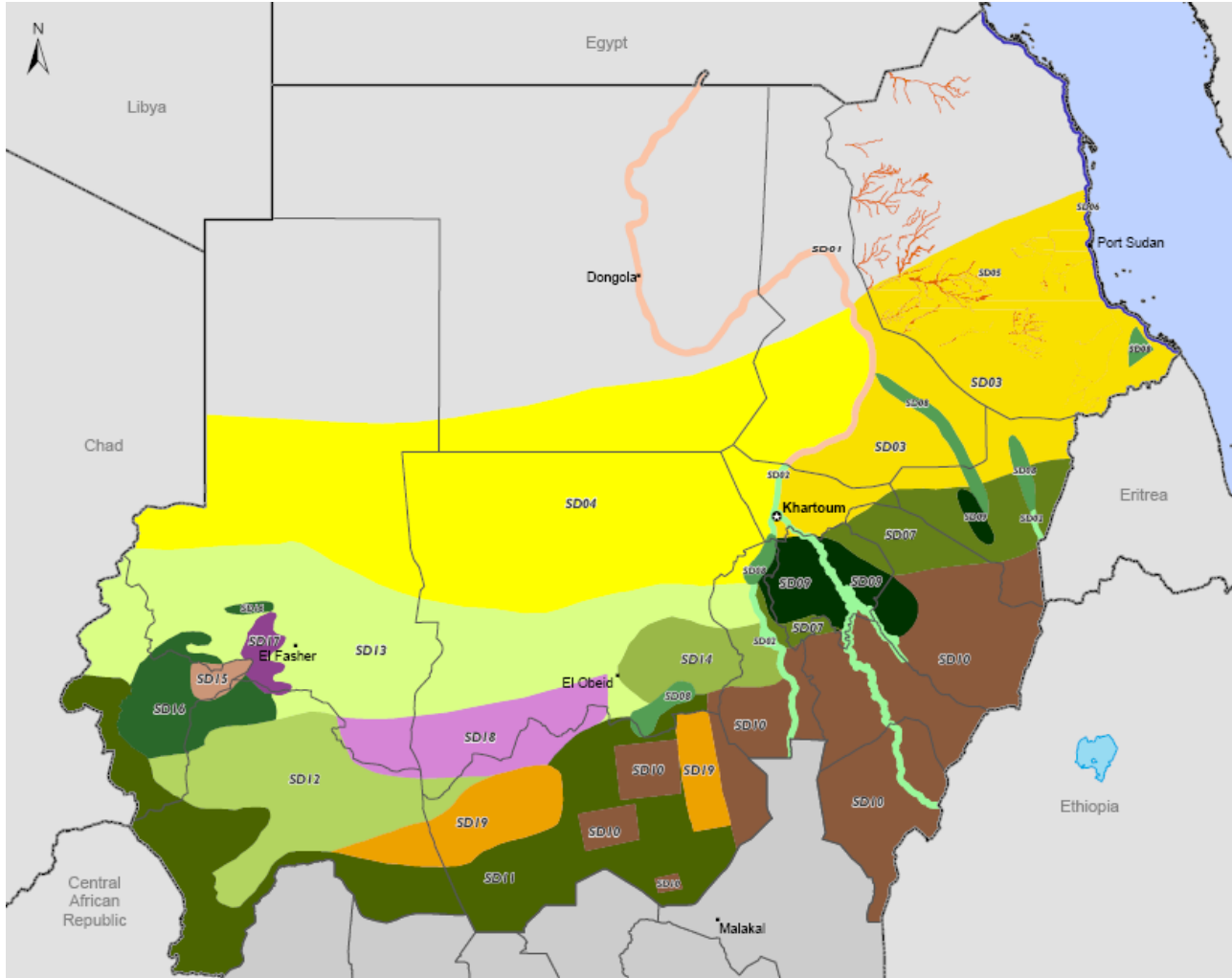




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LIVELIHOODS ZONING “PLUS” ACTIVITY IN SUDAN

A SPECIAL REPORT BY THE FAMINE EARLY WARNING SYSTEMS NETWORK (FEWS NET)

August 2011

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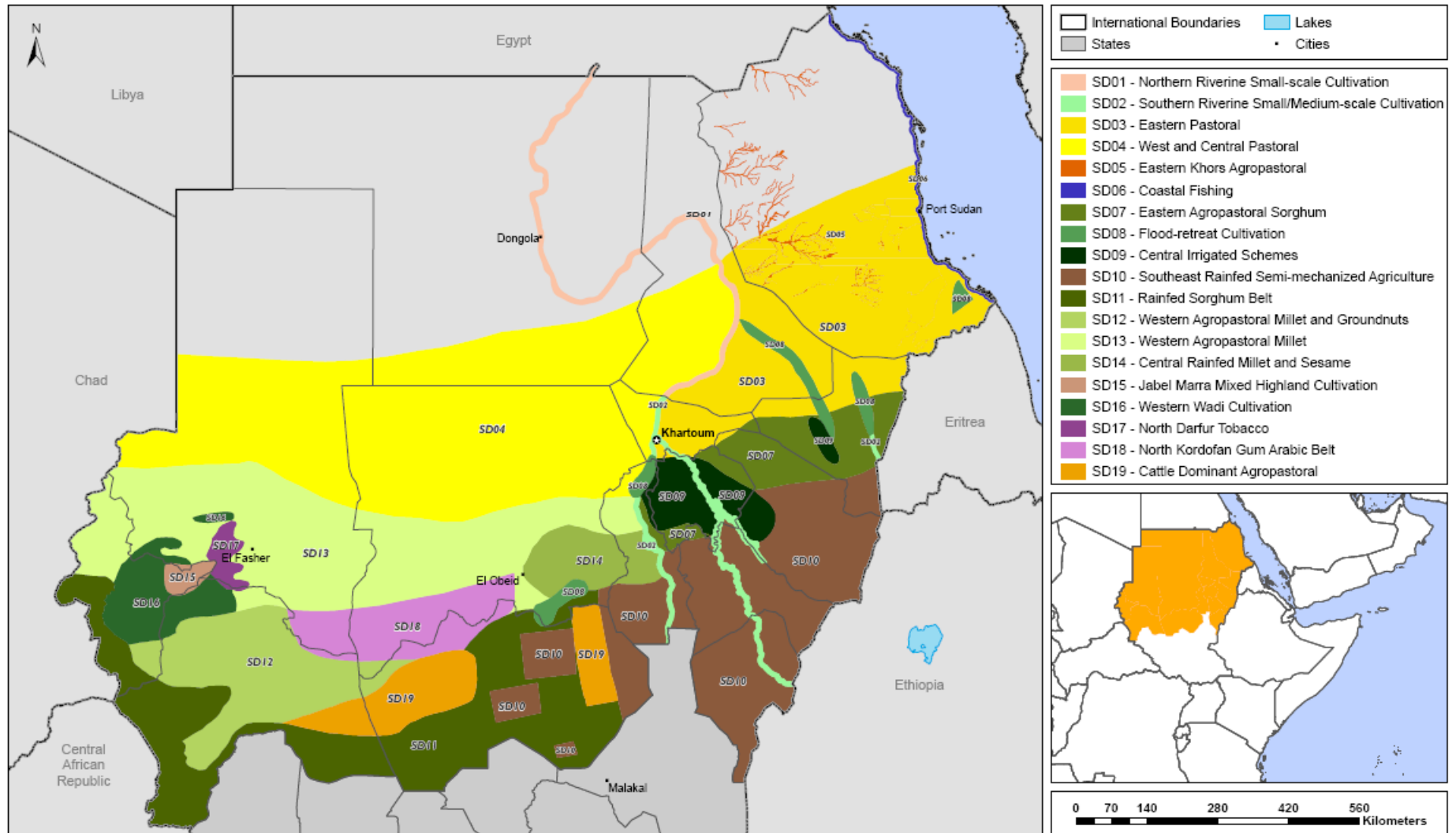
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The National Livelihood Zone Map



Introduction

For FEWS NET, the present exercise completes the livelihoods zoning of every country in the sahelian belt stretching southwards from the southern fringes of the Sahara Desert and westwards from Mauritania to Sudan. In the past Sudan has not been entirely a stranger to livelihoods zoning and the household economy assessments that tend to go with it. From the 1990s onwards Save The Children UK in Darfur undertook livelihoods zoning and field surveys to underpin its drought relief and food security program, and more recently the Sudanese Humanitarian Aid Commission (HAC) has taken up the baton in the Darfur, Kordofan and Kassala states.

This still left the majority of states untreated; but the present exercise is not an attempt to extend the process state by state, but rather to produce a national map of livelihood zones. The difference is significant. The intention was to provide a basis for monitoring at the national level, in which it is important to have a manageable number of zones to follow, without oversimplifying the map. State-by-state mapping tends to lead to a more detailed local approach resulting in more zones overall, even if zones with the same attributes were joined up across state boundaries (as is the case with the national map). For instance, the livelihoods zones map of Greater Darfur put together by HAC in 2009 has 17 zones, whilst the present national map has 9, several of which are shared with Northern and/or Southern Kordofan. There is no absolute formula for according separate livelihood zone status to a given area, but the basic factor is the number of people implicated in a potentially distinguishable economy. With the gaps in official statistics and other information, there were inevitable matters of judgment by the 50+ participants in the livelihoods zoning workshop. For instance, in Southern Kordofan there is no Nuba Hills livelihood zone because the vast majority of the population of the overall area reside in, or are economical dependant on, either the Rainfed Sorghum Belt (SD11) or the Rainfed Semi-Mechanized Agriculture zone (SD10). On the other hand, in north Darfur a Tobacco livelihood zone (SD17) *has* been recognized because it has a population of some tens of thousands who depend very substantially on a niche product. As such the national livelihoods zones map must be open to comment and review: this is necessarily a work in progress, although there is confidence that the map as it stands is very substantially well-founded.

Rural livelihoods are much affected by the urban sector, as a market for their crops or livestock, as a source of demand for their seasonal daily-labor employment, and even as a source of remittances from kin who are permanent city-dwellers. There are a number of cities in Sudan that are big by African standards, while the Khartoum/Omdurman urban complex is sizeable by any standard. Normally there is the option of defining a 'peri-urban' zone in a radius around a big city, although the precise limits are usually vague. In this case the matter is particularly difficult: the Khartoum economy exercises a huge demand for products and workers, and is also a great collection and redistribution market. But on the one hand the semi-desert ecology prevents extensive peripheral settlement beyond the river banks, while on the other hand the economic influence of the Khartoum stretches to the farthest corners even of the pastoral zones, from which livestock are trucked to feed the meat market. It likewise reaches quite distant western areas that produce melon-seeds, or gum arabic whose export is mediated by Khartoum traders. The great urban complex also necessarily influences nearer zones: not only the Central Irrigation Scheme zone but, for instance, the Central Rainfed Millet and Sesame zone (SD 14) whose modest economy is partly defined by the proximity of the Khartoum demand for both products and casual labor. In the light of such factors it was decided that to define a peri-urban zone around the capital would be both extremely difficult and of no particular benefit to understanding the geography of rural livelihoods.

The livelihoods mapping is based objectively on differences in local economies, whether they are relatively rich or relatively poor in terms of overall income, or greater or lesser food or cash-crop producers. It is not of itself a food security map. But the primary purpose of the work is to offer a geographical template relevant to food security monitoring – since livelihoods analysis is at the root of understanding food security. Comments on food security status are made at the head of each of the livelihood one descriptions that form the bulk of this report; and a summary statement is offered in the Overview section that precedes the descriptions. It should lastly be noted that the zoning and descriptions concern the situation of the general local rural population today. Several areas have for many years been the scene of the influx of refugee populations, notably of Ethiopians and Eritreans in Kassala and Gedaref; other areas have suffered from persistent conflict, whether along the frontier with South Sudan or in western and northern parts of Darfur. Local economies are affected by such factors but they are not defined by them. The livelihoods zoning did not deal with refugee or displaced populations, whose economy and food security must be considered separately.

Methodology

The creation of the Sudan national livelihoods zones map was carried out in a five-day workshop in Khartoum from May 2 to 6, 2011 with participants from government and agency partners.

This Livelihoods Zoning “Plus” product was created using a rapid livelihoods assessment approach that aims to identify and describe trends and patterns in livelihoods that can be used as a starting point for early-warning analysis. It is based on the Household Economy Analysis (HEA) methodology that FEWS NET uses as the foundation for its livelihoods activities.

The methodology used to develop this Livelihoods Zoning ‘Plus’ product consisted of two steps:

Step One: Representatives from each region come together in a national-level workshop to delineate the national map into livelihood zones, which are areas with similar livelihoods activities, agro-ecology, and access to markets.

Step Two: Descriptions of each livelihood zone are drafted at the national workshop, identifying the key characteristics of livelihoods found in each zone, as well as the Seasonal Calendar.

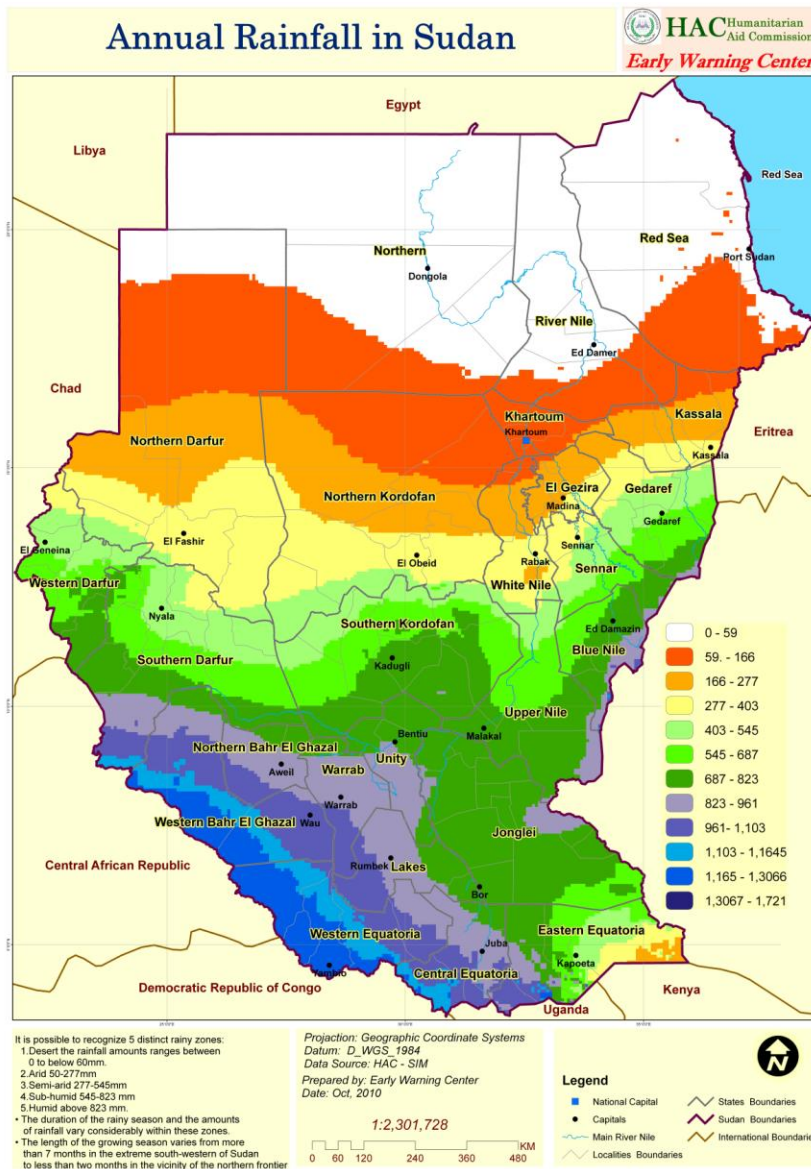
For more details on the Household Economy Analysis and principles, please visit the livelihoods section on www.fews.net or download the paper ‘[Application of the Livelihood Zone Maps and Profiles for Food Security Analysis and Early Warning](#)’¹.

1

http://v4.fews.net/docs/Publications/Guidance_Application%20of%20Livelihood%20Zone%20Maps%20and%20Profiles_final_en.pdf

Overview of rural livelihoods in North Sudan

Rural livelihoods depend very largely on primary production, that is, using the land directly for what can be got from it. In a country whose rural-populated territory stretches south from the desert, it is to be expected that the most dominant factor distinguishing one zone from another is rainfall. The rainfall bands



in the map presented here show a gradation in mean annual rainfall from not much more than zero mm in the semi-desert areas to above 1000mm in Blue Nile and South Darfur states.

In the most general terms, it can be said that the red band is home to pastoralists, since the rainfall will not support any kind of crop but allows enough pasture and watering points for livestock herding. The deep yellow band with rainfall up to somewhat under 300mm is the home of agro-pastoralists who are able to grow mainly millet in most years, especially towards the south of the band, but rely very heavily on livestock production to guarantee their survival: it is in this sense that the term 'agro-pastoral' is used, i.e. that the pastoral is at least as fundamental to household economy as the agricultural. The pastoral band is split in two, with the eastern part (SD03) dominated by the Red Sea hills ecology, where only goats and sheep can be produced in any numbers, while in the west and central pastoral areas (SD04) camels and even some cattle are also herded. The agro-pastoral

band is also divided, essentially between western millet-based zones (SD12-14, SD18) and an eastern sorghum zone (SD07), the difference resulting mainly from sandy and clay-based soils respectively.

Various factors interrupt the broad bands and result in the insertion of other livelihoods zones, the most obvious factor being the presence of surface water, whether in the form of rivers or in the form of springs issuing from underground aquifers. Zones distinguished by such water sources are all geographically in the eastern half of the country: both irrigated and flood recession cultivation on any scale are an eastern phenomenon, while the western half has essentially only rainfed crop production in addition to rainfed pastures. The River Nile and its major tributaries provide two riverine livelihood zones, Northern and Southern (SD1-2), in which irrigation managed by riverside smallholders (helped by substantial rainfall in

the southern zone) allows some cultivation of cereals but especially of high-value crops such as vegetables and fruits. Similarly, in the Red Sea hills area the *khors* or seasonal water-course draining the upper elevations and providing the basis for a small and scattered, but distinctive, zone of sorghum and vegetable production through water-harvesting (SD05).

By contrast, the Central Irrigated Scheme livelihood zone (SD09) comprises the Gezira, Rahad and New Halfa schemes that together make up sub-Saharan Africa's most extensive irrigated area, feeding off the two main rivers emanating from the drainage of the Ethiopian highland massif, the Blue Nile and the Atbara. The schemes are highly mechanized. The Atbara and Gash rivers similarly feed the Flood-Retreat Livelihood Zone (SD08), which also includes three further areas: the Tokar delta area by the coast of Red Sea State; a stretch of the White Nile just south of Khartoum; and the flood area of the Abu Habil waters near Ar Rahad in Kordofan (geographically in the centre-east of the country).

