EMERGENCY FOOD SECURITY AND NUTRITION ASSESSMENT IN DARFUR, SUDAN

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ABBREVIATIONS AND ACRONYMS

AU	Administrative Unit
CAR	Central African Republic
CDC	Centers for Disease Control and Prevention
CBS	Central Bureau of Statistics
FAO	Food and Agriculture Organization of the United Nations
FEZ	Food Economy Zone
FGD	Focus Group Discussion
FHH	Female Headed Households
GAM	Global Acute Malnutrition
GBV	Gender-Based Violence
GOS	Government of Sudan
IDD	Iodine Deficiency Disorders
IDP	Internally Displaced Person
MICS	Mixed Indicator Cluster Survey
MOA	Ministry of Agriculture
NGO	Non-Governmental Organization
OCHA	United Nations Office for the Coordination for Humanitarian Affairs
OHCHR	Office of the United Nations High Commissioner for Human Rights
PDF	Popular Defense Force
SAM	Severe Acute Malnutrition
SFC	Supplementary Feeding Center
SLA	Sudan Liberation Movement/Army
TFC	Therapeutic Feeding Center/
UN	United Nations
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugee
UNICEF	United Nations Children's Fund
U5MR	Under 5 Mortality Rate
V&V	Verification and Validation
WFP	World Food Programme

ANNEX

1. EXECUTIVE SUMMARY

The World Food Programme (WFP) conducted an emergency food security and nutrition assessment in the Darfur Region of Sudan in September 2004 in collaboration with U.S. Centers for Disease Control and Prevention (CDC), Food and Agriculture Organization (FAO), UNICEF, Save the Children UK and USA with the support of Government of Sudan. The objectives of this assessment were to:

- Provide WFP and humanitarian partners with data on the food security and nutritional status of the conflict-affected population in Darfur.
- Estimate the prevalence of acute malnutrition in children 6-59 months of age as well as the prevalence of anemia, vitamin A, and other micronutrient deficiencies among children and their mothers.
- Provide an understanding of changes in the profile of vulnerability of internally displaced persons (IDP) and resident populations due to the conflict.
- Determine food security and nutritional needs of the crisis-affected population during the last quarter of 2004 and for 2005.
- Provide the basis for contingency planning and a baseline for the humanitarian community to monitor the evolving situation.

Methods

The nutrition assessment was designed to statistically represent the known crisis-affected population residing in an area covering all three states of Darfur. The sample universe was taken from the most updated population figures of the crisis-affected population available from the United Nations as of August, 2004. At the time of the survey, this population consisted of 1.2 million internally displaced persons (IDP's) and 400,000 residents believed to be vulnerable. A two-stage cluster sampling method was used, and 55 clusters were randomly selected using a population-proportionate to size (PPS) method.

The nutrition survey collected data from 46 sampled clusters, covering 880 households with 5339 individuals, 602 mothers, and 888 children. Anthropometric measurements were obtained from 844 children and blood samples were drawn from a random sub-sample of 319 reproductive-age women and 429 children to determine the prevalence of anemia and vitamin A deficiency. Data was also collected on mortality using a seven month recall of household deaths.

The food security assessment followed the sampling of the nutrition survey but also added purposively selected sites from the WFP Annual Needs Assessment to better capture any differences in the food security situation of IDPs and residents. The food security survey covered 705 households in 56 locations throughout Darfur. Community interviews were also conducted in 18 predominantly resident sites, 21 IDP sites and 17 mixed IDP/resident sites.

Several variables were analyzed to assess the food security situation of resident and displaced populations. Building from the research work carried out by the International Food Policy Research Institute (IFPRI) on the use of dietary diversity as a proxy measure for food security, household food consumption data was analyzed to identify different levels of food (in)security and estimate percentages of households falling into different food security profiles. The analysis focused on three main variables:

- Dietary diversity, defined as number of unique foods
- Weekly consumption frequency of selected staple and non-staple foods
- Main sources used to acquire the selected foods

Data on food and non-food expenditures, income diversity, assets ownership and coping strategies were analyzed to further characterize the household vulnerability profiles and project – together with crop forecast and market information – the likely food security situation over the coming months.

In contrast to the analysis of the health and nutrition situation, food security lacks of a benchmark indicator. In order to estimate the extent of the problem and quantify the gap between the current and the "minimum" food security situation, a reference food consumption indicator was created. This indicator was built on the accepted notion that the typical minimum household food basket in the Darfur context should include cereals, beans, vegetable oil and sugar. Households lacking one or more of these commodities in their daily diet were considered to have inadequate access to food and thus face a food gap. This gap will be proportional to the number of missing staples and number of days not covered by their consumption. In order words, the fewer staples consumed and the fewer days these staples are consumed, the higher the food gap.

Key findings

For almost half of the households in Darfur, food consumption was found to be inadequate, that is, not meeting the minimum requirements for an active and healthy life. One in six households was severely food insecure with a food gap greater than 50% while twice as many struggled to meet minimum levels of food intake.

The prevalence of global acute malnutrition (wasting and/or oedema) was 21.8% among children aged 6-59 months [95% Confidence Interval (CI) 18.2-25.3]. This figure markedly exceeds the 15% threshold used in emergencies to define a 'serious situation'. Severe acute malnutrition (severe wasting and/or oedema) was present in 3.9% of children [95% CI 2.3-5.6]. Among children with moderate acute malnutrition, only 18% were enrolled in supplementary feeding. None of the children identified by the survey to have severe acute malnutrition were enrolled in therapeutic feeding. Measles vaccination coverage for children aged 9-59 months was also very low, at 66.7% [95% CI 56.8, 77.6].

More than half of children had anemia (55.2%) a condition that is often indicative of iron deficiency. Among non-pregnant mothers, anemia prevalence was 28.0%, and the prevalence of iodine deficiency among adult women, as determined by visible goiter, was 25.5%. The prevalence of diarrhea in children was 41.0% and acute respiratory infection was 18%.

The crude mortality rate (CMR) for the period February to August 2004 was 0.72 deaths/10,000 persons/day and the under-5 mortality rate (U5MR) was 1.03 deaths/10,000 persons/day. Both of these figures fall below the emergency benchmarks. Due to the different sample population and a different recall period, it would be incorrect to compare these findings with previous mortality surveys conducted in IDP camps, such as the recent survey by the World Health Organization. Data from this survey suggest that mortality is highly clustered. For example, although not statistically significant, mortality rates appeared higher among the displaced population compared with residents. The CMR was also found to be significantly higher for males than for females, whereas there was no significant difference between boys and girls under-5.

As in the case of mortality, food security averages too mask a marked difference between IDP's and residents. For example, while nearly half of the resident population was found to have the means to secure adequate food intake, the same was true for only six percent of IDPs.

By the time of the survey, food aid had reached 70% of IDP households and 20% of resident households in conflict affected areas. Food aid has ensured basic food intake levels for about half of the IDP households, while strengthening the food intake of another six percent to reach levels above the bare minimum. However, nearly one quarter of IDP households were found in a critical food security situation. Food aid had not reached 16% of these families in adequate amounts, and eight percent were not reached at all.

The food security situation for resident households was found to be strongly influenced by their exposure to the conflict and the presence of IDP's. Resident households hosting or residing next to IDP's were found to be the worst affected, followed by resident communities who had their livelihoods impacted by the conflict. In communities hosting IDPs food aid reached and ensured basic food intake for 31% of resident households while for another 24% food aid had strengthened their food security.

Households in residential communities have received limited amounts of food aid although the bottom nine percent would have been in critical need of assistance (fewer than 1 in 6 were actually reached with less than adequate amounts).

Given the reported loss of productive assets by a significant share of resident households (39% have lost animals and 18% grain stocks due to the conflict), a 40% reduction of planted area as compared to 2003, current food prices that are overall 60% above normal levels and sharply increased competition for wage labour opportunities due to a reduction of other income sources, coping capacities have already come under increased stress. A more up-to-date picture of the food security and nutrition risks ahead should result from the crop estimates and food gap calculations of the FAO/WFP Crop and Food Supply Assessment Mission in November/December 2004 and also from studies such as the on-going assessment of the crisis impact on livestock trade.

Conclusions

The findings of this emergency food security and nutrition assessment indicate that a serious situation exists in Darfur. High rates of child malnutrition are reflective of food insecurity, the poor health status of the population, and inadequate access to health services. The vast majority of the IDP population is totally dependent on international assistance given their loss of productive assets and income earning opportunities. However, food alone is not sufficient to reduce the prevalence of malnutrition. A basic minimum package of public health must accompany food and nutrition assistance.

With a poor crop year ahead the nutrition and health situation of the poorest decile of the resident population is at risk of further deterioration and the basic livelihoods for at least another decile is seriously threatened unless food and other assistance can be provided. An additional quarter of the resident population would require close monitoring as they fall slightly below the minimum food requirement and heavily rely on food purchases from the market. Also the environmental impact of the large scale population displacement and livelihood disruption will need monitoring as well as the food security impact of any continued disruption of trade routes.

