



**LIVELIHOOD BASELINE PROFILE: MABAN COUNTY**  
UPPER NILE STATE , SOUTH SUDAN, 2013

HOUSEHOLD ECONOMY APPROACH

## Acknowledgements

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Note on the cover photo (by author)

Woman winnowing sorghum after return from the field.

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## ZONE DESCRIPTION

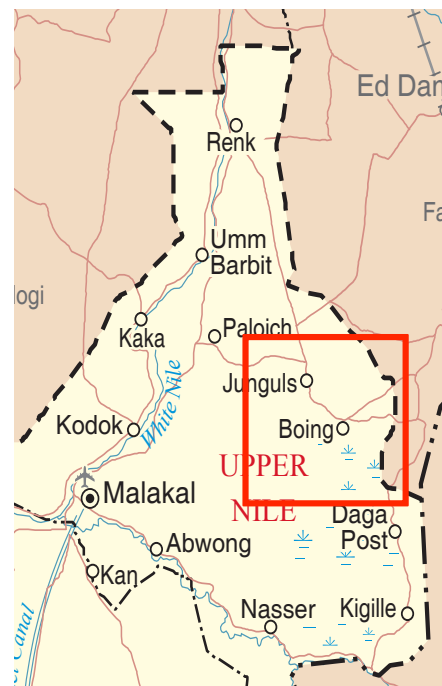
Maban County is located in Upper Nile State in the northeastern corner of South Sudan, with the international border with Sudan to the east (and Ethiopia beyond that), and domestic county borders with Longochochuk to the south, Renk to the north, and Baliet and Melut counties to the west (with the state capital Malakal further to the west). Bunj, a very small market town located in east Maban, is the county capital (spelt Boing on the adjacent map). The county is divided into five administrative payams which are in turn divided into boma (villages).



Area of the fieldwork

The predominant livelihood system in Maban is sedentary agropastoralism, with the main focus being on farming of food crops, in addition to non-migratory, livestock rearing. Gathering of wild foods is an important supplement to the agropastoralism practiced by all Maban households, including fishing for those villages in the south of the county. Cash-based trade of commodities is very limited in Maban. Most villages are self-sufficient in terms of production of cereals, other food crops and livestock, with significant amounts of exchange of food and labour between households within the village.

Relative uniformity across the county mean it can be classified as part of a single livelihood zone, however it is possible that the boundaries of this livelihood zone extend beyond the administrative county borders, and perhaps even across the international border with Sudan. The scope of this baseline process did not include investigating livelihoods beyond the county borders. The greater focus on pastoralism and migration in the nearby Eastern Flood Plains Zone seems to be sufficiently significant such that it is not likely that Maban could be classified as a sub-zone within that greater livelihood zone.



Although recently coming out of conflict, the area in close proximity to the international border with Sudan continues to see frequent movement of armed forces from the national army of South Sudan as well as rebels operating in Sudan. Occasional bombing of Maban villages by Sudanese Armed Forces was ongoing at the time of the fieldwork for this baseline. Late 2011 and much of 2012 saw the influx

of an estimated 110,000 refugees<sup>1</sup>, mostly of the Ingassena tribe originating in Blue Nile State of Sudan. The refugees are being hosted in four camps situated in the central band of the county, along the Bunj-Malakal road.

#### Natural Capital

A single rainy season commences in May and continues through to October, peaking July through to September. Average rainfall figures are not available for the county, however the total rainfall was 1,132 mm in 2010 and 660 mm in 2012<sup>2</sup>. Data was not available for 2011 however it was anecdotally reported as being somewhere between the figures of 2010 and 2012, and more representative of the average. Temperatures are hot in the dry season, often exceeding 45° C in February and March, with extremely low humidity levels.

Extensive inundation in the rainy season is a normal pattern in the county as Maban is part of a large, flat flood plain that eventually drains into the White Nile. The Yabus river is the only permanent river, located in the southern part of the county. It originates in Ethiopia running through Sudan, into Maban and west towards the White Nile. Several seasonal rivers and streams exist during the rainy season. The southern area of the county tends to be less arid than the central and northern areas. Small hills can be found in the south near to Boma Bugaya.

Soils are predominantly clays with moderately productive loams in the areas where villages tend to be located, near the Yabus river and the seasonal streams. Vegetation ranges from dense savannah in the south to sparse savannah in the north. Narrow pockets of forest areas exist in the vicinity of the Yabus river, especially to the east of Bunj town. The north of the county was used as a source of charcoal prior to independence leaving some areas deforested.

Non cultivated, wild plants are an important source of food in all years, including many kinds of tubers, nuts, seeds, fruits and leaves. They are available at various times throughout the year (see seasonal calendar below). Fishing (limited to the Yabus river) and collection of honey are important components of livelihoods in Maban. Collection of bush products for firewood, charcoal, thatching, construction and handicrafts is significant.

#### Physical Capital

Households cultivate various fields in any one agricultural season, tending to be on slightly elevated land that minimises the risk of flood damage. All crops are rainfed with planting times varying depending on the type and timing of the onset of the rains. Fields tend to be located at distance from villages to avoid disturbance by livestock. Productivity is moderate with no use of mechanical machinery, ox-drawn ploughs, fertilisers, pesticides, improved seed or other inputs<sup>3</sup>. The most important crops cultivated include long-cycle (6 month) sorghum as the primary staple, maize, beans, cowpeas, groundnuts, sesame and okra. Other food crops such as tomatoes, potatoes, onions, and chili are present but are not significant in coverage or amounts produced. Field sizes are not quantified, intensity of cultivation is not uniform, nor is any data on yield recorded at the village level. Some fields are intercropped (not uniformly), while others are cultivated with only one crop type (sorghum, sesame). There is neither ownership of land nor a limitation of availability. Fields are prepared by burning prior to the rains, then low-level, manual soil disturbance at the onset of the rains. Planting, weeding and harvesting are also done manually.

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<sup>1</sup> Source: United Nations High Commissioner for Refugees (UNHCR)

<sup>2</sup> Source: Ministry of Agriculture

<sup>3</sup> Some villages located nearby Falata settlements acquire manure for application to crops.

Cattle are the main livestock of cultural and financial value in the county. Other livestock types of importance are goats (some sheep but limited), pigs and chickens. Donkeys are kept by some households. Cattle and goats are grazed in the vicinity of the village and are returned for tethering next to homes every evening. Pigs roam freely to forage. Seasonal migration is not typical in Maban. Livestock are watered during the dry season at large man-made *hafir* (rain catchment reservoirs) or boreholes in the village (troughs are excavated below the apron to allow water to remain for livestock to drink and wallow in.) Livestock are watered at the Yabus river in those villages within close proximity.

Cattle are kept for milking with produce being consumed mainly by the owning household. It is rare for milk to be bartered or sold in the county (relatives sometimes receive small volumes of milk as a gift). Goats are also milked with the produce mainly given to children within the household. All livestock types are kept for occasional sales in cash. Goats and pigs are also used productively for *nafir* slaughter (described below) and bartered for grain. All livestock types are important for payment of bride price, as well as slaughter for provision of meat to guests attending wedding ceremonies. Other ceremonies and festivals are also important times where households slaughter livestock for communal consumption. Other livestock products such as leather are not sold.

*Hafir* are also used for human use and consumption in some locations due to lack of an alternative source. The aquifer is deep (>50m) and difficult to access in some villages making access via normal handpumps such as India Mark 2 and Afridev impossible. Many villages in Maban suffer extreme water stress in the dry season. It is typical for females of all ages to walk several kilometers for the collection of water for household purposes.

