2015 Maban County seasonal livelihood calendar review Report

October 2015

Workshop Participants discuss the seasonal calendar in Maban
Executive Summary

ACTED in coordination with farmers, local authorities, the United Nations High Commissioner for Refugees (UNHCR), United Nations World Food Program (WFP) and non-governmental Organizations (NGOs) working in Maban County organized a one day multi-stakeholder workshop for a seasonal livelihoods calendar review. The workshop was focused on rainfall patterns in Maban for the past 4 years and its impact on livelihoods. This following report explains the outcomes of this one day workshop and the seasonal calendar that was produced as a direct output of the discussions.

- The workshop highlighted challenges that are experienced by the primarily agro-pastoralist host and refugee communities in Maban County due to changing weather patterns between 2011 and 2015. A seasonal calendar was produced which clearly highlights how weather patterns have shifted according to pastoral and agricultural livelihood patterns. Overall, the new seasonal calendar demonstrates a reduction in the period of major rainfall, an earlier start to the dry season, and longer periods of limited pasture. These changing weather patterns have decreased agricultural productivity and livestock wellbeing and increased the primarily agro-pastoral population’s dependence on markets at the same time as inflation is increasing across the country. Food insecurity is increasing while prospects of employment are decreasing. The seasonal calendar will serve as a tool for the Maban County Directorate of Agriculture and for local farmers and agro-pastoralists to plan planting and improved grazing routes. Additionally, participants discussed recommendations for alleviating the pressures caused by an altering climate:
  - Strengthen community and local government capacity on disaster preparedness focusing on droughts
  - Spread planting times between the months of May to July planting smaller quantities of seed at one time.
  - Plant drought resistant and shorter-term varieties especially for staple crops
  - Increase access and capabilities for water harvesting techniques
  - Distribute drip irrigation kits to improve dry season farming
  - Promote soil and water conservation techniques such as mulching
  - Develop skills to increase chances for employment
Maban County is found in predominantly savannah vegetation, ranging from sparse to dense pockets of vegetation. The soil is primarily grey and black cotton soil similar to other regions of Upper Nile State of South Sudan. The region is a semi-arid desert with harsh climatic conditions characterized by high surface temperature, which comes along with temperatures often exceeding 45 degrees Celsius during the dry season, and torrential rainfall that results in wide spread flooding in the rainy season.

The predominant livelihood of the population is agro-pastoralism with cattle, goats, sheep and pigs (host community) being the most prevalently raised livestock. In a good year of crop production, maize, sorghum, cow peas, pumpkins and green vegetables such as okra are the predominant agricultural crops.

Sudan and South Sudan’s protracted conflicts have led to major population displacements, loss of livelihoods, depleted food stocks, broken supply lines, dysfunctional markets and thus high levels of malnutrition/food insecurity and absence of livelihood opportunities. The County has had to absorb the vast majority of the influx of 133,236 Sudanese refugees. Tensions between host and refugee communities are increasingly a major concern largely based on competition for already-limited natural resources, particularly water, firewood, and grazing land.

Host communities who mostly depend on subsistence farming have also had to share access to water and land, with internal displaced persons (IDP) arriving to the County from more conflict-impacted areas of Upper Nile State. The refugee population has largely been dependent on food assistance from aid agencies. However, in 2015 the refugee community acquired about 45 square km of land for Yusif Batil, Gendrassa and Kaya camps for agriculture. Vegetable and staple crop seeds were distributed to both the host and refugee communities for the 2015 planting season. This came at a time when the World Food Programme (WFP) announced in July 2015 a 30% reduction in the food rations for the refugees due to limited funding and a re-prioritization of needs in other areas of South Sudan.

However, the year 2015 is considered by a majority of the farmers from both the host and refugee communities in Maban, to be a year of significantly below normal rainfall which resulted in lower agricultural production. This is as a result of the delayed rains which led to a long dry spell which caused crop failure for a majority of the farmers. Although no crop assessment has been conducted as yet to gauge the magnitude, this has impacted crop and livestock production; there are indications that farmers can expect a below normal harvest. Late and erratic rainfalls altered planting time, affected germinations, slowed plant growth and wilted crops in the fields.