Pastoral and agro-pastoral zones support only sparse rural human populations, although the value of their production to the national economy – the livestock marketed and sometimes exported – is great. Apart from the denser populations of the irrigated and flood-retreat zones, the great majority of rural North Sudanese live south of the agro-pastoral band in rainfed, agriculturally-based local economies, with varied attributes in livestock. The biggest zone is the Southeast Rainfed Semi-mechanized Agriculture area (SD10), today rivaling the irrigation schemes in crop production and showing the modernizing face of Sudanese rainfed agriculture. The 'semi' refers to two factors. First, on the vast, privately-owned commercial farms the plowing is mechanized, but the rest of the work, from weeding to harvesting, is done by hand – essentially by paid labor, although there is a growing usage of machinery on harvest and herbicides in recent years. Secondly, on the land between the schemes, half the resident population still practices traditional rainfed cultivation on smallholdings, with ox-plough or hand-hoe based tilling. Members of many of these households also earn money working on the commercial farms.

The irrigated and rainfed semi-mechanized zones together produce the vast bulk of the marketed grain surplus in the country (very largely sorghum), as well as nearly all the cotton and most of the sesame. By contrast the ordinary western and central rainfed agriculture (Darfur/Kordofan) is usually at best at a subsistence level in terms of whole zones, and several zones are net importers of grain from the east, especially in the frequent years of poor local rainfall and production. Yet there is considerable variety amongst the zones in their relative dependence on crops or livestock, or on niche products. The best grain producer is the extensive Rainfed Sorghum Belt (SD11), with its relatively high and trustworthy rainfall and its clay-based soils. But various factors have prevented it from rising above self-sufficiency to be a grain-basket for the west: investment in improved agricultural production has been critically hampered by relative isolation by distance and poor roads from the main commercial centers of the country, and by conflict along the border with South Sudan.

Most of the rest of the zones show variations on the agro-pastoral theme: apart from the ubiquitous cattle and smallstock there is millet (SD13); groundnuts and millet (SD12); sesame and millet (SD14); gum arabic and millet (SD18). One zone – Cattle Dominant Agro-Pastoral (SD19) – is defined by its particular population of transhumant Baggara (cattle) herders whose year is roughly divided into two equal periods: the time when they are all in their home area using the rainy-season grazing and cultivating millet and sorghum, and the time when almost every household in part or as a whole unit moves south to dry-season grazing areas at the frontier with South Sudan. Finally, there is the phenomenon of the elevated area, Jebel Marra ('the Marra Mountain'), sitting on the intersection of North, South and West Darfur and resulting in three niche areas. One is the highland cultivation zone (SD15), from which onions and fruits are traded as far as

Khartoum. The second is the drainage area around much of the foot of the mountain which results in a series of extensive wadis (seasonal water-courses) (SD16) which allow households to add valuable market garden crops such as onion, garlic, potatoes, sugarcane, legumes and tomatoes to their production of staple millet and sorghum. Lastly there is a zone, fanning out east from the foot of the mountain, where alluvial, moisture-retaining soils favor tobacco as the overwhelmingly dominant crop (SD17). This is a niche area with its own internal economy of seedling sales and leaf-curing and bulk packaging before final export to rest of Sudan for final processing and retailing. It is possible that this particular zone, the only source of tobacco in the country, results from experimental cultivation long ago by a single migrant from Egypt. But the niche area par excellence lies at the opposite end of the country: the Coastal Fishing zone of Red Sea State (SD06), where the near-desert hinterland offers nothing for the economy of the non-urban coastal population, while a very limited fodder resource in their immediate surroundings allows them to keep and sell a few goats. The only possible, substantial local economic activity is therefore sea-fishing, which still has to be supplemented for many people by migrant work in the port of Portsudan or in the Tokar delta agricultural area.

In each of the livelihood zone descriptions that follow, a statement at the top about food security monitoring priority can be seen in the context of the summary information about the zone. Three zones out of the nineteen are considered particularly important to monitor for their susceptibility to food insecurity. The people of the Eastern Pastoral zone (SD03) inhabit one of the harshest environments in the country, and face a combination of frequent, acute rain failure that threatens the quality or lives of their goats and sheep, and their heavy dependence upon marketing these to be able to buy grain as well as all other necessities. The Western and Central Agropastoral zone (SD04) is chronically food insecure because people generally have fewer livestock and less mobility with them than the neighboring pastoralists but also poor and climatically risky crop-production conditions. In other words this is a critically constrained and imbalanced agropastoralism. This zone almost surrounds the third zone, the North Darfur Tobacco zone (SD17) where the valuable tobacco crop is frequently and acutely diminished by rain failure, but tobacco is what people almost exclusively 'do', so that poorer people without significant savings or assets in livestock find themselves unable to find the cash to buy enough food, especially if one poor season follows another.

In a further three zones, food security is considered a lesser but still real issue. For virtually any pastoralist environment, including the West and Central Pastoral zone (SD04), there is an association between very low mean annual rainfall and the tendency towards wide swings in precipitation from one year to the next. The pastoral economy is adapted by mobility to localized pasture failure, accessing markets in a number of neighboring agropastoral zones purchase food, but it is still vulnerable to wider failure – the really bad year. There is economic association between poorer and wealthier herders, whether in terms of shepherding employment for the poorer or in terms of loans of milking and reproductive smallstock, and in bad years this becomes a kind of solidarity that offers a buffer for poorer herders, although not enough to prevent many from feeling food stress. The two other moderately food insecure zones are found in the Red Sea state. The Eastern Khors Agropastoral zone (SD05) has the advantage of valuable cultivation added to livestock herding. The frequent rain failure in the Red Sea hills hits the population less hard than the pastoralists who depend only on smallstock production, but it does affect them sufficiently to cause the threat of real hunger about one year in five. On the coast, the fishing population (SD06) may be considered food insecure to a degree through sheer poverty rather than direct climatic threat. For the poorer households, the earnings from fish sales together with migrant work provide only the most marginally adequate budget for survival. Any misfortune, whether general in the sense of food price hikes or individual in the sense of injury or loss of fishing equipment, brings with it a pretty direct threat of hunger. On the other hand, for the most part, at least the regularity of fish provision by the sea makes livelihoods less precarious than those of their neighboring herders inland facing the vagaries of the annual rainfall.

This leaves 13 out of the 19 livelihood zones as low monitoring priority, – for very different reasons and with very different levels of overall wealth. There are zones that are usually at least food self-sufficient, notably those able to rely on surface water resources rather than only upon rainfall, and those that are able to rely on relatively trustworthy rainfall and good soils. But there are also zones that are usually not self-sufficient in food but have something else up their sleeve, for instance the densely populated Jebel Marra Highland (SD15) with its valuable garden and orchard products together with reasonably reliable rainfall; or the North Kordofan Gum Arabic zone (SD18) where the perennial cash crop makes up for relatively unreliable food production from year to year; or the Central Millet and Sesame zone (SD14) where production is low-key but livelihoods, however modest, are relatively secured by the proximity of the great Khartoum urban economy, with its high prices for such produce as can be put on the market and its great demand for casual labor.

In sum, the great majority of North Sudan’s rural population, despite the enormous differences in the rainfall and ecology and natural resources and general wealth of the zones in which they live, manage to be food secure and – what is almost synonymous – livelihood secure. Poorer people in common suffer hardships and low material standards of life; but it is only in a minority of zones (03, 04, 17) that people are threatened by the potentially lethal combination of basic poverty and acute failures of production or other income. These are the zones to be distinguished, monitored especially, and responded to rapidly when early warning puts up the signals.

North Sudan Livelihood Zoning – Livelihood Zone Descriptions

Zone 1: Northern Riverine Small-Scale Cultivation²	
<p>Food Security Monitoring Priority Low: substantial staples production, few production shocks and good cash-earning capacity to buy the balance on the market</p>	
<p>Key Livelihoods Activities</p>	
<p><u>Poor</u> Irrigated pump agriculture: horticultural goods, wheat, sorghum Agricultural labor Grain/fodder sales</p>	<p><u>Better-off</u> Irrigated pump agriculture: horticultural goods, wheat, sorghum Migratory labor - overseas and in Sudan</p>
<p>Staple Foods and Sources</p>	
<p><u>Poor</u> Wheat: own produce (9 mths); purchase (3 mths) Sorghum: own produce & purchase (12 mths)</p>	<p><u>Better-off</u> Wheat: own produce & purchase (12 mths) Sorghum: purchase (5 mths); own produce & purchase (7 mths)</p>
<p>Main Income Sources</p>	
<p><u>Poor</u> Ag labor sales Horticultural cash crop sales Grain/fodder sales</p>	<p><u>Better-off</u> Horticultural cash crop sales Migratory labor sales Wheat & sorghum sales</p>
<p>Most Important Productive Assets</p>	
<p><u>Poor</u> Land; <i>shaduf</i>, wells; labor for hire; smallstock & poultry</p>	<p><u>Better-off</u> Land; motor pumps, wells; camels, cattle & shoats, overseas migrant labor capacity</p>
<p>Main Markets</p> <p><u>Fruit & vegetables</u> Khartoum → Saudi Arabia Onions: Kassala → Port Sudan → Gulf States Fruits, dates: El Obeid → Kadoglie → Darfur</p> <p><u>Livestock</u> Ed Damer → Port Sudan → Saudi Arabia Ed Damer → Egypt</p>	

² Activities and products in the description boxes throughout the document have been listed in order of importance.

<p><u>Staple food purchase</u> Wheat: Omdurman → Dongola → Kassala Sorghum: Gedaref → El Helem → Kassala Omdurman → Dongola</p>	
<p>Shocks and Hazards Floods (1 year in 4: Jul-Sep) Decline in horticultural/cash crop prices (after harvests) Staple food price spikes (lean season) Crop disease (every year: Nov-Feb) Erratic rain/drought (1 year in 4: Jul – Sep)</p>	
<p>Key Early Warning Indicators <u>Crop indicators</u> Decline in availability/rise in prices of ag inputs (Oct–Nov) Lower than normal Nile River levels in Nov – Mar Elevated crop pest/disease in Nov-Feb Fruit pests (white fly) in July – Sept</p>	

Zone 1: Northern Riverine Small-Scale Cultivation

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Staple Foods and Sources*													
Wheat		mp		op / mp							mp		
Sorghum		mp		op / mp							mp		
Main Income Sources													
Ag paid labor peak													
Cash crop sales													
Key Seasonal Expenditure													
Seeds													
Fertilizer/herbicide													
Harvesting labor**													
Legend	op	own production		mp	market purchase			ik	in-kind payment		combinations		

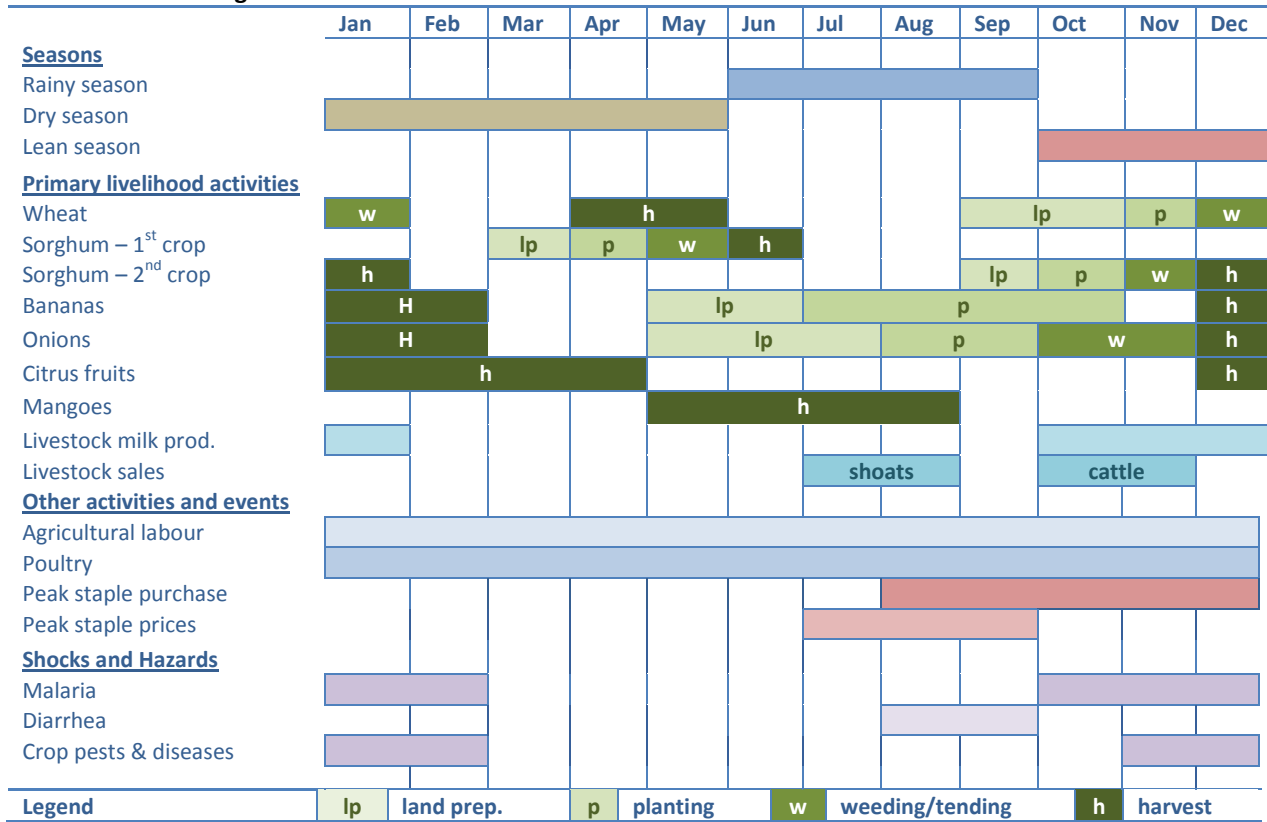
*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

** Better off expenditure only.

Seasonal Calendar: Nile and Northern States

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Seasons												
Rainy seasons												
Dry season												
Lean season												
Primary livelihood activities												
Wheat	w			h					lp		p	w
Sorghum – 1 st crop			lp	p	w	h						
Sorghum – 2 nd crop	h								lp	p	w	h
Fava beans		h							lp	p		w
Onions	w			h			lp		p		w	
Spices (fennel, garlic)	w			h					lp	p		w
Dates							h			w		
Citrus fruits		w						h				
Livestock milk prod.	Peak					lower						
Other activities and events												
Agricultural labor												
Migratory labor												
Mining (outside zone)												
Peak staple purchase												
Peak staple prices												
Credit cycles							re-pay			take out		
Shocks and Hazards												
Malaria												
Diarrhea												
Crop pests & diseases												
Legend	lp	land prep.		p	planting		w	weeding		h	harvest	

Kassala – Gash Sawagi States



Zone 2: Southern Riverine Small/Medium-Scale Cultivation³

Food Security Monitoring Priority Low: This livelihood zone has dependable cash crop production and a dependable supply of grain from the market.		This zone lies along the White Nile and the Blue Nile; along the River Nile a little north from Khartoum; and along a short stretch of the River Gash near Kassala town and the Eritrean frontier. The basis of the economy is irrigated production with also some flood-retreat cultivation. Towards the southern parts of the zone rainfall is substantial and helps along the produce grown in the rainy season. Surrounded by the vast zones of rainfed semi-mechanized and irrigation scheme cereal production, this zone, with its fertile alluvial soils but limited land area, concentrates on garden produce and orchard fruits. These cash crops – notably onions and tomatoes – are the most profitable use of the land in a situation where market value is greatly increased by good roads leading to big centres from Ed Damazin to Sennar to Wad Medani to Khartoum, and Kosti to Khartoum. Home food consumption is based on purchased cereals – sorghum, imported wheat – to which are added not only garden produce but eggs from the backyard hens and milk from cows maintained partly on cultivated fodder – which is also marketed as far as Khartoum, as are cattle and poultry. The cattle are mainly owned by wealthier people, while poorer people raise goats as well as poultry, but hardly enough to market. Fish are a resource especially for poorer people, enough for home consumption rather than sale. Garden production is labor-intensive, and poorer people with little land make an important part of their living working for wealthier neighbours. The local demand for labor is such that few need to venture into the semi-mechanised or scheme areas or towns to find employment. Local production is hampered by endemic garden crop pests and diseases, but there are few natural shocks, except localised flooding of gardens which happens somewhere almost every year at the height of the rainy season. There are also conflicts arising from boundary or water-sharing disputes and livestock invading gardens, but these do not amount to a major economic threat. Seasonal drops in produce prices are usual at times of peak harvesting from the gardens, but as regards market shocks, there is no obvious threat of acute drops in city demand for produce and therefore of acute drops in prices. On the other hand, the crucial dependence upon
Key Livelihoods Activities		
<u>Poor</u> Irrigated/flood -recession horticulture Smallstock rearing Fishing	<u>Better-off</u> Irrigated/flood-retreat horticulture & orchards Cattle & shoats rearing Fodder production	
Staple Foods and Sources		
<u>Poor</u> Sorghum & wheat: primarily purchased Vegetables: own produce (12 mths) Milk & eggs: own produce (7 mths); purchase (4 mths) Fish: own catch (12 mths)	<u>Better-off</u> Sorghum & wheat: primarily purchased Fruit/vegetables: own produce (12 mths) Purchased forage (4 mths) Milk & eggs: own produce \$ purchase (12 mths)	
Main Income Sources		
<u>Poor</u> Vegetable sales Sorghum/wheat/millet sales Forage sales Milk & egg sales	<u>Better-off</u> Wheat/millet/sorghum sales Vegetable sales Fruit sales Fodder sales	
Most Important Productive Assets		
<u>Poor</u> Land, shoats, labor	<u>Better-off</u> Land, cattle, shoats	
Main Markets In zone: Khartoum, Medni-Sennar, El Damazin, Kosti, Al Diwaim <u>Livestock</u> El Damazin → Sennar → Medni → Khartoum <u>Collection (fruit and vegetables)</u> Vegetables: El Kamlin → Khartoum Fruit & forage: Ed Damazin → Sennar → Medni →		

³ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Elkan → Khartoum</p> <p><u>Staple Food Purchased</u></p> <p>Wheat: imported</p> <p>Sorghum: Al Gadaref → Ar Rahad</p>	<p>the market for staple food brings with it a vulnerability of poorer people to steep price hikes in grain. But bulk cereals production in the next-door zones should dampen this phenomenon given the limited demand of this relatively small, if densely-packed, population. All in all, food security is not a pressing issue here.</p>
<p>Shocks and Hazards</p> <p>Floods (every 2 years: Jul-Aug)</p> <p>Crop pests & diseases (every year)</p> <p>Cash crop price drops (every year: Oct-Nov, Feb-Mar)</p> <p>Erratic rainfall/drought (1 in 5 years)</p> <p>Livestock parasites (every year)</p> <p>Conflict over borders</p>	
<p>Key Early Warning Indicators</p> <p>High temperatures in April & May indicate problems for crop yields</p>	