A single non-asphalted road transects the central part of the county, running from east to west, linking the Upper Nile State capital Malakal to the county capital, Bunj town. Villages are linked to this main road via bush tracks. Transport and vehicle movement within the county essentially stops for 5 months of the year during the rainy season. A single airstrip near Bunj is useable in the dry season. Sporadic mobile phone coverage is limited to Bunj. There is no infrastructure for electricity in the county, including in Bunj.

#### Human Capital

Maban is sparsely populated with only 23,795 registered families<sup>4</sup>. Maban speakers are the predominant ethnic group in the county, with very small minorities of other ethnicities present in rural villages and in Bunj. Although basic Arabic is widespread, most people are not conversant. Educational services are very limited, even by South Sudan standards. Some villages have a school building, most do not. The majority of the population is not literate. Traditional medicines and healers are widely used but in serious cases patients travel by foot, donkey or transported on beds by relatives to health facilities in Bunj or at the payam level as health posts are not available at the village level. Diseases such as diarrhoea, respiratory infections and malaria are common according to secondary literature and health agencies operating in Maban. Opportunities for formal employment or migratory labour are limited. Livestock-poor households rely on exchanging and selling labour to better off households within the village. There is no in-migration of labour from other parts of the country (except in the refugee camps). Polygamy is practiced by men who tend to be better off and able to afford to maintain more than one family. The wives and their children live separately but within the same village. Christianity and indigenous

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<sup>4</sup> County administration data.

spiritualism are the primary faiths practiced in the area with some Muslims present also.

There is an annual migration into the county by the nomadic Falata pastoralists. They arrive into Maban in November with an estimated 200,000 head of livestock seeking grazing areas. Their herds are considered to be well vaccinated, strictly controlled for the most part, and they have a very long history of coming to Maban and pay formalised taxes upon entry. They depart Maban in May/June, returning to Sudan from where they originate. As far as could be determined during the fieldwork this migration has been occurring for decades, perhaps even centuries, and the relationship between Falata and Maban communities is a positive one by most accounts.

#### Social & Political Capital

Community and inter-household support and exchange mechanisms appear to be a strong and significant part of daily life in Maban. The most important of these from a livelihoods point of view is the practice of *nafir* (described in the seasonal calendar section of this report). Communal eating is a common feature in this area, where people will regularly and informally visit neighbours, especially during more difficult times of the year. Gift giving is not significant, however this seems to be made up for by the communal eating practice. Contributions to bride price is reportedly a common practice with relatives assisting the family of the groom to get together enough animals to "woo the bride".

The strength of the relationship between payams (sub-county administrative unit) and their constituencies was difficult to ascertain. Village chiefs walk long distances to reach their relevant payam office, however it seems they do spend considerable time engaging with payam level authorities as it was regularly experienced during the fieldwork that village chiefs were busy with payam meetings. The payams are not well endowed with resources, financial or otherwise. Distances, and the lack of transport facilities for the payam administrators, makes it very difficult to conduct affairs in what might be considered an efficient manner.

#### Financial Capital

Production is limited to subsistence level farming only. Surplus production is mainly used to employ labour within the village in labour exchange agreements with deficit-producing households. Cash is not a significant aspect of the annual livelihood patterns of households in Maban, be they poorer or better off households. For example, as detailed in the income section of this report, middle level households, who are the majority, earn an average of \$0.13 per person per day. Loaning or borrowing of money is not common.

Some families in Maban have relatives in locations such as Juba, Kenya, Uganda, Ethiopia and even as far as Australia. However remittances are not common in Maban, perhaps due primarily to a lack of reliable facilities for money transfer.

## **MARKETS**

Until 2012 Bunj town was the only location in the county with a market. Due to the influx of refugees an additional market spontaneously arose in Yusuf Batil refugee camp which hosts roughly 39,000 residents<sup>5</sup>, situated more centrally within the county. At the time of the baseline the Yusuf Batil market appears to be busier and more substantial than the original Bunj market. Links and trade volumes between these two markets and the majority of Maban villages are not significant, with only small

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<sup>5</sup> Source: UNHCR



amounts of commodities being traded. This is likely due to relatively small volumes of surplus being produced at the village level, high sale prices for mostly-imported commodities (due to isolation), long distances to the markets, limited transport infrastructure, and restricted possibility for movement during the rainy season.

Villages located within walking distance (up to 10km) of the markets in Bunj and Yusuf Batil camp have more significant levels of interaction with the markets bringing for sale to the market dried and fresh fish, livestock, okra and other vegetable crops, bush products including grass for thatching, charcoal and firewood. For the more distant villages (the majority) trade is irregular and limited to commodities such as livestock and sesame, both being important sources of cash in the Maban economy. Depending on the location of the village, people walk up to 2 to 3 days to take their commodities to market. Purchased commodities include items such as clothing, livestock drugs and personal items that are not available at village level. More common items that households buy such as salt, soap, sugar, cigarettes, etc are purchased within the village during the 7 months of the year that small traders can bring in their commodities by vehicle.

Historically, some of the livestock traded in Bunj market were sourced from two groups of nomadic pastoralists. During the dry season livestock are supplied by the *falata*, while in the rainy season the Nuer of neighbouring Longochuk county supply the market. In response to the development of the new market in Yusuf Batil during 2012, the Falata switched their market of preference to the Yusuf Batil camp where there is higher demand for both their livestock and milk. It is presumed the Nuer will do likewise however this will need to be confirmed during the rainy season of 2013. Villages located in the west and northwest part of Maban county prefer to sell their livestock in Kiloashara (further to the west but geographically closer) than Bunj or Yusuf Batil.

Due to a very small population in Bunj town (several hundred families), there is limited demand for labour meaning very few opportunities for people from rural villages to sell their labour. Unskilled labour opportunities exist within the new refugee camps however these positions are limited in comparison to the overwhelming supply of unskilled labour available within the camps and tend to be taken to by refugees themselves. Skilled labour opportunities within the camps are taken by refugees or specialists from other parts of South Sudan.