1 A Post harvest assessment to validate the magnitude of impact of the long dry spell and sub-optimal rainfall is ongoing and has reached the level of data analysis
Lower supply of food is stimulating higher food prices in the markets which are anticipated to exacerbate the food insecurity situation in 2016. Dependence on the market for food is growing, while inflation continues to rise making basic food commodities expensive for the average household. Despite agriculture being rain fed in the County, the Maban County Department Ministry of Agriculture and Forestry does not have systems in place to collect sufficient meteorological data to support forecasting rainfall information that can be disseminated to local people for planning their agricultural activities. Simultaneously, the inability to predict weather patterns puts next year’s livelihood activities in Maban at risk as the rains have become erratic.

These challenges and practical solutions were discussed by workshop participants. The seasonal calendar produced by workshop participants is aimed at providing farmers with a tool whereby which they can better plan livelihood activities.

**Methodology**

Different stakeholders were invited to participate in the seasonal calendar workshop which included the Maban County Department of the Ministry of agriculture and forestry and farmer groups from both refugee and host communities. The host community farmers came from Dangaji, Kahlah Mer, Fakaji East, Fakaji West, Gendrassa and Kaya Hoffra villages from farmer groups supported by the county government and Relief International. The refugee representatives included Farmer Field School (FFS) and Agro-Pastoral Field School (APFS) representatives from Gendrassa and Kaya camps supported by ACTED. Each of these groups sent 3 representatives including a female, youth and an elder. UNHCR, WFP and partners implementing Food Security and Livelihoods (FSL) activities in Maban County were also invited. The participants were given about 4 days to consult and prepare their participation, before attending this meeting.

The workshop was conducted mainly through group discussions while drawing reflections of the past 4 years, from 2012 to 2015. The representatives of each of the stakeholders were equally distributed into 4 groups. Presentations were moderated mainly by ACTED staff and the Maban county agricultural director from the Ministry of Agriculture and Forestry. The workshop started with a short presentation on climate change to provide an over view on the changing weather patterns and elicit adaptive and coping strategies. The objectives of the workshop were the following:

1) To assess the significant trends in the seasonal calendar in the previous 4 years as compared to the traditional normal year.
2) To analyze how weather and agricultural trends in Maban County have impacted livelihoods activities in these years (crop, livestock and gender).
3) To understand the livelihoods and identify coping strategies that the communities adopt as a result of the irregular weather patterns.
4) To identify the potential mitigation and adaptation activities, and their likely impact on seasonal risk and vulnerability amongst different households or groups in line with Food Security and Livelihoods for 2016 and onwards.
<table>
<thead>
<tr>
<th>Month</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
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<th>May</th>
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<th>Jul</th>
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</thead>
<tbody>
<tr>
<td><strong>Rainfall</strong></td>
<td><strong>winter</strong></td>
<td><strong>Dry season</strong></td>
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<tr>
<td><strong>Crop calendar</strong></td>
<td>Land preparation</td>
<td>Planting Maize (Tungdeda), vegetables, Sorghum (Najat)</td>
<td>Planting cassava</td>
<td>Planting Sorghum (Magdana), sesame and cassava</td>
<td>Planting Sorghum (Kolki), Sweet potatoes, cassava</td>
<td>Harvesting and seed preservation of maize, sorghum, sweet potatoes, cassava and cowpeas</td>
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<tr>
<td><strong>Food Gaps</strong></td>
<td>Food Availability from previous harvest reducing</td>
<td>Mild hunger</td>
<td>Peak of hunger</td>
<td>Mild food availability</td>
<td>Food availability</td>
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<tr>
<td><strong>Livestock calendar</strong></td>
<td>Limited pasture</td>
<td>Start of pasture availability coincides with livestock diseases (mange for pigs, Nagana, CBPP, Foot and Mouth Disease)</td>
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<td>Pasture availability</td>
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**Comparison between normal year seasonal calendar and the current situation in Maban County**