However, there are also inherent dangers in protracted humanitarian assistance. As humanitarian services and stability of food supplies in IDP camps improves, these locations may soon constitute a pull factor where nutrition and health standards surpass the surrounding areas. Poor residents would be tempted to move into the camps. Thus

parallel assistance to the poorest residents and the most affected (infrastructure, housing) residential areas must receive high priority.

Recommendations

Provision of life saving general food rations for an estimated 1.35 million IDPs in camps and in mixed IDP/resident locations with a predominant IDP population will have to remain the core component of humanitarian response to the Darfur crisis. (According to the sample survey, 6.6% or approximately 100,000 of the IDPs reside in predominantly resident or mixed communities where residents are the majority. Targeting these relative dispersed families is difficult. Moreover, the number of IDP households in these communities classified as having adequate food consumption due to own procurement is 2.5 times higher than in camps.)

The current general food ration will have to be adjusted to compensate for milling losses of sorghum and to address the lack of iodine and micronutrients in the diet. Sugar should be added in line with the local diet and the amount of salt to be doubled and distributed in small packets.

Given the global acute malnutrition rate well above the emergency threshold, blanket and targeted supplementary feeding for 270,000 under-five children (17%) and pregnant and lactating women (three percent) of the IDP population should complement the general food ration. Therapeutic feeding would have to be targeted to 10,800 severely malnourished children (four percent of under-five children). The continued need for supplementary and therapeutic feeding should be reviewed after six months of implementation.

The very high prevalence of diarrhea (40%) among children needs to be addressed through improved access to basic primary health care, water and sanitation. Water and sanitation challenges are greatest in mixed IDP/resident locations whereas the standards in most IDP camps have already improved due to the humanitarian effort. To prevent measles outbreaks health partners should immediately top up the vaccination campaign.

Assistance to highly food insecure resident households will require a dual track approach. Host populations in mixed IDP/resident locations should be targeted with general food rations (complemented by supplementary feeding for under-five children and pregnant and lactating women) based on registration and verification of their needs status through the local administration and aid agencies. According to the sample survey 93.4% of IDPs reside in settings (camps, mixed communities) where they heavily outnumber the resident population. The host population in these communities is estimated at nearly 200,000 people. In targeting needy resident households care must be taken to base this on the specific local conditions with priority given to rural locations and clearly demarcated urban neighbourhoods where IDPs outnumber the original resident population. Continued attention will be required to ensure that in these mixed locations resident populations do not receive the lion share of food assistance at the expense of IDPs. According to this survey, in mixed settings IDPs are slightly more vulnerable then the residents but have been less adequately reached with food aid (48% IDPs vs. 59% of residents received food aid).

The second track of assistance for the resident population most in need (i.e. the two deciles at the bottom) should be in the form of productive and preferably self-targeting food aid schemes. Residents impacted by the crisis have been calculated based on demographic data (estimating a non-IDP population for Darfur of 3.85 million) coupled with key informant information on the affected areas/populations (one quarter severely, another one third moderately) and the analysis of food insecurity categories (see above). In proposing target numbers for the food aid schemes informed assumptions were also made on existing implementation capacities and constraints in enhancing these.

- Food for work (labour intensive public rehabilitation) for 30,000 households or 180,000 people.
- School feeding (rural and urban) for 150,000 children (initially 2/3 in the form of take home rations and the rest as school meals).
- Food transfer programme for 50,000 vulnerable (elderly, infirm) people.
- Outreach of the supplementary feeding programme to 50,000 resident children and pregnant/lactating women in the vicinity of IDP camps.

The aggregate target number of food aid beneficiaries until end 2004 is thus calculated to be 1.7 million. In 2005, with increased levels of targeted assistance to vulnerable resident households, including school children and a fully performing Food for Work programme, the target number should increase to two million people. Total food aid needs are approximately 34,000 tons per month. Additional food assistance targeted to selected severely affected resident communities is anticipated from agencies such as ICRC. This assistance may cover some 200,000 of needy residents.

Targeted food assistance will be difficult organize and not even necessarily appropriate for another quarter of vulnerable residents who are currently affected by the high food prices. With the very poor harvest expected in many areas of Darfur and the resulting food availability gap, these households would be likely to further slip in their food security status. Open market supplies of sorghum as of early 2005 up to the next harvest will be an appropriate response. The magnitude of intervention requirements may range from as little as 5,000 tons to over 200,000 tons, depending on more reliable crop estimates and gap calculations of the FAO/WFP Crop and Food Supply Assessment Mission in November/December 2004.

It should be noted that the above numbers of populations in need of food aid are based on the situation at the time of the assessment i.e. during the first 20 days of September 2004. While the percentage figures and vulnerability profiles for resident and IDP households should have validity for programming in 2005, the absolute numbers of people in need may require adjustment more frequently depending on any new developments. Major variables to watch in this respect are any new displacement of people or their return to residential areas, the economic and livelihood impact of continued insecurity and the final estimates for the crop towards the end of the year.

Regular up-dates on changing needs and effects of the humanitarian intervention should be assured through establishing a system for on-going monitoring of food prices and flows, household food frequency and diversity, agricultural and livestock production and migration. Ad-hoc assessments, e.g. of natural resource depletion or nutrition may have to complement the food security monitoring system.

2. OBJECTIVES AND METHODS

2.1 Objectives

The consequences of the conflict in the Greater Darfur Region, have led to the displacement of approximately 1.4 million people.[1] This conflict and displacement have had a severe impact on available food supplies both from production and markets, and both resident and IPD households' ability to access these scarce food supplies. In addition, to lack of access to food, poor living conditions and overcrowding in towns and camps, breakdown in health care access and competition for scarce water have resulted in poor utilization It is reported that the prevalence of global acute malnutrition (GAM) is as high as 30% in the some locations of the region.

However, the actual statistically valid estimates of overall food insecurity and malnutrition for the Region are not readily available. This lack of information has made it difficult for the humanitarian community to answer the fundamental questions: *How many people are in need of food assistance in Darfur? Then, how many children are severely malnourished in Darfur?* To address these questions, this joint food security and nutrition assessment was undertaken. The specific objectives of the assessment are to:

- Provide WFP and humanitarian partners with data on the nutrition and food security status of the conflict- affected population in Darfur
- Estimate the prevalence of acute malnutrition in children 6-59 months of age as well as the prevalence of anemia, vitamin A, and other micronutrient deficiencies among children and their mothers
- Provide an understanding of changes in the profile of vulnerability of internally displaced persons [IDP] and resident population due to conflict.
- Determine emergency food and nutritional needs of the population during the last quarter of 2004 and for 2005.
- Provide the basis for contingency planning and baseline for the humanitarian community to monitor the evolving situation.

2.2 Methods

To estimate comprehensive situation of food security and nutrition of the Greater Darfur Region, both primary and secondary data were collected and analyzed.

2.2.1 Secondary data

For the purpose of enriching, complementing, and triangulating of the primary data to be collected, secondary data were collected from a variety of sources such as locally available reports and relevant websites. Secondary data were used to create more precise estimates of the current resident population size in the Darfur region, while a CARE study on market price trends was used to better understand both residents' and IDPs' food-purchasing power. It was very important to use the most current and relevant information available for secondary data analysis and planning for primary data collection.

[1] UNHCR estimated the Sudanese refugee population in Chad to be 105,000 in camp and approximately 74,800 in spontaneous settlements along the border. (Tomczyk B. *et al*. *Emergency nutrition and mortality surveys conducted among Sudanese refugees and Chadian Villagers*, Northeast Chad. June 2004. pp.11-12)

2.2.2 Data collection methods

For primary data collection, the three methods were used: (i) quantitative food security survey for communities and households; (ii) household and individual nutrition survey; and (iii) qualitative gender study (Table 2.1).

Table 2.1 - Type of primary data collection

Assessment component	Type of data collection	Type of data collected	
		Quantitative	Qualitative
Food security	• Structured interview with household head	X	
	• Structured interview with community leaders	X	X
Nutrition	• Anthropometric measurement	X	
	• Structured interview with mothers	X	
	• Blood test for anemia and vitamin A	X	
	• Mortality data	X	
Gender	• Semi-structured interview with women		X
	• Focus group discussions among women		X

To estimate household food security in the three Darfur states, structured household interviews were conducted using questionnaires. The questionnaire include demography, displacement status, current asset ownership and asset losses, agricultural production – past and present, housing, water, sanitation, lighting, fuel sources, income activities, expenditure, food consumption & sources, use of coping mechanisms and current food assistance. Twenty-one local experienced enumerators were employed and further trained for household interviews. The interviews were conducted in local languages.

In addition, a group interview with 6-15 community leaders was undertaken in each target community using a questionnaire form to understand the general food security situation of communities. Information was collected on community demography, local economy, agriculture and livestock, health, education, markets and prices.

