

SUDAN Livelihood Profiles, North Kordofan State

August 2013

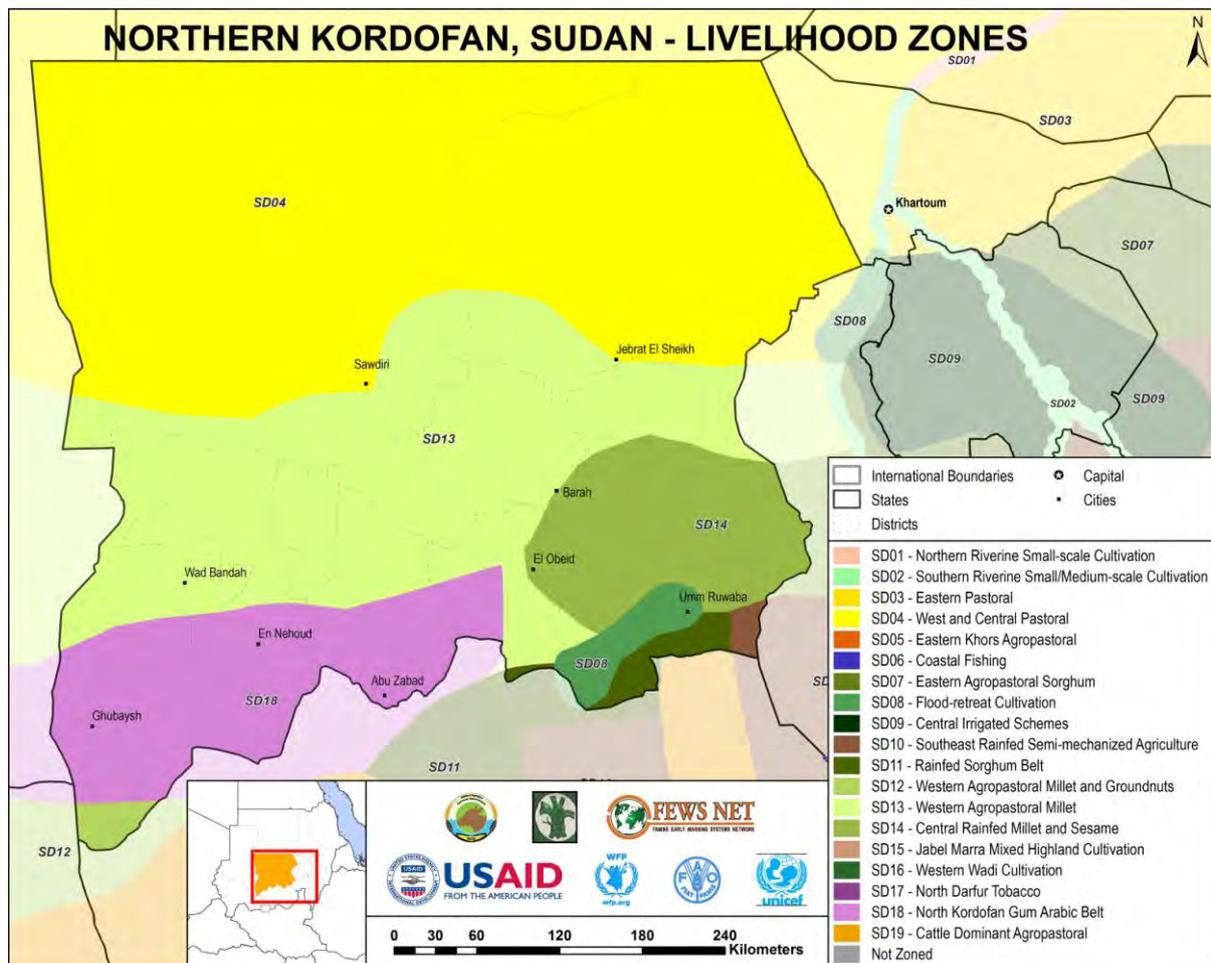


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This product will form part of the knowledge base for FEWS NET's food security monitoring activities in Sudan.

ACRONYMS AND ABBREVIATIONS

EfD	Evidence for Development
FEWS NET	Famine Early Warning Systems Network
FFP	Food for Peace
FMoAI	Federal Ministry of Agriculture and Irrigation
FSTS	Food Security Technical Secretariat
FSWG	Food Security Working Group
GoS	Government of Sudan
HEA	Household Economy Approach
HAC	Humanitarian Aid Commission
IDP	Internally Displaced Persons
NGO	Non-Governmental Organization
USAID	United States Agency for International Development
USG	United States Government
UN	United Nations
UNICEF	United Nations Children Fund
SCF (UK)	Save the Children Fund, United Kingdom
WFP	World Food Programme

Summary of Household Economy Approach Methodology

The standard Household Economy Assessment (HEA) is a livelihood-based framework for analyzing the ways people access the things they need to survive and maintain their livelihood. It helps determine people's food and non-food needs and identify appropriate means of assistance, whether short-term emergency assistance or longer term development programs or policy changes.

It is important to note that the HEA is an analytical framework, not a specific method of information collection. It defines the information that needs to be collected and the way in which it should be analyzed in order to answer a particular set of questions. It is a framework for organizing a vast array of information – some of which is local knowledge, some of which is census data, some of which is crop production data, and so on. It functions as a powerful way to make practical use of both existing secondary sources of information and also primary information.

HEA defines a livelihood zone as a geographic area in which households obtain their basic survival needs, notably food and cash income, in relatively similar ways. This means that they also typically have similar socio-economic groupings with similar asset bases, as well as relatively similar consumption patterns. These similarities apply to both good and bad years, in that coping strategies in response to shocks are also relatively similar within the same livelihood zone.

The livelihood profiles presented here explore key characteristics of the socio-economic status and livelihood strategies of three wealth groups (the poor, middle, and better-off) for each livelihood zone within North Kordofan and detailed, quantitative information about livelihood strategies, food and income sources for each of the three wealth groups. The general characteristics and the primary food, income and expenditure cycles of poor households are described for each livelihood zone. Finally, the livelihood zones most vulnerable to food insecurity are identified.

Livelihood profiles facilitate the analysis and monitoring of livelihood and food security. They provide a geographic context for establishing monitoring systems (a sampling frame) and for interpreting the relative importance of existing monitoring data on production, prices, and other indicators. They are points of reference against which conditions observed during monitoring may be compared. They also describe how livelihood and food security may be affected by production and other shocks.

For more information about Household Economy Assessment principles and analysis, visit the livelihood pages at <http://www.fews.net> or download '[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

The Household Economy Assessment in Sudan

In the late 1990s, Save the Children Fund (SCF) United Kingdom (UK) in association with the Government of Sudan (GoS) Humanitarian Aid Commission (HAC) used the Household Economy Approach in North Darfur for drought assessment and estimating food needs. This generated considerable support for livelihood-based food security analysis within Sudan. In the period 2006-2009 HAC conducted livelihoods zoning and profiling in the states of North Kordofan, some parts of West Darfur, Kassala, and Red Sea. HEA work was next conducted in Sudan in 2011, when FEWS NET organized a national livelihood zoning workshop in Khartoum. The result was a livelihood zone map which divided Sudan into 19 zones with a limited amount of additional information describing seasonality, sources of food, and main sources of household income. The livelihood zones identified were very large, and the boundaries have not been verified. Following the 2011 Khartoum livelihood zoning workshop HAC and the GoS Food Security Technical Secretariat (FSTS) independently conducted some additional livelihood zoning work, identifying additional zones in North Kordofan, Red Sea, and Kassala states.

Given the demand for high-quality livelihoods-based analysis in Sudan, in 2013 FEWS NET targeted Sudan as a priority country for updating livelihood reference materials. In December 2012, FEWS NET hosted a one-day workshop in Khartoum to assess the perceived usefulness to the Sudanese food security community. Discussions took place on the relevance of livelihood zoning and of potentially more detailed livelihood products. A wide range of technical partners attended the workshop, including government, donors, UN agencies and the non-governmental organization (NGO) community. Partners recognized the operational importance and usefulness of livelihood profiles, and expressed demand for such products. Apart from early warning, a variety of applications were also discussed – for example, the United Nations Children Fund (UNICEF) expressed interest in using livelihoods zones as a sampling frame for anthropometric surveys, for the assessment of Internally Displaced People (IDP) and resettlement, and other developmental applications. Partners also identified the need for verification of current 2011 livelihood zone boundaries.