Zone 2: Southern Riverine Small/Medium-Scale Cultivation

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Staple Foods and Sources*												
Wheat & Sorghum	op				mp			op				
Vegetables & fruits	op/mp											
Milk & eggs	op/mp											
Fish	op/mp											
Main Income Sources												
Vegetable sales	peak					peak						
Fruit sales	peak											
Egg sales	peak											
Key seasonal expenses												
Seeds	mp											
Labor	mp											
Legend	op	own production		mp	market purchase			ik	in-kind payment		combination	

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Seasons														
Rainy season						rainy								
Dry season	dry													
Lean season						lean								
Primary livelihood activities														
Wheat production	w	h									lp	p	w	
Sorghum (irrigated)	h					lp	p	w			h			
Vegetable production	w	h	lp		p	w		h		lp		p		
Legumes/pulses production					lp	p	w			h				
Fruit production	h										w		h	
Forage	p	h										lp		
Livestock milk prod.	livestock milk prod.													
Other activities and events														
Fishing	fishing													
Brick making	brick making							brick making						
Peak staple purchase						high peak								
Peak staple prices	low peak													
Shocks and Hazards														
Malaria						malaria								
Crop pests						crop pests								
Livestock parasites						livestock parasites								
Legend	lp	land prep.		p	planting		w	weeding/tending			h	harvest		

Zone 3. Eastern Pastoral⁴

<p>Food Security Monitoring Priority High: Frequent acute rain failures threaten livestock earnings while there is a permanent and critical dependence on purchasing grain. Food distributions every year.</p>		<p>This zone covers parts of Red Sea, Nile and Kassala states. It has a very varied topography, from mountain to hill to inland and coastal plains, but a common ecology marked by the fact that the rainfall is everywhere too low for rainfed cultivation (a mean of not more than 150mm per annum). The best use people can make of the land is for grazing, and it is goats and sheep that are most produced in this very harsh and rugged environment, together with some camels and donkeys for carriage. Cattle are few because this is too hard an environment for them.</p> <p>Livestock holdings and sales are skewed towards wealthier herders, while poorer people keep animals for milk rather than sale. But even wealthier people have far too few milking goats to avoid the need to supplement their diet heavily with purchased cereals; for poorer people the milk they get from their own livestock or donated by wealthier neighbors only sufficient to be more a contribution to the quality rather than the quantity of their diet, and purchased sorghum provides by far the basis of their food. To pay for this they make another use of the land, or rather of its natural cover: they cut and sell firewood, especially as the more profitable charcoal. As a striking sign of the impoverishment of the zone over the years, wealthier people too (by local standards) need to make money from selling charcoal (and even migrating for work in Port Sudan or Tokar). But with hardly even a minimal road network and very few inland towns except along the Kassala-Port Sudan highway, the population suffers from extreme isolation. Amongst other things this means that charcoal and wood sellers must agree to the prices quoted by the limited number of traders who visit their areas.</p> <p>Another major way of earning crucial cash is for poorer people to sell their labor. Locally this is as shepherds, but since demand for them is not enough, in majority they work seasonally as laborers, bread-makers and brick-makers in towns – Port Sudan, Tokar, Kassala. They also go to work on agricultural schemes such as at New Halfa and Gedaref; and also to mining areas. The local economy can hardly support further increase in the population trying to make a living out of unincreasing resources (and possibly decreasing in the case of wood cover); and seasonal work migration is sometimes not enough either. Therefore permanent outmigration of workers to Khartoum or Atbara and other centres work is an increasing phenomenon, presumably with some increase in remittances</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Shoat pastoralism Labor for hire Mining labor Firewood collection & charcoal production</p>	<p><u>Better-off</u> Camel & shoat pastoralism Charcoal production & trade Labor migration</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Sorghum: purchase (3.5 mths); food for work/ed (8.5 mths) Milk: own produce (9 mths); gifts (3 mths) Wild foods (<i>doum</i> and <i>lalob</i>)</p>	<p><u>Better-off</u> Sorghum: purchase (12 mths) Milk: own produce (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Charcoal sales Firewood sales Labor wages Sale of wild foods</p>	<p><u>Better-off</u> Livestock sales Charcoal/trade Migratory labor wages</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Shoats, labor for hire</p>	<p><u>Better-off</u> Camels, shoats; labor for hire</p>	
<p>Main Markets In zone – Red Sea State: Port Sudan, Toker, Sinkat; Kassala: El Rtaga, Shampooop, Kassala <u>Livestock</u> Shoats: Port Sudan → Saudi Arabia or → Kassala Camels: Port Sudan → Shaltain → Egypt <u>Staple food purchase</u></p>		

⁴ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Sorghum – Red Sea State: Gadaref → Port Sudan Sorghum – Kassala: Kassala → local</p>	<p>back to the zone.</p>
<p>Shocks and Hazards Erratic rainfall / drought (1 year in 3: Jul-Sep) Staple food price spikes (every year: Jun-Dec) Animal diseases (every year: Oct-Jan) Livestock price falls (every year: Jun-Dec)</p>	<p>Livestock are taken by trades to Port Sudan and Kassala, and via Port Sudan or other coastal points to Saudia Arabia. Camels are highly prized in Egypt and therefore worth sending on the long route from Port Sudan.</p>
<p>Key Early Warning Indicators <u>Livestock indicators</u> Shortage of pasture starting earlier than usual May-July period Shortage of drinking water earlier than / more severe in May-Jul Disease outbreaks in Nov-Jan <u>Market indicators</u> Distress livestock sales and fall in livestock prices in Jun-Sep</p>	<p>Serious rain failure strikes about one year in three, taking its toll on livestock and therefore impoverishing people of their basic capital. For those with insufficient saleable livestock to get them out of their short-term trouble in a bad year, the only options for responding are an increase in the paid work and selling activities that are already essential for survival. Drops in livestock prices on a difficult market, with too many sellers needing to unload animals that they cannot feed, hit the wealthier stockowners as well as the poor who have just a goat or two to sell. Food price spikes similarly hit both wealthier and poorer, but it is the poorer who, despite all efforts, often cannot make ends meet and are threatened with outright hunger as well as perhaps two or more years to regenerate their small flocks. Food aid is therefore a yearly phenomenon, whether as free relief, or food-for-work, or food for education which both helps students and lifts a significant food requirement from the household.</p>

Zone 3. Eastern Pastoral

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum: Red Sea State	food for educ.			food for work/educ.			mp			food for educ.		
Sorghum: Kassala	mp											
Milk	op			gift				op				
Wild food collection				op								
Main Income Sources												
Charcoal sales												
Firewood sales												
Labor migration	Red Sea State						Kassala/Gadaref			Red Sea State		
Wild food sales												
Key Seasonal Expenditure												
Education												
Health	Red Sea								Kassala		Red Sea	
Legend	op	own production			mp	market purchase			ik	in-kind payment		

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season							Red Sea / Kassala			Red Sea		
Dry season	Red Sea / Kassala											
Lean season												
Primary livelihood activities												
Shoat milk production												
Camel milk prod. (b/off)												
Livestock peak sales	shoats											
Other activities and events												
Wild food collection												
Labor migration	leave						return					
Labor in port												
Charcoal production												
Firewood collection												
Peak staple purchase	peak						low peak					
Peak staple prices												
Shocks and Hazards												
Malaria & diarrhea	Red Sea								Kassala			RS
Animal disease												
Legend	lp	land prep.		p	planting		w	weeding		h	harvest	

Zone 4. Western and Central Pastoral⁵

Food Security Monitoring Priority Medium: People suffer food stress in bad years. Food aid is distributed one in every three years.		This is a vast zone with a scattered and very sparse population surviving in a semi-desert ecology by mainly nomadic camel and smallstock pastoralism. It stretches across the north of Darfur and Kordofan and comprizes also the pastoral part of Nile state that lies to the east of the river. Rainfall is between about 50mm and 150mm per year, insufficient for crop cultivation except in certain moisture-retaining wadi areas in Darfur and Buttana where poorer pastoralists with little livestock have turned to cultivation as a second string and usually manage a small millet harvest, eaten during some two months if the yield is satisfactory. For all the poorer pastoralists, milk from their modest animal holdings – mainly goats - constitutes an important part of their diet but only a quite limited part of their calorie consumption. By far the greater part of their basic food is millet and sorghum purchased from the market. Wealthier pastoralists possess camels as well as smallstock, and from both they are able to consume considerable quantities of milk. But it is only the wealthiest for whom cereals are an accompaniment to milk rather than the other way around. For poorer pastoralists, wild foods mainly collected in December and January help them to reduce a bit their dependence on the market. But they are vulnerable to food price hikes, e.g. following production failures further south. Wealthier herders are able to obtain all the cash they need for grain and other food, and for all the essential non-food requirement, by selling livestock or dairy products, notably butter-ghee. Livestock sales and products are also the most important source of cash for poorer people, but this is not sufficient for their survival. A good part for their livelihood comes from working as shepherds for the bigger stockholders and as drovers of herds to market for stockholders and pack animals for traders. Other options for income are extremely limited. They are mainly far from the very few towns or settlements of any size in the zone where they might find temporary employment, and even farther from bigger centers beyond the zone. Essentially, for most of them it is a question of either staying entirely within the livestock economy or going far away to work for long periods, maybe years, if not permanently. The main destinations for such people are to Libya as laborers and to Omdurman and other centers where they may look after town-dwellers' animals or engage in petty trade. These are not
Key Livelihoods Activities		
<u>Poor</u> Shoaat pastoralism Labor for hire: herding & driving livestock Millet production (in Darfur only)	<u>Better-off</u> Camel & shoaat pastoralism	
Staple Foods and Sources		
<u>Poor</u> Millet: own produce ⁶ (2 mths); purchase (12 mths) Sorghum: purchase (12 mths) Milk: own produce (12 mths) Wild food (3 mths)	<u>Better-off</u> Millet & sorghum: (12 mths) Milk: own produce (12 mths) Wild food: (2 mths)	
Main Income Sources		
<u>Poor</u> Livestock sales Labor: herding Livestock product sales: ghee Labor: driving livestock to main markets	<u>Better-off</u> Livestock sales Livestock products sales: ghee	
Most Important Productive Assets		
<u>Poor</u> Shoats, labor, land	<u>Better-off</u> Camels, shoats; labor	
Main Markets Livestock Intermediary markets: Kebkabiyah → Kutum → Sodari → Um Roaba Camels: Mellit, Hamrat El Sheikh, or Seraf Omra → Libya or Egypt Sheep: Sodari → Omdurman or Malha → El		

⁵ Activities and products in the description boxes throughout the document have been listed in order of importance.

⁶ In Darfur and Buttana.

<p>Fasher → Omdurman Special livestock market: El Fasher → Libya → Egypt <u>Staple food purchase</u> Millet: Sayah → Mellit → Malha or Kebkabiya → Saraf Omra → Serief → Abu Gamra → Um Buru → Karnoy → Tiena Sorghum: Kosti → EL Obied → Um Bader → Sodri → Um Gozein → Hamarat EL Sheikh OR Um Durman → Jabarat EL Sheikh → Um Bader → Soderi Um Gozein</p>	<p>people adjusted to agricultural labor on the eastern schemes.</p> <p>Herding entails movement between pastures and watering points in what might be called a 'home area', but seasonally it also requires farther north and south movement. Northern movements are governed by where rainfall has regenerated the best pastures, and in Darfur Wadi Howar with its important grazing capacity (<i>Juzu</i> pasture) capacity is a northern limit. But northern pastures cannot support most herds for much of the year, and for many there is traditionally a subsequent southern movement reaching far into West Darfur and somewhat into South Darfur. In recent times warfare has limited some of this movement, and this and insecurity has prevented or discouraged optimal raising of livestock, although not to the extent suffered by the cattle pastoralists and others further south and west. However, the northern pastoralists do pass through cultivated areas, and conflict with farmers is caused when animals stray into crops from agreed through-routes, or when farmers block routes with crops or plant on pastures.</p> <p>Rain failure during the July to September season is still the number one enemy of pastoralists. An absolute lack – drought – occurs perhaps twice in a decade, but erratic precipitation is more common, e.g. beginning late and thus dangerously extending the near pastureless end of the dry season, or falling only in a restricted geography so that many pastures are not regenerated, or falling in showers too far apart in time so that regenerating pasture dies back again. Annual rainfall is counted in tens rather than hundreds of millimeters, and every shower is precious. When things go wrong, and more cash is required for survival, options are not many. Those who can, sell more livestock. Those who can't may turn to an option not followed in better years: firewood collection and sale at markets. Otherwise, a general strategy is further south migration for grazing and a longer stay in cropping areas where cereals are available and cheaper, and there is a demand for livestock, and some kinds of work may be found.</p>
<p>Shocks and Hazards Drought (1 year in 5) Major outbreak of livestock parasites or disease (1 year in 10: rainy season) Conflict (1 year in 3: harvest seasons)</p>	
<p>Key Early Warning Indicators <u>Crop & Livestock indicators</u> Rainfall shortage in July– August Inaccessibility of agricultural inputs in June – July Disease epidemics in June-July Shortage of veterinary services in Dec-May Lack of water points in the northern areas in dry season / May Conflict / restriction of animal movement to the north in May, increasing the likelihood of camel disease <u>Market indicators</u> Cereal price increase and accompanying decrease in livestock prices (declining TOT) in June-July</p>	

Zone 4. Western and Central Pastoral

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Millet	mp										op	
Sorghum	mp											
Milk	op											
Wild food											collection	
Main Income Sources												
Livestock sales					peak		less busy					
Herding labor wages			peak									
Livestock ghee sales							peak					
Driving labor wages ⁷	less busy						peak				less busy	
Animal watering												
Key Seasonal Expenditure												
Animal vaccination												
Animal watering												
Legend	op	own production	mp	market purchase	ik	in-kind payment					Combinations	

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season	cool dry			hot dry						cool dry		
Lean season												
Primary livelihood activities												
Millet production (poor HHs)												
Shoat milk production												
Camel milk production												
Peak shoat sales												
Peak livestock product sales												
Wild foods collection												
Other activities and events												
Labor: herding												
Labor: driving livestock	less busy						peak				less busy	
Labor: animal watering												
Firewood collection												
Peak staple purchase												
Peak staple sorghum prices												
Peak staple millet prices												
Shocks and Hazards												
Malaria												
Diarrhea												
Livestock diseases												
Conflict												
Legend	lp	land prep.	p	planting	w	weeding			h	harvest		

⁷ Driving refers to labor for hire involving driving livestock to markets, which preserves body condition compared to migrating to markets which are sometimes located at great distances from wet season grazing areas.

Zone 5. Eastern Khor Agropastoral⁸

<p>Food Security Monitoring Priority Medium: This zone is at less risk of food stress than the surrounding Eastern Pastoralist population. It receives food aid roughly one year in five.</p>		<p>This zone comprises the substantial series of khors mostly on the eastern side of Red Sea State. The khors are a form of wadi, with seasonal streams running onto plains at the bottom of the Red Sea Hills. They take the form of a small valley or ravine, usually bounded by relatively steep banks, which in the rainy season becomes a watercourse fed by rainfall runoff. The water is harvested and spread and used for irrigation, so that cereals and garden crops and even some fodder can be cultivated on the relatively fertile sedimentary soil. Rainfall is only some 50-100 mm per annum largely between, i.e. far insufficient to support purely rainfed crops, although the showers contribute to their growth. The water is in the khors during the rainy season, and so the growing season is essentially from June to the December sorghum harvest, within which period the garden produce is also grown, notably okra, and are harvested. That is to say, there is no substantial off-season (cool dry season) cultivation. The sides of the khors and the nearby hillsides are wooded, providing browse for goats and a few camels to supplement the seasonal grass pastures on the plains which also allow modest numbers of sheep to be kept.</p> <p>This is a truly agro-pastoral form of livelihood, where crops are grown more or less entirely for home consumption, and livestock – largely goats - provide milk but more importantly the cash for grain purchase and other essentials. On the limited irrigated land (2-4 feddan/0.8-1.7 ha per household) the sorghum harvest only provides some four months of food for wealthier people and two for poorer people. For wealthier households, the off-take from their roughly 30 head of smallstock goes a good way towards providing sufficient cash to buy grain for eight months. But by Sudan rural standards this is a picture of only rather modest wealth, and these people have to find extra income to supplement the livestock income. They engage in petty trade; they sell dry fodder grass; they make hand-tools for sale; and they often depend to an extent on remittances from family members resident in cities of abroad.</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Shoat rearing Water harvesting Firewood collection Charcoal production Wild foods collection</p>	<p><u>Better-off</u> Camel & shoat rearing Water harvesting / irrigated farming Petty trade: sale of fodder Petty trade</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Sorghum: purchase (6 mths); in-kind (4 mths); own produce (2 mths) Milk: own produce (12 mths) Dates: purchase (12 mths) Wild foods</p>	<p><u>Better-off</u> Sorghum: purchase (9 mths); own produce (3 mths) Okra: purchase & own produce Milk: own produce (12 mths) Dates: purchase (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Livestock sales Charcoal sales Firewood sales Sale of wild foods</p>	<p><u>Better-off</u> Livestock sales Petty trade: sale of fodder</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Shoats, land, labor for hire</p>	<p><u>Better-off</u> Camels, shoats, land, labor</p>	
<p>Main Markets Kassala State: Kassala, Aroma, Hamash Koneib, Talkuk, Tawaiet, Wager Red Sea State: Dordeib, Heya, Senkat, Musmar</p> <p><u>Livestock</u> Goats: local → main markets (see above)</p> <p><u>Staple food purchase</u> Sorghum: Gadaref → Kassala → local</p>		

⁸ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Dates: Northern State → Damer → Hadalba → Wager → local</p>	<p>Poorer people, with only a handful of livestock to sell, have a still more pressing need for cash. The wealthier people do not usually need to employ shepherds for flocks of goats that a child can look after. Poorer people get most of their income by cutting and firewood and making charcoal for sale. Migration for work is rare, mainly to one of the scattered casual mining areas within the zone.</p>
<p>Shocks and Hazards Drought (1 in 4 years: Jun – Sep) Food price spikes (twice a year: Jun-Aug; Jan – Dec) Mesquite infestations reducing cultivable land Wind storms (year-round)</p>	<p>Although the zone is in a latitude where rainfall is low and frequently erratic, people here are somewhat protected from acute local climatic problems by the fact that the water that arrives in the khors is drainage from wide areas of hill/mountain. By the same token, however, they are vulnerable to more widespread rain failure in the highlands, the kind of drought that occurs every four or five years. And in such years food aid has been distributed.</p>
<p>Key Early Warning Indicators <u>Crop indicators</u> Khors water flow from highlands delayed past end of June Rainy season onset later than 1st week of July Rainfall low during Jul – Aug Plant wilt in July – mid-September Planting delayed past mid-July / weeding delayed from normal mid-July – mid-September Harvest delayed past Oct – Nov <u>Livestock indicators</u> Low lactation levels during Jan – Dec Abnormal decline in livestock body condition during Mar – Jun Low fodder availability / high price during March – July Elevated mortality rates in July – Sep Low conception rates during Jul – Sep <u>Market indicators</u> Unseasonable staple food price rises Mar – Sep Declining livestock/staple TOT Apr – Oct More people than normal resort to wild foods such as <i>mukheit</i>, <i>driesa</i> and <i>barraid</i> due to lack of quality sorghum during harvest, Dec – Feb Price rise of non-food necessities (sugar, cooking oil, coffee, etc) Dec – June Abnormal decline in market access during Nov – Feb</p>	