2.3 Sampling

The nutrition survey was undertaken using a cluster sampling methodology. In addition to anthropometric measurements of children 6-59 months of age, information was collected on household demography, recent morbidity, consumption, child immunization and mortality. A sub-sample of women and children were asked to give blood for on-site hemoglobin testing and vitamin A

The sample size of 698 children 6-59 months of age was required to calculate on the basis of achieving a 95% confidence interval around an estimated prevalence of acute malnutrition of 35% and a design effect of 2.0 for the multi-stage sampling (see below). Given an average of 1.5 children 6-59 months of age per household, 517 households were required.

Since there is no proven indicator which reasonably can be a robust basis for sample size calculation for household food security, it was impossible to estimate a statistically representative sample size. To cover regional diversity in type of communities and households, 780 households in 78 communities (10 households per community) were targeted for household interviews. In addition, a structured interview with a group of community leaders per community was planned.

The primary sampling unit for both food security and nutrition was the cluster. For the nutrition survey a total of 55 clusters were drawn from a list of communities, comprising approximately of 1.6 million persons in 140 communities in the three Darfur states which were identified by the UN as of August 2004. The list was augmented by additional data from NGOs both in Khartoum and state level. This list is comprised of IDPs in camps (official and spontaneous), IDPs living amongst the resident population, and residents

considered crisis-affected (this was defined as a location where the IDP population living among the residents was equal to or greater than that of the host community. This list is also used by WFP to target locations for food distribution.

At the time the sample was drawn, some areas of Darfur were inaccessible primarily due to insecurity, but also because of seasonal rains. However, as the security situation and logistic access were extremely fluid, it was decided not to exclude any locations from the sampling frame. For nutrition, instead, 55 clusters in 38 locations were sampled in the assumption that as many as 10 clusters might remain inaccessible for the duration of the survey period. Clusters were chosen population proportionate to size using C-sample (Epi Info version 6.04.B (Annex 2). Population data were also updated at the field level in each state at the time of the survey.

The 38 communities selected for nutrition survey were also selected for food security survey for the purpose of data matching. Furthermore, additional 37 communities were purposively selected exclusively for food security survey in the list to cover regional diversity in type of communities and household characteristics (Table 2.1).

Selection of clusters in chosen community:
At the state capital level, data on the affected population from UN Agencies and Non-Governmental Organizations (NGOs) were reviewed. At the local level, community leaders were asked for population information following reassurances that these data would not be linked to food or non-food item allocation purposes. NGOs delivering services at the local level were also involved in population estimation and mapping.

In order to determine the actual location of clusters within selected locations, sampling population proportionate to size was again used. The goal was to reach a population level of 100-200 households from which to choose the final 20 households. In towns and large camps, several stages of sampling were required.

Selection of households
A household was defined as those sleeping in the same structure and eating out of the same pot. Members of a household were not necessarily relatives by blood or marriage. If several separate families were living in the same compound they were regarded as separate households. If a polygamous family lived and ate together they were considered one household. Once the cluster location was identified, the team leader walked the boundary of the cluster with a community leader (often the Sheik of that community). The total number of households was divided by 20 to provide a sampling interval, which was usually between five and twenty depending on the size of the cluster location. The team leader then identified each selected household and after getting initial consent from a household member, marked the household.

All chosen households were selected, whether or not they contained a child 6-59 months. If household members were not present, community members were asked to bring them. Households were visited at least three times in an effort to identify all household members, unless security or logistic constraints prohibited. Basic demographic information was taken from an adult relative (usually brother or sister of the head of household) if available. If the members had departed permanently or were not expected to return before the survey team was to leave the community, the household was skipped and not replaced.

Of 20 households targeted for the nutrition survey, 10-12 households were selected for food security interviews. Usually every other household was selected for interviewing. Also in the additionally selected communities 10 households were selected by either pen-spin method or systematic sampling.

2.4 Data collection

Nutrition and food security

Groups composed of nutrition and food security team members were assigned to each of North, South, and West Darfur states. The fieldwork was conducted between 30 August and 22 September 2004.

Of 38 communities selected for both nutrition and food security surveys, seven were not covered by this assessment. Of 37 communities additionally selected only for food security survey, 23 were not covered by the assessment. Major reasons for not having been able to assess those communities were:

- Access to some target communities was restricted due to insecurity or unknown security situations - "No Go areas";
- Roads leading to target communities were not safe enough to pass due to insecurity and/or roads were blocked due to excess rain in September, although the community was safe enough - "Go area";
- Areas controlled by the Sudan Liberation Army (SLA) were extremely difficult to access because the permission from the SLA needed to be obtained through negotiation with the local SLA commander;
- Due to rainy season, some roads have become impassible by vehicle;
- Availability of helicopters and vehicles was limited; and
- Since only 24 days could be spent on data collection, time constraints were significant.

Table 2.2 shows estimated total population, type of community, and number of households and number of clusters assessed for nutrition. Communities were classified into three groups: (i) resident-dominant community; (ii) resident-IDP mixed community; and (iii) IDP-dominant community. The criteria employed for the classification were two thresholds (25% and 75%) in form of proportion of IDP population to total population (P_{IDP}). It was assumed that socio-economic burden of host resident communities is significant when IDP population accounts for 25% (1 IDP for 3 residents) and that residents can no longer afford to provide support to IDPs when they account for 75% (3 IDPs for 1 resident). As a result, 16 and 21 assessed communities were classified respectively into resident-IDP mixed communities and IDP-dominant communities. Nineteen were classified as resident-dominant communities.

The total number of household food security interviews was 705 and for nutrition 880 while the total number of children covered by nutrition survey was 844. The results of interviews with community leaders were used to estimate the total population of the surveyed communities to be about 768,000 persons.

Table 2.2 - Target population and samples in food security and nutrition surveys

State	Locality	Community	Estimated total population	P_{IDP}: Proportion of IDPs (%)	Type of community			Samples	
					Resident-dominant community*	Resident-IDP mixed community†	IDP-dominant community‡	Number of households	Number of clusters ‖
					(*n* = 19)	(*n* = 16)	(*n* = 21)	(Food security survey)	
North Darfur	El Fasher	Abushouk¶	4,500	100			**x**	8	**1**
			2,856	100			**x**	11	X
		El Fasher¶	2,500	0	**x**			8	X
			2,958	34		**x**		6	**3**
			3,011	6	**x**			6	X
			5,728	8	**x**			5	X
		Korma	40	0	**x**			8	X
		Shangel Tobia	19,000	100			**x**	7	**1**
		Tawilah	16,500	100			**x**	5	
			1,251	0	**x**			5	**1**
			5,960	90			**x**	8	**1**
	Kebkabyia	Birkasaira	13,500	44		**x**		8	**1**
		Kabkabyiah	1,120	54		**x**		35	**1**
		Mellit	3,460	9	**x**			9	X
		Saraf Omara	5,050	32		**x**		11	**1**
			1,375	13	**x**			10	**1**
		Umajaaja	400	0	**x**			9	X
	Kutum	Damrt Eisheikh	650	0	**x**			9	X
			902	11	**x**			8	X
			5,734	18	**x**			9	**2**
		Kutum	1,456	100			**x**	10	**1**
			292	100			**x**	5	X
			5,765	84			**x**	14	**1**
	Um Kedada	Um Kedada	3,700	4	**x**			9	X
South Darfur	Kass	Gemeza Korma	5,800	86			**x**	12	X
		Kass	45,700	100			**x**	10	**1**
		Limo	1,315	0	**x**			14	**1**
		Thur	22,275	73		**x**		9	**1**
	Nyala	Kalma	86,701	100			**x**	44	3
		Nyala Town	48,000	100			**x**	16	**1**
		Beliel	11,538	100			**x**	12	x
	Adilla	Sharef	9,558	36		**x**		10	x
	Sharia	Sheria	33,000	30		**x**		10	**1**
	Buram	Buram	17,000	0	**x**			9	**1**
	Ed Daein	Khor Omer	20,000	100			**x**	12	**1**
		Abu Jabra	14,740	5	**x**			10	x
	Mersheng	Domma	11,887	75		**x**		15	**1**
		Yara	1,308	22		**x**		15	**1**
		Juruf	6,628	25		**x**		12	x
		Shareg Eljabel	18,750	59		**x**		10	**1**
West Darfur	El Geneina	El Geneina	10,260	85			**x**	12	**1**
		Masteri	20,260	83			**x**	12	**1**
		Morni	63,825	90			**x**	36	**3**
		Um Tagouk	14,763	59		**x**		12	**1**
	Habilla	Beida	12,500	28		**x**		29	x
		Foro Buranga	52,000	58		**x**		24	**2**
		Gobe	4,910	10	**x**			12	**1**
		Habilah	22,626	74		**x**		15	X
		Tawang	5,300	66		**x**		14	x
	Jabel Marrah	Golo	20,000	25		**x**		13	**3**
		Rokero	3,250	92			**x**	10	**1**
		Aro Sharow	6,531	95			**x**	12	x
	Buri	Buri	312	27		**x**		4	**x**
			2,171	44		**x**		8	**1**
	Wadi Salhi	Deleij	27,418	84			**x**	10	**1**
	Zalingei	Zalingei	40,000	100			**x**	30	**3**
			768,034 (100%)	**73**	**94,652 (12%)**	**227,770 (30%)**	**445,612 (58%)**	**705 §**	**46**

Note * When P_{IDP} < 25%, a community is classified as a "Resident-dominant community"
† When 25% =< P_{IDP} < 75%, a community is classified as a "Resident-IDP mixed community"
‡ When 75% =< P_{IDP}, a community is classified as a "IDP-dominant community".
§ Of 705, 18 households in North Darfur are selected from other communities which are not listed in the above.
‖ "x" stands for the communities where children of 6-59 months of age and their mothers are sampled. On average, anthropometric measurement was conducted for 20 children per cluster.
¶ The estimated total populations of Abushoouk and El Fahser are respectively 45,000 and 60,000. In these communities, several sub-communities were sampled as described in the table.