Because of the complexity and inaccessibility of much of Sudan, the complex approval processes required at both regional and state levels to undertake field work and the large size of the 2011 livelihood zones which cross several states, FEWS NET and partners decided to conduct the verification of the livelihood zone boundaries and livelihood profiling at state level rather than by livelihood zone.

FEWS NET and the GoS (through the FSTS) plan to complete a national livelihood profile during the course of 2013/2014. North Kordofan was selected as the pilot state, given its vulnerability to drought, the perceived frequency of acute food insecurity among poor households, and the relative security and ease of obtaining travel permission. The work built technical skills within FEWS NET and among key institutional partners, which should allow future verification/profiling work to be conducted with less support from external consultants.

North Kordofan State Livelihood Profiling

Parts of five livelihood zones fall into North Kordofan. Within each livelihood zone it was initially proposed to develop full quantitative HEA profiles at a small sample of locations. In practice it was found that there was insufficient time available to mobilize key informants and wealth groups and some modification of the technique was required. This meant that information normally obtained at household representative level was obtained during key informant interviews.

The following strategy was used to implement the livelihood verification and profile exercise for North Kordofan.

State level

FEWS NET and its partners met with a small group of key informants from the North Kordofan State Food Security Working Group (FSWG) to verify the boundaries of the current livelihood zones within North Kordofan and to identify any substantial variations in the economy within each zone. Divisions with existing zones were identified, taking into account the need for these to be relevant to higher-order decision making at a policy or state level.

Locality level

FEWS NET and its partners visited the following localities:

- Sheikan, Umdam Haj-Ahmed and Bara in the Central Rain-fed Millet and Sesame zone;
- Elkhewi, West Bara, rural Elnohood, and Bara localities in the Western Agropastoral Millet zone;
- Abuzabad and Elnohood in the North Kordofan Gum Arabic zone and
- Jabrat Alsheik locality in the Pastoral zone.

In each locality, FEWS NET met with 3-4 key informants, including the locality agricultural officer to further verify the boundaries of the livelihood zones obtained at the state level and any variations on livelihood zone boundaries identified at state level.

During the interview, participants aimed to identify four 'typical' villages considered representative of the zone and accessible within security constraints for in-depth verification interviews. Because of security concerns only two villages were selected in the western and central pastoral zone. The flood retreat zone was completely excluded from field verification due to sporadic conflict and insecurity.

Village level

The village-level verification process used village-level key informant interviews where people including the chairperson of the popular village committee, religious leaders and members of farmers and women's groups were asked to identify:

- Wealth group characteristics (proportion of total population, assets, number of people per household)
- Income sources, food sources, and typical expenditures for each wealth group
- Market flows for key commodities relevant to the zone
- Seasonal calendars
- Common hazards and coping strategies

All information was collected from key informant interviews as there was insufficient time for key informants to assemble for focus groups and only two experienced interviewers were available. Interviews were conducted with reference to the 2011/12 agricultural year. This was a relatively 'typical' year. The household food energy requirements presented in the report were based on 2,100 kilocalories per person per day. Minor sources of food not considered during this analysis were meals consumed outside of the home and gifts in kind between households. Small quantities of wild foods normally consumed during the wet season were disregarded.

Overview of Rural Livelihoods in North Kordofan

North Kordofan state is an undulating plain covering an area of 185,302 km² at an altitude of 1,500 feet. The state population is approximately 3.2 million (2008 census), of which approximately 85% is rural.

The rainy season is from June to September. Rainfall increases from approximately 100mm per year in the most northerly areas to 200mm in the middle zone and 350mm in the south, although rainfall is unreliable – with large variation between years. There are no permanent rivers. Soils are generally infertile, with the most productive agricultural land being found in the eastern part of the state.

Rural livelihood patterns generally follow rainfall. In northern areas rainfall is insufficient to reliably support crops but provides enough pasture for livestock (camels, goats and sheep) during the rains, although in the dry season herders must move south to find pasture. In the middle and southern areas rainfall is sufficient to allow millet to be grown in most years, and in the wetter south and east sesame and groundnuts are produced. Sorghum is mainly grown in the south-western part. Gum Arabic (of which Sudan is the principal global exporter) is produced in parts of the west of the state.

A combination of low-lying moisture-retaining areas, seasonal water courses (wadis) and good seasonal rainfall are sufficient, even in northern areas, to allow a small crop of millet in some years and in the south to support vegetable production for sale. However, even in years of good production few households are self-sufficient in food and most rely on the sale of cash crops, livestock, local agricultural employment and seasonal migration to the gold fields at al-Mazroub, Nahr-al-Neel, Blue Nile and parts of Northern Sudan. The poor move into the urban areas of El Obeid, Khartoum and Omdurman and find agricultural work in the semi-mechanized areas of Kassala, Gedaref, Blue and White Nile and South Kordofan States. This provides income to purchase food and other commodities.

Two factors which have an important influence on rural livelihoods are: (i) sheep, which command high prices because of the high level of demand from the Gulf States, and (ii) the long distances from most rural areas to urban markets and poor road conditions, particularly in the wet season. This reduces the value of exported produce and increases the price of imports of agricultural inputs, sorghum (the main imported staple), rice, lentils, sugar, cooking oil and other non-staple food items and non-food commodities. These are transported from Khartoum and Omdurman to El Obeid for onward distribution to local markets and villages. At village level retail sales are controlled by the better-off, who derive a significant income from this source.

The long term decline in rainfall in North Kordofan has led to competition for grazing. Seasonally, northern pastoralists move from the north to southern parts of the state and there are more local livestock movements within more southerly agro-pastoral areas, leading to disputes between agro pastoralists and pastoralists over grazing areas and rights and access to water.

In most years, North Kordofan state is a cereal deficit area and requires imports from the semi-mechanized areas of the east and south.

Parts of five livelihood zones fall into North Kordofan state:

- The Central Rainfed Millet and Sesame Agropastoral (SD14), in which millet is produced for consumption, sesame is the main cash crop and camels, goats and sheep are kept and sold, in the cases of goats and especially sheep, and the poor group obtains the largest part of its income from agricultural labor.
- The Western Agropastoral Millet (SD13), in which millet is the main food and cash crop, with some watermelon, hibiscus and okra production (especially around low-lying areas). Livestock sales account for the majority of the better-off and middle groups' cash income, while the incomes of the poor group mainly come from a labor and trade.
- The North Kordofan Gum Arabic Belt (SD18), where crops (sorghum, millet and groundnuts) are cultivated, livestock are kept and both wild and cultivated gum Arabic trees are concentrated.

Groundnuts are an important cash crop for all wealth groups; livestock sales also account for a large amount of better-off and middle groups' cash income while the poor group has a wide range of income sources. This zone has the most acute difference in levels of income among the three wealth groups.

- The West and Central Pastoral (SD04), which lies in northern parts of the state. This is semi-desert and the economy depends chiefly on livestock production; crop production is very low. The better-off group derive almost all of their cash income from livestock sales and trade, while the middle and poor groups obtain most of their incomes from gold extraction, migrant labor, trade (for the middle group) and herding (for the poor group). This is another zone with highly unequal incomes between the different groups.
- The Flood-retreat Cultivation zone (SD08), with fertile alluvial soils which allow crops such as sorghum and vegetables to be grown. This zone was excluded from field verification due to sporadic conflict and insecurity.

The West and Central Pastoral Zone (SD04) identified is considered to be at greatest risk of food insecurity due to its predominantly pastoral nature and its reliance on markets for both food and cash income. Fluctuating market conditions expose local populations to economic shocks such as price spikes and market failures.

The three Agropastoral zones – namely the Central Rain fed Millet and Sesame (SD14), the Western Agropastoral Millet (SD13) and the North Kordofan Gum Arabic Belt (SD18) – have similar livelihood strategies, and therefore experience similar natural hazards and relatively similar levels of risks to food insecurity.