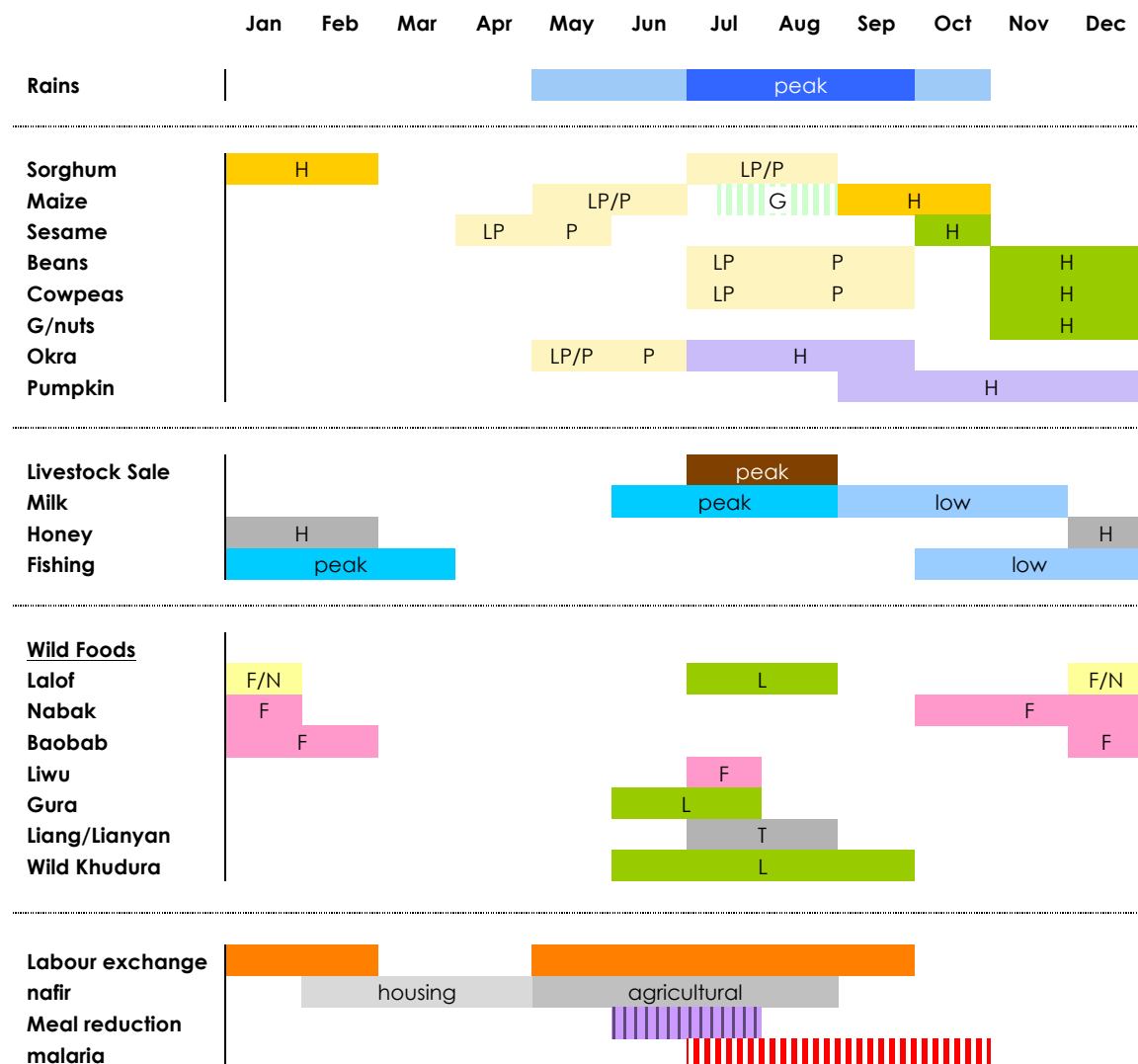
The neighbouring county Renk, well known for more intensified agriculture, is typically a source of small volumes of cereals for the "urban" households of Bunj that do not practice cultivation. One export commodity for which Maban is well known is honey. Local producers historically supplied wholesalers in Bunj with honey which was then sold on to buyers from Sudan. Trade of honey was essentially halted during 2012 due to the long term closure of the international border between Sudan and South Sudan and had not recommenced at the time of the fieldwork.

Specialties and luxuries such as bottled beer, cigarettes, clothes and shoes, tea, coffee, spices, chili, batteries, women's products such as skin creams, etc are sourced from long distance markets within South Sudan and internationally. Foreigners from Ethiopia, Democratic Republic of Congo, Kenya, and Uganda are involved in business such as restaurants, coffee houses, shisha and beer stalls, and to a limited degree prostitution.

Refugees, who are all dependent on humanitarian aid for their food needs, sell a proportion of their cereal and oil ration to both markets. There is some sale of therapeutic foods intended for children but this is not significant.



## SEASONAL CALENDAR



LP – land preparation, P – planting, H – harvest  
 G – green consumption of maize  
 Wild Foods (N – nut, L – leaf, T – tuber, F – fruit)

Sorghum and maize are cultivated to varying degrees across the county. This is both a risk reduction strategy in that both crops respond differently to rain conditions, but also related to the harvest time which differs by around 4 months, meaning that food availability is spread more consistently throughout the year. Pre-harvest consumption of green maize is an important aspect of this “spreading the availability” with all household types getting 5 to 6% of their annual calorie needs during a six week period in July/August.

*Nafir* is a mechanism through which large pieces of labour-intensive work can be done in one or two days by a large group of people. Households owning sufficient number of pigs and/or goats will slaughter one or more animals in order to attract workers. In particular *nafir* is used for cultivating (land preparation, planting, weeding) plots of land sizeable enough to produce a surplus of cereals. Vats of sorghum beer are also brewed to supplement the meat provided during the work. Invitations to attend the work opportunity are generally open, with anything from 15 to 20 male and female workers committing a day of solid work per animal slaughtered. These

opportunities are obviously taken up by poorer households, however other households also attend. Interestingly, poorer households who earn meat and beer for payment during the *nafir* event subsequently earn back these surplus cereal yields once the harvest is made when they harvest the fields of better off households in return for payment in grain. This is a type of inter-seasonal, village-level food security mechanism which importantly maintains the socio-political balance between different types of households. Other labour-intensive tasks, in particular house construction, also use *nafir*.

There is a particular aspect of seasonality that is relevant for some households at the lower end of the wealth spectrum. Sorghum harvested in January tends to have run out by around April/May. This leads into a period in May/June where food must be acquired on a daily, hand-to-mouth basis. Although most households manage to successfully acquire the required amount through the collection of wild tubers, other wild foods and planting and weeding work on the maize and sesame fields of better off families, the period is known as a difficult time because there is no "feeling" of security of access to food. The period comes to an end in July with the maturation of maize cobs when households start to consume "green" for the 6 weeks prior to harvest (starts in September). On some days during the difficult period meal frequency and size need to be reduced. Positively, communities in Maban, practice communal eating whereby households will cook for more than the normal number of household members eating. In cases where there are struggling neighbours it is normal for them to come and join. This is not reciprocated on a formal basis as such, nor is there an expectation to provide labour or anything else in return. However, the unstated and underlying expectation is that when the struggling household's situation has improved, they will provide the same opportunity for others. The custom of communal eating is practiced throughout the year.

As indicated above, wild foods are available at various times throughout the year depending on the species. There is great diversity in the type of wild food. Tubers and nuts are high in calories, examples include nyenta (tuber) and babun (tuber), with peak consumption in the middle of the year but availability throughout. Other wild food types such as leaves and fruits are lower in calorific contribution but provide micronutrients and are used as side dishes and snacks.

Heavy rains bring both positive and negative. Heavy rains and associated flooding damage crops, particularly those planted on lower grounds. However they also bring improved pastures for livestock, and greater availability of wild foods.

## TIMELINE AND REFERENCE YEAR

The baseline reference year, to which all findings in this report correspond, is the consumption period starting from the main sorghum harvest in January 2012 to December 2012. Farmers and ministry officials rated the rains of 2011 as average, leading to average production levels in the January 2012 harvest. This average consumption year followed a relatively bad year in 2011, which was affected by significant sorghum crop damage from the high rainfall and floods of 2010.

Consumption Year (Jan – Dec)	Seasonal Performance Rating*	Description	Coping Strategies
2013		Too early to rate full year. 2013 sorghum harvest rated below average due to below average rains in 2012.	
2012	3	Average yields following average rains in 2011.	
2011	1-2	Low sorghum yields following heavy rains and flooding in 2010. Offset by average maize yields which were harvested Sep/Oct 2011.	Increased collection of wild foods. Better off sold livestock.