Gender qualitative survey

To address gender issues in relation to household food security and nutrition, focus group discussions were conducted with women in selected communities. These discussions provided a more in-depth understanding of women's situation and their perceptions of the crisis, complementing the food security and nutrition surveys.

Additional ad-hoc interviews were conducted with implementing partners and key informants in the various sampled communities. Observations focused on camp conditions, food distribution and registration modalities, market activities and feeding centres. Six categories of women were identified and interviewed: urban/rural, residents/IDPs, IDPs in camps/IDPs in towns or villages.

Twelve semi-structured interviews with women were undertaken in 10 communities in North and South Darfur. Target communities in the two states were selected from both communities accessible from the state capitals of El Fasher and Nyala. Three interviews each were conducted with residents and IDPs in town, and six interviews with IDPs in camps. No interviews were conducted with IDPs living in rural villages. For the break down of locations see table below.

Table 2.3 - Target samples in gender study

	IDPs in Camps	IDPs in towns	Resident population
Urban	1 - Abu Shouk	2 - El Fasher	1 - El Fasher
	1 - Sereif	1 - Nyala	1 – Kass
	1 - Kass – Battarya		
	1 - Kass –Abd Gabur B		
Rural	2 - Kalma	(none)	1 – Berkasaria
Total	6 interviews	3 interviews	3 interviews

2.5 Data analysis

The data obtained were checked in the field and entered into Epi Info 6.04b in each state and then converted into SPSS 11.5 for analysis. Child anthropometric measurements were converted into z-scores using the Epi-Nut program in Epi-Info. Hemoglobin was measured on-site using the HemoCue® machines while dried blood samples of children and their mothers will be analysed at Craft Technology Institute for vitamin A (serum retinol) in the US. Results are expected in November 2004.

For household food security data, in order to better understand the impact of displacement on households, key variables are analysed and compared between households classified as being either: currently displaced returnees or never displaced. Further analysis was conducted according to community typology: predominantly IDPs, predominantly Residents or mixed communities.

Several variables were analyzed to assess the food security situation of resident and displaced populations. Building from the research work carried out by IFPRI on the use of dietary diversity as a proxy measure for food security, the household data was analyzed to identify different levels of food (in)security and estimate percentages of households falling into these profiles. The analysis focused on three main variables:

- Dietary diversity, defined as number of unique foods
- Weekly consumption frequency for the selected staple and non-staple foods
- Main two sources used by the household to acquire the selected foods.

Data on food and non-food expenditures, income diversity, assets ownership and coping strategies were analyzed to further characterize the household vulnerability profiles and

project – together with crop forecast and market information – the likely food security situation over the coming months.

Different from the analysis of health and nutrition, food security lacks of a benchmark indicator. In order to estimate the extent of the problem and quantify the gap between the current and the "minimum" food security situation a reference food consumption indicator was created. This indicator was built on the accepted notion that the typical minimum household food basket in the Darfur context should include cereals, pulses, vegetable oil and sugar. Households lacking one or more of these staples in their daily diet were considered to have inadequate access to food and thus face a food gap. This gap will be proportional to the number of missing staples and number of days not covered by their consumption. In order words, the fewer staples are consumed and the fewer days these staples are consumed, the higher the food gap.

2.6 Limitations of the study

This survey has some limitations. It is not representative of the entire population of Darfur. Additionally, the survey cannot be considered representative of populations living in inaccessible areas due to insecurity throughout the survey period. These populations for the most part are located in the northern part of North Darfur state. The survey does not adequately represent SLA-controlled areas as only three such areas selected were actually surveyed. Important groups not represented by the survey are those populations that had not yet been identified as crises affected by the UN at the time of the survey as they were not included in the sampling frame.

The survey gives one single estimate for global acute malnutrition for all three Darfur states combined. It is not possible to compare malnutrition prevalence between states. Although IDPs living within and outside camps as well as crisis affected residents are included in the survey, sample sizes do not permit comparisons between each group. Additionally, this survey cannot be compared with other surveys which included a different population. Although the survey collected information on age, among children aged 6-59 months, age may not have been determined with precision. Therefore other indicators such as underweight (low weight-for-age) and stunting (low height-for-age) cannot be reported.

Since there is no single indicator of household food security it was impossible to calculate the minimum sample size necessary for interviews on household food security. This implies the potential limitations also in generalizing the findings to the areas not covered by the sample. However, by covering the greater number of households (n = 705) in varied type of communities widely dispersed in the region, the certain level of validity of sampling is ensured.

There is a potential bias on the answers to several open questions in community interview. It was observed in some community interviews that a group of community leaders tended to attribute a variety of current problems to lack of food. Most probably, they intentionally emphasized the crucial needs of food, having been aware that WFP is the food aid agency. Also, it was reported that a housewife told the interviewer that her household has not eaten although it was found out after the interview that she was cooking some meat. These interviewees' reactions should be understood as one of their coping strategies. Yet, it should be noted that it could lead to possible overestimation of the amount of food aid needed. This type of bias is difficult to exclude. However, by employing the skilled interviewers familiar with the local culture, this bias could have been minimized.

3. SOCIO-ECONOMIC CONTEXT AND CRISIS BACKGROUND

3.1 Demographic and social profile

The Greater Darfur Region lies in Western Sudan covering an area of 547,807 m^2 roughly equivalent to the size of France. It consists of three States, namely North Darfur, South Darfur and West Darfur. Table 3.1 provides an urban-rural and ethnic breakdown of the population by state. The total population in 2004 was estimated at 6.56 million of which about 84% reside in rural areas. The male to female ratio is 51:49 and about 17% of the population is children under 5 years of age and 23% are nomads. Seventy percent of the population is of African origin while the remaining 31% is of Arab origin. Agricultural production and livestock raising are the main livelihood activities for most of the people in the region.

Historically, North Darfur and parts of West and South Darfur have suffered from several droughts over the last 50 years. Crop yields have remained low and unpredictable due to erratic rainfall, pest infestations and the lack of access to agricultural inputs. Livestock has also dwindled due to pasture and water scarcity. The local labor force has continued to migrate to urban centers and mechanized schemes in central Sudan in search of employment leaving behind children, women and the elderly. A combination of these factors over several decades has systematically eroded the coping capacities of communities.

Though tribal and ethnic conflicts over natural resources are neither new nor uncommon, they have become more frequent and severe in nature. They generally arise from disputes over access to natural resources like range lands and water points as well as livestock trespassing (grazing on farm lands), closure of herd routes and cattle raiding. Larger conflicts normally emerge from tribal disputes, banditry and disputes with transnational migrating communities. The influx of modern small arms since the war in Chad has also contributed to increased loss of life during such conflicts and caused polarization on ethnic lines.

Table 3.1 - Urban-rural and ethnic breakdown of the population by state, 2004

State	Area (km^2)	Population			Ethnic group	
		Rural	Urban	Total	African	Arab
North Darfur	260,000	1,389,258 *(84%)*	264,620 *(16%)*	1,653,878	1,273,486 *(77%)*	380,392 *(23%)*
South Darfur	137,807	2,599,073 *(82%)*	570,528 *(18%)*	3,169,601	1,933,457 *(61%)*	1,236,144 *(39%)*
West Darfur	150,000	1,542,031 *(89%)*	190,588 *(11%)*	1,732,619	1,334,117 *(77%)*	398,502 *(23%)*
Greater Darfur	547,807	5,530,361 *(84%)*	1,025,737 *(16%)*	6,556,098	4,541,059 *(69%)*	2,015,039 *(31%)*

Data source UNFPA and CBS, *Population data sheet* (2002)
Note Based on the above data source, the population projection mid-year 2004 was made.