Zone 1: Central Rain fed Millet and Sesame Agropastoral Zone (SD14)

DESCRIPTION

This zone comprises the south-eastern corner of North Kordofan and is distinguished by a relatively high rainfall of 300-350 mm per year and its relative proximity (in Sudanese terms) to the big economic centers of Khartoum/Omdurman, Gezira, Gedaref, and El Obeid, which is at the western edge of the zone. Households cultivate sesame and millet, although there are large fluctuations in production between years. Sesame, livestock, watermelons and watermelon seeds, and *kerkeday* (a drink made from hibiscus) are also produced, chiefly for sale. Vegetables including tomatoes, onions, chili peppers and pumpkins are also grown for sale. The main livestock are sheep and goats, with smaller numbers of cattle and camels. The poorer part of the population supplement their production with casual agricultural employment, herding, gold extraction and self-employment including brick making, construction, and the sale of fodder. Between January and June – particularly in years of poor local production – poorer households migrate to find work in the cities and in gold mining.

SEASONAL CALENDAR (SD14)

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry and cool season												
Lean season												
Cropping												
sesame												
millet												
sorghum												
vegetable production												
Livestock												
lambing/kidding/calving												
milking												
Other												
credit cycle												
Hazards												
crop pests												
high cost of water												
Legend												

Nursery beds for tomatoes and other vegetables are prepared in June and July and transplanted in August and September. The poor rely chiefly on agricultural labor for income from April to December, and rely on non-farm activities, seasonal urban migration and gold extraction in the remaining months.

WEALTH BREAKDOWN

Wealth groups	Household percentage	Household size	Land area cultivated (hectares)	Typical livestock holdings					
				Sheep	Goats	Camels	Cattle	Donkeys	Donkey carts
Poor	60-65%	6-8	2-4	0	6-10	0	0	0-2	0-2
Middle	20-30%	7-9	6-8	10-15	10-15	1	0	0-2	0-2
Better-Off	10-15%	8-10	10-20	>100	25-30	12-16	20-50	0-2	0-2

Wealth is chiefly determined by the land area cultivated and by livestock ownership. There is no land shortage, and all households cultivate relatively large areas to compensate for the low productivity of the soils. The area cultivated depends on the availability of animal traction and the cost of maintaining or renting livestock for ploughing, which is prohibitive for the poorer wealth group. The larger household size of better-off households is partly explained by resident herders, as these households have much greater livestock holdings (particularly of sheep, camels and cattle) than the other groups. Goats are kept by all wealth groups, and are used by the better-off and middle groups for milk and meat, and by the poor for sale. Camels and cattle are only kept by the better-off, because of the high cost of fodder and water during the dry season.

MARKETS

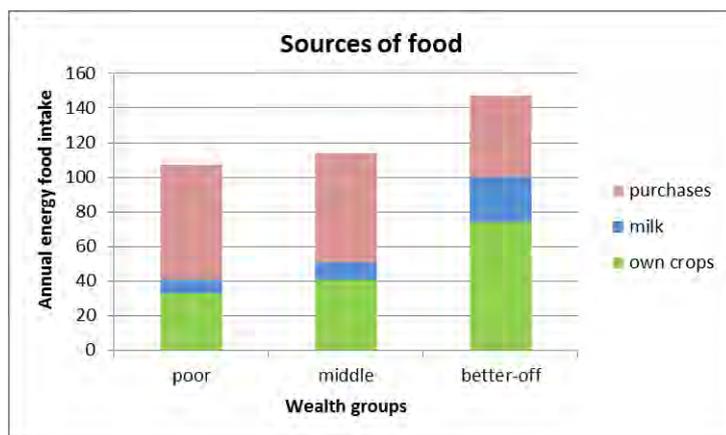
Access to the markets of El Obeid, Khartoum, Omdurman, and Port Sudan and the Gulf states is constrained by long distances and poor road conditions (particularly during the July-September rainy season), which limit the movement of vehicles and traders.

Main products sold	Market trade flows	Months of main movement
Main food items		
Sesame	Um Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman → Port Sudan → Export markets.	December to April
Watermelon seeds	Al Nuhood → Umm Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman → Export markets.	December to February
Watermelon fruit	Al Nuhood → Umm Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman.	December to April
Hibiscus	Al Nuhood → Um Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman → Port Sudan → Export markets	December to April
Livestock		
Sheep	Local markets → El Obeid → Kosti → Khartoum and Omdurman → Port Sudan → Export markets; mainly to Saudi Arabia. Local markets → Jibrat → Omdurman.	All year round
Goats	Local markets → Jibrat → Omdurman → Khartoum.	All year round
Staple cereals imported	Market trade flow	Months of main movement
Sorghum	Kosti → Tendelti → Umm Rawaba → El Obeid → Rural markets.	March to September

Watermelons, a perishable crop, are sold during the harvest season. Watermelon seeds, sesame, and hibiscus are normally sold over a longer period of time, especially by the better-off group. Sheep are sold throughout the year.

SOURCES OF FOOD

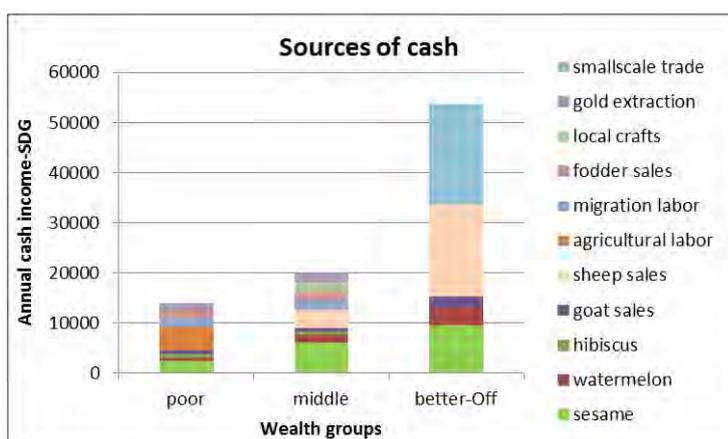
All wealth groups cultivate millet, sorghum, beans and okra and other vegetables for consumption. In the reference year, better-off households are largely self-sufficient in food from their own millet production and



They purchase mainly rice, sugar, cooking oil, meat and lentils and other non-staple foods. The poor and middle groups have smaller crop and livestock production, and are highly dependent on the market for their food. In an average year the poor group purchase sorghum (the cheapest staple) from March; the middle group from April. All wealth groups met their annual food requirement during the reference year.

SOURCES OF CASH INCOME

The better-off group obtains most of its income from the sale of sheep, the retail trade of food items and sesame sales. The middle group obtains about half of their income from sesame and sheep sales and the remainder from goat sales, agricultural labor, retail shops, local labor migration, and



gold extraction in other parts of the country. The poor group mainly relies on agricultural labor for income and obtains additional cash from goat and fodder sales, local and more distant labor migration and gold extraction. All groups produce sesame, watermelon and hibiscus for sale.

PRIMARY FOOD, INCOME AND EXPENDITURE CYCLES OF POOR HOUSEHOLDS

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple foods												
millet	own production	own production	market purchase	own production	own production	own production						
sorghum	own production	own production	market purchase	own production	own production	own production						
beans	own production	own production	market purchase	own production	own production	own production						
Income												
sale of sesame											income activities	income activities
sale of agricultural labor				income activities								
sale of urban migrant labor	income activities	income activities	income activities									
sale of gold	income activities											
Expenditures												
water for livestock	income activities											
school fees			income activities								income activities	
Legend												
	own production	market purchase			income activities							

Rural-urban migration in search of employment takes place chiefly between January and June, and is done mainly by young people. This constitutes a major source of revenue for the poor and middle groups. For the poor the most difficult months are July to September, when less work is available in urban areas and before the next agricultural season. Money earned from migratory labor is increasingly remitted through mobile money services, avoiding the need for laborers to physically return to their homes

SHOCKS AND HAZARDS

The main hazards are:

- Bird attack and other crop pests and diseases which attack millet.
- Drought affecting the production of millet and other crops.
- Crop destruction and competition for fodder and water by pastoral livestock, as pastoralists migrate through the zone.
- Spikes in staple food prices and other market-related economic shocks which particularly affect the poor who rely heavily on the market for food.

COPING

Coping strategies for the poor group include: (i) the sale of firewood, although the market is limited due to the distance from urban markets, (ii) increased migration in search of seasonal agricultural labor in the semi-mechanized areas of Gadaref, Blue and White Nile as well as parts of South Kordofan states, and (iii) wealthier households increasing the level of transfers and providing credit (“shale”) advanced against green crops.