Zone 5. Eastern Khor Agropastoral

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum	op	mp / FFW				mp			g+ik			op
Milk	op											
Dates	mp											
Main Income Sources												
Livestock sales												
Charcoal sales												
Firewood sales												
Key Seasonal Expenditure												
Agricultural inputs												
Sugar + coffee												
Health												
NFI (shelter + clothes)												
Legend	op	own production	mp	market purchase	ik	in-kind payment	g+m	green cons + market				

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Seasons													
Rainy season													
Dry season	cool dry			hot dry						cool dry			
Lean season													
Primary livelihood activities													
Sorghum production				lp			pl	w		gh		h	
Okra production						lp	pl	w	h				
Shoat peak milk prod.													
Peak shoat sales													
Other activities and events													
Charcoal production													
Firewood collection													
Petty trade													
Casual labor													
Credit cycles	take										return		
Peak staple food purchase													
Peak staple food prices													
Shocks and Hazards													
Malaria & diarrhea													
Wind storms													
Legend	lp	land prep.	p	planting	w	weeding	h	harvest	gh	green harvesting			

Zone 6. Coastal Fishing⁹

Food Security Monitoring Priority Medium: Food aid is distributed every year, due to chronic poverty rather than acute episodes of food insecurity		<p>This zone is comprised of the settlements along the coast where fishing is the basis of livelihoods. In this semi-desert environment, with only 50-100 mm of rainfall falling each year in the late coastal rains period, rainfed cultivation is impossible and even where there is some groundwater the soil is too salt-laden for successful garden crops. Fish is, of course, an important dietary item, but a big minority of people in this culturally mixed population do not actually favor fish as food. The fish is primarily for sale, collected by traders along the coast and sold in towns, notably Port Sudan. The Monthly records for January-March – the <i>low</i> fish production period of the year due to rough seas – show fish consumption in Port Sudan at 157 tonnes of fresh fish with a further 248 tonnes exported to Egypt. Fish is also transported fresh from Port Sudan to Khartoum.</p> <p>Fish are therefore a valuable commodity insofar as they can be got to market – Suwakin is the other chief collection market of the zone. The fish are bought from villages by traders who then obtain far higher prices at the collection markets. Fishing offer only a marginal livelihood for much of the population, and there are very few other local options for wealth generation. A few goats are kept for milk by wealthier households, using the limited local fodder resources, and small numbers of livestock even join the export trade to Saudi. Apart from that, the advantage of the wealthy is in owning better fishing equipment, including boats, which boosts fish catches.</p> <p>Other cash earning has to come from outside the settlements, and it is a sign of the overall poverty in the zone that members of wealthier households as well as of poorer households go to Port Sudan to do casual labor in the port, and likewise go to the Tokar delta flood-retreat cultivation area to perform daily paid labor on the fields. Food aid, in the form of food-for-education and food-for-work is an important annual element in the household budgets of the poorer people.</p>
Key Livelihoods Activities		
<u>Poor</u> Fishing Labor at port Agricultural labor Smallstock production	<u>Better-off</u> Fishing Labor at port Trade Livestock production	
Staple Foods and Sources		
<u>Poor</u> Sorghum: purchase (3-4 mths); Food For Work/Educ (8-9 mths) Fish: own stocks (12 mths) Milk: own produce (12 mths)	<u>Better-off</u> Sorghum: purchase (12 mths) Fish: own catch (12 mths) Milk: (12 mths)	
Main Income Sources		
<u>Poor</u> Fish sales Port labor wages Local ag. labor wages	<u>Better-off</u> Fish sales Port labor wages Petty trade	
Most Important Productive Assets		
<u>Poor</u> Labor, fishing equipment	<u>Better-off</u> Labor, fishing equipment, boats, livestock	
Main Markets Port Sudan – special fishing market Sawakin – collection market <u>Fish</u> Port Sudan → Khartoum Port Sudan → Saudi Arabia <u>Staple food purchase</u> Gedaref → Port Sudan → Local Southern areas: Toker → local		
Shocks and Hazards Temperature increase → sunstroke (chronic: Jul – Sep) Shortage of freezer storage (yearly: Jul – Sep)		

⁹ Activities and products in the description boxes throughout the document have been listed in order of importance.

Key Early Warning Indicators

Fishing production indicators

Decline in availability of fishing inputs: Feb – Oct

Decline in availability of transport: Feb – Oct

Irregular power supply in Feb – Oct

Abnormally high temperatures/sun shock: Jun – Sep

Abnormal sea turbidity: Nov – Jan

Market indicators

Abnormal decline in price of fish in Oct – Nov

Abnormal rise in cost of freezer storage: Feb – Oct

Abnormal rise in transport cost: Feb – Oct

Zone 6. Coastal Fishing

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum		fe		ffe/ffw				mp		p/fw		fe
Fish		os										
Milk ¹⁰		os										
Main Income Sources												
Fish		peak										
Port labor wages												
Agricultural labor												
Key Seasonal Expenditure												
Fishing inputs												
Transport												
Education												
Legend												
	os	own stock		mp	market purchase	ffe/ffw	Food for educ/work			market+fw		

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season												
Lean season												
Primary livelihood activities												
Fishing												
Labor in port												
Agricultural labor												
Other activities and events												
Peak goat milk production												
Credit cycles												
Peak staple purchase												
Peak staple prices												
Shocks and Hazards												
Malaria												
Diarrhea												
Temperature rises												
Excessive sea turbidity												
Declined availability of freezers/transport/inputs												
Legend												
	lp	land prep.	p	planting	w	weeding			h	harvest		

¹⁰ Not all poor households own livestock. Consumption of own milk only applies to those that do own small stock.

Zone 7. Eastern Agropastoral Sorghum¹¹

<p>Food Security Monitoring Priority Low: There is considerable self-sufficiency in sorghum in two years out of three, and good market conditions for food purchase. Food aid has been distributed one year in three.</p>		<p>This zone stretches across Kassala and Gedaref states with a small continuation on the western side of the Jazeera schemes up to the White Nile river. On this plains terrain the natural cover is grasses. Mean annual rainfall of 230-240 mm is low for crop cultivation, but the light clay soils have some moisture retention quality and are relatively fertile, and in two years out of three there is satisfactory rainfall in the sense of starting on time in June and having a good periodicity of showers through the season and not ending early in September.</p> <p>The soils favor sorghum, and this is the sole crop grown, purely rainfed, successfully enough in most years to provide a large part of subsistence for the population, although only a little for sale by wealthier farmers. Livestock are kept for milk but also offer the greater part of the earnings of the wealthier households through sales, which peak in the three months after the rains when the animals are in good condition from the new pastures. The availability of grass favors sheep production, and they are more important to earnings than goats. The marketed smallstock are traded on to the urban centers and more populated areas of New Halfa, Kassala and El Girba, but such is the demand for camels in Egypt that it is worth traders taking them that huge distance for sale. Livestock also feature in the cross-border trade with Eritrea. Road access is good and urban centers are not very distant, including Khartoum for those in the centre/west of the zone, so altogether market conditions are good both for sales and for incoming grain stocks and other goods.</p> <p>Poorer people have far fewer livestock, and few other local cash-earning opportunities beyond some paid agricultural work with wealthier neighbors and some sales of sorghum residues as fodder and fencing/roofing material. Otherwise in the post-harvest season they tend to look for work away from home, mainly in the larger local towns as casual laborers and market porters. Only a few</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Rain-fed traditional agriculture: sorghum Shoaat rearing Casual labor</p>	<p><u>Better-off</u> Rain-fed traditional agriculture: sorghum Camel & shoaat rearing Cross-border trade</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Sorghum: own produce (7 mths); purchased (5 mths) Milk: own produce (9 mths); purchase (3 mths)</p>	<p><u>Better-off</u> Sorghum: own produce (9 mths); purchased (3 mths) Milk: own produce (12 mths) Meat: purchase (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Sorghum residues sales Shoaat sales Remittances</p>	<p><u>Better-off</u> Livestock sales Sorghum sales Remittances Trade</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Shoats, labor, land</p>	<p><u>Better-off</u> Camels, shoats, land, labor</p>	
<p>Main Markets <u>Livestock</u> Camels: Shuwak → Egypt / Shuwak → Kassala → Gulf states Sheep: El Rataga → New Halfa / El Rataga → Kassala Sorghum: New Halfa → Kassala / El Girbu → Kassala <u>Staple food purchase</u> Gedaref → New Halfa / Gedaref → El Girba</p>		
<p>Shocks and Hazards Drought (1 year in 3: Jul – Sep) Livestock diseases (every year after rains)</p>		

¹¹ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Raiding (continuous: Jun – Oct peak) Food price spikes (chronic: May – Sep) Crop diseases (chronic: Jul – Sep) Flood (chronic: Aug – Sep)</p>	<p>go further, e.g. to work in the irrigation scheme areas. On the other hand, over the years a good number of people from the zone have gone to the Gulf states to work as laborers or contract shepherds, or skilled or salaried workers, according to educational level and capacity. Both poorer and wealthier households in the zone commonly depend to some extent on remittances, the more so when times are hard. At such times too, wealthier households sell extra livestock while poorer households try to increase their labor income. The plains ecology is not particularly rich in wood species, but when pressed by circumstances some people cut wood to make charcoal for sale.</p>
<p>Key Early Warning Indicators <u>Crop indicators</u> Rainfall fails to start in July Erratic rainfall in September Crop wilting in late September <u>Livestock indicators</u> Sale of young reproductive female animals in August – September Increased animal migration from December – July Livestock diseases from July - October <u>Market indicators</u> Typical TOT ratio: 1 sheep buys <i>two</i> 90kg sacks of sorghum; a fall to <i>one</i> 90kg sack indicates a problem. Rise in sorghum prices may indicate pastoralists purchasing more sorghum for fodder Increasing presence of young female animals at market in August – September</p>	

Zone 7. Eastern Agropastoral Sorghum

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum	op			mp			mp			op		
Milk	op			mp			op					
Main Income Sources												
Sorghum residue sales												
Shoat sales												
Key Seasonal Expenditure												
Seeds												
Education												
Animal vaccinations												
Legend	op	own production		mp	market purchase		ik	in-kind payment		combinations		

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Seasons													
Rainy season													
Dry season													
Lean season													
Primary livelihood activities													
Sorghum production						lp	pl	pl	pl	h			
Shoat peak milk production							peak			reduced			
Camel peak milk production										peak			
Peak livestock sales				poor HHs						b/off HHs			
Other activities and events													
Agricultural labor													
Labor migration													
Cross-border trade													
Firewood sales													
Peak staple purchase													
Peak staple prices													
Shocks and Hazards													
Malaria													
Diarrhea													
Crop pests & diseases													
Livestock parasites													
Livestock raiding													
Long dry spells													
Legend	lp	land prep.	p	planting	w	weeding	h	harvest					

Zone 8. Flood Retreat¹²

<p>Food Security Monitoring Priority High: This is a chronically food insecure zone that has a regular food/cash-for-work program and has food deficits often, which sometimes warrants general food distribution.</p>		<p>This zone is composed of separate areas of flood retreat cultivation: the Tokar delta; the Aroma/Wager area in east Kassala (El Gash); on the Atbara river; on the White Nile just south of Khartoum; and in the Ar Rahad area straddling the boundary of Northern and Southern Kordofan near the Khor Abu Habil river. Sorghum is the food crop of choice on these very fertile alluvial soils, and wealthier farmers are not only entirely self sufficient in the staple but also regularly market a surplus. Poorer households by contrast only manage to produce a harvest to last them some three months of the year, so that they are dependent on the market to buy the balance of their requirement. The retreat of the river flood-waters begins in August, allowing the progressive sowing of sorghum for a harvest between December and January. Sorghum has recently replaced cotton as the major cash crop. Otherwise there is some production of vegetables, notably tomatoes, and of watermelons, for home consumption and garden marketing.</p> <p>The natural vegetation is dense bush and grassland, and these provide grazing away from the fields. This is not a zone with really substantial livestock herds, although wealthier people rear some large stock – cattle and some camels – as well as goats and sheep, while poorer people have a handful of smallstock only. These allow milk consumption throughout the year, if only in very modest amounts for poorer households. They likewise have very little off-take to sell from their flocks. Their major cash income, with which they need to buy the bulk of the food they eat as well as the other necessities of life, comes from paid labor, overwhelmingly local as there is considerable demand for workers on the sorghum fields of the bigger farmers. Other earnings are from the good nearby natural resource in firewood, also converted to charcoal, and to a small extent from off-season casual work in local towns or in mining areas.</p> <p>This is a profile of real poverty for the poorer groups. But in terms of food security they have at</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Flood retreat agriculture Smallstock rearing Charcoal production Firewood collection Migratory labor: mining</p>	<p><u>Better-off</u> Flood retreat agriculture Camel, cattle & shoats rearing</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Sorghum: purchase (6 mths); own produce (3 mths); in-kind as labor payment (3 mths) Vegetables: own produce (3 mths); purchased (9 mths) Milk: own produce (12 mths)</p>	<p><u>Better-off</u> Sorghum: own produce (10 mths); purchased (2 mths) Vegetables: own produce (3.5 mths); purchase (8 mths) Milk: own produce (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Sorghum residue sales Livestock sales Charcoal & firewood sales Local ag labor wages</p>	<p><u>Better-off</u> Livestock sales Dry fodder sales Petty trade</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Land, shoats, labor for hire</p>	<p><u>Better-off</u> Land, camels, cattle, shoats</p>	
<p>Main Markets Sorghum: local → Sedon, Ed Damer, Atbara / Aroma, Wager, Tendelay, Matateib, Kassala Vegetables: Tokar → Port Sudan / KRT / Kassala / Gedaref / Atbara <u>Livestock</u> Cattle: Wager → Ed Damer / Kassala / Port Sudan</p>		

¹² Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Camels: Damer → Egypt Sheep: Aroma → Kassala / Ed Damer / Port Sudan/ Saudi Arabia <u>Staple food purchase</u> Sorghum: Gedaref → Kassala → Aroma/Wager / Sedon / Ed Damer → local Wheat: Khartoum → Kassala → Aroma; or Port Sudan → Atbara → local</p>	<p>least two advantages. One is that flood-retreat agriculture is based on water coming from a long distance, not simply on local rainfall. So erratic local rainfall does not pose the acute problems that would arise with purely rainfed agriculture (and in fact much of this zone is in areas with less than 150mm of rain annually, too little for rainfed cultivation). A second advantage, leading from the first, is that they have a regular local demand for their labor. In any year there are some localities where over-flooding kills standing crops; low flood level is a rarer problem. But only about one year in five is there a more general production problem, when food aid is distributed.</p>
<p>Shocks and Hazards Floods (chronic: August) Crop pests (chronic: June – November) Mesquite infestation Abnormal food price spikes (May – October) Abnormal cash crop price drops (Dec – Feb)</p>	<p>Marketing is hampered by remoteness from big centres and/or the isolation of large areas during the flood months when local roads are impassable.</p>
<p>Key Early Warning Indicators <u>Crop indicators</u> Flood waters high from highlands in Jun – Aug Length of irrigation water application to cultivated areas low in August – September Planting & weeding timing in late August – October Plant performance August – December Crop pests & diseases rise in August – January <u>Livestock indicators</u> Conception rate drops January – December Lactation period drops January – December Decline in animal body condition March – June Mortality rates climb July – September Water availability for livestock in February – June Fodder availability declines/price rises in Mar – Jul <u>Market indicator</u> Price speculation in advance of poor harvest – November – February Abnormal rises in staple food prices in Dec – Feb Price of NFIs rise in December – January Access to markets declines abnormally Nov – Feb</p>	

Zone 8. Flood Retreat

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum	op	mp	ik	mp	gc	op						
Vegetables	mp									op		
Milk	op											
Main Income Sources												
Sorghum residue sales	[Bar from Jan to Dec]											
Livestock sales	[Bar from Mar to Sep]											
Charcoal sales	[Bar from Feb to Oct]											
Firewood sales	[Bar from Jan to Dec]											
Local ag labor income	[Bar from Apr to Dec]											
Key Seasonal Expenditure												
Agricultural inputs	[Bar from Jun to Oct]											
Sugar + coffee	[Bar from Jan to Dec]											
Health	[Bar from Jan to Dec]											
NFI (shelter, clothing)	[Bar from Feb to Apr]											
Legend	op	own production		mp	market purchase		ik	in-kind payment		gc	green consump.	