North Darfur

North Darfur state is divided into five localities or provinces: El Fasher, Mellit, Kebkabiya, Kutum and Um Keddada. The state lies in a sub-arid and arid region, where the annual rainfall ranges from 500-300 mm in the south to 200 mm or less in the north. Rains are mostly erratic with high temporal and local variation. North Darfur is a chronically food insecure state that relies on the surplus produced in the West and South Darfur states. North Darfur experienced severe droughts in 2001 and 2002, which affected the food

security of 800,000 persons. This was further exacerbated by the outbreak of the conflict in 2003. Of the 1.5 million persons in North Darfur, more than 80% are agro-pastoralists and pastoralists linked essentially to the *Zaghawa* and *Zeeyadiya* pastoralist tribes, the *Berti*, the *Fur* and the *Tunjur* for the agro-pastoralists. Millet is the main staple crop, complemented by some sorghum. In the most favourable locations, cash crops are tobacco[1], melon seeds, groundnuts and sesame. In the pastoral zones covering the entire northern part of the state, livestock products and sales normally contribute to about 80% of annual food needs. In normal years of production, rural families rely on food either from their own production or from purchase in local markets. However, the frequent recurrence of drought and warfare[2] has severely affected livelihoods and household food security.

South Darfur

South Darfur State consists of nine localities or provinces: Ed-Daein, Adilla, Nyala, Kass, Shearia, Tulus, Idd El Firsan, Reheed El Berdi and Buram. Agriculture is the dominant activity as more than 80% of the population work and depends on crops and about 15% depend exclusively on livestock. The southern part of the state normally is one of the highest cereal producing areas of the country. The main ethnic groups in the region are the *Reziegat* and *Habanya* in the south and middle of the state, the *Ma'alia* in the east, the *Fur*, *Birgid*, *Zaghawa*, *Masalit*, *Dajo*, *Berti*, *Barnu*, *Fallata* and *Bin Halba* in the northern and western parts of the state.

West Darfur

West Darfur State roughly located along the Chadian border and is comprised of six provinces: Kulbos, El Geneina, Mugker-Jebel Marra, Zalingie, Habila and Wadi Salleh. The main town El Geneina and the surrounding districts previously called Dar Masalit used to be the stronghold of the Masalit Sultanate up to 1922. Today, the population of about 1.7 million inhabitants is 89% rural (80 % agro-pastoralists and 15% pastoralists) and about 11% urban dwellers. Though West Darfur is a traditional surplus producing area, it has suffered from conflict and drought in some parts. People's economic background is traditional farming activities, supplemented with livestock and petty trade with Chad and the Central Africa Republic now hampered by the closing down of the border.

3.2 Overview of typical food security and nutritional profile

The consequences of the conflict on food insecurity and vulnerability for the population in the Greater Darfur Region are unprecedented. It has displaced over a million people and profoundly disrupted food availability and access for rural and urban communities. Current indicators and field observations suggest a near collapse of the local economy. In many areas, 2003-2004 harvest has been drastically reduced, livestock has been looted and food stocks have reduced rapidly since residents often share their resources with the IDPs. The cereal stocks in the markets are also low and prices have increased by more than 30% the same time last year. Not only has the regional cereal production been affected by the conflict but also food commodity flows from surplus-to-deficit areas have been almost cut-off. Fuel prices are also rising due to insecurity and from decreased supplies from Khartoum. Key indicators suggest that there are no longer functioning markets in remote pastoral areas.

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1 Tobacco treated to be sold as snuff.

2 In Darfur history, like in 1874, 1890 and 1916, famines were often caused by a combination of drought and warfare (A. de Waal, 1989:62).

The prevalence of child malnutrition remained high in some areas even before the current conflict. At the height of the conflict, very high rates of Global Acute Malnutrition continue to be reported (30% GAM in many locations). Since the beginning of the conflict in March 2003, thousands of people have been affected, particularly women and children. The particular impact of the war on women is typified with rape, physical and psychological abuses. Over the coming months, WFP plans to reach a population of around 1.4 million IDPs and 600,000 residents with food assistance throughout the region. While current estimates of beneficiary numbers are derived from periodic assessments, field observations and verification and registration exercises, these figures are constantly being updated while targeting criteria are being refined.

3.3 WFP food assistance in Darfur

WFP's Recent Food Assistance

WFP had planned to provide monthly food assistance to 1.2 million conflict-affected individuals starting from April to September 2004. Yet high insecurity, low internal and external implementation capacity, limited field presence of WFP and its implementing partners, severely limited logistical infrastructure, cumbersome Governmental policies as well as breaks in food pipeline contributed towards WFP's inability to meet its intended targets. However, significant progress was made towards acquiring the necessary logistical and human capital as well as political support to improve WFP's implementation capacity.

Table 3.2 WFP food aid distribution April-September 2004

Month		State			Greater Darfur
		West Darfur	South Darfur	North Darfur	
April	Beneficiary	238,405	87,740	222,056	548,201
	Food (MT)	3,722	1,062	3,815	8,599
	Average Ration (kg)	16	12	17	16
May	Beneficiary	244,934	91,181	256,905	593,020
	Food (MT)	4,026	1,483	4,490	9,998
	Average Ration (kg)	16	16	17	17
June	Beneficiary	316,701	73,227	262,501	652,429
	Food (MT)	5,005	1,122	4,000	10,128
	Average Ration (kg)	16	15	15	16
July	Beneficiary	450,081	206,063	303,769	959,913
	Food (MT)	7,212	3,443	4,838	15,493
	Average Ration (kg)	16	17	16	16
August	Beneficiary	386,984	218,609	334,825	940,418
	Food (MT)	6,800	3,781	5,507	16,088
	Average Ration (kg)	18	17	16	17
September	Beneficiary	640,640	341,257	355,095	1,336,992
	Food (MT)	10,735	5,554	5,246	21,535
	Average Ration (kg)	17	16	15	16

Data source WFP Sudan Country Office, 2004

The results of these efforts have been illustrated by the incremental increase in the number of beneficiaries reached from month to month (Table 3.2). There was a significant increase in the number of beneficiaries reached from July onwards despite the beginning of the rainy season that makes several areas in West and South Darfur inaccessible by road transportation. WFP used airdrops and airlifts to ensure that most of these locations were reached during the rainy season.

3.4 Historical perspective on the conflict

The current conflict between the Government of Sudan (GOS) and Sudan Liberation Movement/Army (SLA) started in early 2003. It is thought that the main reason for this conflict is the widespread feeling among the resident population of being socio-economically marginalized and the sense of being left out of the North-South peace negotiations, particularly in the context of self-rule and power sharing.

The current conflict began in February 2003 with attacks from both sides mainly concentrating in the Jebel Mara region. However, in April 2003, after the attack on El Fasher in North Darfur that inflicted heavy military casualties, the conflict expanded into all three States. It is clear that the sedentary population groups have experienced the brunt of this conflict. However, some of the nomadic villages also experienced devastation. Assessments have shown that the level of destruction across all three Darfur States in not uniform. North Darfur has been less affected compared to West and South Darfur. The level of destruction in the southern part of South Darfur is also much less when compared to other parts of the South and West Darfur.

After months of fighting that inflicted heavy damages on both sides, a 45-day ceasefire agreement, brokered by the Government of Chad, was signed between the (SLA) and the GoS in September 2003. However, attacks by the splinter groups such as Justice and Equality Movement (JEM) and Pishmarka continued. Upon expiry, the ceasefire was further extended by a month but the negotiations broke down in December 2003 and both parties declared a state of war. Consequently, the flow of humanitarian assistance virtually came to a halt.

Another extendable 45-day ceasefire agreement was signed on 8th April 2004 that became effective on 12th April 2004. This ceasefire agreement resulted in a decreased level of hostilities partly because of international presence. However, a continued sense of insecurity and fear remains and the primary and overriding concern of most conflict-affected people continues to be protection and security.

It appears that the GoS exploited the traditional conflict between the sedentary and nomadic population groups by arming some segments of the nomadic population known as the *Janjaweed*. One explanation for this action is the belief that the sedentary population groups are supporting the SLA in fighting a guerrilla war against the GoS by providing them with shelter and food. In order to remove these resources from the rebel groups the GoS used its own forces to attack and then the *Janjaweed* militias to clean up by looting assets (food and non-food) and burning shelters. Furthermore, *Janjaweed* militias provided an additional force for the Government that also minimized any possibility of a conflict of interest among many members of the GoS armed forces given that recruits at the non-commissioned level are largely from the Darfur and the Southern region.

Lately, the GoS has tried to control the *Janjaweed* militias because of the external pressure and threat of economic sanctions. However, it appears that the *Janjaweed* are no longer under the control of the Government and unwilling to give up their arms fearing revenge from the sedentary population groups whom they have brutalized. The GoS has also tried to regularize some of the *Janjaweed* by enrolling them in the Popular Defense Force (PDF) whose mandate includes protection of the IDPs.

The current reduction in the intensity of the conflict is likely more a function of international visibility rather than a structural change in policy. Therefore, it is difficult to predict the duration as well as the effect of this conflict on people's lives and livelihoods.

What is certain is that even if the conflict is resolved soon, the economic and social impacts will be felt for many years.