Middle and better-off groups increase livestock sales to obtain more income. During major food crises cattle and camels are occasionally sold by the better-off group.

FOOD SECURITY MONITORING INDICATORS

Season	Month	Variables	Indicators	Potential impact on household food security
Rainy season	June to October	Delayed onset of rains	First rains later than month of July.	Delayed green crop consumption.
		Horticultural crop pests and diseases	Occurring at the peak of horticultural production, i.e. August to January.	Shortage of vegetables for consumption and sell.
		Livestock disease outbreaks	Occurring at peak of milk production in July to September.	Loss of milk for consumption. Loss of income from livestock sales.
		Increased sorghum price	Significant increase above 2.3 SDG per Kilogram of sorghum (reference year price).	Household shortage of food.
		Decrease in price of sesame	Significant decrease below 3.5 SDG per Kilogram of sesame (reference year price).	Household shortage of cash and ultimately purchasing power.
		Availability of horticultural inputs in the market	Shortage of horticultural seeds and pesticides from July to September.	Seasonal loss of horticultural production, food and cash income.
		Physical accessibility to markets	Lack of physical access from July to September.	Household shortage of food.
		Physical access to seasonal agricultural labor.	Lack of physical access to agricultural labor in semi-mechanized agricultural farms.	Loss of agricultural labor income. Food shortage, especially among poor group.
		Labor migration	Increased number of people migrating in search of agricultural labor per household (from 1 to 2 or 3 people) in June to October.	Loss of agricultural labor. Loss of crop harvest. Household food shortages.
		Livestock prices	Significant decrease in prices of goats and sheep from the 190 and 450 reference year prices.	Reduction in household income from livestock sales. Reduced household purchasing power.
Winter season	November to February	Local availability of fodder	Scarcity of local fodder, especially from remains of the water melon crop.	Poor livestock condition. Low livestock prices. Less access to food due to reduced purchasing power, especially among poor group.
Dry and summer season	November to May	Pasture for livestock	Lack of pasture for grazing animals.	Poor livestock condition. Low livestock prices. Loss/reduced of income from livestock sales.
		Availability of water	Significant increase in price of water for human usage and livestock production from the monthly expenditure of 153 SDG among the poor group.	Poor livestock condition. Distant livestock migration. Loss of livestock. Low livestock prices. Loss of income from livestock sales. Less access to food due to reduced purchasing power, especially among poor group.

		Labor migration	Increased number of people migrating in search of non-farm labor per household (from 1 to 2 or 3 people) during summer, November to May.	Loss of agricultural labor.
Lean season	June to September	Loans	High interest rate on loans.	Loss of income. Shortage of food.
		Price of sorghum	Significant increase above 2.3 SDG per Kilogram of sorghum (reference year price).	Household shortage of food.
		Physical access to markets	Lack or reduced physical access to markets, due to poor state of roads.	Shortage of food.
		Availability of seasonal agricultural labor	Significant reduction in availability of weeding employment opportunities outside the zone, e.g. reduction from 6 times per month for two and half months to 3 times per month for one and half months.	Loss of agricultural labor income. Reduced household purchasing power. Shortage of food.

Other signals for crisis may include:

- Extension of the usual period of migration to urban areas (January to June) until July and August.
- An increase in the numbers of people searching for employment outside the livelihood zone.
- An increase in the levels of conflict over water and grazing areas/rights and fodder from harvested crop fields.
- Abandoning agriculture for permanent relocation, usually informal employment in urban areas.

WEALTH BREAKDOWN

Wealth groups	Household percentage	Household size	Land area cultivated (hectares)	Typical livestock holdings					
				Sheep	Goats	Camels	Cattle	Donkeys	Donkey carts
Poor	40-60%	6-8	2-3	0	4-6	0	0	0-2	0-2
Middle	20-40%	6-8	4-6	36-38	8-12	0-2	0	0-2	0-2
Better-Off	15-25%	8-12	8-12	140-160	8-10	4-8	0-6	1-3	0-2

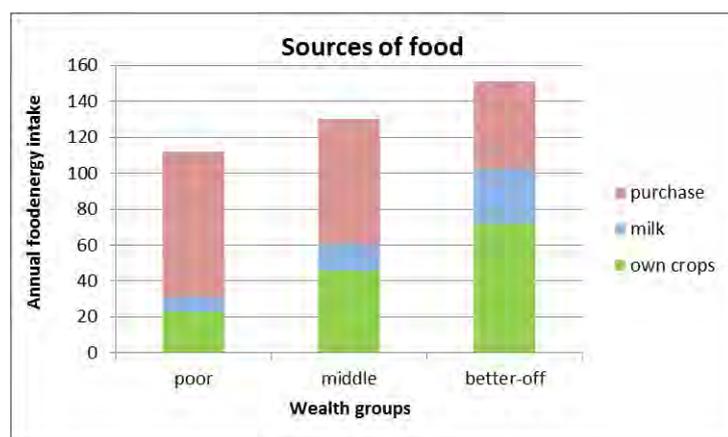
Household wealth largely depends on the area of land which can be cultivated, which is itself largely determined by the ability to afford seeds, ploughing and labor costs, and also by livestock holdings, particularly sheep. Goats are kept by better off households for meat and by the middle and poor groups chiefly for sale. Camels and cattle are mainly owned by the better-off. The better-off group has larger households mainly due to other dependents and herders, who live within the household. Donkeys are kept for water collection and other domestic transport.

MARKETS

Main products sold	Market trade flows	Months of main movement
Main food items		
Hibiscus	Local markets → El Obeid → Kosti → Khartoum and Omdurman.	December to April
Watermelon seeds	Al Nuhood → Umm Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman → Export markets.	December to April
Watermelon fruits	Al Nuhood → Umm Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman.	December to April
Livestock		
Sheep	Local markets → El Obeid → Kosti → Khartoum and Omdurman → Port Sudan → Export markets; mainly to Saudi Arabia. Local markets → Jibrat → Omdurman.	All year round
Goats	Local markets → Jibrat → Omdurman → Khartoum.	All year round
Staple cereals imported		
Sorghum	Kosti → Tendelti → Umm Rawaba → El Obeid → Rural markets.	March to September

Watermelon (a highly perishable commodity) must be sold during the harvest season, although watermelon seeds can be sold over a longer period. Hibiscus is normally sold over a longer period, some households preferring to keep this until April.

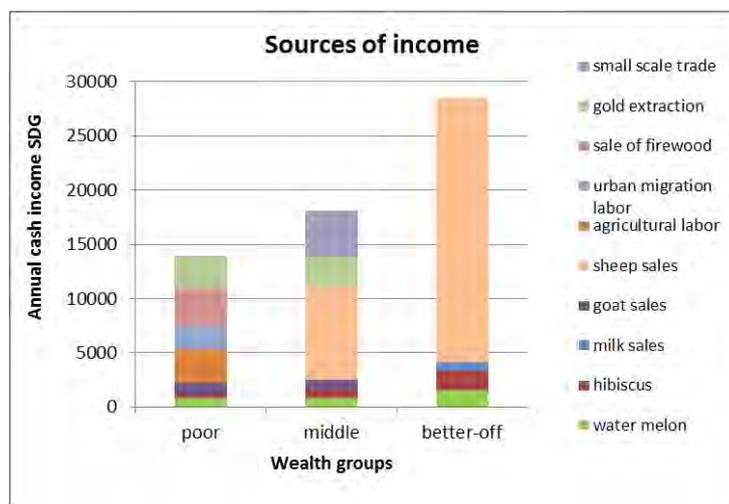
SOURCES OF FOOD



The main crop produced for consumption is millet, which is also consumed green during the lean season. Households in all wealth groups produce only part of their food needs from their own crops. Better-off households can meet their annual minimum food requirements from millet and milk production. The middle and poor groups depend on the market for much of their food. Goat’s milk is consumed by all wealth groups. Camel milk is consumed only by the better-off group, with smaller quantities normally shared with the poor. All wealth groups purchase non-staple

foods including sugar, cooking oil, lentils, dry meat and vegetables including dry okra.

SOURCES OF CASH INCOME



Crop sales are not a significant source of cash income in this zone, although watermelon and hibiscus are sold. Livestock sales – especially sheep – are the main source of income for the better-off and middle groups. The poor and middle group may sell an occasional goat to supplement their income. The poor group depends heavily on agricultural work for the better-off and seasonal migration for work in gold extraction and in urban areas.