\* Rating

5 = an excellent season for household food security (e.g. good rains, good prices, good crop yields, etc)

4 = a good season or above average season for household food security

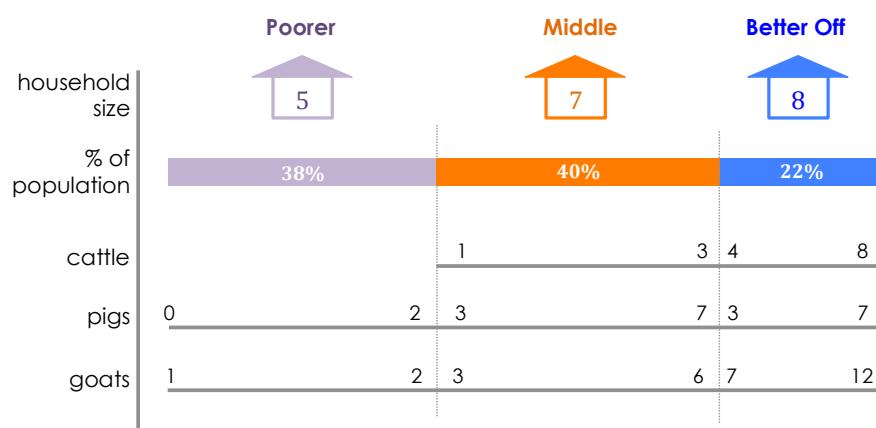
3 = an average season in terms of household food security

2 = a below average season for household food security

1 = a poor season (e.g. due to drought, flooding, livestock disease, pest attack) for household food security

## WEALTH BREAKDOWN

The following graph summarises the main characteristics that differentiate three wealth groups in Maban.



The majority of Maban's households can be classified as classic subsistence farmers, producing sufficient for themselves with limited surplus. These are called "middle" in the above graphic. Surpluses are produced by a smaller proportion of households that can be categorised as better off. Poorer households are those below subsistence level, typically deficit-producers. Depending on the village these proportions can vary. Poorer households typically comprise 33% to 46% of the village (av. 38%, see above graph), middle households 30% to 50% (av. 40%) and better off households 18% to 30% (av. 22%). There are not significant numbers of households that are below (very poor) or above (well off/rich) the above three mentioned categories.

As compared with other societies it appears that the fundamental socioeconomic characteristics of Maban society tend to result in less discrete categories of asset ownership, a more "narrow" range of variations in wealth and a tendency away from the over-accumulation of assets by better off households. Structurally, this is probably related to the theoretical productive potential of the ecosystem which can be rated as of low to moderate productivity. However, there are various social aspects that are crucial drivers of the relatively egalitarian outcome. Land is not owned and use is not controlled by landlords. The role of wild foods, although not exhaustively understood in this baseline work, is significant in this area. Gathering of wild foods is intrinsically limiting in terms of amounts that can be collected, stored and accumulated. Food is often eaten communally without a formal mechanism for immediate reciprocation. Small livestock (goats and pigs) are regularly slaughtered by middle and better off households to attract workers for work in agricultural fields, limiting the over-accumulation of productive livestock.

The most obvious *indicator* of household wealth in Maban is ownership of cattle. Poorer households own none, middle-level subsistence households own on average 2 head of cattle (ranging from 1 to 3 as indicated on the graph above), better off households own around 5 head of cattle (ranging from 4 to 8). However, ownership of cattle does not typically influence the amount of grain that Maban households (primarily farmers) can produce as they are not used for ploughing and generally not slaughtered for *nafir*. Rather, the main *determinant* of wealth, and more specifically household livelihood and food security, is the ownership of small livestock (pigs and goats) which are more "productively" used (see description above regarding *nafir*). Poorer households typically have up to 2 pigs and 1 or 2 goats, a herd size too small to risk hosting a *nafir* event. Middle households usually have 3 to 6 pigs (av. 5) and the same number of goats. Better off households usually have 4 to 7 pigs (av. 5) and 7 to 12 goats (av. 10).

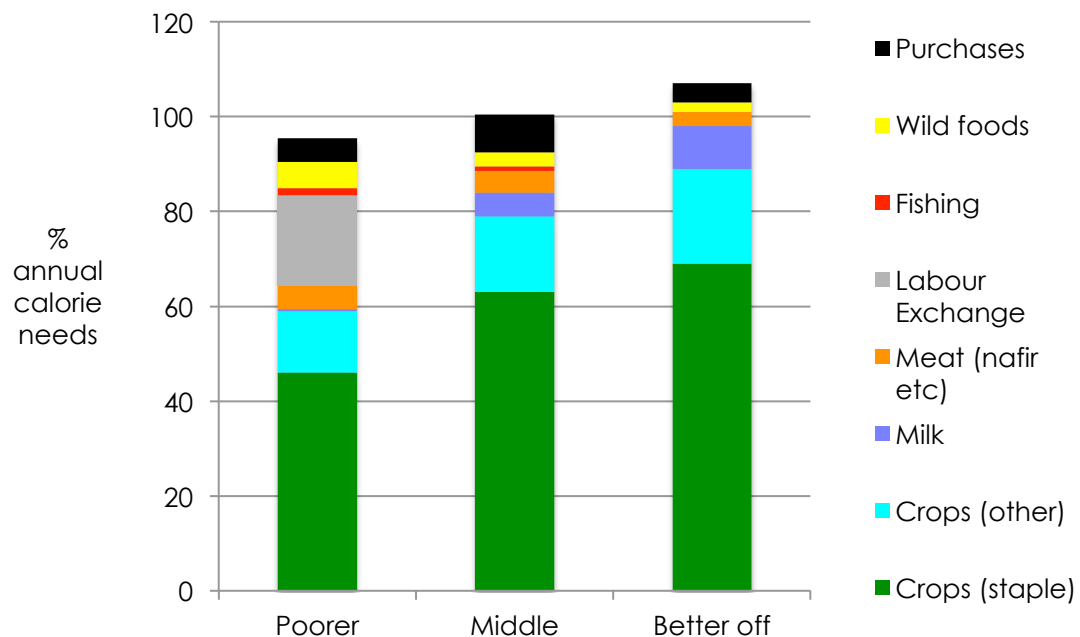
A secondary determinant of production level is availability or otherwise of labour within the household, which in turn depends on household, size composition and age. Households with higher numbers of able-bodied males are more likely to cultivate larger pieces of land, leading to higher production. However households with higher numbers of daughters also benefit in the long term from bride-price transactions in which livestock are given from the grooms family to the brides family. The typical household unit is a husband and wife and children. Polygamy does occur to some degree, more so in better off households, however it was not extensive enough to be considered the typical household structure.

As described in a previous section, there are no limitations to the amount of land available, and land is not owned privately. It is reasonable to assume that the bigger fields are cultivated by better off households and the smaller ones by poorer households (for the reasons described above), however as there was little consistency in the intensity of cultivation it was very difficult to quantify field sizes for the purposes of categorising wealth. Farmers themselves are unfamiliar with standard land units of South Sudan such as *feddan*, and in fact seemed not to consider that to be criteria for defining or categorising wealth.

Raising of chickens is neither intensive nor systematic (free to roam and sleep anywhere). They are owned by all household types, but without obvious patterns based on wealth.

## SOURCES OF FOOD

The graph below presents a summary of the total food sources by household type for the period January to December 2012. Food is presented in percentage terms and as a proportion of the annual calorific requirement of the household, based on the international standard 2,100 kilocalories (kcal) per person per day. All food sources are converted to calorific values including crops, milk, meat, beer, wild foods, purchased food and food gained in exchange for labour. Poorer households typically met around 94% of the 2,100 kcal threshold. Middle households on average reached the 2,100 kcal threshold. Better off households tended to marginally exceed the threshold, consuming around 106% of the 2,100 kcal figure on average.