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season	[Bar from Jan to Jun]						[Bar from Jul to Dec]					
Dry season	[Bar from Jan to Dec]											
Lean season	[Bar from Jan to Jun]						[Bar from Jul to Dec]					
Primary livelihood activities												
Sorghum production	h							pl	w/gc	gh		h
Watermelons production	w	h					lp	pl				w
Tomato production	h					lp	pl			w		h
Cattle migration	[Bar from Jan to Mar]											
Peak cattle milk prod.	[Bar from Aug to Dec]											
Peak camel, shoat milk	[Bar from Jan to Dec]											
Livestock sales peak	[Bar from Oct to Dec]											
Other activities and events												
Charcoal production	[Bar from Jan to Apr]											
Firewood production	[Bar from Jan to Dec]											
Local agricultural labor	[Bar from Jan to Dec]											
Labor migration	[Bar from Jan to Mar]											
Sale of fodder/residue	[Bar from Jan to Jun]						[Bar from Jul to Dec]					
Peak staple purchase							high peak			lower		
Peak staple prices							[Bar from Jun to Dec]					
Shocks and Hazards												
Malaria	[Bar from Jan to Dec]											
Diarrhea	[Bar from Jul to Oct]											
Floods	[Bar from Jul to Oct]											
Crop pests & diseases	[Bar from Jun to Dec]											
Legend	lp	land prep.	p	planting	w	weeding	h	harvest	gh	green harvest		

Zone 9. Central Irrigated Schemes¹³

Food Security Monitoring Priority Low: This is a food surplus zone in normal years.		The zone comprizes the Gezira scheme in Al Jezirah state and the New Halfa scheme in Kassala state. The huge Gezira scheme, initiated more than 100 years ago, uses the waters of the Blue Nile in mainly a gravity-feed system of canal irrigation. The New Halfa scheme dates from 1964 when it the Khashm el Girba Dam was created on the Atbara river for a scheme on which to resettle some 50,000 Nubians from Wadi Halfa displaced by the disappearance of their pasturelands under Lake Nasser behind the Aswan Dam. In Gezira the dense population is formed of the original local people and in-migrants from other parts of Sudan who have settled into the economy and have small amounts of land to cultivate.. Production on the moderately fertile clay-based soils is mainly of sorghum and cotton, with wheat as an important second food and cash crop for the wealthier farmers. The food crops are also, in effect, partly cash-crops together with the cotton. There is also secondary production of groundnuts, horticultural produce and orchard fruits. Cattle are kept by wealthier people, as well as smallstock in which sheep provide the bigger value. Poorer people keep a few goats and fewer sheep. Poultry are kept by everyone, and their value, like that of other produce, is added to by the proximity of the Khartoum-Omdurman conurbation with its enormous market demand. Wealthier households feed themselves entirely from their fields unless it is to buy preferred staples such as rice or extra wheat as well as a little millet. Poorer people are substantially but not fully self-sufficient in sorghum. They sell grain at harvest because they have pressing cash needs, and also partly have amount of sorghum and wheat to vary the diet, especially since they do not typically produce wheat themselves. But they do need to cover three or so months from the market, and most of the cash to do this comes from paid work on other local farms; to a much lesser extent
Key Livelihoods Activities		
<u>Poor</u> Gravity fed & pump irrigation horticulture & orchards Irrigated sorghum, groundnut and cotton Smallstock rearing Poultry production Agricultural labor	<u>Better-off</u> Gravity fed & pump irrigation horticulture & orchards Irrigated sorghum, groundnut and cotton Cattle & shoat rearing, dairy	
Staple Foods and Sources		
<u>Poor</u> Sorghum: own produce (9 mths); purchase (3 mths) Millet & wheat: purchase (12 mths)	<u>Better-off</u> Sorghum: own produce (12 mths) Wheat: own produce (5 mths); purchase (7 mths) Millet & rice: purchase (12 mths)	
Main Income Sources		
<u>Poor</u> Sale of cotton Sale of groundnuts Sale of sorghum	<u>Better-off</u> Sale of sorghum Sale of groundnuts, cotton	
Most Important Productive Assets		
<u>Poor</u> Land, labor, shoats	<u>Better-off</u> Land, labor, cattle & shoats	
Main Markets <u>Cereals & cash crops</u> Medni → Sennar → Rabak New Halfa → Al Fao → Um Durman <u>Livestock</u> Cattle & shoats: Sennar → Khartoum / Medni → Khartoum Medni → Sennar → Singa → Rabak <u>Staple food purchase</u>		

¹³ Activities and products in the description boxes throughout the document have been listed in order of importance.

Sennar → Rabak → local	people go seasonally to find urban work.
<p>Shocks and Hazards</p> <p>Floods (every 1 in 3 years in July – August)</p> <p>Crop sale price drop (1 in 3 years in Dec – Mar)</p> <p>Crop pests & diseases (every year in Aug – Sep)</p> <p>Silting of canals</p> <p>Access to credits</p>	<p>Despite both chronic and periodic production problems ranging from farmers’ lack of cash for production inputs to flooding of crops, this is essentially a food secure area. Food distributions have happened only one year in ten.</p>
<p>Key Early Warning Indicators</p> <p><u>Crop indicators</u></p> <p>Erratic rains in July – August</p> <p>Floods in July – August</p> <p>Prices of cotton and other export crops’ prices in the international markets</p> <p>Crop pests & diseases in September – October</p> <p>Low crop production at harvest (December – March for cash crops, April – May for cereals)</p> <p><u>Livestock indicators</u></p> <p>Water shortage in September – October</p> <p>Internal parasites after rains end in Oct (reducing milk production, prevented by early treatment)</p> <p>External parasites (damage cattle hides, reducing ability to sell) (July – October)</p> <p><u>Market indicators</u></p> <p>Crop sale price drops (December – March)</p>	

Zone 9. Central Irrigated Schemes

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum	op					mp					op	
Millet						mp						
Wheat						mp						
Main Income Sources												
Sale of sorghum												
Cotton sales												
Groundnut sales												
Key Seasonal Expenditure												
Seed												
Fertilizer												
Vaccination												
Education												
Legend	op	own production		mp	market purchase		ik	in-kind payment		gc	green consumption	

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season												
Lean season												
Primary livelihood activities												
Sorghum production	h				lp		p		w	gh		h
Wheat production	p	w			h						lp	p
Legume production	p	w			h						lp	p
Cotton production	h				lp	p		w				
Groundnut production	h				lp	p		w				h
Peak cattle milk prod.												
Peak livestock sales												
Other activities and events												
Local agricultural labor												
Labor migration												
Trade												
Peak staple purchase												
Peak staple prices												
Shocks and Hazards												
Malaria												
Diarrhea												
Floods												
Crop pests & diseases												
Legend	lp	land prep.		p	planting		w	weeding		h	harvest	
										gh	green harvest	

Zone 10. Southeast Semi-Mechanized Rainfed Agriculture¹⁴

<p>Food Security Monitoring Priority Low: This is a food surplus zone, with deficits occurring roughly one in every five years, which reduces its export, but does not generally cause acute food security within the zone.</p>		<p>This is a very large and highly populated zone spreading from the southern corner of Kassala state across Gedaref, Sennar, Blue Nile, White Nile and parts of South Kordofan, including the majority in the general Nuba Mountains area and Habila mechanized scheme. There are two kinds of production. The bulk of crop production in terms of volume comes from farms, including a number of large commercial concessions, where tilling is done mechanically but most of the rest of the agricultural cycle is done by hand, because human labor is a cheaper option than mechanical weeding, insecticide spraying or harvesting due to large cultivation areas larger than machinery can manage in a timely manner. Secondly, aside from the mechanized plots there are smallholdings whose owners – amounting to around half of the resident population - cultivate for themselves with traditional ox-ploughing or hand-tilling. Members of these households may also work on the mechanized farms. The other half of resident people mainly live by working on the mechanized farms and elsewhere, and are joined on the farms by seasonal migrant workers from other parts of Sudan.</p> <p>The clay soils are fertile, and mean annual rainfall ranges from 400mm at the northern limit to up to 900mm towards the south, where the rains continue into October. The main food crops grown are sorghum and to a lesser extent millet; sesame is the main cash crop, followed by cotton and sunflower seed that are grown by wealthier farmers. But sorghum from at least the mechanized sector must be seen also as a cash crop; and it is also to some extent marketed by smallholders. Cowpeas and vegetables such as okra are grown for domestic consumption.</p> <p>Natural cover is grassland as well as bush and tree species that become forest towards the south. The grass pasture together with crop residues allows wealthier smallholders to keep sheep in preference to goats, and these are the main type of livestock sold out of the zone, reaching even Port Sudan. Poorer smallholders have more goats, which are easier to keep. They may also keep one or two cows for milk,</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Semi-mechanized agriculture Traditional rain-fed agriculture Cattle & shoat rearing Local agricultural labor Migratory labor Gum arabic collection Wild foods collection</p>	<p><u>Better-off</u> Semi-mechanized agriculture Traditional rain-fed agriculture Camel, cattle & shoat rearing Local agricultural labor Migratory labor</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Sorghum: own produce (6 mths); purchase (6 mths) Millet: own produce (6 mths); purchase (6 mths) Okra/ cowpeas: own produce (8 mths); purchase (4 mths) Milk: own produce (4 mths)</p>	<p><u>Better-off</u> Wheat: purchase (12 mths) Sorghum: own produce (12 mths) Millet: own produce (7 mths); purchase (5 mths) Milk: own produce (4 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Sesame sales Sorghum sales Millet sales Labor Gum Arabic sale Sale of shoats Sale of wild foods Sale of straw Firewood/charcoal sale</p>	<p><u>Better-off</u> Sorghum sales Sesame sales Sunflower sales Cattle & shoat sales Trade Sale of straw</p>	

¹⁴ Activities and products in the description boxes throughout the document have been listed in order of importance.

Most Important Productive Assets		<p>while wealthier households have more cattle and even one or two camels.</p> <p>There is a high degree of food self-sufficiency amongst smallholders, with even poorer households able to supply themselves from their harvest for at least six months of the year, after which they purchase both sorghum and millet to make up the gap. Wealthier people can well feed themselves throughout the year from their harvest stocks but can afford to buy wheat which they consume at least as much as sorghum and millet together.</p> <p>Households that do not cultivate must necessarily purchase food for the whole year from the labor-wages they earn. As a group, about half of the paid work they do is local, mostly on the mechanized farms, a little in local towns. But that is not sufficient for the whole year, and so the other half of their work, especially in the off-season, is as casual laborers, porters etc. in the big cities inside and outside the zone, especially in Khartoum.</p>
<u>Poor</u>	<u>Better-off</u>	
Land, labor, goats, cattle, sheep	Land, labor, sheep, cattle, camel	
Main Markets		
<u>Crops: collection & intermediary</u>		
Cereals: El Damazin → Sennar → Khartoum or El Obeid → Rabak → Khartoum		
Cash crops: El Damazin → Sennar → Khartoum or El Obeid → Rabak → Khartoum		
<u>Livestock</u>		
Sheep: El Damazin/El Obeid → Khartoum → Port Sudan		
Cattle: El Damazin → Sennar → Khartoum → Port Sudan or Rabak → Khartoum		
Camels: El Obeid → Port Sudan		
<u>Staple food purchase</u>		
Sorghum: Medni → Sennar → El Rahad → Gedaref		
Shocks and Hazards		
Drought (1 in 10 years in July – August)		
Floods (1 in 10 years in July – September)		
Crop pests & disease (1 in 10 years in Sep – Nov)		
Crop sales price drops (1 in 5 years in Nov – Apr)		
Livestock disease outbreaks (1 in 10 years; varies)		
Key Early Warning Indicators		
<u>Crop indicators</u>		
Delayed onset of rainfall later than July		
American poll worm/stem boer in Sep – Oct		
Shortage of ag labor in Sep – Nov; Mar – Apr		
Conflict during harvest: Nov – Jan		
<u>Livestock indicators</u>		
Shortage of rain/water in June – October		
Livestock parasites (internal & external)		
<u>Market indicators</u>		
Crop sale price drops		

Zone 10. Southeast Semi-Mechanized Rainfed Agriculture

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum, millet	op			mp						op		
Cowpeas	op			mp						op		
Main Income Sources												
Sale of sorghum												
Sale of sesame												
Sale of cotton												
Livestock sales												
Key Seasonal Expenditure												
Seed												
Vaccination												
Education												
Legend	op	own production		mp	market purchase		ik	in-kind payment		gc	green consumption	

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Seasons													
Rainy season													
Dry season													
Lean season													
Primary livelihood activities													
Sorghum, millet production	h	h				lp	p	w				h	
Cowpea production	h	h				lp	p	w				h	
Millet production							lp	p	w				
Sesame production							lp	p	w		h		
Cotton production	h				lp		p	w					
Sunflower production							lp	p	w	h			
Okra production.							lp	p	w	h			
Peak shoat milk prod.													
Peak livestock sales													
Other activities and events													
Local ag labor													
Labor migration													
Peak staple purchase													
Peak staple prices													
Shocks and Hazards													
Malaria													
Diarrhea													
Floods													
Crop pests & diseases													
Legend	lp	land prep.		p	planting		w	weeding		h	harvest		

Zone 11. Rainfed Sorghum Belt¹⁵

<p>Food Security Monitoring Priority Low: This zone is typically self-sufficient, with neither a global food surplus nor deficit in normal years. Households face a deficit about one year in five.</p>		<p>This is a very extensive zone, of medium population density, comprising part of West and South Darfur and the greater part of South Kordofan. The common factors are substantial and mainly reliable rainfall with a mean annual precipitation above 600mm, and relatively fertile clay and sandy-clay soils. Sorghum is by far the main crop, but some millet is also grown, while poorer people grow more sorghum than millet. Cowpeas are commonly intercropped with the cereals. Wealthier farmers are normally fully self-sufficient in grain but choose to buy a certain amount of wheat in form of bread as part of their diet. Poorer households are able to feed themselves from their harvest for about half the year before depending on the market and on grain received as direct payment for labor.</p> <p>The main cash crops are sesame and groundnuts – wealthier farmers grow more sesame, poorer grow more groundnuts and also sell cowpeas. These cash crops are the single biggest source of income for the poor, while for better off people the sale of surplus sorghum is in first place, and is taken by traders both north and south from the zone. Vegetables and fruits are grown for domestic consumption. Wild foods are normally collected as an addition to the diet, especially wild fruits, but in times of crop deficit wild food collection becomes more important. Other responses for those without livestock to sell are to sell firewood and to increase work migration.</p> <p>The main livestock wealth for better off people is in cattle, although they also keep sheep and goats. Cattle herds are commonly taken to certain favorable pasture areas in the dry season between February and June, and at this time surplus males and weak animals that cannot stand the trek tend to be sold. Poorer people are only able to keep a few goats as well as poultry, so that for them livestock income is minimal, while it is a significant source for wealthier households. Cash crop sales are quite insufficient to give the poor the amount of money they need to buy extra grain as well as to pay for the many other necessities of life, and so they must also hire out their labor. But local demand for labour in this essentially subsistence farming zone is not enough, and the greater part of labor earnings are made far away in Khartoum and in major agricultural</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Rainfed traditional agriculture Local agricultural labor Gold mining labor Migratory labor Wild food collection Smallstock rearing</p>	<p><u>Better-off</u> Rainfed traditional agriculture Cattle & shoat rearing</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Sorghum: own produce (6 mths); purchase (4 mths); in-kind (2 mths)</p>	<p><u>Better-off</u> Sorghum: own produce (12 mths) Millet: own produce (4 mths); purchase (8 mths) Wheat: purchase (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Cash crop sales (groundnut, sesame, cow peas) sorghum sales, Ag labor,</p>	<p><u>Better-off</u> Sorghum sales, sesame & groundnut sales, vegetable sales, livestock sales</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Land, labor, small ruminants</p>	<p><u>Better-off</u> Land, labor, livestock (cattle, shoats)</p>	
<p>Main Markets</p> <p><u>Crops</u> Kadugli → El Obeid → Kosti / Kadugli → South Sudan / Abu Jibadiha → South Sudan / Abasia → Kosti</p>		

¹⁵ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p><u>Livestock</u> Cattle: South Kordofan → Kosti → Khartoum / South Kordofan → El Obeid / South Darfur → El Obeid → Khartoum Sheep: South Darfur → El Obeid → Kosti or Khartoum</p> <p><u>Staple food purchase</u> Sorghum: Kosti → El Obeid → South Kordofan / Kosti → South Kordofan → El Obeid → South Darfur Wheat: Khartoum → El Obeid → South Kordofan Cash crops → Nyala → El Obeid →Khartoum</p>	<p>production areas such as Gedaref, Rahad and Gezira.</p> <p>This zone has suffered from being on the front-line of warfare in the past, and this has reduced investment in farming development that might otherwise have been made (although poor roads and distance from major markets are also a negative factor. Insecurity has also resulted in serious losses of livestock through theft/raiding, making people more cautious in keeping more than small numbers especially of cattle. In addition the zone is used by transhumant cattle herders from the north for seasonal grazing and as a passageway for farther migration. The damage to standing crops by straying herds is a subject of local conflicts every year.</p>
<p>Shocks and Hazards Crop pests (every year: July – December) Erratic rains (1 year in 5: June – October) Conflict (every year in recent years: Nov – Feb) Animal disease (every year: June – October) Flood (1 year in 5: July – September)</p>	
<p>Key Early Warning Indicators <u>Crop indicators</u> Erratic or low rainfall in May – October Rainfall starts after June Pest infestation in July – October Staple food price spike in December – March Crop failure in September</p> <p><u>Livestock indicators</u> Late livestock migration back from south in June – July Poor pasture in July – August Animal disease outbreak in July – October Early livestock migration to the south in/before September Wild fires destroy crops and pasture from October – December</p> <p><u>Market indicators</u> Poor staple food stocks in market, elevated prices in January – March Appearance of household assets in market (e.g. productive female cows) in March – June</p>	

Zone 11. Rainfed Sorghum Belt

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Sorghum	Op			mp				ik	op			
Millet	Op								op			
Milk							op					
Main Income Sources												
Cash crop sales												
Sorghum sales												
Local ag labor wages												
Migratory labor wages												
Key Seasonal Expenditure												
Seeds												
Vaccination												
Education												
Legend	op	own production		mp	market purchase			ik	in-kind payment		combinations	

*Sources listed by month are the primary food sources. More than one source for a given food is possible, and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season						rainy						
Dry season	hot dry		hot dry			rainy				cool dry		
Lean season												
Primary livelihood activities												
Sorghum	h			lp	pl	pl	w	w	w	h		
Millet				lp	pl	pl	w	w	w	h		
Cowpeas				lp	pl	pl	w	w	w	h		
Sesame, groundnuts				lp	pl	pl	w	w	w	h		
Okra, cucumber				lp	pl	pl	w	w	w	h		
Cattle migration	south					north					south	
High livestock milk prod												
Peak livestock sales	camel			cattle/shoat							camels	
Other activities and events												
Local ag labor												
Migratory labor												
Wild food collection												
Firewood collection												
Gold mining												
Peak staple purchase												
Peak staple prices												
Shocks and Hazards												
Malaria												
Diarrhea												
Crop pests												
Conflict peaks												
Livestock parasites/disease												
Long dry spells												
Pests (mainly birds)												
Legend	lp	land prep.		p	planting		w	weeding		h	harvest	

Zone 12. Western Agropastoral Millet & Groundnut¹⁶

<p>Food Security Monitoring Priority</p> <p>Low: Despite deficit cereals production, because of good rainfall, soils, and good market access acute food insecurity is rarely a problem. Food aid is rarely if ever distributed in the zone.</p>		<p>This zone contains most of South Darfur, with margins in East Darfur and Kordofan. It is largely a plains area with scattered bush cover, sandy soils and mean annual rainfall of 250-350mm. The rainfall is sufficient to support cereals, especially millet on these soils, as well as groundnuts, but is frequently erratic. Watermelon seed and hibiscus for the <i>kerkedey</i> drink are valuable additional produce and okra is chief amongst vegetables grown for home consumption. The other part of the economy is livestock-herding, and this is an area where it is overwhelmingly smallstock that are kept, more sheep than goats by wealthier people, more goats than sheep by poorer people. Better off households also keep small numbers of camels and/or cattle. Conflict is caused by livestock damaging crops, notably the animals of herders from the north who pass through with cattle and smallstock on their way to dry season southern pastures.</p> <p>For wealthier households the ‘agropastoral’ balance is evident in that they are able to satisfy their basic food requirement from their harvest for some seven months and have substantial livestock holdings from which to sell animals to buy grain and other necessities. Groundnuts are the second important source of cash. For poorer households the picture is different: they eat from their harvest for some four months, have only a small harvest of groundnuts and hardly any livestock to sell. Water melon seeds and hibiscus may add a little to the overall income. But otherwise, to make up the money to buy grain etc. they depend heavily on paid work, most of it local, but otherwise on seasonal migration as far as Gezira and Khartoum. In hard times they tend to increase this work migration and also look for an increase in remittances from kin living and working in cities or abroad.</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u></p> <p>Shoat rearing Rain-fed traditional agriculture Gum arabic collection Local and migratory labor</p>	<p><u>Better-off</u></p> <p>Camel, cattle & shoat rearing Rain-fed traditional agriculture</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u></p> <p>Millet: own produce (4 mths); purchase (4 mths); in-kind (4 mths) Sorghum: own produce (3 mths); purchase sorghum (5 mths) Wheat: purchase (12 mths)</p>	<p><u>Better-off</u></p> <p>Millet: own produce (8 mths); purchase (4 mths) Sorghum: own produce (4 mths); purchase (8 mths) Wheat: purchase (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u></p> <p>Local ag labor wages Migratory labor wages Groundnut sales</p>	<p><u>Better-off</u></p> <p>Livestock sales Groundnut sales</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u></p> <p>Shoats, land, labor</p>	<p><u>Better-off</u></p> <p>Shoats, some camel & cattle, land, labor</p>	
<p>Main Markets</p> <p><u>Crop collection & intermediate</u> Groundnuts: El Rahad → El Obeid Hibiscus (karkady): Ghebeish → En Nahud → El Khawe / El Obeid</p>		