**Normal Season**

<table>
<thead>
<tr>
<th>Rainfall</th>
<th>winter</th>
<th>Dry season</th>
<th>Minor rainfall</th>
<th>Major rainfall</th>
<th>Start of the dry season coincides with a short winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop calendar</td>
<td>Land preparation</td>
<td>Planting Maize (Tungdeda), vegetables, Sorghum (Najat)</td>
<td>Planting cassava</td>
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**Current Season**

<table>
<thead>
<tr>
<th>Rainfall</th>
<th>winter</th>
<th>Dry season</th>
<th>Minor rainfall</th>
<th>Dry spell</th>
<th>Major rainfall</th>
<th>Start of the dry season coincides with a short winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop calendar</td>
<td>Land preparation</td>
<td>Planting Maize (Tungdeda), vegetables, Sorghum (Najat)</td>
<td>Planting cassava</td>
<td>Early planted crops affected by dry spell</td>
<td>Planting Sorghum (Kolki), Sweet potatoes, cassava</td>
<td>Harvesting and seed preservation of maize, sorghum, sweet potatoes, cassava and cowpeas</td>
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</table>
During a **normal year**, light rains start in April and later increase from May to mid-November. Generally, food becomes sufficiently available from August at the start of the harvests, to February in the following year. However, the duration for which food stocks last varies from household to household, depending on how much stock is in store from the previous harvests and also the rate of consumption of the stocks. The lean season starts mildly in March and April, and the peak is in May and June. **The peak of the lean season when food stocks are normally depleted also coincides with the labor intensive period at the beginning of the agricultural season, which involves land preparation, planting and weeding.**

![Maban rainfall pattern between May-October](image)

**Figure 1- Source: Maban County Directorate of Agriculture**

According to the participants in the meeting, the years 2012, 2013 and 2014 were considered normal years for them with normal rainfall patterns, sufficient to produce surplus food ends. Out of the three years, 2012 was the best year followed by 2014 and 2013 in terms of crop yields and rainfall reliability. Despite the positive agricultural yields in these years, there is **evidence that the amount of rainfall was steadily declining during this period.**

It was in 2015 when the declining rainfall began to realize its impact on livelihood stakeholders. The following chart traces the decline in rainfall patterns.
Despite the sufficient rain, the agricultural season of 2014 was greatly affected by the conflict that broke out in December 2013 especially in Benashowa payam, because the location was bordering opposition areas. However, those who managed to plant amidst the conflict in 2014, considered the rains enough and they were able to harvest surplus food.

2015 considered as an agricultural year of significantly poor crop and livestock production

The participants considered 2015 to be an agricultural year of significantly poor crop and livestock production because it has been characterized by protracted dry spell, limited rainfall, low crop yields, shortage of grazing resources (pastures and water), high incidences of mosquitoes/malaria and displacements due to conflicts. Specifically, according to the data from the department of agriculture, in April there was only 1 rain fall. May and July received less than 15 days of rainfall in total. The county authorities mentioned June as being the most notable for reduced rainfall, as this is the time where the rainy season normally comes into fruition. This led to the wilting of the crops planted earlier in the year, as reported by ACTED’s Farmer Field Schools and the Maban County government officials model farmer groups.

Probable causes of failed rains and poor crop performance- Discussion on resource management

Given the trends experienced over the past 4 years, there is evidence to support that Maban County is facing the effects of rapid climate change. However, in the specific context of Maban County, the main cause of the failed rains for the 2015 agricultural season can also be attributed to cutting of trees and overuse of natural resources especially with the high influx of refugees from Sudan who have increased pressure on the forest resources. This phenomenon has contributed to the depletion of Maban County’s land into 57.9% annual average burnt area.² As the economy continues to decline in South Sudan, both

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² “Forest Monitoring and Fire Regime in South Sudan” Project Report Part A Swiss National Point of Contact for Satellite Images Swiss Agency
refugee and host communities have increased the use of the region’s natural resources for fire wood, charcoal, shelter construction, and as an income generating activity.

The county authorities and farmers alike were not prepared for the possibility of failure or rains becoming erratic this year. The county government does not have sufficient equipment for weather forecasting that would support the farmers. This limited access to information is further compounded by a gap in knowledge and capacity in drought preparedness and response.