### Poorer Households

Consumption of own crops provided roughly 60% of the total annual kilocalorie requirements for poorer households during the period January to December 2012, with almost 10% of the 2,100 kcal reference figure coming from beans or cowpeas, groundnuts and sesame. Significant amounts of pumpkin were eaten, which although low in calories on a per kilogram basis, eventually contributed around 3% due to the volume consumed over time. Okra, an important source of micronutrients and protein, also contributed around 1%. Small amounts of goats milk were consumed by these households, mostly by younger family members. Cereals earned in-kind as payment for work on the fields of middle and better off households contributed almost 20% of annual calories (labour exchange). Around 5% came from the consumption of meat and sorghum beer provided at *nafir* work events, weddings and other community ceremonies (N.B. This figure is a calculated estimate based on information provided by household representatives during the fieldwork). In villages close to the Yabus river consumption of fish provided 1 to 2% of annual calories for poorer households, while in villages further away there was no consumption of fish. Consumption of a vast array of other wild foods, including various tubers, leafy vegetables, seeds, nuts and fruits contributed at least 5% to the annual calorific needs of poorer households, however as described above this is likely to be significantly underestimated. Finally, purchases of items including sorghum and sugar contributed just over 5% of calorific needs during the reference year.

It would be interesting to know why groups of poorer households don't join together at the start of the agricultural season to cultivate larger fields on a rotating group-work basis, much like *nafir* but without the meat and beer incentive. There was insufficient time to investigate this in detail during the fieldwork but several possibilities exist. The timing of the start of the agricultural season coincides roughly with the period when poorer households have fully consumed their stock of harvested sorghum (or at least are scaling down consumption). This means that the requirement to meet daily food needs precludes them from engaging in activities that only have a food security benefit several months in the future. Secondly, the realities of human nature are such that the attraction of good tasting meat (which most people rarely consume in this area) accompanied by local beer would be difficult to resist when faced with the alternative of earning nothing by working on your fellow poorer neighbour's field. Thirdly, it is likely that the deeper socio-political intricacies of community life, which did not come to light in the short duration of the fieldwork, are structured in a way that somewhat maintains the hierarchy of households and their wealth status. In other words, better off families benefit from the fact that there are poorer households nearby that can perform arduous manual work for them.

#### Middle Households

The same range of crops was produced and consumed by middle households, but with higher volumes and contributions from the two cereals, sorghum and maize, as well as groundnuts and sesame. Almost 80% of the annual calorific needs came from these own crops during the reference year, of which roughly 12% of the annual total came from beans or cowpeas, groundnuts and sesame. Milk, from goats but mostly cattle, provided approximately 5% of the annual calorie needs for middle households. Meat and beer consumed from participation in *nafir* events (some of which are sponsored by these households), as well as other community ceremonies, contributed an estimated 3 to 4% of annual calorie needs in the reference year. Fishing (in villages close to the Yabus river) and other wild foods contributed 4 to 5%. Purchases made up around 8% of calories with some bartering of small livestock, mainly pigs, for sorghum (one pig bartered for 7 *kela* [84kg] of sorghum) as well as sugar and small amounts of onions.

#### Better off Households

For better-off households, just under 90% of total annual calorific needs came from the consumption of own crops (all types) in the period January to December 2012. The same range of crops were grown as for poorer and middle households but with higher yields for most varieties due to the larger field sizes made possible by *nafir*. Total volume of cereals consumed (from own crops) was only marginally higher for better off households than for middle, around 69% compared with 63% respectively, however consumption of sesame was triple, over 60kg (6%) compared with roughly 20kg (2%). Other calories from crops came from beans or cowpeas, groundnuts, okra and pumpkin. Significant amounts of cow's milk was consumed by better off households, contributing just under 8% of annual calories. Goats milk contributed just over 1%. Slaughter of small livestock for sponsoring *nafir* work events, plus consumption of meat in community ceremonies contributed an estimated 2% of the annual calorie needs of better off households. Consumption of the same wild foods consumed by other household types contributed at least 2%, but probably more. Purchase of sugar made up the remaining calories for better off households (small amounts of onions also purchased but insignificant in terms of calories). Locally brewed sorghum beer is a common feature of the diet, especially in regards to communal eating events such as *nafir* and ceremonies. Better off households probably gained around 1% of calories from consumption of this beer, and likewise for middle households.

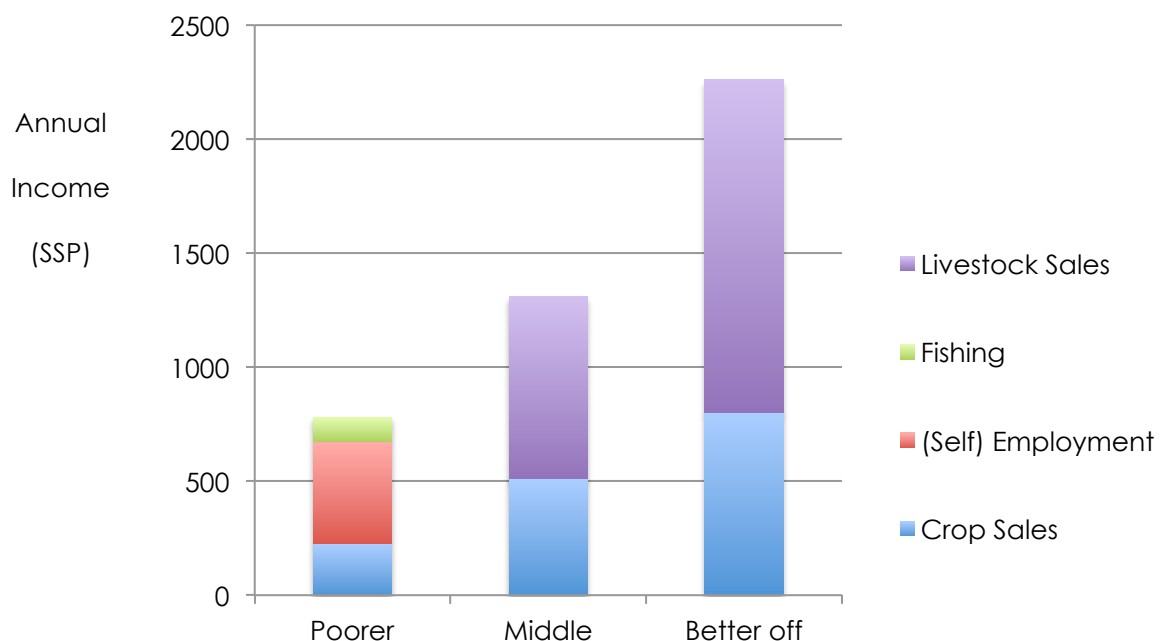
## Wild Foods

As described above, wild foods including fish contributed roughly 7%, 4% and 2% to poorer, middle and better off household diets respectively. It is likely that wild foods are “under-calculated” in terms of the calorific contribution to household diets. This stems from the non-systematised nature of collecting wild foods, the fact that people are not in the habit of quantifying how much they gather, that a large array of different wild foods exist in different places, and the calorific values of some of the wild foods is unknown (only estimated based on resemblance with known foods). It is important to note that consumption of wild foods is a normal component of the diet and is not an indicator of livelihood stress, although increase of wild food consumption, is the first strategy used by all household types in response to livelihood stress.

There was no food aid or school feeding provided for host communities during the reference year.