¹⁶ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Watermelon seeds: En Nahud → El Obeid</p> <p><u>Livestock</u></p> <p>Sheep: Ghebeish → En Nahud → El Khawe</p> <p><u>Staple food purchase</u></p> <p>Millet: east and northern areas: Darfur → El Obeid</p> <p>Sorghum: South Kordofan</p>	
<p>Shocks and Hazards</p> <p>Erratic rainfall (1 in 3 years: July – October)</p> <p>Crop pests & diseases (chronic: July – October)</p> <p>Livestock diseases (chronic: July – October)</p> <p>High cost of water (chronic: March – June)</p>	
<p>Key Early Warning Indicators</p> <p><u>Crop indicators</u></p> <p>Delayed rainfall start beyond mid-July</p> <p>Erratic rainfall / poor distribution in Jun – Aug</p> <p>Early pest infestation (rats, grasshoppers, worms) in June – August</p> <p>Failure of crops in August – September</p> <p><u>Livestock indicators</u></p> <p>Poor pasture in June – August</p> <p>Early disease outbreaks in July – August</p> <p>Wild fires in Oct – Dec</p> <p>Rise in abortion rates in March – June</p> <p><u>Market indicators</u></p> <p>Poor staple stocks / high staple food prices in December – March/April</p> <p>Appearance of productive household assets at market starting in March</p>	

Zone 12. Western Agropastoral Millet & Groundnut

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Millet	op		mp			ik+mp			op			
Sorghum	mp				ik+mp				op			
Wheat	mp											
Milk	op						op					
Main Income Sources												
Local ag labor												
Migratory labor												
Groundnut sales												
Key Seasonal Expenditure												
Education												
Groundnut seeds												
Vaccinations												
Legend	op	own production	mp	market purchase	ik	in-kind payment	ik+mp		gc	green cons		

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season	cool dry		hot dry								cool dry	
Lean season												
Primary livelihood activities												
Millet	h		lp			p						
Sorghum												
Groundnuts	h		lp			p						
Hibiscus	h						p					
Watermelon seeds	h							lp	p			
Okra	h						p					
Cowpeas								p		h		
Peak shoat milk prod.												
Peak livestock sales												
Local agricultural labor												
Other activities and events												
Migratory labor												
Gum arabic collection												
Gold mining												
Peak staple millet purchase												
Peak staple prices												
Peak water cost												
Shocks and Hazards												
Malaria												
Diarrhea												
Crop pests & diseases												
Livestock parasites												
Long dry spells												
Legend	lp	land prep.	p	planting	w	weeding	h	harvest	gh	green harvest		

Zone 13. Western Agropastoral Millet¹⁷

<p>Food Security Monitoring Priority High: Poorer households in this food deficit zone face chronic food insecurity in normal years due to poor crop cultivation conditions, very limited labor opportunities, and poor market access; food aid is distributed about every three years. The zone regularly experiences poor harvest years. The accumulation of two to three bad harvests can lead to major food deficit that can trigger humanitarian food assistance.</p>		<p>This zone extends from the Chad border in West Darfur through North Darfur and North Kordofan up to the west bank of the White Nile river. It has a plains topography with sand dunes, and stony hills on the far north-west Marra plateau; the natural cover and north sahelian-type scattered bush and grasses. Landholdings tend to be relatively large but yields are low on the infertile sandy soils. Mean annual rainfall in much of the area is well under 300mm, at best marginally adequate for millet cultivation but not for cash crops such as groundnuts or sesame, although small amounts may be grown for home consumption. Rainfall is frequently erratic, with a late or hesitant start up to July, and damaging dry spells thereafter.</p> <p>A relatively sparse settled population practices smallstock husbandry including grazing migration but also trying to depend significantly on crop cultivation. The price for paid for this that of precarious livelihoods for at least half of households - the poorer half. When the rains are satisfactory, their livelihoods are already only marginally adequate. They produce enough millet to keep them for about four months, added to by direct grain payment for work and a little collected wild food. But they are without more of a cash crop than a small amount of water-melon seed. Since they always have pressing debts or other payments waiting they even sell a part of their meager harvest immediately it is available. They are able to sell a very few smallstock from holdings of perhaps a dozen head of sheep and goats. Following a good harvest year, the invest one third of their cereal/cash crop production in livestock that can held for sale later to buy food. Otherwise they must depend for the greater part of their cash income on getting paid work, and since even wealthier people hardly invest heavily in crop production, there is a severe lack of local agricultural work to be found, as well as limited opportunities in local towns. For that reason there is very a high rate of seasonal work migration, although mostly within Darfur and Kordofan: west to the Western Wadi Cultivation zone, and to the bigger towns – El Obeid, Ed Dewaim, El Fasher, El Geneina.</p> <p>When the rains fail poorer people may harvest not even a</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Rain-fed traditional agriculture Shoat rearing Poultry production Migratory labor</p>	<p><u>Better-off</u> Rain-fed traditional agriculture Cattle & shoat rearing</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Millet: own produce (4 mths); purchase (1 mth); in-kind (4 mths) Sorghum: purchase (7 mths)</p>	<p><u>Better-off</u> Millet: own produce (5 mths); purchase (4 months) Sorghum: purchase (4 mths) Milk: own produce (3 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Millet sales Watermelon seed sales Shoat sales Poultry sales</p>	<p><u>Better-off</u> Millet sales Groundnut sales Sesame sales Livestock sales Watermelon sales</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Land, labor, shoats, poultry</p>	<p><u>Better-off</u> Land, labor, cattle & shoats, poultry</p>	
<p>Main Markets</p>		

¹⁷ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>El Fasher / El Geneneina, UM Keddada, Barah</p> <p><u>Crops</u> Millet: Sayah, Mellit, El Fashe, El Obeid, Geneina, Um Keddada Watermelon seeds: Obied → Omdurman → Egypt</p> <p><u>Livestock</u> Sheep: Um Keddada → n / Kulbus → El Fasher / Omdurman</p> <p><u>Staple food purchase</u> Millet: Saraf Amra / El Fasher / Um Keddada Sorghum: El Obeid → Barah</p>	<p>month's supply of grain, and for the one or two extra goats they may have to sell they are likely to receive low prices, while grain prices may be unusually high. Wild foods can be sought more keenly, but there is little extra local work to be found, and so the only recourse is extra work migration. Food aid is distributed locally once in about three years.</p> <p>Wealthier people are far from producing enough grain for their requirements, their harvest lasting them perhaps five months, with a certain amount also used as wages for hired workers. Their major attention is to livestock: they possess up to some 150 sheep and goats and a few cattle. If the crops fail they are able, however reluctantly, to sell off numbers of animals to get them out of trouble. They have more land for water melon and even surplus sesame in localities favoring it, and in North Kordofan some have gum arabic plantations. They are also more likely than poorer people to receive significant remittances from family members settled in towns or abroad.</p> <p>Trade is made more difficult by isolation from main centres and poor roads. The main destination of traded livestock and melon seeds is the Omdurman market. Some of the melon seeds then join the trade with Egypt, where they fetch high prices.</p> <p>The above description concerns currently resident villagers who have not been dispossessed or displaced by the warfare that has so deeply scarred western parts of the zone.</p>
<p>Shocks and Hazards</p> <p>Erratic rainfall/drought (1 year in 5: Jul – Sep) Pest infestation (1 year in 3: Sep – Oct) Livestock diseases (1 year in 5: Jun – Aug) Declined livestock prices Sharp increase of grain prices Tribal conflicts Pests (e.g. desert locust, grasshoppers, rats, birds, millet head worms)</p>	
<p>Key Early Warning Indicators</p> <p><u>Crop indicators</u> Start of rainfall late – after July Dry spells in August – September Rain shortage during maturing stage of crop in September Earhead caterpillar during flowering stage in August – September Heavy rainstorms during flowering stage in August – September Deteriorated millet/livestock terms of trade Wild foods consumption (e.g. <i>Korieb/Diffra</i>) Famine food consumption (e.g. <i>Mukhait, Driesa</i>) Massive population movement from rural to urban areas</p> <p><u>Livestock indicators</u> Poor pasture during December – February Epidemic disease outbreaks in June – July</p> <p><u>Market indicators</u> High price of agricultural inputs, labor, tools in May – August Poor market access due to insecurity & road closures Increased transport costs & taxes in Dec – Jan Reduced access to storage facilities for producers in December – January</p>	

Zone 13. Western Agropastoral Millet

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Staple Foods and Sources*													
Millet		op	mp					ik				op	
Sorghum				mp									
Wild foods		op											
Main Income Sources													
Millet sales													
Watermelon seeds			high peak			low peak							
Goats/poultry sales								high peak			low peak		
Key Seasonal Expenditure													
Seeds													
Education													
Legend	op	own production	mp	market purchase	ik	in-kind payment		combination	gc	green cons			

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Seasons													
Rainy season													
Dry seasons	cool dry		hot dry									cool dry	
Lean season													
Primary livelihood activities													
Millet	H					lp	p	w			h		
Sorghum	h					lp	p	w			h		
Watermelon seeds	h					lp	p	w				h	
Groundnuts						lp	p	w			h		
Migratory labor													
Peak shoat milk prod.								peak					
Peak livestock sales								high peak			low peak		
Other activities and events													
Local labor													
Wild food collection													
Firewood collection													
Peak staple purchase													
Peak staple prices													
Shocks and Hazards													
Malaria													
Diarrhea													
Crop pests & diseases													
Livestock diseases													
Conflict / insecurity: poor market access													
Long dry spells													
Legend	lp	land prep.	p	planting	w	weeding	h	harvest	gh	green harvest			

Zone 14. Central Rain-fed Millet & Sesame Agropastoral¹⁸

<p>Food Security Monitoring Priority Low: Despite deficit cereals production and erratic rainfall, there is a strong combination of local food and cash crop production and near access to the big economy of Khartoum, Gezira and Gedaref for trade and employment that leads to general food security.</p>		<p>This zone comprises a south-eastern corner of North Kordofan and the southern part of White Nile state. It has the same plains ecology and infertile sandy soils as the neighbouring Western Agropastoral Millet zone (13), but a little more rainfall at 300-350 mm per year, prone to erratic behavior, but enough for sesame production as well as reasonably successful millet production. The millet harvests give wealthier people about eight months of staple food consumption, while poorer people have some four months. By far the main livestock are sheep and goats, with sheep uppermost; wealthier people have sizeable flocks as well as a few camels rather than cattle. Poorer people typically have far fewer smallstock and no camels. There is some collection of gum arabic.</p> <p>What chiefly distinguishes the zone is not only the prevalence of the sesame cash crop but the zone's proximity (in Sudanese terms of distance) to the big economic centers of Khartoum/Omdurman, Gezira and Gedaref, not forgetting also the big city of El Obeid at the western edge of the zone. This factor gives a trade advantage to everyone for the sesame, water-melon seeds and hibiscus (for the <i>kerkeday</i> drink) that they sell. It also gives an advantage to wealthier people in their sales of livestock, which in fact bring more cash than the sesame. For the poor, who hardly have livestock to sell, the big advantage is in the easier access to casual employment whether in the city or in the schemes. They depend on this far more than on local agricultural employment, the more so in years of poor local production.</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Rain-fed traditional agriculture Shoat pastoralism Local ag labour Migratory labour Gum arabic collection</p>	<p><u>Better-off</u> Rain-fed traditional agriculture Camel-shoat pastoralism</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Millet: own produce (4months); purchase (5mths); in-kind (3 mths) Sorghum: own produce (3 mths); purchase (6 mths); in-kind (3 mths) Wheat: purchase (12 mths) Milk: own produce (12 mths)</p>	<p><u>Better-off</u> Millet: own produce (8 mths); purchase (4 mths) Wheat: purchase (12 mths) Sorghum: own produce (4 mths); purchase (8 mths) Milk: own produce (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Local ag labor wages Migratory labor wages Cash crops sales: hibiscus & watermelon seeds</p>	<p><u>Better-off</u> Livestock sales Cash crop sales: hibiscus & watermelon seeds Petty trade</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Labor, shoats, land</p>	<p><u>Better-off</u> Camels & shoats, land, labor</p>	
<p>Main Markets <u>Crops</u> Millet: Tandalti → Um Rawaba → El Obeid Sesame: Um Rawaba → Tandalti → Um Durman →</p>		

¹⁸ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Port Sudan Hibiscus/karkadi: Um Rawaba → El Rahad → Tandalti → Port Sudan <u>Livestock</u> Sheep: Um Rawaba → Kosti → Um Dam → Um Droman Goats: Um Rawaba → Um dam or Tandalti <u>Staple food purchase</u> Millet: Um Rawaba Sorghum: Tandalti</p>	
<p>Shocks and Hazards Rainfall shortages (1 year in 5: July – September) Crop pests (chronic: August – November) Potable water shortages (chronic: March – June) Increases in cost of water for livestock (chronic: March – June)</p>	
<p>Key Early Warning Indicators Late onset of rainfall: after July Poor distribution and amount of rainfall: Jul – Sep Early crop pest infestation: rats, in June – July High incidence of grasshopper pests in late Jul – Sept <u>Livestock indicators</u> Poor pasture in July – August Early disease outbreaks in July – August Fires in graze land in October – December Elevated abortion rates in March – July <u>Market indicators</u> Staple crop failure in August – September High staple prices: August – September Poor availability of staple foods in market in January – July Unusual food price spikes in January – September Appearance of productive assets (e.g. breeding female livestock) in market in March – July Deteriorating grain/livestock ToT</p>	

Zone 14. Central Rain-fed Millet & Sesame Agropastoral

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Staple Foods and Sources*													
Millet	op	mp					m+ik			op			
Sorghum	mp					m+ik			op				
Wheat	mp												
Milk	op												
Main Income Sources													
Local ag labor													
Migratory labor													
Cash crop sales													
Key Seasonal Expenditure													
Vaccinations													
Education													
Legend	op	own production	mp	market purchase	ik	in-kind payment	m+ik	market+in-kind					

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season	cool dry		hot dry								cool dry	
Lean season												
Primary livelihood activities												
Millet				lp	pl		w	h				
Sorghum				lp	pl	pl	w	h				
Sesame				lp	pl	w	h					
Cowpeas				pl	h							
Hibiscus	H		lp	pl	w	h						
Watermelon seeds	h					pl	h					
Okra				lp	pl	w	h					
Tomatoes	H				pl					h		
Shoat peak milk prod												
Peak livestock sales												
Local ag labor												
Migratory labor												
Other activities and events												
Petty trade												
Credit cycles							take					repay
Peak staple purchase				millet					sorghum			
Peak staple food prices			millet					sorghum				
Shocks and Hazards												
Malaria												
Diarrhea												
Crop pests												
Water shortages/high water costs												
Legend	lp	land prep.	p	planting	w	weeding	h	harvest	gh	green harvest		

Zone 15. Jebel Marra Mixed Highland Cultivation¹⁹

Food Security Monitoring Priority Low: There is regular surplus production here. Food insecurity becomes a problem primarily when people are affected by warfare		This is a densely populated hill and mountain formation rising out of the hot plain of West Darfur to a peak of 1008 metres above sea level, with relatively cool temperatures and abundant relatively reliable rainfall with an annual mean of 800-1000mm of rainfall. This not only supports surplus rainfed production cereals - millet and sorghum, with wheat at higher altitudes – but also gravity-fed irrigation of gardens and orchards. There are also forest resources exploited for timber. The garden items are cultivated in a later cycle than the cereals. Tomatoes in dried form as well as fresh potatoes, onion and onions are traded as far as Khartoum. Fruits, notably navel oranges, also go as far as Khartoum. The surplus cereals are absorbed by the domestic Darfur market. There is not room for large livestock herds, and civil insecurity has involved raiding that has depleted holdings. But wealthier people do keep cattle as well as goats (and even one or two camels for burden) and these provide the second most important source of cash after market garden produce. Poorer people only have a handful of goats and some poultry, from which they derive little income. For them too, garden produce brings the most cash, beyond which they depend on paid work. But there is not sufficient employment locally, and the greater income comes from working in town in the off-season, mainly in Nyala and El Fasher as construction laborers, petty trade and market porters. Few venture east to work in Khartoum or the schemes. Locally, collection of firewood and fodder grasses for sale gives poorer people another income source.
Key Livelihoods Activities		
<u>Poor</u> Spring Irrigated (gravity-fed) horticultural agriculture Rain-fed traditional agriculture Shoat and poultry rearing Labor for hire	<u>Better-off</u> Irrigated (gravity-fed) horticultural agriculture Rain-fed traditional agriculture Camel, cattle, and shoat rearing Trade	
Staple Foods and Sources		
<u>Poor</u> Millet: own produce (4 mths); purchase (5 mths) Sorghum: own produce (3 mths); in-kind (5 mths) Potatoes: own produce (2 mths)	<u>Better-off</u> Millet: own produce (4 mths); purchase (3 mths) Wheat: own produce (5 mths); purchase (3 mths) Sorghum: own produce (5 mths) Potatoes: own produce (5 mths)	
Main Income Sources		
<u>Poor</u> Cash crop sales Local agricultural labor Livestock sales	<u>Better-off</u> Cash crop sales Livestock sales Trade	
Most Important Productive Assets		
<u>Poor</u> Land, labor, shoats	<u>Better-off</u> Land, livestock, labor	
Main Markets <u>Crops</u> Fruits: Nertiti → Geldo → Zalingi → El Geneina → Tachad or Geldo → El Fasher → Khartoum or Guldo → Deribat / Gurlangbanj → Nyala → Khartoum Dry and green vegetables: Geldo / Deribat → Gurlangbanj → Nyala → El Fasher / El Geneina		