3.5 Human suffering and human rights violations

Massive displacement of the population due to the conflict has resulted in human suffering the violation of human rights for both IDP and resident populations. Approximately, 700 villages inhabited by people of African ethnic origin such as *Fur* and *Masalit* were burned or destroyed. As a result, many IDPs from rural areas have been moving to other rural areas and urban areas. Recent arrivals from the affected locations have reported on-going harassment and violence caused by systematic persecution by SLA. The types of human suffering and human right violations reported include: (i) murder; (ii) rape; (iii) abduction; (iv) looting; and (v) forcible displacement.

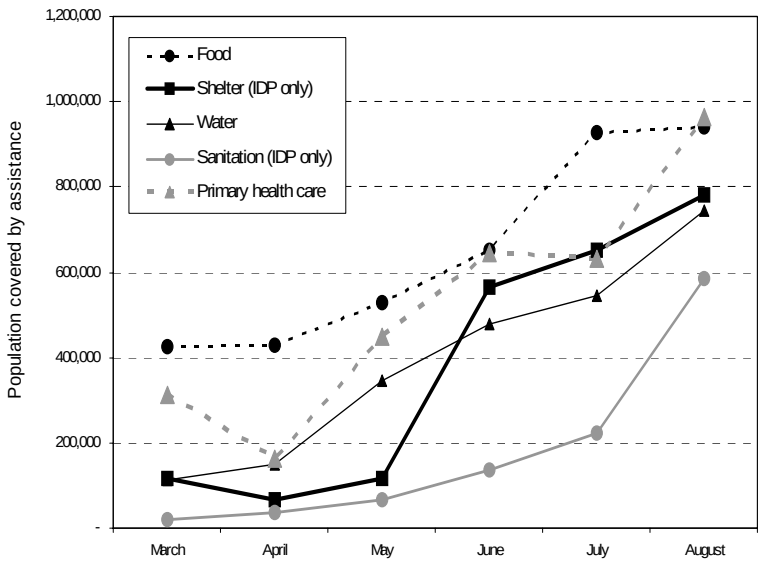
The emergency food security assessment found that around 23% of IDP households reported at least one family member killed as a result of this conflict while only three of 245 resident households in the sample (1%) reported conflict-related deaths. Similarly, 53 IDP households (13%) were caring for orphaned or abandoned children as compared to only nine resident households (3%).

A particular concern is the amount of sexual and gender-based violence that continues in the majority of IDP locations across the Greater Darfur Region (see 4.4). It is almost impossible to estimate the number of cases of rape because those are mostly unreported, but it is thought that women from IDP households are at particular risk of being attacked. It is still the case that the men fear death if they leave IDP locations. For instance, the Office of UN Resident and Humanitarian Coordinator or Sudan reported that one IDP stated "*If our women go, they may be harassed or raped but if we (men) go out, we will be killed*".[3] Thus, the results of the assessment indicate also that a significant number of IDP households have been exposed to increased risks of harassment and violence.

3.6 Performance of the current humanitarian response

The scope of the humanitarian response has been increasing across the Greater Darfur Region, particularly since April and May 2004 (Figure 3.1). However, there are a considerable number of those in need of assistance who are not being reached.

The overall coverage of the various assistance sectors has been limited: (i) 51% in food; (ii) 54% in shelter; (iii) water; (iv) sanitation; 52% in primary health care. Thus, despite a number of efforts made, the scale and impact of the crisis on the civilian population continues to rise due to an uncertain security situation.



Source Office of UN Resident and Humanitarian Coodinator for Sudan. *Darfur Humanitarian Profile No.6 September 2004*.

Figure 3.1 Population covered by assistance

[3] Office of UN Resident and Humanitarian C *2004*. pp.4-5

It is encouraging to note that food aid deliveries in September reached 1.3 million people, up from some 950,000 during July and August.

As of September 2004, 59 international NGOs and 11 UN agencies were present in the Region. In total 5,709 staff of those organizations (705 international and 5,004 national) are involved in their operational works.

4. DEMOGRAPHIC AND GENDER ISSUES

4.1 Validity of population data

In general, the reliability of the population data in Sudan is thought to be relatively poor, with scant documentation. The last official census was in 1993 and is sufficiently out-dated. Moreover, numerous significant events since 1993 (i.e. civil war, civil unrest, large scale displacements of populations) have made for a very fluid and data poor environment. Although a census is planned for 2005 and some preliminary work has already been done[1], documentation and transparency are lacking[2]. There are currently four available population data sources:

(i) UNFPA and Central Bureau of Statistics (CBS) (2002);

(ii) Landscan-2002; The Landscan Global Population Project is a worldwide population database at 30" x 30" resolution for estimating ambient populations at risk. Best available census counts are distributed to cells based on probability coefficients which, in turn, are based on road proximity, slope, land cover, and nighttime lights. Implementation will proceed region by region to complete global coverage in approximately one year. Version 1.2 has been completed for the entire world. Verification and Validation (V&V) studies have been conducted routinely for all regions and more extensively for portions of the Middle East and the Southwestern United States. [3]

(iii) CBS: "Preparation Framework for the Fifth National Population Census" (2003)

(iv) WFP (CBS): Rural Councils/Districts Population Database (2003)

In general, the most widely cited and "operational" source for population figures amongst UN agencies and other humanitarian and development organizations in Sudan seems to be UNFPA/CBS (2001). Their approach taken for this assessment was to compare the available sources by projecting each source to the common reference period of mid-year 2004; roughly coinciding with the period of this assessment (September - October 2004). The growth rates used to project the data are taken from UNFPA/CBS, and were applied to each respective data set/source. The growth rates for each of the States are shown in Table 4.1 below while Table 4.2 shows the estimates from the four sources listed above.

Table 4.1 - Population growth rates (1998-2003)

State	Population growth rate (%)
North Darfur	3.23
Sourth Darfur	3.48
West Darfur	2.38

Data source: UNFPA/CBS (2001)

Table 4.2 - Estimated total population of the Darfur Region; for mid-year 2004

Source	2004 Estimate (mid year)
UNFPA/CBS (2002)	6,556,000
Landscan (2002)	7,155,000
Preparation Framework (2003)	6,981,000
WFP (CBS?) Rural Councils/Districts Database (2003)	6,406,000

1 GOS (2003) *Preparaton Framework for the Fifth National Population Census*

2 Personal communication between WFP and Central Bureau of Statistics; September 2004 was only able to ascertain from CBS sources that the methods associated with source three are based on a sample survey

3 For more details see: http://www.ornl.gov/sci/gist/landscan/landscan_doc.htm#Summary and http://www.ornl.gov/sci/gist/landscan/landscan_2002_release.htm

Step-1: Estimate the total population of Greater Darfur; for mid-year 2004

Given that most publications from UN agencies and other humanitarian organizations seem to be citing the UNFPA/CBS 2001 source; this source was chosen as the reference data source for the WFP Darfur Food Security and Nutrition Assessment Mission; i.e. the mid year 2004 figure of 6,509,858 was adopted.

Step-2: Deducting the IDP population from the population of Greater Darfur

The most recent (*September 2004*) figure for IDPs in Darfur is 1.455,000. The source for the figure is "UN Humanitarian Needs Profile Sept 22 2004; taken from UN Sudan Assistance Bulletin (*1 October 2004*). Subtracting this figure from the total population (*see Step-1 above*) is shown below:

Greater Darfur Population:	6,556,000
Darfur IDP Population:	- 1,450,000
	5,106,000

Step-3: Deducting the Refugee population

Population figure *(step-2 above)*:	5,106,000
Refugees in Chad[4]:	- 189,000
	4,917,000

Step-4: Deducting the Migrant-Labor Population

There are no current and reliable figures regarding the size of the population leaving Darfur for work outside the region. Central and eastern Sudan constitute the main destination regions for Darfur's labor migrants. A smaller number of Darfur residents cross international borders (Chad, Libya, CAR) in search of work. Only one reference, dating back to the mid-1980s, was found regarding the total number of Darfurians in Central and Eastern Sudan. According to Alexander de Wall's book *Famine that Kills Darfur, Sudan 1984-85*: "*A common estimate for the total number of Darfurians in central and eastern Sudan was 500,000.*" The same source cites a 1983 Darfur reference population of approximately 3.2 million people. Migrants tend to stay in central and eastern Sudan for a period of 1-2 years and, by most accounts, during a census their residence would be associated with their place of origin (i.e. Darfur) as opposed to their current location (i.e. central or eastern Sudan). Using the figures above, 16% of Darfur's population was believed to be temporarily in central and eastern Sudan:

(500,000/3,200,000) * 100 = 16%

It is impossible to know whether this rough%age estimate has increased, decreased, or remained about the same since the mid 1980s. Assuming the percentage has stayed more or less similar to the past (no information to suggest otherwise), the calculations for the current number of Darfurians living in central and eastern Sudan are shown below:

Darfur total population (2004):	6,556,000
Percentage in central and eastern Sudan:	x 0.16
Estimate migrants outside Darfur:	1,049,000

[4] *Source: UN Darfur Task Force NFR 15Sept 2004*

The reported loss of lives due to the fighting in the conflict was estimated at 50,000 by UN. Thus, the total number of residents (i.e. neither IDPs, nor Refugees, nor migrants in Central or Eastern Sudan) is shown below:

Population (*see result of Step 3 above*):	4,917,000
Deduct estimated migrants Central/Eastern Sudan:	- 1,025,000
Deduct estimated loss of lives due to fighting:	- 50,000
Final Estimate of Resident population	**3,842,000**

4.2 Population distribution by gender among IDPs

One of the objectives of the survey was to assess the relative additional impact of the Darfur conflict on women. It was assumed that the gender ratio of the population in Darfur was skewed even before the crises, as droughts and declining incomes from agriculture resulted in large migration of men to urban centers, to large commercial agricultural schemes in the east or overseas. This trend was likely further exacerbated by the conflict that led to killings, arrest of men, while others fled or joined the insurgents, leaving their wives and children behind. In some IDP camps males constitute only one third of the adult population, and less than 45% of the total IDP caseload, according to reported figures. Women comprise between 55% (West Darfur) and 61% (North Darfur) of WFP's total beneficiaries[5].