## SOURCES OF CASH INCOME

The graph below presents a summary of the total income sources by household type for the period January to December 2012. Amounts are in South Sudanese Pounds (SSP). Poorer, middle, and better off households earned approximately SSP 780, SSP 1,300 and SSP 2,250 respectively. Converted to USD per person per day (pppd) equivalents (based on the normal trading rate of SSP 4 per USD 1) this is roughly \$0.11 pppd for poorer households, \$0.13 pppd for middle and \$0.19 pppd for better off. These conversions into USD pppd clearly highlight how close to cashless this livelihood



### Poorer Households

Poorer households earned approximately SSP 780 in cash in the reference year from four sources; sale of crops, sale of labour and bush products, and fishing. Sales of crops earned poorer households between SSP 200 and 250 and was primarily from sale of sesame. Sale of labour within the village and sale of bush products such as grass thatching and wooden poles for construction was the biggest source of income at roughly SSP 450 for the year. Finally, for those villages located near the Yabus river sales from fishing were close to SSP 200 (averaged to SSP 106 in the graph above to account for no access to income from fishing for villages at distance from the river).



### Middle Households

Middle households earned just over SSP 1,300 in the reference year, January to December 2012, from two sources; small livestock sales and crop sales. Crop sales was the smaller amount bringing around SSP 500 into the household, predominantly from sale of sesame. Sale of an average 5 goats and/or pigs over the year earned middle households around SSP 800.

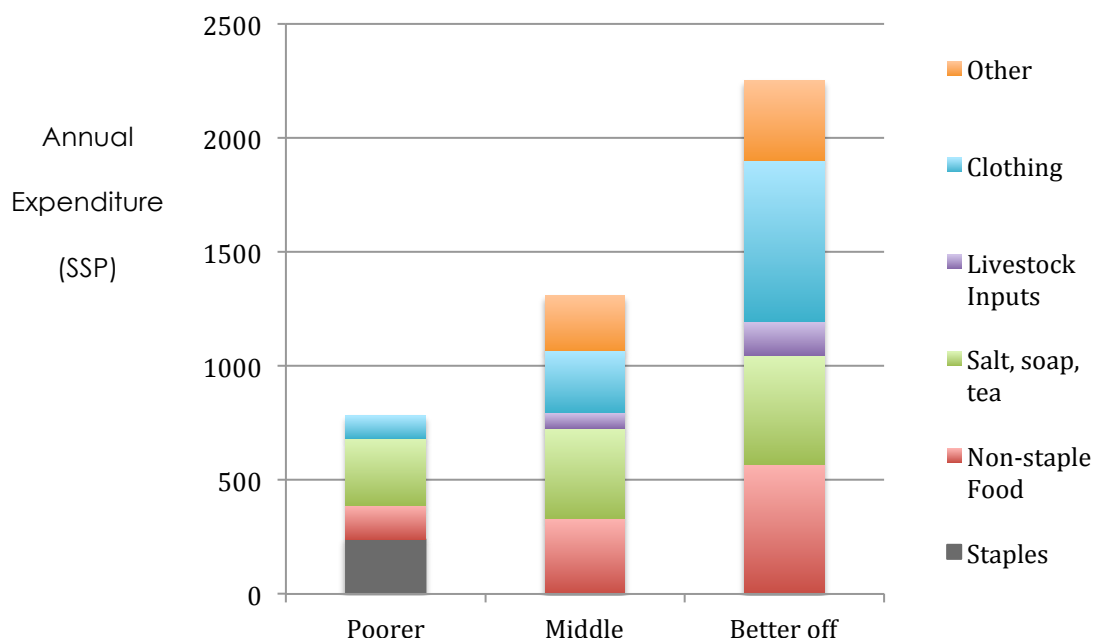
### Better off Households

Better off households earned approximately SSP 2,250 in the reference year, from the same two sources as middle households; crop sales and livestock sales. Sale of crops earned better off household roughly SSP 800, with half coming from sale of cereals maize and sorghum, and the other half coming from sale of sesame. A much greater amount, almost SSP 1,500, was earned from the sale of both large and small livestock.

As described above, honey is a commodity historically traded in Maban, with many households selling to wholesalers in Bunj who on-sell to buyers from Sudan. However due to border closures in the reference year, sale of honey was essentially stopped. Better off and middle households were historically more active in the honey trade than poorer households. Sale of milk is not typical in Maban.

## EXPENDITURE PATTERNS

The graph below presents a summary of the total expenditure by household type for the period January to December 2012. Amounts are in South Sudanese Pounds. Saving and borrowing money are not normal in Maban so amounts spent by the respective households correspond with the amounts earned. In summary, due to the very low volume of money in circulation in Maban, purchases are minimal.



### Poorer Households

Poorer households were the only households to spend money on staple cereals, with almost SSP 250 being spent in the reference year (equivalent to around 15 days of cereal use). They spent roughly SSP 150 on sugar, just under SSP 300 on tea/coffee, salt and soap and roughly SSP 100 on clothing and shoes.

### Middle Households

Middle household spent roughly SSP 250 on sugar and a small amount on onions, almost SSP 400 on tea/coffee, salt and soap, and roughly SSP 270 on clothing and shoes. Purchases of livestock drugs were made in the reference year at a value of SSP 70. Just under SSP 250 was spent on other items including batteries for torches, cigarettes and tobacco.