Workshop participants attributed this year’s extended dry spell to burning of bushes which has contributed to altering the rainfall pattern. The bushes were burnt to regenerate new pastures for animals, demonstrating the need for improved natural resource management techniques on the part of pastoralists.

However, the workshop did not take into account any cyclic patterns of the droughts in the region. Nevertheless, there is a need for livelihood practitioners to also be aware of cyclical weather patterns that have impacted East Africa throughout its history. Acknowledgement of these trends should inform future seasonal livelihood planning, as stakeholders in Maban continue to monitor climatic and weather patterns.

Impact of 2015 weather pattern on livelihoods in Maban County

The participants attested that the weather pattern of 2015 has altered crop planting time, slowed crop growth rate and lowered germination rates and yields, because the seeds planted either were burnt or crops wilted at an early germination stage. This food stress is expected to intensify later on in the year 2015, as the food stocks are expected to run out earlier. The peak of this year’s failed rains will be felt during the peak of the lean season of 2016. This is because of the compounded effect on food security by the crisis that affected crop production in 2014 followed by significantly sub-optimal rainfall in 2015. According to the communities, by August and September the majority of streams that had water during the normal year were either dry or had extremely little water. This has greatly reduced the availability of fish in 2015 which is normally an immediate source of food as the farmers start receiving crop harvests.

It is important to note that the year 2015 had earlier been anticipated to be a food stressed year, because the major planting season of 2014 was affected by displacements due to conflict. The September 2014 Integrated Food Security Phase Classification (IPC) report projected that in the January to March 2015 period, 43 % of the population would face food insecurity at Crisis and Emergency levels, mainly due to exhaustion of household food stocks and presumed resumption of conflict.3 Based on FSNMS R14, about 64 % of households in Upper Nile State interviewed indicated that they did not cultivate any crops in the 2014 season, mainly as a result of conflict. For those that did cultivate crops, their harvest was reduced and would be exhausted by the end of March instead of May 2015. This implies that over half of households in Upper Nile State were without food stocks from their own production. The food security situation, therefore, is likely to be exacerbated by the failed rains in 2015.

According to the participants, as a result of the food shortage, there is anticipated increase in crime from petty theft of livestock. This can sometimes fuel desperation and the escalation of violent crime and a perilous cycle of revenge killing. There is also a likelihood of increased tensions between the host communities and refugees, as both communities are becoming more dependent on the same scarce natural resources for their livelihoods.

There has been also shortages of pasture and increased incidence of livestock vectors and diseases tsetse flies that transmits *trypanosomiasis* particularly since the start of the crisis when migration routes became interrupted and supply routes to veterinary medicine decreased. Due to high livestock numbers and shortage of grazing resources in Maban County, the refugees graze their animals in Tanfona, a cattle kraal proximal to Blue Nile near the border with Sudan. They mainly keep shotts (goats and sheep) in the camps but during the protracted drought, they have had to graze their livestock at longer distances to find fertile pasture.

**Coping Strategies**

Participants in the workshop discussed increasing coping mechanisms that they had noticed from their consultations with the communities and in the discussions with beneficiaries.

It is anticipated that there will be an increased dependence on already scarce forest resources for sale. This has compelled men to cut trees and burn charcoal to sell in order to cover the food gaps for their families. Women are also collecting firewood and wild foods in the forests and are selling water in the markets.

Education partners shared that boys are now being forced to drop out of classes, so as to look for casual labor jobs to get money to buy food at home. Girls have become more involved in providing casual labor in the markets which could potentially expose them to harassment or in worst case gender-based violence (GBV).

Workshop participants reported that male youths have migrated with the livestock to distant grazing areas. Seasonal livestock migration is not typical for Maban, but households had no choice but to migrate within the county to areas with water. This occurred mainly in Kula 1 and 2 villages where they temporally moved to Baniwiri due to the long dry spell, a place which is 2km away from their village in search for water and pasture.