The Table 4.3 shows that the female share among adults and elderly goes up to 70% in some camps. However, the data are flawed by the fact that the age cut-offs for the different groups are not clear and people have been categorized based on individual judgment of the registering person. According to registration records of Kalma camp (80,000+ IDPs), adults constitute around 40%, children 23%, youth 30% and elderly 7% of the total.

Table 4.3 - Share of females among different age groups

Camps	Female share of household heads	Female share of adults	Female share of children	Female share of youth	Female share of elderly	Female share of IDPs
Kalma (South Darfur)	65%	66%	47%	67%	66%	55%
Otash (South Darfur)	84%	71%	47%	56%	79%	57%
Derej (South Darfur)	67%	65%	48%	53%	66%	56%
Thura (West Darfur)	-	64%	44%	52%	70%	57%
Riyad (West Darfur)	-	71%	54%	49%	53%	59%
Dorti/West		68%	52%	41%	63%	56%
Average	***72%***	***67.5%***	***48.6%***	***53%***	***66%***	***56%***

Source: WFP Sudan

The Table 4.4 uses information from the Darfur emergency food security assessment and compares with data from other WFP surveys conducted in the past 2 years. This is done to get a better idea of how the gender balance compares to populations facing emergencies in other parts of the world.

Table 4.4 - Proportion of female population in comparison with other countries

% females	Malawi – rural farmers	Iraqi & Afghan refugees	Namibia – rural farmers	Darfur – Total	Darfur - IDPs
0 to 5 years	50%	46%	50%	47%	47%
6 to 14 years	49%	51%	49%	47%	47%
15 to 59 years	53%	50%	53%	54%	54%
60 or older	57%	38%	58%	49%	52%

[5] Darfur Beneficiaries- Gender Breakdown – July 2004: Out of 953,000 beneficiaries, 543,800 were female.

The above table compares the percentage of females in the survey sample by age group to other household surveys undertaken by WFP in recent years. The data show that the%age of females represented by the 15 to 59 years age group in the Darfur IDPs is not much different from that found in other rural household survey samples.

In Darfur camps, many registered female headed households (FHH) are likely to be a second or third wife, as the share of FHH is much higher than the number of additional adult women. On average there are two female adults for each male adult; if each men would have only one wife, FHH would comprise one third of all households.

4.3 Household sizes and structure

Household demography

For the sample, the median household size was 6 persons. However, for IDP and never displaced households, the median number of members was 7 while the returnee households were more likely to have only 5 persons. This may indicate that, on average, one person from returnee households was away – perhaps in Chad or elsewhere outside of Darfur. Just over half the members in the average household were females with no difference between types. However, 60% of the members in IDP households are dependents, meaning that they are under the age of 15 or over 60 years old. The%age of dependents in returnee and never displaced households is slightly less – 57%. Only 4% of all households had no dependents while 14% of the IDP households were comprised mostly of dependents, which was much higher than the other two groups. One quarter of IDP households had elderly members (over 60 years) as compared to 16% of returnee and 19% of never displaced households.

Household headship

Overall, 17% of the sample households were headed by women – 18% of IDP, 21% of returnee and 14% of the never displaced households. The difference between household typologies indicates that the conflict likely had an impact on household headship either through killing or migration of male heads in order to preserve livestock or other productive assets. Seven% of the IDP household heads were widowed and another 7% indicated that they were separated from their spouse. Among resident households, nearly 10% of returnee household heads were widowed and only 2% were separated, whereas 5% of the never displaced household heads were widowed and 7% were separated. The average age of the household head was 40 years while more than 80% were married.

Polygamy

To understand the consequences of the crises on women's livelihood it is important to be aware that many women live in polygamous households, where a man can have up to four wives. From the emergency food security assessment data, nearly 30% of the returnee households were polygamous as compared to 23% of the IDP and 20% of the never displaced. Qualitative research has shown that the arrangements of living together depend on the wealth of the husband: If the husband can afford it, each wife may have her own house in her own compound, where she and her children can live and eat separately from the others. More often she has her own house but lives in the same compound. In poorer households all wives and their children tend to live under the same roof, sharing meals. The husband may spend an equal number of days with each wife (2-3 days). These arrangements can change when families become displaced, usually they move closer together, although in camps each wife would likely have her own hut.

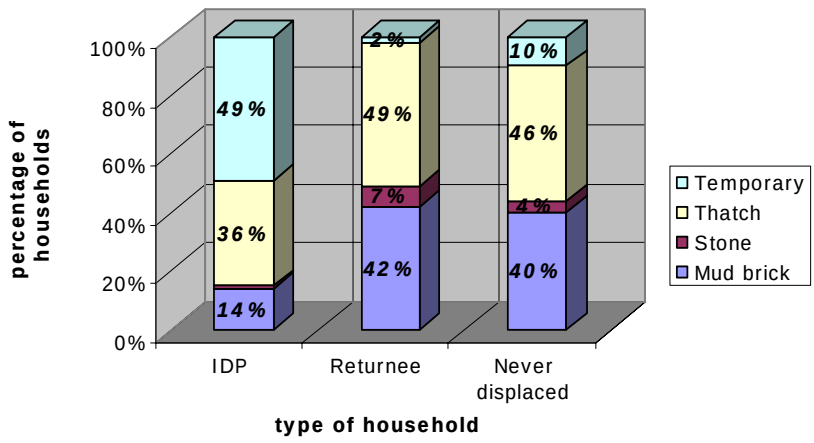
Disabilities and orphans

Survey data showed some differences between groups in terms of disabled household members. Returnee households more often reported having a disabled member (16%), followed by IDP (12%) households. Only 5% of the never displaced households reported the presence of a disabled member however, for those that did, the household head was more likely to be disabled (45%). Nevertheless, nearly 40% of IDP households with a disabled member indicated that the member was the head of the household. Nearly 10% of IDP and returnee households indicated that a household member had been injured as a result of the conflict while 5-6% had a member who had been disabled from the conflict. However, nearly one-quarter of IDP household indicated that a household member had been killed as a result of the conflict. This was significantly higher than the other groups. In addition, 13% of IDP households and 17% of returnee households were caring for orphaned or abandoned children at the time of the survey.

Housing condition and size

As indicated in Figure 4.1, nearly half the IDP households were living in temporary shelters at the time of the survey. An additional 36% were living in thatch structures and 14% in houses made of mud brick. Housing conditions were much better for resident households as around 40% are living in structures made of mud or mud brick.

Figure 4.1: Housing type by household type



Also in terms of room per person IDP's general housing conditions are poorer with many people crowded into a small space. On average, IDP households had 4 persons per room, while the others had about 3 persons per room. More than 30% of IDP households had 6 persons per room as compared to less than 10% of the resident households.

Water and sanitation

From the household survey responses, 73% of the sampled households were using drinking water from safe sources[6] - 78% of IDP households, 56% of returnees and 67% of the never displaced. Only 10% of IDPs purchased water, at an average cost of 350 dinars per week. Nearly 30% of returnee households paid an average of 425 dinars per week for water while 38% of the never displaced households paid an average of 350 dinars per week for their drinking water. Most of the households could go and collect water in less than ¼ of a day. About half the IDP and never displaced households used a pit latrine while the other half didn't use any type of latrine. Only 40% of returnee households reported using safe sanitation.

[6] *UNICEF definition*

4.4 Extent of physical insecurity and gender-based violence

Gender-based violence has been a controversial topic in Sudan for many years and thus it is important to include an update in this report. According to Sharia law, a husband can chastise his wife if she disobeys him. But also rape and other forms of sexual and Gender-Based Violence (GBV) have long been reported in the country, although punishable by Islamic law[7]. Incidents are rarely reported to the police for fear of personal and family stigmatization, and even more important, because testimony from four adult witnesses is required, making rape an almost impossible crime to prove. In many cases women who have reported rape ended up being accused of committing adultery, a crime punishable by stoning to death.