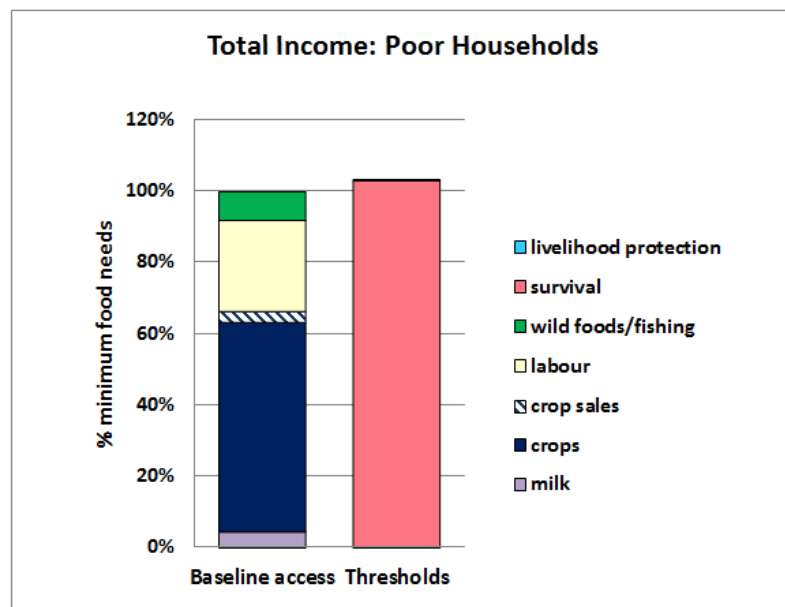
### Better off Households

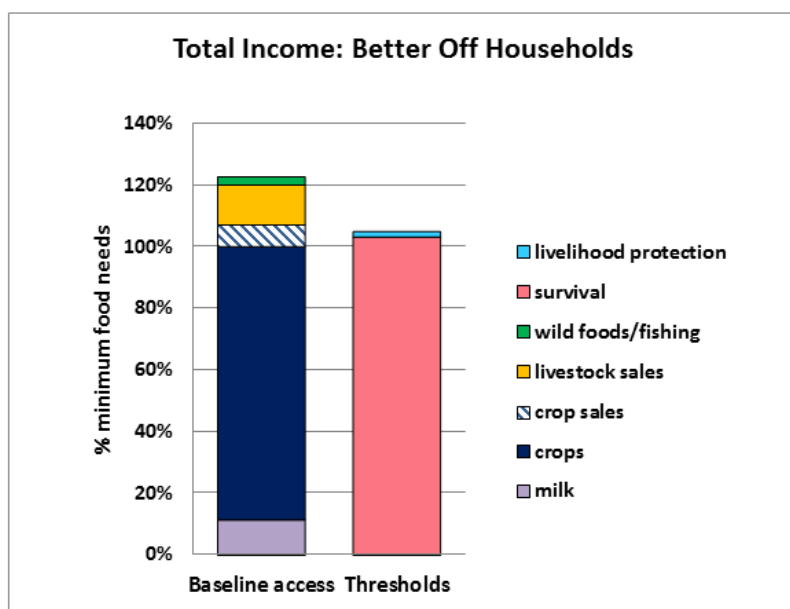
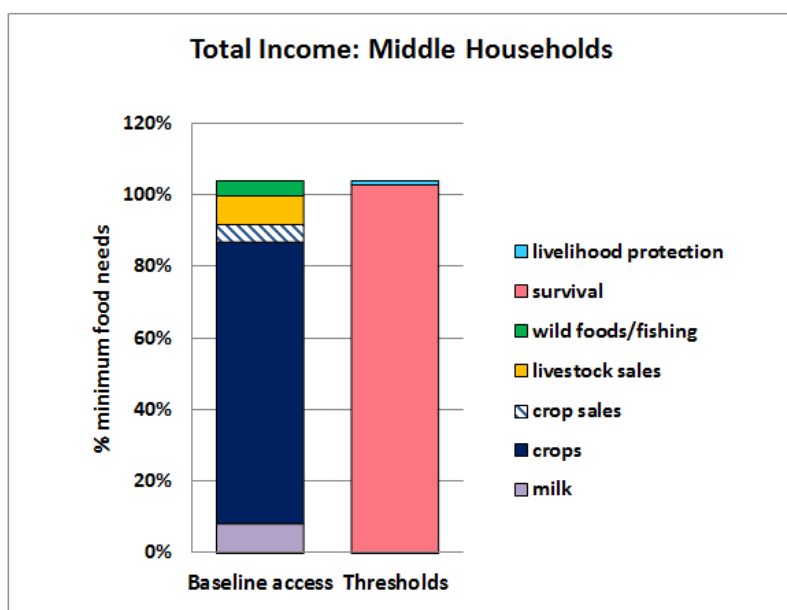
Expenditure for better off households followed the same categories of purchases as for the middle. Just over SSP 550 was spent on sugar and onions, mostly sugar. Around SSP 500 on tea/coffee, salt and soap. Roughly SSP 700 was spent on clothing and shoes. A total of SSP 150 was spent on livestock drugs during the reference year and roughly SSP 350 on commodities such as batteries, cigarettes and tobacco.

Sugar, served with tea and coffee, is a culturally important part of the diet. All household types spent roughly 20% of their annual budget on sugar. Amount spent on salt and soap increased by household type from poorer to better off, however decreased when calculated as a percentage of the total annual budget (around 25% for poorer, 18% for middle, 13% for better off). Percentage of annual budget spent on clothing increases with wealth status; poorer households spent 13% of their money on clothing and shoes, middle 21%, better off 31%.

Purchases at the village level (of imported commodities such as sugar, soap, salt) ceased for 5 months of the rainy season as commodities could not be transported into rural areas.

## SURVIVAL AND LIVELIHOOD PROTECTION THRESHOLDS





The above graphs show estimates of the total income for the baseline year combining food plus cash incomes (presented on the left). On the right side is the graph that presents the survival threshold (indicated in pink) and the livelihoods protection threshold (indicated in light blue).

The survival threshold is set to slightly above 100% to account for all food needs required for survival (i.e. 100%) plus the expenditure for basic amounts on survival non-food needs including salt and soap (expenditure on firewood and drinking water are not included as there was no expenditure on these items).

The livelihood protection basket is the total expenditure over and above the survival basket, required to maintain and protect livelihood production. It includes expenditure on inputs for crops and livestock production (set at 100% of the value the respective wealth group made in the reference year) as well as other items related to standard of living which have been set to a value between 25% and 100% of the expenditure made by poor households in the reference year (including clothes, non-

staple food items, basic non-food items, etc). Note that as households did not make any expenditures on health or education during the reference year these will not appear in the livelihood protection basket (whereas they normally would appear in cases where households do spend on these things).

## **HAZARDS AND RESPONSE STRATEGIES**

Maban households and communities, as examples of subsistence-level agropastoralists, demonstrate a good understanding of the geographical and livelihood opportunities that exist in their environment. They exploit opportunities for farming, livestock rearing, gathering of wild foods and bush products and fishing. For the most part they have developed ways of reducing exposure to hazards; cultivation of two types of cereals harvested at different times of the year, three livestock types, and a significant knowledge of wild foods. Notwithstanding this degree of strength and resilience, there are nonetheless hazards that pose a risk to production.

The most important hazard affecting the area, is flooding. It is important to be clear that flooding as a hazard per se should not be confused with the annual inundation of Maban county, which is a feature of the landscape by virtue of it being part of the Nile flood plains. Once every three or four years according to farmers interviewed for this baseline, flood levels are sufficiently high that crops are damaged. This can be due to heavier than normal rains within Maban county, or in the parts of Ethiopia across the border which are in the same watershed, or both. As described above, 2010, was an example of this hazard.

Above average rain events and flood levels would be the key indicator to monitor to have an indicative forecast of the food security situation towards the end of the rainy season (maize is harvested in September/October) and for the main harvest season (sorghum is harvested in January following the rains).

Crop yields are sometimes affected by diseases such as smut as well as small birds and rats. The degree to which these are significant did not clearly come out in the baseline fieldwork. Similarly, livestock pests and diseases are also present, however there was insufficient information available at the county level to draw conclusions on the significance. There were significant levels of livestock diseases in Maban county during the reference year, coinciding with the arrival and presence of the refugees' livestock (with similar total livestock population levels as the host community). The extent to which diseases were either facilitated in transmission or brought in by livestock coming into the county from neighbouring Blue Nile State of Sudan, is not known and was not investigated during the baseline fieldwork. There are various theories amongst agencies and actors present in Maban, most of the theories attributing the outbreaks to the presence of the refugee livestock. This report is not in a position to comment on the causes of the 2012 outbreaks.

All households stated that the first line and most common strategy to increase access to food when reductions in crop yields occurs is to collect more wild foods. Wild foods vary in type, and it is particularly tubers that are utilised in times when cereals are less available. It is important to keep in mind that after flooding events which cause crop losses, there is an increase in the availability of many of the wild foods as the extra moisture has allowed for improved growth.

Poorer households rely on better off households for gifts and labour opportunities for in-kind payment. Additionally, they re-align expenditure to reduce purchases of sugar and other commodities such as tea and clothing and increase purchase of staples.

Better off households in food security stress sell and barter livestock in Bunj and other places. Similarly to poorer households they also re-align expenditure.

#### Water Stress

The most common stress-causing aspect to livelihoods in Maban is water availability during the dry season. Women and girls walk moderate to long distances, use low-yielding hand pumps where they are available, and carry small amounts of clean water for human purposes. In villages where the hydrogeological conditions are not suited to the installation of hand pumps, water is collected from open-access water points such as hafir. Livestock are watered in the same locations with all the risks associated with that (especially pertinent in this case as pigs are watering at the same locations). This was far and away the most commonly mentioned request for assistance during the baseline research work.