¹⁹ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Potatoes: Guldo → EL Geneina → Gurlangbanj → Nyala / El Fasher → Khartoum</p> <p><u>Livestock</u></p> <p>Cattle and shoats consumed locally within the zone.</p> <p><u>Staple food purchase</u></p> <p>Kass – Gurlangbanj</p> <p>Sorghum: Zalingel → Guldo</p>	
<p>Shocks and Hazards</p> <p>Erratic rainfall / drought (1 year in 5: June – Oct)</p> <p>Conflict / raiding (1 year in 5: Nov – Feb)</p>	
<p>Key Early Warning Indicators</p> <p><u>Crop indicators</u></p> <p>Delayed onset of rainfall, later than July</p> <p>Horticultural pests and diseases in Aug – Jan</p> <p>Winter frost in December – January</p> <p><u>Livestock indicators</u></p> <p>Livestock disease outbreaks in July - Sept</p> <p>Conflict and raiding in November – February</p> <p><u>Market indicators</u></p> <p>Drop in cash crop prices in June – July</p> <p>Increase in transportation costs, taxes in Jul – Sep</p> <p>Market inaccessibility from Jul – Sep</p> <p>Horticultural input shortage from Sep – Oct</p>	

Zone 15. Jebel Marra Mixed Highland Cultivation

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Millet		op						mp				op
Sorghum			op				ik					
Potato		op								op		
Main Income Sources												
Cash crop sales												
Local agricultural labor												
Livestock sales												
Key Seasonal Expenditure												
Education												
Seeds												
Medical / health												
Legend	op	own production	Mp	market purchase	ik	in-kind payment		combination		gc	green cons	

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season	cool dry			hot dry								
Lean season												
Primary livelihood activities												
Millet, sorghum	h					lp	pl	w			h	
Tomatoes, onions	h							lp	tp	w	h	
Shoat peak milk prod.												
Livestock peak sales												
Local agricultural labor												
Other activities and events												
Labor migration												
Fruits collection												
Timber and grass collection												
Peak staple purchase												
Peak staple prices												
Shocks and Hazards												
Malaria												
Diarrhea												
Conflict / raiding												
Long dry spells												
Legend	lp	land prep.	t/p	Trans/planting	w	weeding	h	harvest	gh	green harvest		

Zone 16. Western Wadi Cultivation²⁰

<p>Food Security Monitoring Priority Low: Normally substantial food production, and in years of poor harvest food purchase capacity is bolstered by the market gardening income. Conflict can affect this and increase the risk of food insecurity.</p>		<p>Straddling the conjunction of West, North and South Darfur, this zone is characterized by seasonal water-courses – wadis – fed by the drainage of the Marra highland and plateau. The allows irrigated horticulture on the fertile alluvial wadi soils, so that most households, whether wealthy or poor, make most of their money from market gardening. The main items are onions, tomatoes, okra and beans, with mangoes and guava as principal fruits. Market access is good with reasonable proximity to the big town markets.</p> <p>But there is also substantial rainfed millet and sorghum (and intercropped cowpeas) production - mean annual rainfall varies around the zone from somewhat above 300mm to nearer 600mm. Their harvest normally gives wealthier people as much as nine months of staples consumption, although no surplus for sale: they rather put extra cultivation effort into the wadi gardens.</p> <p>Poorer people also manage a substantial harvest, giving about seven months of staples, mainly millet. They obtain the balance mainly by local agricultural employment for which they are very often paid directly in grain rather than in cash. This reduces their need to purchase grain, although they do need to cover two months or more from the market. By far the greatest part of their employment is local, because wealthier people need to hire workers both for the labor-intensive market gardening and for the cereals production. Therefore few people go to Nyala or El Fasher to work, and fewer still to Khartoum and the eastern schemes.</p> <p>Wealthier people keep cattle as well as smallstock, and these are an important second-string to their income. Poorer people only have a handful of goats. Civil conflict in recent years has involved livestock raiding, reducing holdings and the will to reinvest in them.</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Irrigated agriculture Rain-fed traditional agriculture Local agricultural labor Goat & poultry production Wild food collection</p>	<p><u>Better-off</u> Irrigated agriculture Rain-fed traditional agriculture Petty trade Cattle, shoat & poultry production</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Millet: own produce (5 mths); purchase (2 mths); in-kind (3 mths) Sorghum: own produce (2 mths); purchase (2 mths); in-kind (3 mths) Wild foods</p>	<p><u>Better-off</u> Millet: own produce (6 mths); purchase (3 mths) Sorghum: own produce (4 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Cash crop sales (okra, tomatoes) Local ag labor wages Cereal sales</p>	<p><u>Better-off</u> Cash crop sales (fruits & vegetables) Livestock sales Petty trade</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Land, labor</p>	<p><u>Better-off</u> Land, livestock, labor, Water pump engine</p>	
<p>Main Markets <u>Crops</u> Fruits: Kutum / Kabkabian → El Fasher / Zalengi / Kass → Nyala Vegetables: Kabkabia / Sarafomra → El Fasher / El Genenia or Zalengi/Kass → Nyala</p>		

²⁰ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Cereals: Wadisalih / Kass → Nyala</p> <p><u>Livestock</u></p> <p>Shoats: Sarafomra / Kabkabia → El Fasher</p> <p>Cattle: Kass → Nyala</p> <p>Poultry: Sarafomra / Kabkabia → El Fasher or Kass → Nyala</p> <p><u>Staple food purchase</u></p> <p>Millet: Jebel Marra → Kass / Zalengi or Sarafomra / Kabkabia → Kutum</p> <p>Sorghum: Garsilla → Zalengi</p>	
<p>Shocks and Hazards</p> <p>Erratic rainfall / drought (1 year in 3: Jul – Oct)</p> <p>Flood / Erosion (1 year in 5: Aug – Sep)</p> <p>Conflict / raiding (1 year in 3: Nov – Dec)</p> <p>Crop pests & rodents (1 year in 3: Jan – Mar)</p>	
<p>Key Early Warning Indicators</p> <p><u>Crop indicators</u></p> <p>Late start to rainfall after July</p> <p>Wadi/seasonal river flooding in August</p> <p>Flash floods & erosion in August – September</p> <p>Pest infestation in August – February</p> <p>Animal grazing / crop destruction in Dec – Feb</p> <p><u>Livestock indicators</u></p> <p>Decline in pasture availability in March – June</p> <p>Outbreak of livestock diseases in June – August</p> <p>Lack of water for livestock in March – June</p> <p>Raiding / looting in December – June</p> <p><u>Market indicators</u></p> <p>Fuel price spikes in October – February</p> <p>Abnormal decline in transport availability in December – April</p> <p>Abnormally low crop prices in December – April</p>	

Zone 16. Western Wadi Cultivation

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Millet	op					ik			mp		op	
Sorghum				op		ik			mp			
Wild foods												
Main Income Sources												
Cash crop sales												
Local ag labor wages												
Cereal sales												
Key Seasonal Expenditure												
Education												
Health												
Legend	op	own production		Mp	market purchase		ik	in-kind payment			gc	green cons

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Seasons													
Rainy season													
Dry season	cool dry		hot dry									cool dry	
Lean season													
Primary livelihood activities													
Millet						lp	pl	w				h	
Sorghum						lp	pl	w				h	
Cowpeas						lp	pl	w			h		
Groundnuts						lp	pl	w		h			
Okra						lp	pl	w		h			
Tomatoes							lp	pl			h		
Livestock migration													
Cattle high milk prod													
Shoat high milk prod													
Peak livestock sales													
Other activities and events													
Local ag labor													
Labor migration													
Firewood & charcoal prod.													
Grass mats weaving													
Peak staple purchase													
Peak staple prices													
Shocks and Hazards													
Malaria													
Diarrhea													
Crop pests													
Flooding													
Legend	lp	land prep.		p	planting		w	weeding		h	harvest		
								gh	green harvest				

Zone 17. North Darfur Tobacco²¹

<p>Food Security Monitoring Priority Medium: Although the area is not self-sufficient in cereals there is production of grain, and grain purchase capacity is underpinned by the tobacco sector. There is some risk of food insecurity even in peacetime due to high dependency on market purchase from adjacent livelihood zones of frequent cycles of crop failure.</p>		<p>This is a niche production zone spreading out from the western foot of Jebel Marra. The soil is alluvial and fertile and some 70% of the land area is normally under tobacco. Millet and sorghum are also grown and all cultivation is purely rainfed. Rainfall is modest at an annual mean precipitation of 280-350mm.</p> <p>The tobacco cultivation is operated by wealthier farmers who hire workers from amongst their poorer neighbors as well as from outside the zone. They invest most of their time and money in tobacco, and manage to produce some grain for own consumption, though they are largely dependent on the market for food staples. Poorer farmers are hired to work on the tobacco fields, but they also produce seedlings on their own land for sale to tobacco growers in the transplanting period of November and December. Th also produce enough grain to last them three or four months, and direct grain payment for labor that may last up to another two months, leaving about half the year when they depend on market purchase.</p> <p>Cured tobacco goes to the collection markets of Tawilla and Korma and then to El Fasher whence traders take it to Khartoum for processing and retailing. Insofar as grain is put on the market in the zone it is either bought by local people or traded to El Fasher and Nyala. Wealthier farmers possess sheep, goats and some cattle, but do not sell them if the tobacco production is going well. Poor people do sell both grain and livestock from their meagre harvest and from amongst their few goats and poultry. This is because their paid work and seedling sales income is not enough to pay for the extra grain and other necessities: they become very pressed for cash, and take the opportunity to sell some of their harvested grain immediately it is available. Wealthier farmers also sell grain although they are not in surplus. This is because credit taken from traders for inputs, and school fees, and other expenses, becomes due before the</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Traditional rain-fed cropping (cereals, groundnuts, tobacco) Smallstock rearing Local ag labor for hire</p>	<p><u>Better-off</u> Traditional rain-fed cropping (cereals, groundnuts, tobacco) Cattle, shoat rearing Trade</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Millet: own produce (3 mths); purchase (6 mths) Sorghum: own produce (3 mths); in-kind (3 mths); purchase (2 mths)</p>	<p><u>Better-off</u> Millet: own produce (7 mths); purchase (2 mths) Sorghum: own produce (3 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Cereal sales Local ag labor wages Livestock sales Tobacco seedling sales</p>	<p><u>Better-off</u> Tobacco sales Tobacco trading Livestock sales</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Land, labor, shoats</p>	<p><u>Better-off</u> Land, labor, livestock</p>	
<p>Main Markets</p> <p><u>Crops</u> Tobacco: Tawila/ Korma/ Shangil/ Tobana → El Fasher / Khartoum Millet: Tawila/ Shangil/ Tobaya → El Fasher Sorghum: Shangil Tobaya / Tawila → Tabit → El Fasher / Nyala</p> <p><u>Livestock</u> Dar el Salam → El Fasher → Korma</p>		

²¹ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p><u>Staple food purchase</u> Sorghum: Dar el Salam → El Fasher/Kebkabiyah → Korma</p>	<p>tobacco sales period in April to June.</p>
<p>Shocks and Hazards Drought (1 year in 3: July – September) Input price rises (1 year: 3 in August – February) Conflict (1 year in 10: January – May) Low wadi flooding for tobacac cultivation Sharp decline of tobacac prices after consecutive 2-3 two flooding season</p>	
<p>Key Early Warning Indicators <u>Crop indicators</u> Production inputs shortage (labor, tools, fuel) in May – December Late start to rains beyond July Poor wadi flooding <u>Livestock indicators</u> Disease outbreaks in June – July Poor pasture condition in December – January Transport price spikes in March – April Lack of availability of storage facilities in Mar – Dec Price spikes for tobacco sacks in March – July Fall in tobacco prices in March – July</p>	

Zone 17. North Darfur Tobacco

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Millet	op	Mp						mp			op	
Sorghum		Op				ik		mp				
Main Income Sources												
Cereal sales												
Local ag labor wages												
Shoat sales												
Tobacco seedling sales												
Key Seasonal Expenditure												
Seed/seedlings												
Land rent												
Education												
Health												
Legend	op	own production	Mp	market purchase	ik	in-kind payment		combination	gc	green cons		

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season	cool dry		hot dry									cool dry
Lean season												
Primary livelihood activities												
Millet	h					lp	p	w			h	
Sorghum	h					lp		p	w			h
Tobacco			h		lp		p		w		tp	
Local ag labor												
Other activities and events												
Land rent												
Peak staple purchase												
Peak staple prices												
Shocks and Hazards												
Malaria												
Diarrhea												
Long dry spells												
Loo wadi flooding												
Legend	lp	land prep.		(t)p	(trans)planting		w	weeding	h	harvest		

Zone 18. North Kordofan Gum Arabic Belt²²

<p>Food Security Monitoring Priority Low: The zone accesses much of its food through the market rather than grain production, and livestock as well as gum arabic underpin this. Relief food has rarely been required in this zone.</p>		<p>This is a plains area straddling the North and South Kordofan boundaries and stretching into South Darfur. Gum arabic grows naturally across a wide semi-arid area of the country, but this zone offers a special resource in both wild and cultivated gum arabic, thus making a major contribution to Sudan's status as the principal exporter of gum arabic in the world. But as is shown below, people do not live by gum arabic alone.</p> <p>Rainfall at around 350mm per annum and moderately fertile but sandy soils favor millet cultivation by the sparse population, although some sorghum is grown too. But grain production is far from meeting the global requirement even in the two out of three years when there is not erratic rainfall. Even wealthier people cannot survive a third of the year on their harvest. They are in fact agropastoralists whose biggest source of income is from selling livestock from amongst the sheep, goats and camels that they raise. Gum arabic, both collected wild and cultivated, and harvested mainly in the cool dry season, is the second source, and cash crops - groundnuts and water-melon seeds and hibiscus for the drink <i>kerkeday</i> – come third.</p> <p>Poorer farmers produce about as much grain as wealthier people, and also sell the same cash crops, with gum arabic coming third. But it is in their first income source that they markedly differ from the wealthier households: they have too few sheep and goats to give them significant income, and they make most money from paid work, much of it local,. They also sell firewood, which they try to increase in a bad year, as well as going for longer work migration.</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Traditional rain-fed agriculture Small stock rearing Local casual labor Gum arabic production</p>	<p><u>Better-off</u> Traditional rain-fed agriculture Livestock rearing Gum arabic production</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Millet: own produce (4 mths); purchase (7 mths) Sorghum: own produce (2 mths); purchase (10 mths) Wheat: purchase (12 mths)</p>	<p><u>Better-off</u> Millet: own produce (3 mths); purchase (9 mths) Sorghum: own produce (2 mths); purchase (10 mths) Wheat: purchase (12 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Local labor wages Crop sales (groundnut and watermelon) Gum arabic sales Sale of shoats</p>	<p><u>Better-off</u> Livestock sales Gum arabic sales Crop sales (groundnut, watermelon)</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Labor, land, shoats</p>	<p><u>Better-off</u> Livestock, labor, land</p>	
<p>Main Markets</p> <p><u>Crops</u> Groundnuts: Qubaish → Nahud → El Obeid Gum arabic: Nahud → Obeid → int'l export Watermelon/Hibiscus: Qubaish → Nahud → El Obeid</p> <p><u>Livestock</u> Sheep: Qubaish → Nahud → El Khurai → Omdurman or export to Gulf States</p>		

²² Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Goats: local markets Staple food purchase Millet: Al uhud El khuwai – El Obeid Sorghum: Kosti, El Obeid, El khuwai, Nuhud</p>	
<p>Shocks and Hazards Elevated water shortages (yearly: March – June) Elevated water prices (yearly: January – July) Crop pest infestation (yearly: August – November) Erratic rainfall (1 year in 5: July – September)</p>	
<p>Key Early Warning Indicators <u>Crop indicators</u> Crop pests: rats in May – July Crop pests: grasshoppers infestation in Jul – Aug Delayed onset of rainfall later than July Poor distribution / erratic rainfall in Jul – Sep High incidence of malaria, affecting labor productivity, in August – September <u>Livestock indicators</u> Poor pasture in July – August Fires on grazeland in October – December Early disease outbreak in July – September Elevated abortion rates in March – June <u>Market indicators</u> Staple crop failure in August – September Poor availability of staple foods in market in March – July Unseasonable / spikes in staple food prices in Feb – Sep Appearance of productive assets in market in March – July</p>	

Zone 18. North Kordofan Gum Arabic Belt

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Millet	op	mp					op					
Sorghum	mp					op						
Wheat	mp											
Main Income Sources												
Local ag labor												
Crop sales												
Gum arabic sales												
Key Seasonal Expenditure												
Education												
Groundnut seed												
Animal vaccinations												
Legend	op	own production	mp	market purchase	ik	in-kind payment	combination					

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season	cool dry		hot dry							cool dry		
Lean season												
Primary livelihood activities												
Millet	h		lp		p		w					h
Sorghum	h			lp			p		w			h
Cowpeas	h		(intercropping)				p		w			
Groundnuts	h		lp			p		w				h
Hibiscus	h		(intercropping)				p		w			h
Watermelon seed	h	h						p				w
Shoat high milk prod												
Peak livestock sales												
Local ag labor												
Other activities and events												
Labor migration												
Gum arabic collection												
Gold mining												
Peak staple purchase												
Peak staple prices	millet						sorghum					
Shocks and Hazards												
Malaria												
Diarrhea												
Water shortages (l/stock)												
Water price rises												
Crop pest infestation												
Legend	lp	land prep.	p	planting	w	weeding	h	harvest	gh	green harvest		

Zone 19. Cattle-dominant Agropastoral²³

<p>Food Security Monitoring Priority Low: The zone has substantial livestock sales as well as cereals cultivation. Rain failure or conflict problems have triggered food aid about one year in five.</p>		<p>This is the zone of Baggara (cattle people) tribes of South Kordofan situated in two areas to the east and the west of the Nuba highlands, stretching out from the vicinities respectively of Abu Jubeyha and Al Muglad. These are home areas where the people stay in the rainy season to cultivate cereals and cash crops and to use the northern pastures. But for fully half the year – the dry season - they go south on grazing migration with the cattle as far as the river areas on the border with South Sudan, such as Bahr Al Abyad and Bahr Al Arab.</p> <p>The Baggara people are much more transhumant pastoralists than settled cultivators by vocation. But years of conflict with southerners over grazing passage and crop damage, together with civil insecurity that has periodically restricted their movement, as well as simply the natural growth of the population, have taken their toll on livestock numbers per capita and encouraged somewhat more serious attention to crop production. They still of course drink a lot of milk, but like almost all pastoralists today, for the majority of them the larger part of the calories they consume come from cereals. And they provide a good amount of their staple needs from their own harvest except in the bad production seasons that come every five years or so.</p> <p>With mean annual rainfall of 500mm and above they grow millet and sorghum as well as some maize that is partly eaten early in 'green' form from early September to break the lean season (which is already reduced by the fact that milk is most abundant in the rainy season). Better off households still need to go to the market to make up the gap: wealthier households normally need to cover five to six months of consumption, poor people a bit more. To pay for this the main source for everybody is the sale of livestock and livestock products; they also sell cash crops – groundnuts, sesame, water-melon seed and hibiscus for the drink <i>kerkedey</i>. Wealthier people also sell some grain at harvest to get money before the long period of far grazing migration.</p>
<p>Key Livelihoods Activities</p>		
<p><u>Poor</u> Traditional rain-fed agriculture Cattle and shoaat pastoralism Wild food collection</p>	<p><u>Better-off</u> Traditional rain-fed agriculture Cattle and shoaat pastoralism</p>	
<p>Staple Foods and Sources</p>		
<p><u>Poor</u> Millet: own produce (4 mths); purchase (5 mths); in-kind (2 mths) Sorghum: own produce (6 mths); purchase (6 mths)</p>	<p><u>Better-off</u> Millet: own produce (6 mths); purchase (6 mths) Sorghum: own produce (10 mths); purchase (2 mths) Wheat: purchase (12 mths) Milk: own produce (peak 4 mths)</p>	
<p>Main Income Sources</p>		
<p><u>Poor</u> Livestock sales Cash crop sales (groundnuts, sorghum, sesame) Migratory labor</p>	<p><u>Better-off</u> Livestock sales Cash crop sales (groundnuts, sorghum, sesame, watermelon) Cereal sales</p>	
<p>Most Important Productive Assets</p>		
<p><u>Poor</u> Livestock, land, labor</p>	<p><u>Better-off</u> Livestock, land, labor</p>	
<p>Main Markets</p> <p><u>Crops</u> Groundnuts: Alfula → Babanosa → Al Muglad Sorghum: Abu Gebiha → Kosti or Abasia → Kosti → South Sudan Sesame: Abu Gebiha → Abasia – Kosti Watermelon: Muglad → Babanosa → El Obeid → Kosti → Omdurman</p> <p><u>Livestock</u></p>		

²³ Activities and products in the description boxes throughout the document have been listed in order of importance.

