearly 75% indicated that they do not wash hands after urinating and/or defecating. When combined with inadequate consumption, these potential threats to health and the diseases identified above may well contribute to a deterioration of nutritional status in some groups.

10 Conclusion on the Food Security Situation

As presented earlier in section 7.4, it is estimated that 18% of households in Western Bahr el Ghazal were severely food insecure at the time of the ANLA with an addition 24% estimated to be moderately food insecure. On the basis of these state-level figures and available census data, it is estimated that there are currently 66,540 severely food insecure and 89,029 moderately food insecure and food secure people in the state. These figures are broken down by county in table 2.
Table 2 – Estimated Number of Food Insecure by County and Food Security Group

<table>
<thead>
<tr>
<th>County</th>
<th>Population (census)</th>
<th>Percentage by food security status</th>
<th>Population by food security status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Severe food insecure</td>
<td>Moderate food insecure</td>
</tr>
<tr>
<td>Raga</td>
<td>54,340</td>
<td>18%</td>
<td>24%</td>
</tr>
<tr>
<td>Jur River</td>
<td>127,771</td>
<td>18%</td>
<td>24%</td>
</tr>
<tr>
<td>Wau</td>
<td>151,320</td>
<td>18%</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td>333,431</td>
<td>18%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Given both the failure of the August harvest and the likelihood that long-term variety yields and production will be below average in November/December 2009, the food security situation is highly unlikely to improve prior to the harvest of short-term variety crops in August 2010. In turn, this suggests that severely food insecure households (66,540 people) whose lives are at risk are likely to remain extremely vulnerable and in need of food assistance between now and then.

Moderately food insecure households (89,029 people) are also vulnerable to becoming severely food insecure during this period, particularly if their livelihoods are not supported and protected. As such, there is also a need for the timely provision of agricultural inputs to allow for early preparation prior to the onset of the next planting season in order to increase the odds of a good August 2010 harvest and stave off the possibility of the already extended hunger season being extended further still. It is also important to note that Western Bahr el Ghazal is capable of becoming a food surplus state. Accordingly, medium to longer-term support to livelihoods should focus on increasing production through improved technology, development of agricultural skills and the strengthening of agricultural marketing (and market linkages) for surplus commodities.

Cereal production, consumption and balance estimates from the 2009 CFSAM special report provide a far more positive outlook for the both the past and coming years (table 3). However, this should not be viewed as contradicting the findings outlined in this report. Rather it and the analysis contained here only serves to underscore the extent to which food insecurity at the micro or household-level (and meso or community level) are largely a matter of food access - or lack thereof - and not merely the availability of food in the state.

Table 3: WBEG State - Estimated Cereal Area, Yield, Production, Consumption and Balance (traditional sector) in 2009/10 - Source: CFSAM special report, 2009

<table>
<thead>
<tr>
<th>State/County</th>
<th>Area harvested (ha)</th>
<th>Yield (t/ha)</th>
<th>2009 gross cereal production (tonnes)</th>
<th>2009 net cereal production(^1) (tonnes)</th>
<th>Population mid-2010(^2)</th>
<th>Consumption (t/year)</th>
<th>Surplus/deficit (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBEG</td>
<td>39,365</td>
<td>1.4</td>
<td>54,932</td>
<td>43,945</td>
<td>358,692</td>
<td>42,270</td>
<td>1,676</td>
</tr>
<tr>
<td>Returnees</td>
<td>582</td>
<td>1.4</td>
<td>815</td>
<td>652</td>
<td>10,273</td>
<td>1,027</td>
<td>-375</td>
</tr>
<tr>
<td>Raga</td>
<td>5,483</td>
<td>1.8</td>
<td>9,869</td>
<td>7,895</td>
<td>56,783</td>
<td>6,246</td>
<td>1,649</td>
</tr>
<tr>
<td>Jur River</td>
<td>9,570</td>
<td>1.4</td>
<td>13,398</td>
<td>10,719</td>
<td>133,514</td>
<td>16,022</td>
<td>-5,303</td>
</tr>
<tr>
<td>Wau</td>
<td>23,730</td>
<td>1.3</td>
<td>30,850</td>
<td>24,680</td>
<td>158,122</td>
<td>18,975</td>
<td>5,705</td>
</tr>
</tbody>
</table>

1. Assuming a 20 percent post-harvest loss
2. Assuming a population growth rate of 2.052 percent per annum.
Finally, it must be noted that the possibility of insecurity tied to the upcoming elections also poses a potential threat to the lives and livelihoods of all households and could well exacerbate the already tenuous food security situation among severely and moderately food insecure households. Accordingly, continuous monitoring of the food security situation is needed to alert stakeholders and decision makers to any significant changes in food security status stemming from the extended hunger season, insecurity tied to elections, or the potentially devastating combination of the two.
Annex A – Seasonal Calendars 2009/2010

Activities and major events that influenced food security in 2009 in Western Bahr el Ghazal State.