PRIMARY FOOD, INCOME AND EXPENDITURE CYCLES OF POOR HOUSEHOLDS

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple foods												
millet	own production									own production		own production
sorghum		market purchase										
Income												
sale of agricultural labor				income activities								
sale of construction labor	income activities	income activities	income activities									
sale of bricks	income activities	income activities	income activities									
sale of urban migrant labor												
sale of gold							income activities					
Expenditures												
water for livestock	income activities	income activities	income activities			income activities						
school fees			income activities								income activities	
Legend												
	own production	market purchase	income activities									

Poor households in this zone normally obtain about three months’ staple food consumption from their own millet production, and purchase sorghum to meet the remainder of their needs. The main seasonal expenses include water for their goats and school fees (normally payable in the months of March, June and November).

SHOCKS AND HAZARDS

- Chronic/frequent hazards include crop pests and diseases, insects, millet head worms, grasshoppers/beetles and flocks of birds which attack millet.
- Drought affecting millet production and leading to food shortages, especially for the poor.
- Crop destruction and competition for fodder and water by pastoral livestock as pastoralists migrate through the zone.
- Spikes in staple food prices and other market-related economic shocks which particularly affect the poor, who rely heavily on the market for food.

COPING

Coping strategies employed in this zone particularly by poor households include: (i) the sale of firewood and fodder, although the market is limited because of the distance from major towns, (ii) seasonal migration for agricultural labor to the semi-mechanized areas such as Gadaref, White Nile, Blue Nile and South Kordofan states, (iii) cash remittances and gifts from relatives in wealthier households, (iv) taking credit (“shale”), a loan advanced against the value of green crops in the field. This, combined with their relatively climate-insensitive income sources, shows that they may be at less risk in cases of climate variability and other market related economic shocks, due to the diversified income options.

Middle and better-off households mainly rely on the sale of productive assets (especially livestock) to earn additional cash income in order to obtain water and fodder to reduce livestock losses.

FOOD SECURITY MONITORING INDICATORS

Season	Month	Variables	Indicators	Potential impact on household food security
Rainy season	June to October	Delayed onset of rains	First rains later than month of July.	Delayed green crop consumption.
		Horticultural crop pests and diseases.	Occurring at the peak of horticultural production, i.e. August to January.	Shortage of vegetables for consumption.
		Livestock disease outbreaks	Occurring at peak of milk production in July to September.	Loss of milk for consumption. Loss of income from livestock sales.
		Price hikes of sorghum grain	Significant increase above 3.3 SDG per Kilogram of sorghum (reference year price), inclusive of 0.33 SDG per kg cost of grinding sorghum.	Household shortage of food.
		Decrease in price of watermelon and hibiscus	Significant decrease below 3 SDG per medium watermelon and 4 SDG per kilogram of hibiscus (reference year prices).	Household shortage of cash and purchasing power.
		Availability of horticultural inputs in the market	Shortage of horticultural seeds and pesticides from July to September.	Seasonal loss of horticultural production, food and cash income.
		Physical accessibility to markets	Lack of physical access from July to September.	Household shortage of food.
		Labor migration	Increased number of people migrating in search of agricultural labor per household (from 1 to 2 or 3 people) in June to October.	Loss of agricultural labor. Loss of crop harvest. Household food shortages.
Winter season	November to February	Production of watermelon	Low and poor watermelon harvest.	Loss of income from sale of watermelon. Less access to food due to reduced purchasing power, especially among poor group.
		Local availability of watermelon as fodder	Scarcity of local fodder, especially from remains of watermelon crop.	Poor livestock condition. Low livestock prices. Less access to food due to reduced purchasing power, especially among poor group.
Dry and summer season	November to May	Pasture for livestock	Lack of pasture for grazing animals.	Poor livestock condition. Low livestock prices. Loss of income from livestock sales.
		Availability of water	Significant increase in price of water for human usage and livestock production from the monthly expenditure of 153 SDG among the poor group.	Poor livestock condition. Distant livestock migration. Loss of livestock. Low livestock prices. Loss of income from livestock sales. Less access to food due to reduced purchasing power, especially among poor group.

		Labor migration	Increased number of people migrating in search of non-farm labor per household (from 1 to 2 or 3 people) during summer, November to May.	Loss of agricultural labor.
Lean season	June to September	Loans	Low prices for in kind payment of loans	Loss of income. Shortage of food.
		Price of sorghum	Significant increase above 2.3 SDG per Kilogram of sorghum (reference year price).	Household shortage of food.
		Physical access to markets	Lack or reduced physical access to markets, due to poor state of roads.	Shortage of food.
		Availability of seasonal agricultural labor	Significant reduction in availability of weeding employment opportunities outside the zone, e.g. reduction from 6 times per month for two and half months to 3 times per month for one and half months.	Loss of agricultural labor income. Reduced household purchasing power. Shortage of food.

Other localized signals for crisis include:

- An extension of the period of labor migration to urban areas from the normal period of January - June to July and August.
- Increased numbers of people searching for employment outside the livelihood zone.
- Increased levels of conflict over water and livestock grazing areas (including fodder from harvested crop fields).
- Earlier seasonal migration (October to November) of transhumant populations with animals to the south in search of pasture and water.
- Permanent relocation to urban areas.

Zone 3: North Kordofan Gum Arabic Belt (SD18)

DESCRIPTION

This zone is a plains area straddling the North and South Kordofan boundaries and stretching west into South and North Darfur. Rainfall is approximately 350mm per annum, although there is substantial variation between years. Soils are sandy but moderately fertile, and allow the cultivation of millet and some sorghum. Even in the two out of three years when rain is sufficient, this zone is a net importer of cereals. Most household income is obtained from the sale of sheep, goats and camels and from the sale of gum Arabic, which grows naturally across a wide, semi-arid area of the zone and is cultivated and harvested mainly in the cool dry season. Other cash crops (groundnuts, watermelon fruits and watermelon seeds and hibiscus) are also produced for sale.

SEASONAL CALENDAR (SD18)

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry and cool season												
Lean season												
Cropping												
millet												
sorghum												
sesame												
cowpeas												
Livestock												
lambing/kidding/calving												
milking												
Other												
credit cycle												
Hazards												
crop pests												
high cost of water												
Legend												

This zone is largely dependent on livestock sales and non-farm income activities such as labor migration and gold extraction, in which all wealth groups are occupied throughout the year. Livestock, the main source of income, is sold throughout the year by all wealth groups. Middle income households are largely occupied with agricultural work, goats and sheep sales, and to some extent gold extraction outside the livelihood zone.

The poor group is the most consistently occupied throughout the year, due to their diversified livelihood strategies. They normally start with their own agricultural work and provide labor for the better-off from April to December, and work in non-farm activities such as odd jobs in urban centers and gold extraction at other times of the year.

WEALTH BREAKDOWN

Wealth groups	Household percentage	Household size	Land area cultivated (mukhamas)	Typical livestock holdings					
				Sheep	Goats	Camels	Cattle	Donkeys	Donkey carts
Poor	48-56%	6-8	8-12	0	6-8	0	0	0-2	0-2
Middle	34-38%	6-8	20-28	20-32	10-20	0-2	0-3	1-3	0-2
Better-Off	10-14%	8-10	60-66	200-280	12-20	2-4	0-8	1-3	0-2

About half of households in this zone fall into the poor group. Household wealth and income are largely determined by the area of land cultivated, which itself largely depends on the ability to hire ploughing services and to purchase seeds (particularly groundnuts), pesticides and other essential agricultural inputs, and also on the number of livestock owned (particularly sheep, which are produced for sale). The better-off (who comprise only 10-14% of households) cultivate much larger areas and own most sheep and other livestock. The better-off have larger households due to dependents and herders who are part of the household.

The average land areas shown do not include the land used for gum Arabic. Gum Arabic grows wild (although the wild gum Arabic trees are mainly controlled by the middle and better-off group) and is also cultivated by some households.