Participants also claimed out-migration of residents mainly from Banshowa Payam to Ethiopian refugee camps due to anticipated food stress on their households starting later this year to cope with the hunger gap.

Normally household food stress also contributes to gender based violence cases due to social pressures that mount on households. Workshop participants also foresee cases of GBV against women increasing as the food stress levels increase. Workshop participants also reported that some boys have abandoned schools and migrated to other areas to look for petty jobs. Meanwhile among children in some households that have not managed to harvest sufficient amounts of food, there are signs of malnutrition which can be attributed to low food intake among others causes.

Other coping strategies applied by the communities are:
- Increased collection of wild foods (fruits and leaves)
- Sale of livestock to buy food
- Exchange of livestock with sorghum from refugees who have access to relief food ration.
- Adults in households have had to reduce the number of meals, so as to allow the children to have sufficient food to eat.

Coping strategies are expected to intensify as the food stocks from below normal harvests from the 2015 crop production season in addition to scarcity of fish and livestock products will have reduced due to scarcity of pasture and water coupled with distant migrations of animals in search of water and pasture.

**Recommendations for 2016**

The proposed solutions to mitigate the impact of erratic rainfall similar to that of 2015 on the crops and livestock will include careful selection of the approaches below:

- **Governance:** There is need to strengthen community and local government capacity on disaster preparedness with a focus on drought and seasonal dry spells. This should take into account the early warning signs. This would not be limited to improving government capacity to forecast and share drought early warning informing in coordination with the communities.

- **Good agricultural practices:** The participants proposed to spread the planting time and seeds to be from May through to July. This includes planting seeds in smaller portions, so that replanting is done in case of germination failure. This will reduce the risk and chances of losing all seeds and resources at once.

- **Drought-resistant crops:** Participants proposed planting of drought resistant and short term variety seeds especially for the staple crops. Among the specific varieties that the participants mentioned are sorghum varieties such of *Najat, wad hammed and Gandam*.\(^4\)

- **Water harvesting techniques:** There is a need to increase access to water harvesting techniques for both livestock and human need

- **Drip Irrigation:** To improve dry season farming, there was a request for drip irrigation kits. This is mainly for vegetable growing. This should be backed up by increasing access to quality vegetable seeds. This also involves increasing access to more simple technologies for irrigation along the rivers. This includes using mechanical pumps.

- **Grazing plans:** Participants suggested that livestock owners should find other locations for grazing their livestock. Partners can complement local efforts to improve grazing patterns by conducting mapping of livestock migration routes, which will better inform veterinary and livelihood support for the Mabanese agro-pastoral population.

- **Soil and water conservation techniques:** There is a need to promote soil and water conservation techniques such as mulching. It was evident that both the refugee and host communities have neither knowledge nor experience in implementing water conservation techniques suitable for semi-arid lands, to mitigate the impact of erratic rainfall. There are other several labor intensive water conservation techniques that have been successfully implemented

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\(^4\) Najat, Gandam and Wadhamed are traditionally grown sorghum varieties that are drought tolerant in Maban County adopted from the Sudan.
in other semi-arid regions of the Horn of Africa particularly Ethiopia and the Karamoja region in Uganda. These are mainly technologies to increase water infiltration when the rains fall and also reducing the surface run off of water reducing the loss of soil fertility, hence increasing productivity of land. These can be done through approaches of food and cash for work to increase access to food especially with the below average harvests whose effects will intensify in the beginning of dry season and at the peak of the lean season. This will also reduce the effects of the erratic rainfall, and soils will have conserved relatively enough water until the next season. The food and cash will reduce the food stress on the households.

- **Skills training:** There was also mention that youths need skills development courses to increase their chances of employment

**Action points to be followed up**

- A separate meeting is to be held to establish the traditional early warning signs and measurement indicators for rain for the 2016 agricultural season. This will contribute to forecasting and preparing community drought preparedness messages for the 2016 agriculture season.
- Similarly, a separate meeting is to be held with pastoralists to assess the effects of the dry spell on the livestock sector in-depth. This will also reveal the needs and gaps that could be extended to this sector to improve on the resilience of the pastoral communities