### **PROGRAMME IMPLICATIONS**

Most people in Maban will prioritise improvements to water supplies over and above food security related interventions. This is fully understandable given the high level of water stress faced by all household types in most parts of the county. Donors and implementing partners would do well to make a solid contribution to the development of Maban by looking at significant improvements in this sector. This does not mean the installation of a few additional handpumps. Although of course useful to some degree, the addition of a handpump here and there will do nothing to enable households to develop their livelihood status. What is needed are facilities that would enable livestock to be watered as well as humans to have their minimum dignity, health and consumption requirements met. There is evidence across the county of deep bore, machine operated pumps with overhead storage tanks and associated hafir. Apparently these were constructed by companies and other private sector actors working in Maban prior to independence. Most have fallen into disrepair (or sabotaged according to some accounts) over time, but at least they should be seen as the kind of improvement needed if serious development of village water security is an agreed objective of development actors.

There are two key principles to keep in mind for agencies planning to conduct long term interventions aimed at improving food and livelihood security in Maban villages. Firstly, efforts to improve the food and livelihood security status should aim to strengthen livelihood practices and strategies that already exist in the area, before aiming to diversify and develop new ones. Secondly, the complex system of interactions that exist between households from different wealth groups, and the relatively communal nature of production and work in Maban should be respected, and where possible utilised for strengthening total village yields as well as yields for the three household types. Efforts to benefit poorer households will most probably require also working with middle and better off households to a greater or lesser degree. It is crucial that agencies intending to work on improvements to livelihood security for households and villages understand these interactions and mechanisms in great detail before designing interventions to make sure that they are not undermined and damaged inadvertently.

The following is a list of possibilities that should be considered and investigated more deeply by agencies planning to be involved in the long term in Maban.

- Improvements to cereal production should be investigated by looking particularly at agronomic practices and determining ways in which some simple but strategic improvements can be made to increase the degree of intensification and resulting yields. These improvements should not include attempts at introducing inputs that require purchase on an annual or regular basis; "improved" hi-bred

seed, fertilisers, herbicides, etc. As described above the economy of Maban is relatively cashless, the introduction of expensive inputs is likely to fail as the costs are beyond even better off households. Instead, research into improvements using alternative techniques such as better seed selection, systematic rotation with legumes and use of manures are all realistic practices that can build on what is locally known and available, therefore more likely to succeed. After such initial first steps result in improvements, consideration could be given to more advanced techniques and inputs.

- The majority of farmers currently use seeds from the previous season. If importing higher-yielding seed is considered it should be of an open-pollinating variety for which the seed multiplication can be managed locally by farmer committees.
- It is likely the production of the non cereal crops could benefit from similar improvements to those described above.
  - Particularly for intensification of the very important sesame which is an income source for all household types, including poorer households. Improvements in efficiency of marketing of sesame, i.e. making it more easily sellable beyond the village, would also be a solid first step towards motivating households to produce more of it.
  - Consumption of high protein, legume crops contributed 7% to 9% for all household types (beans, cowpeas, groundnuts). Ideally this would be higher both for nutritional reasons as well as soil fertility reasons.
  - Okra, as a nutritious, locally known crop that can also be dried, stored and marketed could also benefit from improvements.
- Introducing methods of quantification of land size and yields would enable farmers to more “scientifically” monitor production.
- Although the primary component of livelihoods in Maban is agriculture, livestock are used productively (goats and pigs), as a source of milk and savings (cattle) and as a source of income and for cultural purposes (all livestock types). Veterinary services could be systematised in the county meaning regular visits by technical specialists. Drugs should remain available on a purchase basis rather than provided for free.

## **Annex: Notes on the Methodology**

The fieldwork for this baseline was completed in January and February 2013 by the team mentioned in the acknowledgements. The findings refer to the period January 2012 to December 2012, the reference period mentioned in the report, and hereafter considered the baseline year. The following is a summary of the methodology of the research.

- Read all material provided prior to fieldwork as well as various online sources.
- Meeting with NGOs that are involved in livelihoods and food security activities in the camps and/or with Maban host communities.
- Visited relevant line ministries (agriculture and forestry, livestock) and administrative offices (RRC, payam authorities) to discuss livelihoods and technical aspects of production in Maban.
- Each village required three visits as described below. Most of the locations required an hour or two of driving in each direction.
  - an initial visit to inform village leaders of the research and to request an appropriate time to visit,
  - a second visit (usually two days later) to discuss in detail aspects of seasonality, production in the previous few years, wealth categories and production variations, etc with village leaders and others considered to be knowledgeable of the community,
  - a third visit (usually the following day) to meet representatives of the wealth groups to discuss a twelve month period with full analysis of food sources, income sources and expenditure.
- Complete sets of data were collected in the following villages (boma):
  - Kunjuria
  - Pumki Medir
  - Banjela
  - Kanyaji
  - Liang
  - Benoshowa
- Incomplete data sets were collected in the following villages. Various types of challenges were faced in the collection of data from these locations ranging from internal logistical problems, non-availability of village leaders at the time of interview, reluctance to provide truthful information from some respondents or ineffective translation, and a security incident.
  - Gasmalla
  - Khadija
  - New Guffa
  - Doro Kinta
  - Khorfar
- Definition of the wealth categories was done by village leaders and other knowledgeable community representatives. In Maban, the most typical pattern was for categorisation into three groups – those who produce just enough, i.e. subsistence producers (the middle), those who produce a surplus most years (the better off), and those who produce a deficit most years (the poorer). In some locations leaders described households that are even poorer (the very poor) and even better off (the rich) however in no case did these households comprise a significant enough percentage of the population to be included in the analysis (although they undoubtedly are present).
- The selection of the reference year was determined by district authorities and village leaders based on their explanations of the main crop and the production levels in recent years. In this case sorghum was without doubt the primary crop in terms of geographic coverage and production level, and the harvest of 2012 (January) was considered a normal year.



- Calculations of calorific contributions of wild foods required both estimated quantification as well as estimations of calories based on food type (tubers, leaves, seeds, fruits, etc). Household representatives were asked to describe the many types of wild foods they consumed at various times of the reference year. Frequency of collection and consumption including amounts were converted into calorific contribution. The types of wild foods available were not standard across Maban so the average calories were averaged and presented as a total contribution from wild foods although the type varies from location to location. Given the non-systematic nature of collection and consumption of wild foods (ex. the amount of tubers collected from 2 hours searching one day is likely to be different to other days) as well as the fact that they are rarely transported, stored or measured in any standard type of container means that total amounts collected had to be estimated using rough averages of what was typical. The field researchers got the impression that there tended to be an under estimation of volumes collected in general.
- Calculation of the calorific contribution of nafir was similarly challenging due to its communal nature as well as the fact that there are no standard amounts of meat and beer used nor a standard number of labourers and their spouses and children in attendance at the event. Similarly so for weddings and other ceremonies which are an important part of community life in Maban. Eventually, estimations of the total number of livestock slaughtered in a typical size village, including guesses/estimation on the amount of locally brewed beer that might be consumed at such events, was converted to a per household figure. Admittedly this required more estimation than objectively provable quantities, however this was the only method available that ensured that a figure could be included in the analysis.
- The inability to collect full data sets in a minimum of eight villages, with the consequent requirement to “piece together” information into a coherent picture means that the findings should not be presented with the normal degree of confidence that HEA baselines typically provide.
- The findings are valid for around 5 years, starting with the reference year itself, 2012, up to 2016.
- The scope of the baseline work did not include an analysis of impact on income of the current/previous work of NGOs in the livelihood and food security sector. More crucially, an analysis of impact would not have been possible given no pre-intervention data against which to compare.

#### Extra Note

Needless to say, health and educational facilities in Maban are very few and very far between. It was not the scope of this baseline work to investigate these matters, however it is worth simply stating that it is obvious that communities and households would prioritise and benefit from improvements to both sectors, in particular health facilities.