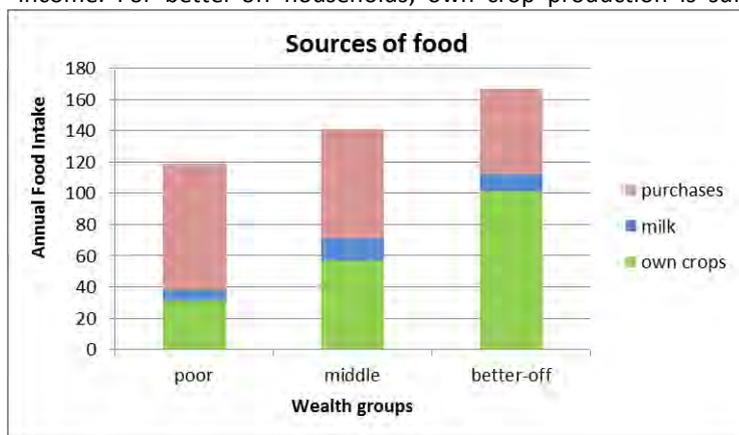
MARKETS

Main products sold	Market trade flows	Months of main movement
Main food items		
Groundnuts	Qubaish → Nahud → El Obeid → Khartoum → Export markets.	December to April
Hibiscus	Local markets → El Obeid → Kosti → Khartoum and Omdurman → Export markets.	December to April
Watermelon seeds	Al Nuhood → Umm Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman → Export markets.	December to April
Watermelon fruits	Al Nuhood → Umm Rawaba → Tandalti → El Obeid → Kosti → Khartoum and Omdurman	December to April
Gum Arabic	Al Nuhood → El Khowei → El Obeid → Export markets (Europe, Gulf states, China, etc.).	December to April
Livestock		
Sheep	Local markets → El Obeid → Kosti → Khartoum and Omdurman → Port Sudan → Export markets; mainly to Saudi Arabia. Local markets → Jibrat → Omdurman.	All year round
Goats	Local markets → Khartoum and Omdurman.	All year round
Staple cereals imported		
Market trade flows		Months of main movement
Sorghum	Kosti → Tendelti → Umm Rawaba → El Obeid → Rural markets.	March to September

Watermelon is a highly perishable commodity which must be sold in the course of the harvest period. Watermelon seeds may be sold over a longer period. Hibiscus is normally sold throughout the year, with some households preferring to keep hibiscus until the month of April. Non-staple food items such as rice, sugar and cooking oil are transported from major cities including Khartoum, Omdurman and the regional city of El Obeid before being distributed to the main localities and villages within the livelihood zone.

SOURCES OF FOOD

In contrast to neighboring zones, crops make a significant contribution to both household food and cash income. For better-off households, own crop production is sufficient to meet the minimum annual food



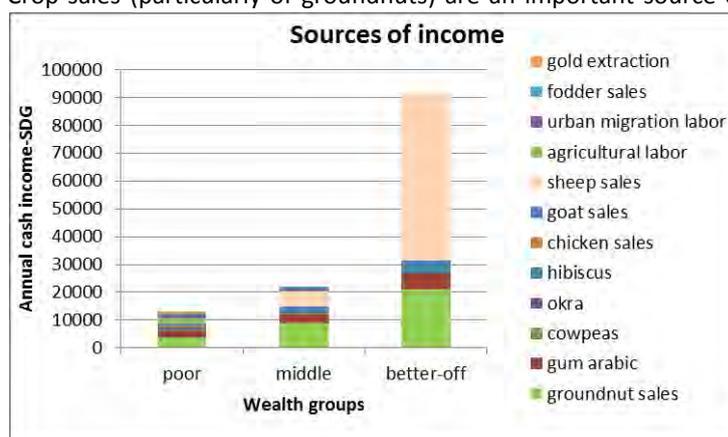
requirement. The middle and poor group derive (respectively) about half and a third of their minimum annual food intake from their own harvests. Millet and sorghum are consumed as both green and dried grain. The middle and poor group purchase sorghum from March to May.

Non-staple food items include sugar, cooking oil, lentils, dry meat, and vegetables including dry okra. Goat and camel milk also contribute part of the food consumed by all wealth groups. All wealth groups met their annual food

requirement during the 2012/2013 reference year.

SOURCES OF CASH INCOME

The main crops produced for sale are groundnuts, gum Arabic, hibiscus, cow peas, okra and other vegetables. Crop sales (particularly of groundnuts) are an important source of income for all groups. The better-off and middle groups make most of their income



from the sales of groundnuts and sheep, with some income from gum Arabic and vegetables. The poor get income chiefly from groundnut sales, agricultural work, labor migration and gold extraction. This zone has the most acute difference in levels of income among the three wealth groups.

PRIMARY FOOD, INCOME AND EXPENDITURE CYCLES OF POOR HOUSEHOLDS

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Staple foods												
millet	Green	Green	Green	Red	Red	Red	Red	Red	Green	Green	Green	Green
sorghum	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Green	Green
Income												
agricultural labor				Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
gum arabic	Blue	Blue	Blue				Blue	Blue	Blue	Blue	Blue	Blue
urban migrant labor												
gold extraction							Blue	Blue	Blue	Blue	Blue	Blue
Expenditures												
water for livestock	Blue	Blue	Blue	Blue	Blue	Blue						
school fees											Blue	
Legend	Green	own production		Red	market purchase		Blue	income activities				

Poor households in this zone normally obtain about five to six months’ staple food consumption from their own millet harvest (including one month’s green consumption in September) and six to seven months’ sorghum consumption through purchases in the market. The poor work for cash income from January to June in urban centers, and from April to August they work for the better-off in order to purchase sorghum. Other income options available to this group include long distance migration for gold extraction. Similar to other zones, the main seasonal expenses include water for their goats and school fees (normally paid in the months of March, June and November).

SHOCKS AND HAZARDS

- The main chronic/frequent hazards include grasshoppers/crickets and flocks of birds which attack millet and sorghum.
- Drought leading to lower millet, groundnut and watermelon production which in turn reduces household food and cash income from crop sales.
- Conflict with pastoralists arising from crop destruction due to grazing in cultivated fields and competition for water.

COPING

The populations in the North Kordofan Gum Arabic Belt have similar coping strategies to neighboring zones. These include: (i) the sale of firewood and fodder (especially by poor households), although the distance to major towns limits physical access to the market, (ii) migration to urban areas and the semi-mechanized areas of Kassala and Gedaref states, (iii) cash remittances and gifts from relatives and wealthier households, (iv) increased access to credit (“shale”) by the poor group, advanced against green crops in the field.

Middle and better-off households also fall back on food stocks and increase the sale of productive assets, especially goats and sheep.

FOOD SECURITY MONITORING INDICATORS

Season	Month	Variables	Indicators	Potential impact on household food security
Rainy season	June to October	Delayed onset of rains	First rains later than month of July.	Delayed green crop consumption.
		Horticultural crop pests and diseases	Occurring at the peak of horticultural production, i.e. August to January.	Shortage of vegetables for consumption.
		Livestock disease outbreaks	Occurring at peak of milk production in July to September.	Loss of milk for consumption. Loss of income from livestock sales.
		Price hikes of sorghum grain	Significant increase above 3.3 SDG per Kilogram of sorghum (reference year price), inclusive of 0.33 SDG per kg cost of grinding sorghum (reference year price)	Household shortage of food.
		Decrease in price of groundnuts	Significant decrease below 3.3 SDG per kilogram of groundnuts (reference year price).	Household shortage of cash and purchasing power.
		Availability of horticultural inputs in the market	Shortage of horticultural seeds and pesticides from July to September.	Seasonal loss of horticultural production, food and cash income.
		Physical accessibility to markets	Lack of physical access from July to September.	Household shortage of food.
		Labor migration	Increased number of people migrating in search of agricultural labor per household (from 1 to 2 or 3 people) in June to October.	Loss of agricultural labor. Loss of crop harvest. Household food shortages.
Winter season	November to February	Production of watermelon	Low and poor watermelon harvest.	Loss of income from sale of watermelon. Less access to food due to reduced purchasing power, especially among poor group.
		Local availability of watermelon as fodder	Scarcity of local fodder, especially from remains of water melon crop.	Poor livestock condition. Low livestock prices. Less access to food due to reduced purchasing power, especially among poor group
Dry and summer season	November to May	Pasture for livestock	Lack of pasture for grazing animals. Low livestock prices: significant decrease below 200 and 550 SDGs per medium size goat and sheep respectively (reference year prices).	Poor livestock condition. Overstretched resources for purchase of fodder. Loss of income from livestock sales.
		Availability of water	Significant increase in price of water for human usage and livestock production from monthly expenditure of 153 SDG among poor group.	Poor livestock condition. Distant livestock migration. Loss of livestock. Low livestock prices. Loss of income from livestock sales. Less access to food due to reduced purchasing power, especially among poor group.