Replanting

Prolonged dry spell

Prolonged Hunger season

Consumption of green

Harvest of main crops

Food source: Market is the main food source

Major food source: Own production
Activities and major events likely to influence food security in Western Bahr el Ghazal State in 2010

- Grass and wood sales
- Land Preparation
- Planting

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

- Dry season
- Early Hunger season
- Consumption of green

Food source: Own production
Food source: Market is the main food source

Major food source: Own production and petty trade

Harvest of short term sorghum, maize and groundnut
Harvest of long term sorghum
## ANNEX B: Participant List

**Participants:** Training, Data Collection and Qualitative Data Analysis

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency (Acronym)</th>
<th>Full Agency Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas Pio</td>
<td>WFP</td>
<td>World Food Programme</td>
</tr>
<tr>
<td>Martin Damazo</td>
<td>Min. of Agriculture</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>Valentino Majok</td>
<td>SSRRC</td>
<td>South Sudan Relief and Rehabilitation Commission</td>
</tr>
<tr>
<td>James Mawien</td>
<td>SSRRC</td>
<td>South Sudan Relief and Rehabilitation Commission</td>
</tr>
<tr>
<td>Pete Gar Awar</td>
<td>HARD</td>
<td></td>
</tr>
<tr>
<td>John Arkangelo</td>
<td>WOTAP</td>
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<tr>
<td>Jackson Robert</td>
<td>WFP</td>
<td>World Food Programme</td>
</tr>
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<td>Simon Dahia</td>
<td>Min. of Agriculture</td>
<td>Ministry of Agriculture</td>
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<tr>
<td>Natale Zerifino</td>
<td>SRCS</td>
<td></td>
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<td>Lucia Mathew Rabi</td>
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<tr>
<td>Joseph Udiki</td>
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<td>Ministry of Education</td>
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<tr>
<td>Afra Mohammed</td>
<td>SRCS</td>
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<tr>
<td>Bamazi Thomas</td>
<td>UNMIS</td>
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</tr>
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<td>Getano Gudio</td>
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<td>Ucuier Angelo</td>
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<td>Justin Mario</td>
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<td>South Sudan Relief and Rehabilitation Commission</td>
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<td>Yohanna Philip</td>
<td>NCA</td>
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<td>Willy Ngor</td>
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<td>Santo Garang</td>
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<td>Gastriel MADOR</td>
<td>HARD</td>
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<tr>
<td>Michael Ricardo</td>
<td>Min. of Education</td>
<td>Ministry of Education</td>
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</table>
### Locations Visited by Assessment Teams

<table>
<thead>
<tr>
<th>County</th>
<th>Payam</th>
<th>Name of Settlement</th>
<th>Livelihood Zone</th>
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</thead>
<tbody>
<tr>
<td>Wau</td>
<td>Khorgana</td>
<td>Khorgana</td>
<td>Ironstone Plateau</td>
</tr>
<tr>
<td>Wau</td>
<td>Besselia</td>
<td>Besselia</td>
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<td>Kayango</td>
<td>Ironstone Plateau</td>
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<td>Kangi</td>
<td>Kangi</td>
<td>Ironstone Plateau</td>
</tr>
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<td>Thar-kueng</td>
<td>Ironstone Plateau</td>
</tr>
<tr>
<td>Wau</td>
<td>Marial Bai</td>
<td>Marial Bai</td>
<td>Ironstone Plateau</td>
</tr>
<tr>
<td>Wau</td>
<td>Mapel</td>
<td>Mapel</td>
<td>Ironstone Plateau</td>
</tr>
<tr>
<td>Wau</td>
<td>Mapel</td>
<td>Acong cong</td>
<td>Ironstone Plateau</td>
</tr>
<tr>
<td>Bagari</td>
<td>Bagari</td>
<td>Bagari</td>
<td>Ironstone Plateau</td>
</tr>
<tr>
<td>Wau</td>
<td>Bazia</td>
<td>Bazia</td>
<td>Ironstone Plateau</td>
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