<p>Cattle: Soug Algabal → Kosti → Omdurman or Muglad → Babanosa → Fula → El Obeid → Omdurman</p> <p>Goat: Abu Lkri → Kadugli</p> <p><u>Staple food purchase</u></p> <p>Millet: El Obeid → Nuhud → Fula → Babanosa → Muglad</p> <p>Sorghum: Kosti → Abasia → Rashad → Abu Gebiha</p>	<p>Poorer people make some money from working on the fields of their wealthier kin/neighbors, and the poorest also sell firewood. Both groups commonly receive remittances from kin settled in cities or abroad. But only few households send members for seasonal work in Khartoum, Gedaref etc. This increases in really hard times, as does the hope of remittances, and for those without other recourse, the sale of firewood.</p>
<p>Shocks and Hazards</p> <p>Erratic rainfall (1 year in 3: July – October)</p> <p>Pest infestations (yearly: July – October)</p> <p>Conflict / Insecurity / Raiding (yearly: October – January)</p>	<p>Market access is bad from the home area, with rough roads and distant market centers – the collection markets for the principal trade to the east being on the railway line (Babanosa) and the main west-east highway (Kosti). Insofar as they are unable to take all their necessary grain supply south to the far grazing on the backs of their oxen, which carry also the folded huts and riders, the Baggara herders obtain grain in the south from the local population through cash or barter with milk and butter.</p>
<p>Key Early Warning Indicators</p> <p><u>Crop indicators</u></p> <p>Delayed onset of rainfall later than June</p> <p>Erratic / poor distribution of rainfall in June – September</p> <p>Elevated crop pest infestation in June – October</p> <p><u>Livestock indicators</u></p> <p>Early livestock migration to the south in August/September</p> <p>Late migration from south to north in June / July</p> <p>Animal disease outbreaks in July – August</p> <p>Pasture fires in October – December</p> <p>Poor pasture condition in June – August</p> <p><u>Market indicators</u></p> <p>Poor stocks of food in markets in January – March</p> <p>Unusual staple food price rises in January – April</p> <p>Declines in market supplies in January – March</p>	

Zone 19. Cattle-dominant Agropastoral

Primary Food, Income and Expenditure Cycles of the Poor

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple Foods and Sources*												
Millet	op	mp					ik		op			
Sorghum	op		mp						op			
Maize								op				
Main Income Sources												
Livestock sales												
Cash crop sales												
Migratory labor												
Key Seasonal Expenditure												
Seeds												
Animal vaccinations												
Education												
Legend	op	own production	mp	market purchase	ik	in-kind payment	combination	gc	green cons			

*Sources listed by month are the primary food sources. More than one source for a given food is possible and likely throughout the month (e.g. even after the harvest when eating primarily their own production, households may be receiving in-kind payment for harvest work, but only op will be indicated in the calendar).

Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry season	cool dry		hot dry								cool dry	
Lean season												
Primary livelihood activities												
Millet					lp	p	w			h		
Sorghum	h			lp		p	w			h		
Cowpeas				lp		p	w			h		
Groundnuts				lp		p	w			h		
Sesame				lp		p	w			h		
Watermelon	h											
Cattle migration	south					north					south	
Peak milk prod: cattle/soats												
Peak milk prod: camel												
Migratory labor												
Other activities and events												
Gum arabic collection												
Firewood collection												
Local labor												
Peak staple purchase												
Peak staple prices												
Shocks and Hazards												
Malaria												
Diarrhea												
Conflict / raiding												
Crop pests & diseases												
Legend	lp	land prep.	p	planting	w	weeding	h	harvest	gh	green harvest		

Annex I: Sector by Livelihood Zone

Many departments are split between two or more zones. As population figures are only available at the department level, the actual population figures are, therefore, not accurate for livelihood zones and may over-represent the number of people in each zone.

Livelihood Zone 1: Northern Riverine Small-scale Cultivation

Province	District
Khartoum	Karary
Khartoum	Khartoum Bahri
Nile	Abu Hamad
Nile	Atbara
Nile	Barbar
Nile	Ed Damer
Nile	El Matammah
Nile	Shendi
Northern	Dongola
Northern	El Dabbah
Northern	Halfa
Northern	Merawi

Livelihood Zone 2 : Cattle-dominant Agropastoral

Province	District
Blue Nile	Ed Damazin
Blue Nile	El Roseires
Blue Nile	Geissan
El Gezira	El Hasaheisa
El Gezira	El Kamlin
El Gezira	Shamal El Gezira
El Gezira	Sharg El Gezira
El Gezira	Umm El Gura
Gedaref	El Fashga
Gedaref	El Rahd
Kassala	El Gash
Kassala	Kassala
Khartoum	Jabal Aulia
Khartoum	Karary
Khartoum	Khartoum
Khartoum	Khartoum Bahri
Khartoum	Sharg En Nile
Khartoum	Umm Badda
Khartoum	Umm Durman
Sennar	Ed Dinder
Sennar	Sennar

Sennar	Singa
White Nile	Ed Douiem
White Nile	El Gutaina
White Nile	El Jabalian
White Nile	Kosti

Livelihood Zone3 : Eastern Pastoral

Province	District
El Gezira	Shamal El Gezira
Gedaref	El Faw
Kassala	El Gash
Kassala	Hamashkorieb
Kassala	Nahr Atbara
Kassala	Seteet
Khartoum	Jabal Aulia
Khartoum	Khartoum
Khartoum	Khartoum Bahri
Khartoum	Sharg En Nile
Nile	Abu Hamad
Nile	Atbara
Nile	Barbar
Nile	Ed Damer
Nile	Shendi
Red Sea	Port Sudan
Red Sea	Sinkat
Red Sea	Tokar
White Nile	El Gutaina

Livelihood Zone 4: West and Central Pastoral

Province	District
Khartoum	Karary
Khartoum	Umm Badda
Khartoum	Umm Durman
Nile	Abu Hamad
Nile	Barbar
Nile	Ed Damer
Nile	El Matammah
Northern	Dongola
Northern	El Dabbah
Northern	Merawi
Northern Darfur	Kutum
Northern Darfur	Mellit
Northern Kordofan	Jebrat El Sheikh
Northern Kordofan	Sowdari
White Nile	Ed Douiem
White Nile	El Gutaina

Livelihood Zone 5: Eastern Khors Agropastoral

Province	District
Nile	Abu Hamad
Nile	Barbar
Red Sea	Halayeb
Red Sea	Port Sudan
Red Sea	Sinkat
Red Sea	Tokar

Livelihood Zone 6: Coastal Fishing

Province	District
Red Sea	Halayeb
Red Sea	Port Sudan
Red Sea	Tokar

Livelihood Zone 7: Eastern Agropastoral Sorghum

Province	District
El Gezira	El Managil
El Gezira	Janub El Gezira
El Gezira	Shamal El Gezira
El Gezira	Sharg El Gezira
El Gezira	Umm El Gura
Gedaref	El Fashga
Gedaref	El Faw
Kassala	El Gash
Kassala	Hamashkorieb
Kassala	Kassala
Kassala	Nahr Atbara
Kassala	Seteet
Khartoum	Sharg En Nile
Sennar	Sennar
White Nile	El Gutaina

Livelihood Zone 8: Flood-retreat Cultivation

Province	District
Kassala	El Gash
Kassala	Kassala

Kassala	Nahr Atbara
Khartoum	Jabal Aulia
Khartoum	Umm Badda
Nile	Atbara
Nile	Ed Damer
Nile	Shendi
Northern Kordofan	Sheikan
Northern Kordofan	Umm Rawaba
Red Sea	Tokar
Southern Kordofan	Delling
White Nile	Ed Douiem
White Nile	El Gutaina

Livelihood Zone 9: Central Irrigated Schemes

Province	District
El Gezira	El Hasaheisa
El Gezira	El Kamlin
El Gezira	El Managil
El Gezira	Janub El Gezira
El Gezira	Shamal El Gezira
El Gezira	Sharg El Gezira
El Gezira	Umm El Gura
Gedaref	El Faw
Gedaref	El Rahd
Kassala	Nahr Atbara
Kassala	Seteet
Khartoum	Jabal Aulia
Khartoum	Sharg En Nile
Sennar	Sennar
White Nile	El Gutaina

Livelihood Zone 10: Southeast Rainfed Semi-mechanized Agriculture

Province	District
Blue Nile	Baw
Blue Nile	Ed Damazin
Blue Nile	El Kurumuk
Blue Nile	El Roseires
Blue Nile	Geissan
El Gezira	Janub El Gezira
El Gezira	Sharg El Gezira
El Gezira	Umm El Gura
Gedaref	El Fashga
Gedaref	El Faw
Gedaref	El Galabat
Gedaref	El Rahd

Gedaref	Gedaref
Northern Kordofan	Umm Rawaba
Sennar	Ed Dinder
Sennar	Sennar
Sennar	Singa
Southern Kordofan	Abu Jubaiyah
Southern Kordofan	Delling
Southern Kordofan	Kadugli
Southern Kordofan	Lagawa
Southern Kordofan	Rashad
Southern Kordofan	Talodi
White Nile	El Gutaina
White Nile	El Jabalian
White Nile	Kosti

Livelihood Zone 11: Rainfed Sorghum Belt

Province	District
Northern Kordofan	Sheikan
Northern Kordofan	Umm Rawaba
Southern Darfur	Buram
Southern Darfur	Ed al Fursan
Southern Darfur	Ed Daein
Southern Darfur	Nyala
Southern Darfur	Rahad el Berdi
Southern Darfur	Tullus
Southern Kordofan	Abu Jubaiyah
Southern Kordofan	Abyei
Southern Kordofan	Delling
Southern Kordofan	Kadugli
Southern Kordofan	Lagawa
Southern Kordofan	Rashad
Southern Kordofan	Talodi
Western Darfur	El Geneina
Western Darfur	Habila
Western Darfur	Mukjar
Western Darfur	Wadi Salih
Western Darfur	Zalingei

Livelihood Zone 12: Western Agropastoral Millet and Groundnuts

Province	District
Northern Darfur	Umm Keddada
Northern Kordofan	Ghebeish
Southern Darfur	Adila
Southern Darfur	Buram
Southern Darfur	Ed al Fursan
Southern Darfur	Ed Daein

Southern Darfur	Kass
Southern Darfur	Nyala
Southern Darfur	Rahad el Berdi
Southern Darfur	Sheiria
Southern Darfur	Tullus
Southern Kordofan	Abyei
Southern Kordofan	El Salam
Western Darfur	Mukjar

Livelihood Zone 13: Western Agropastoral Millet

Province	District
Northern Darfur	El Fasher
Northern Darfur	Kebkabiya
Northern Darfur	Kutum
Northern Darfur	Mellit
Northern Darfur	Umm Keddada
Northern Kordofan	Bara
Northern Kordofan	En Nuhud
Northern Kordofan	Ghebeish
Northern Kordofan	Jebrat El Sheikh
Northern Kordofan	Sheikan
Northern Kordofan	Sowdari
Northern Kordofan	Umm Rawaba
Southern Darfur	Nyala
Southern Darfur	Sheiria
Southern Kordofan	Delling
Western Darfur	El Geneina
Western Darfur	Kulbus
White Nile	Ed Douiem

Livelihood Zone14 : Central Rainfed Millet and Sesame

Province	District
Northern Kordofan	Bara
Northern Kordofan	Sheikan
Northern Kordofan	Umm Rawaba
White Nile	Ed Douiem
White Nile	Kosti
Northern Kordofan	Bara

Livelihood Zone 15: Jabel Marra Mixed Highland Cultivation

Province	District
Northern Darfur	El Fasher
Northern Darfur	Kebkabiya
Southern Darfur	Kass
Southern Darfur	Nyala

Western Darfur	Jebel Marra
Western Darfur	Zalingei

Livelihood Zone 16: Western Wadi Cultivation

Province	District
Northern Darfur	El Fasher
Northern Darfur	El Fasher
Northern Darfur	Kebkabiya
Northern Darfur	Kutum
Southern Darfur	Kass
Southern Darfur	Nyala
Western Darfur	El Geneina
Western Darfur	Habila
Western Darfur	Jebel Marra
Western Darfur	Mukjar
Western Darfur	Wadi Salih
Western Darfur	Zalingei

Livelihood Zone 17 : North Darfur Tobacco

Province	District
Northern Darfur	El Fasher
Northern Darfur	Kutum
Southern Darfur	Nyala
Southern Darfur	Sheiria
Western Darfur	Jebel Marra

Livelihood Zone 18: North Kordofan Gum Arabic Belt

Province	District
Northern Darfur	El Fasher
Northern Darfur	Umm Keddada
Northern Kordofan	En Nuhud
Northern Kordofan	Ghebeish
Northern Kordofan	Sheikan
Southern Darfur	Adila
Southern Darfur	Ed Daein
Southern Darfur	Sheiria
Southern Kordofan	Delling
Southern Kordofan	El Salam
Southern Kordofan	Lagawa

Livelihood Zone 19: Cattle Dominant Agropastoral

Province	District
Northern Kordofan	Umm Rawaba
Southern Darfur	Buram
Southern Darfur	Ed Daein
Southern Kordofan	Abu Jubaiyah
Southern Kordofan	Abyei
Southern Kordofan	Delling
Southern Kordofan	El Salam
Southern Kordofan	Lagawa
Southern Kordofan	Rashad
Southern Kordofan	Talodi

Not zoned desert in the north

Province	District
Nile	Abu Hamad
Nile	Barbar
Northern	Dongola
Northern	El Dabbah
Northern	Halfa
Northern	Merawi
Northern Darfur	Mellit
Red Sea	Halayeb
Red Sea	Port Sudan
Red Sea	Sinkat

Annex II: Workshop Participants

Sudan Livelihood Zoning 1st -5th May 2011, Grand Holiday Villa, Khartoum

Name	State	Organization
Tarig Al Sir Mustafa	Khartoum	FAO
Saad Yousif Murkaz	South Kordofan	WFP
Musa Adam El sharif	North Kordofan	MoAAW
Yasir Babiker Ahmed Babiker	West Darfur	MoA.WD
Ahmed Sabeil Abdalla	West Darfur	WFP
Muzzamil Mohammed Nor Ahmed	North Darfur	WFP
Yousif Adam El Haj	South Darfur	WFP
Khalil Adam Mohamed	Khartoum	MoA
Abdalla Alii Mohamad	South Darfur	MoA
Adil El Zain Adam	Blue Nile	MoAAI
Mustafa Mohed Osman	Gadrief	MoA
Tibaig Musa Tibaig	Sennar	MoA
Abdalla Ibrahim Khamis	South Kordofan	MoA. Planning
Nagm Eldein Salih Adm Ahmed	South Darfur	MoA. Planning
Yasir Mohamed Hashem	Khartoum	FSTS/HAC
Sofian Abuelbacher Adam	Khartoum	HAC
Nada Ahmed	Khartoum	WFP
Hafsa Abd El bagi Ahmed	Khartoum	EWS- HAC
Saniya Saleem Jaber	Khartoum	MoA
Ibrahim Al Shabir Ibrahim	Khartoum	FSTS-MoA
Ali Khalil		FSTS- MoA
Abdelkhalig Suliman Elgatpi		FSTS- MoIWR
Adil Farah Idris	Khartoum	FSTS – FMOAF
Anwar Abd Hafezw Ahmed	River Nile	MoA-planning
Emad Eldeen Mohamed Ali	Northern	MoA
Abdelgadir Haj Ali Khalid	Kassala	MoA
Hamza Abdalla Siror	Khartoum	FSTS-MoA
Donatto Manyuon Lim	Khartoum	FSTS-SRC
Bahja Sulieman	Khartoum	SRCO
Afrah Osman HMohgoub	Khartoum	MoA
Ahmed Osman Hussein	Khartoum State	MoA
Karim Abdel Moneim	Kassala	WFP
Issam Yousif Ali	White Nile	WFP
Huda Hamza Abu Elyaman	North Darfur	MoA - Planning
Somia Abu Elgasim	White Nile	MoA

Mohamed El Hag Sir El Khatim	Khartoum	IFAD
Adil Osman Idris		MoA
Igbal Abdel Magid		MoA
Rihab Yassien	Khartoum	FSTS
Amira Abdel Rahim Ali	Khartoum	FSTS
Nawal Sid Ahmed Zain Ebdein		FSTS
Hind Ahmed Mohamed		Rainfed Sector-MOA
Siham Mukhtar Elmardi	Khartoum	FSTS
Fatima El Hassan El Tahir	Khartoum	FSTS
Mohassen Balla Ahmed	Khartoum	Natural Resources -MoA
Wafa'a Badwi Abdalla	Khartoum	FMo H/Nutrition
Hadia Osman Idriss	Khartoum	MoARF
Abdel Rahman Hamid	Khartoum	USAID
Hana M Mohamed Babiker	Khartoum	PEA/FS
Mohmoud El Haj Salih	Red Sea	MoA- Planning
Amal Fadl alla Ali Fadlalla	Gezira	MoA
Babikir Haj Hassan	Khartoum	TSTS -MOA
Mohamed El Hafiz Ibrahim	Khartoum	FEWNET
Adbel Rahim Norien	Khartoum	FEWNET
William Hammink		USAID
Mohamed Al Hassan Jubara		MoA
Yousif Mohamed Abaker	Khartoum	FEWSNet-
Lorraine Coulter		FEWS Net
Julius Holt		FEWS Net