		Labor migration	Increased number of people migrating in search of non-farm labor per household (from 1 to 2 or 3 people) during summer, November to May.	Loss of agricultural labor.
Lean season	June to September	Loans	High interest rate of loans.	Loss of income. Shortage of food.
		Price of sorghum	Significant increase above 2.3 SDG per Kilogram of sorghum (reference year price).	Household shortage of food.
		Physical access to markets	Lack or reduced physical access to markets, due to poor state of roads.	Shortage of food.
		Availability of seasonal agricultural labor	Significant reduction in availability of weeding employment opportunities outside the zone, e.g. reduction from 6 times per month for two and half months to 3 times per month for one and half months.	Loss of agricultural labor income. Reduced household purchasing power. Shortage of food.

Other localized signals for crisis may include:

- An extended period of labor migration to urban areas from the normal period of January - June to July and August.
- Increased numbers of people searching for employment outside the livelihood zone.
- Increased levels of conflict over water and livestock grazing areas (including fodder from harvested crop fields).
- Earlier seasonal migration (October to November) of transhumant populations to the south in search of pasture and water.
- Distress sales of livestock, and a fall in livestock prices.
- Permanent relocation by local populations to urban and other areas.

Zone 4: West and Central Pastoral Zone (SD04)

DESCRIPTION

This zone is a vast, sparsely-populated semi-desert which stretches across North Kordofan state. People subsist mainly by transhumant pastoralism. Rainfall is between about 50-150mm per year and is insufficient for crop cultivation in most parts of the zone, although small quantities of millet are cultivated – depending on seasonal rainfall performance – in areas such as Jabrat Alsheik.

Patterns of herd movement are chiefly transhumant between pastures and watering points in a ‘home area’. Movement is chiefly to the south, and in the dry season far into West and South Kordofan, but seasonally people also move to northern areas to exploit pasture where this is available. In recent years the southerly movement has been limited by conflict with farmers who cultivate on pasture land or as animals stray from agreed routes into crops as pastoralists pass through cultivated areas.

Poorer pastoralists mainly keep goats (which supply part of their food requirement) but rely heavily on income from labor migration and gold extraction to purchase millet and sorghum from the market. Wealthier pastoralists possess camels as well as small stock, and are able to consume larger quantities of milk and to satisfy their basic food requirement from livestock products and purchases.

SEASONAL CALENDAR (SD04)

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Seasons												
Rainy season												
Dry and cool season												
Lean season												
Cropping												
millet/sorghum												
Livestock												
lambing/kidding/calving												
milking												
Other												
credit cycle												
Hazards												
crop pests												
high cost of water												
Legend												

The main agricultural activities include cultivation of millet in the months from June to November. Livestock activities include lambing, kidding and calving during the dry season; milk production picks up in the rainy season. Crop pests are a problem during the rainy season. The high cost of water is also a problem, especially during the dry season.

WEALTH BREAKDOWN

Wealth groups	Household percentage	Household size	Land area cultivated (mukhamas)	Typical livestock holdings					
				Sheep	Goats	Camels	Cattle	Donkeys	Donkey carts
Poor	40-60%	7-9	3-5	4-6	6-8	0	0	0-2	0-2
Middle	25-35%	7-9	6-10	15-25	15-25	0-2	0	0-2	0-2
Better-Off	15-25%	8-10	8-12	50-66	30-40	10-30	0	0-2	0-2

In this zone wealth is chiefly determined by livestock holdings, particularly sheep. Most households in the zone are in the poor group. The larger household size in the better-off group is due to dependent relatives and herders who make up part of the household. The poor group mainly acquire livestock by offering their labor as herders, and are paid either in cash (on monthly basis or in kind (with livestock) on annual basis.

Most livestock sold are young animals, which command higher prices. As well as generating income, this is also a strategy aimed at keeping herd sizes manageable in contexts of limited water and pasture resources.

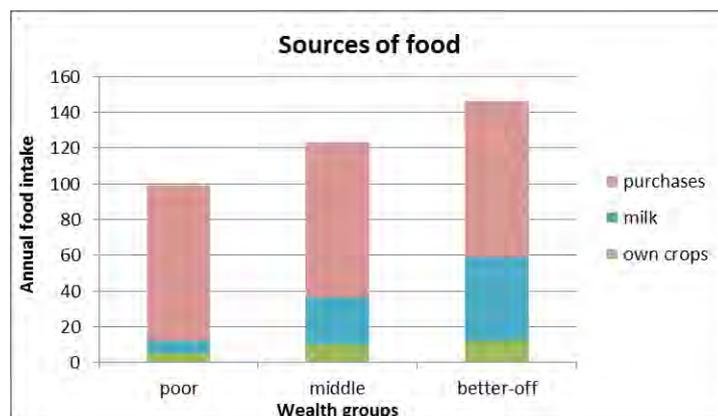
MARKETS

Main products sold	Market trade flows	Months of main movement
Livestock		
Sheep	Local markets → El Obeid → Kosti → Khartoum and Omdurman → Port Sudan → Export markets; mainly to Saudi Arabia. Local markets → Jibrat → Omdurman.	All year round
Goats	Local markets → Jibrat → Omdurman → Khartoum.	All year round
Camels	Local markets → Jibrat and Sodari → Omdurman → Egypt. Local markets → Jibrat and Sodari → Omdurman → Gulf States.	All year round
Staple cereals imported		
Sorghum and Wheat	Kosti → Tendelti → Umm Rawaba → El Obeid → Rural markets. Local markets → Imported wheat.	March to September

Livestock – especially sheep – are sold throughout the year. Goats are mainly sold in El Obeid and Kosti. Camels are also occasionally sold by the better-off group through middlemen. The zone imports significant quantities of staple sorghum for household consumption, either from other zones within North Kordofan or from White Nile State and Omdurman. Non-staple foods imported into the zone include rice, sugar and cooking oil, along with non-food items such as soap, salt and paraffin. This trade is carried out mainly by the better-off group through a well-organized retail trade system in specific localities and villages.

SOURCES OF FOOD

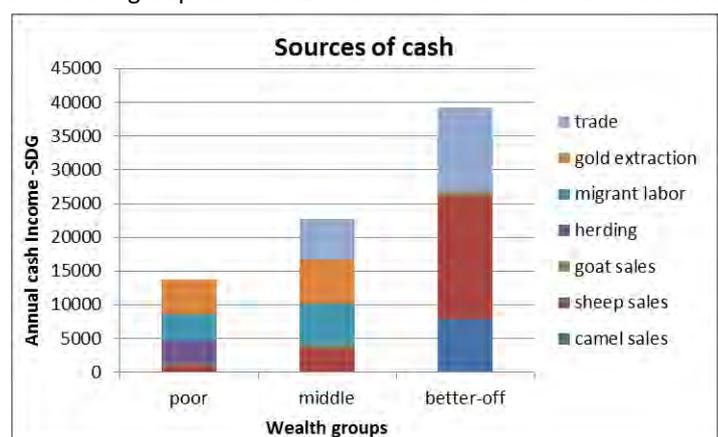
In the reference year, all wealth groups obtain a small proportion of their food requirement from millet cultivation, a variable amount from milk, and rely on food purchases – chiefly of sorghum and some wheat flour – to meet most of their food needs. Goat milk is consumed by all wealth groups. The better-off group also obtains camel milk seasonally. The poor group struggle to meet their minimum energy requirement, and receive some milk through gifts from better-off households.



Goat milk is consumed by all wealth groups. The better-off group also obtains camel milk seasonally. The poor group struggle to meet their minimum energy requirement, and receive some milk through gifts from better-off households.

SOURCES OF CASH INCOME

Livestock sales are the major source of cash income in this zone. All wealth groups sell sheep and goats and the better-off group also obtain some income from camel sales. Overall, income from livestock sales is more significant among better-off than middle and poor groups.



The better-off group obtain significant additional income from the retail trade. The poor and middle groups obtain income from gold extraction and migrant labor, and the poor also from herding livestock.

This zone has some of the most acute inequalities in income and levels of wealth. This is notable because it is a pastoral zone, with a small portion of very wealthy households dependent on livestock, and extremely poor households surviving on

non-farm income activities. The broad implications are that whereas livestock related diseases may impact more on the better-off group, poor households are at greater risk of food insecurity due to factors such as loss of employment and increases in staple food prices. It is therefore more important to consider employment opportunities and labor rates when monitoring conditions among the poor group, rather than changes in livestock conditions that impact more on middle and better-off group in this zone (although herding also accounts for a significant amount of the poor group’s cash income).

FOOD SECURITY MONITORING INDICATORS

Season	Month	Variables	Indicators	Potential impact on household food security
Rainy season	June to October	Delayed onset of rains	First rains later than month of July.	Delayed green crop consumption.
		Livestock disease outbreaks	Occurring at peak of milk production in July to September.	Loss of milk for consumption. Loss of income from livestock sales.
		Price increases of sorghum	Significant increase above 2.8 SDG per kilogram of sorghum SDG (reference year price).	Household shortage of food.
		Physical accessibility to markets	Lack of physical access from July to September.	Household shortage of food.
		Local availability of fodder	Scarcity of local fodder, especially during the period August to October.	Poor livestock condition. Low livestock prices. Less access to food due to reduced purchasing power, especially among poor group
		Labor migration	Increased number of people migrating in search of agricultural labor per household (from 1 to 2 or 3 people) in June to October.	Loss of agricultural labor. Loss of crop harvest. Household food shortages.
Dry and summer season	November to May	Pasture for livestock	Lack of pasture for grazing animals. Low livestock prices: significant decrease below 170 SDGs, 450 SDGs and 4,000 SDGs per medium size goat, sheep and camel respectively (reference year prices).	Poor livestock condition. Overstretched resources for purchase of fodder. Loss of income from livestock sales.
		Availability of water	Significant increase in price of water for human usage and livestock production from monthly expenditures of 95 SDG and 230 SDG respectively, especially among poor and middle group.	Poor livestock condition. Distant livestock migration. Loss of livestock. Low livestock prices. Loss of income from livestock sales. Less access to food due to reduced purchasing power, especially among poor group.
		Labor migration	Increased number of people migrating in search of non-farm labor per household (from 1 to 2 or 3 people) during summer, November to May.	Loss of agricultural labor.
Lean season	June to September	Loans	High interest rate of loans.	Loss of income. Shortage of food.
		Price of sorghum	Significant increase above 2.8 SDG per Kilogram of sorghum (reference year price).	Household shortage of food.
		Physical access to markets	Lack or reduced physical access to markets, due to poor state of roads.	Shortage of food.

		Availability of seasonal agricultural labor	Significant reduction in availability of weeding employment opportunities outside the zone, e.g. reduction from 6 times per month for two and half months to 3 times per month for one and half months.	Loss of agricultural labor income. Reduced household purchasing power. Shortage of food.
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Other localized signals for crisis may include:

- An extended period of labor migration to urban areas from the normal period of January - June to July and August.
- Increased numbers of people searching for employment outside the livelihood zone.
- Increased levels of conflict over water and livestock grazing areas (including fodder from harvested crop fields).
- Earlier seasonal migration (October to November) of transhumant populations and their animals to the south in search of pasture and water.
- Distress sales of livestock (i.e. goats, sheep and camels) at significantly reduced prices.
- Permanent relocation by local populations opting to pursue different livelihood options from agriculture. Most often this involves informal employment elsewhere chosen due to re-occurring natural hazards which make it difficult for people to survive in their rural location.

Annex 1: Administrative Areas and Demographics

Livelihood zone name	Locality	Administrative unit	2013 population estimate
Central Rainfed Millet and Sesame Agropastoral Zone	Sheikan	Rural El Obied	3,839
	Um Rowaba	Um Rowaba town	62,732
		Rural Um Rowaba	201,832
		Wadashana	117,218
	Um Dam	Rural Umdam	144,604
	Bara	Rural Bara	5,469
		Um Sayala	30,476
West Bara	Tayiba	81,216	
Subtotal			647,386
Western Agropastoral Millet Zone	Sheikan	El Obied town	375,435
		Rural El Obied	72,925
		Abuharaz	4,149
		Kazgail	61,884
	Bara	Rural Bara	49,217
		Umgarfa	71,404
		Um Sayala	45,714
	West Bara	Um Kiraidim	56,938
		Al Mazrob	49,244
	Sodari	Hamrat El Shaikh	12,735
		Um Badir	72,597
	Jabrat El Shaikh	Hamrat Elwiz	6,745
		Kajmer	3,841
	El Khewei	Rural El Khewei	17,462
		Eyalbakheet	31,871
	Al Nuhood	Rural Al Nuhood	31,267
		Al Nuhood Town	18,264
		Foja	53,115
	Wadbanda	Sogo Eljamal	10,193
		Armal	15,724
Rural Wadbanda		78,385	
Subtotal			1,139,109
North Kordofan Gum Arabic Belt	Shaikan	Abuharaz	78,817
	El Khewei	Rural El Khewei	52,383
	Abuzabad	Rural Abuzabad	126,754
	Al Nuhood	Rural Al Nuhood	93,802
		Al Nuhood Town	54,791
	Ghibaish	Rural Ghibaish	128,783
		Abory	37,135
	Al Odaiya	Al Majror	54,652
Rural Al Odaiya		100,222	
Wadbanda	Sogo Eljamal	68,208	
Subtotal			795,547
Western and Central Pastoral Zone	West Bara	Tayiba	90,240
	Sodari	Rural Sodari	99,699
		Hamrat El Shaikh	114,615
	Jabrat El Shaikh	Rural Jabrat El Shaikh	101,115
		Hamrat Elwiz	128,149
		Kajmer	15,360
Subtotal			549,178

Flood-retreat Cultivation Zone	Al Rahad	Al Rahad	174,224
Subtotal			174,224
Total			3,305,444

Source of population data: 2008 population census with 2.5% annual growth rates

Annex 2: Non-Food Item Prices for the 2011/2012 Reference Year

No.	Items	Units of measurement	Prices in SDG in the 2011/2012 reference year
1.	Land preparation	1 mukhamas	15
2.	Sowing	1 mukhamas per day	80-100 20-25
3.	Weeding	1 mukhamas	200-300
4.	Harvesting	Sacks	20
5.	Water	Barrel	7
6.	Water	1 liter	1.6
7.	Fodder	1 mukhamas grazing	100
8.	Hire of ploughing services	1 mukhamas	100
9.	Tea	Packet	9.5
10.	Salt	1 kilogram	1
11.	Soap	1 piece	7
12.	Kerosene	1 liter	12
13.	Primary school fees	Annually	500
14.	Secondary school fees	Annually	1,000
15.	Private university fees	Annually	4,000
16.	Telephone calls	Per day	1
17.	Charging phone battery	Per day	1
18.	Annual livestock taxes	Camels Donkeys Cattle Sheep Goats	15 5 5 3 3

Annex 3: List of Participants

No.	Names of participants	Title	Institution
1.	Abdulrahim Norein	National Technical Manager	Famine Early Warning Systems Network, Sudan
2.	Mohammed Hafiz	Deputy National Technical Manager	Famine Early Warning Systems Network, Sudan
3.	James Acidri	Consultant	Evidence for Development
4.	Yahia Mohamed Awad Elkareem	Field Monitor Coordinator	Famine Early Warning Systems Network, Sudan
5.	Abdulgarder Abdulsalam	Director, Agriculture and Economic Planning	State Ministry of Agriculture, North Kordofan State
6.	Abubakar Bashir Hamad Mohammed	Agricultural Officer	State Ministry of Agriculture, North Kordofan State
7.	Tayfour Osman Wagialla	Food Security Specialist	Food for Peace (Food Aid), USAID Sudan
8.	Ibrahim El Shaher	Program Officer	Food Security Technical Secretariat, Federal Ministry of Agriculture
9.	Thuwaiba Ali Mekki	Program Officer	Food Security Technical Secretariat, Federal Ministry of Agriculture
10.	Aziza Altayeb Osman	Program Officer	Federal Ministry of Agriculture
11.	Wafa Badawi Abdalla	Program Officer	Federal Ministry of Health
12.	Gamar Musa Kodi	Program Officer	United Nations Children's Fund, North Kordofan State
13.	Seham Yousif	Program Officer	World Food Program