Violence against women has been exacerbated by the conflict in Darfur, as happened before in Southern Sudan. The systematic attacks on civilians by the *Janjaweed* have been mainly targeted towards members of the *Fur*, *Masalit* and *Zaghawa* ethnic groups and other agro-pastoralist groups living in Darfur. Human rights violations which specifically target women and girls are: rape, abductions, sexual slavery, torture and forced displacement. In many cases women have been raped in front of their husbands, relatives or the wider community as a means for humiliation.

There have been also some reports of abuses and torture, including rape, by members of the SLA and JEM, but due to the restrictions on access to the area, including those imposed by lack of security, it is difficult to collect more evidence on the human rights abuses reportedly committed by the insurgents.

While the peak of violence seems to be over, sporadic armed clashes and a rise in banditry in Darfur continue to create an atmosphere of insecurity for the civilian population. For example, in September a thousand new families arrived at the outskirts of El Fasher in search for food and safety. The proximity of *Janjaweed* military camps to villages and settlements where the displaced have gathered, renders the situation highly dangerous for the many IDPs in Darfur.

It appears rural residents were most exposed to attacks by *Janjaweed* on their villages. Different from the camps, there is no international presence that would witness or monitor human rights abuses. Food assistance without protection puts some communities at high risk of looting and killings. Hence, in places that are surrounded by *Janjaweed*, residents may even reject help, despite being clearly in need (e.g. Berkasaria).

Women are apparently subject to individual attacks almost everywhere. There are reported incidents of women being beaten and raped when venturing outside the camp, town or village, mainly for firewood collection. In the "safe areas" (such as Kalma and Kass camps), the stronger police presence does not seem to provide any additional comfort in the eyes of women as some feel even more insecure.

Recently, the GoS has adopted a "safe area" approach for areas heavily populated by IDPs in all three Darfur States. They have dispatched police forces to secure a radius of 20 km around major towns (El Fasher, Nyala, El Geneina) with large IDP populations and particular insecure areas (Tawilla, Mornei, Abu Ajourah, etc.). Responsibility for internal security within these safe zones rests with the police, while the army and police forces defend the area beyond the 20 km radius. The safe area approach is supposed to be a model for the consolidation of security in Darfur. However, the interagency protection working groups in North and West Darfur caution the effectiveness of this approach. The concern in the North is "that the implementation of the safe area approach will make civilians more vulnerable."[8] Stronger police presence has led to increased risk of physical

[7] International Society for Human Rights, International secretariat Frankfurt/Germany. http://www.ishr.org/activities/campaigns/stoning/adultery.htm

[8] 'Safe areas' in practice and recommendations. North Darfur Protection Working Group, 2 September 2004

abuse, especially for women, to reduced freedom of movement into and out of the 'safe area'. Protection groups in West Darfur report that "the continuing rate of sexual and GBV is particularly worrying. Of greater concern is the fact that several women have reported that the police themselves are increasingly the perpetrators of these crimes."[9]

Recommendations from both protection groups include:

- Increases in the number of human rights monitors (OHCHR)
- Training and deployment of female police officers where prevalence of GBV is highest. (UNICEF)
- Integration of international monitors in the police units.
- Suspension of Article 48 requiring victims to submit police report in order to receive medical treatment.

OCHA coordinates activities related to protection and GBV. In collaboration wit HIC (Humanitarian Information Center) it is envisaged to establish a system of incidence reporting, which will be used for advocacy and for pursuing legal response. For this purpose, field workers of various international and local agencies will receive standardized questionnaires and training to enable them to systematically compile information from the victims. This will complement the efforts of various human rights monitors and protection officers who are deployed to Darfur**.**

There are three Fuel and Energy working groups in Darfur, one in each state (WFP is a member in the West Darfur group), who seek solutions to the fuel problem and the related risks of GBV. While a pilot study by World Vision has shown that kerosene stoves are too expensive due to high government taxes on kerosene[10], a feasible alternative seems to be clay stoves that are 40% more energy efficient as compared to the traditional way of cooking, and can be produced by the households (i.e. women) using dung, water and straw. Charcoal making as an income generating activities and to increase supply of alternative fuel is another area currently explored.

4.5 Participation and decision-making

In the Darfur region, men and women have very distinct roles in their communities. Men are expected to participate in settling family disputes and arranging marriages as well as to guarantee community security. Women are expected to provide services during ceremonies and offer their advice or opinion quietly through male members of the household. *Sheikhs* (only men) are the traditional local leaders, who represent their community. Some of them consult women on certain issues, though decisions are always taken by men.

The conflict and displacement has not changed much for women in terms of decision making within the household. If it were common to consult women and take decisions jointly, then the husband or any other men who takes care of the women in the absence of the husband would continue to do so. If men were not considering women's views, they would not do it in the camps either. In the few cases where there are no men in the extended family, women will find themselves in a new situation where, for the first time in their lives, they are confronted with making all the choices themselves.

Changes may have occurred though in terms of control over cash and other resources, resulting from a change in income activities. For instance, women, who are now working as casual laborers, may have more money than before that they can use to purchase

[9] West Darfur Protection Working Group, Safe Areas commentary September 16, 2004

[10] Alternative energy pilot study of kerosene stoves and fuel was conducted by World Vision International resulting in projected cost analysis based on 15,000 households of USD 63.00/hh/month.

food and other items. Also, where men are afraid of going to the market, women may now handle grater amounts of resources, selling and buying.

Equally, female participation in community matters has not changed much, where whole village fled together with their *Sheikhs*. However, where husbands disappeared in the course of the conflict and/or new male representatives are elected in the camps, it is probably more difficult for women to raise their voices and to be heard.

As in the communities, a group of *Sheiks* (community leaders) constitutes the main decision-making body at each camp. Only in very few camps (such as Kalma), some women are included. Reported female representation ranges from 10-15%, though this does not mean actual decision making power. Many women state that the *Sheiks* consult them and inform them about issue related to food assistance, and some do not see a need for more involvement on their part. "Women's groups are not as powerful as *Sheikhs*" is another argument brought forward by women. However, the willingness to be part of decision making and to get organized seems to increase with the level of education; and, the problems that can be best addressed by a women's group are manifold.

Box 1 - Women's access to assets

There are a huge variety of land tenure arrangements in Sudan with one commonality: none contains the provision for women to own land or livestock. Where land is communal, it is allocated by the community leaders (Sheikhs) to male heads of households. Otherwise, it is inherited by men. Patriarchal social structures cause these major inequalities in the ownership of productive assets. However, while legally all land is owned by men, various forms of land use (usufruct rights) by women exist.

Traditionally a husband gives some land and livestock to his wife/wives, according to the number and sex of her/their children; wives get more land and livestock for boys. Sons inherit the land; but daughters get a share - though smaller - for their use. If women are divorced, they lose their land use rights given by their husband, but they may have additional land they was allocated to them by their fathers. In some cases, women entirely control the income from their land and decide how to spend it. However, money is the domain of men, and any amount beyond the daily needs will normally be controlled by men. By abandoning their fields during the conflict, women lost the only assets from which they derived certain ownership rights.

5. NUTRITION, HEALTH AND MORTALITY

5.1 Introduction

Beginning in the spring of 2004, a number of nutrition surveys were conducted in selected IDP camps in the Darfur region, using internationally accepted methodologies as outlined by the Sudanese Ministry of Health. These surveys, presented in Annex 9, portray a serious nutritional situation in many IDP camps. They also suggest that tremendous variation exists from camp to camp, with prevalence rates of global acute malnutrition[1] (GAM) ranging from 12.6% to 39.0% and severe acute malnutrition[2] (SAM) ranging from 0.8% to 9.6 percent. Such variation is not surprising given the differences known to exist in the conditions of the camps, the services offered within, as well as the duration of displacement among camp populations.

It is important to realize, however, that the potential effects of the crisis extend beyond the IDP camps, and that many displaced persons settled with relatives or others in villages or towns, and that residents and even nomadic populations may have also been affected. Thus, the surveys conducted to date do not provide the humanitarian community with a sufficient understanding of the overall nutritional situation in Darfur, nor of the potential factors influencing the nutritional status of populations such as food security, health conditions, and care. In order for the international humanitarian community to plan an appropriate food, health, and nutritional response to the crisis, additional information about the status of the population was desperately needed.

This nutritional survey was designed with these needs in mind. This is the first survey to give one overall estimate for acute malnutrition among the crisis affected population in Darfur since the crisis began 18 months ago. It is also likely the first survey to include residents in the sample as well as to collect data on the prevalence of micronutrient deficiencies in this crisis affected population.

5.2 Specific objectives of the nutrition survey

The overall objective of this survey was to get an understanding of the health and nutritional status of the crisis-affected population in Darfur. As is typical of emergency nutritional assessments, this survey focused on children 6-59 months of age and their mothers. This assessment will be used to establish baseline data and to provide recommendations to the World Food Programme (WFP) and national and international organizations providing health and nutrition services.

The specific objectives of this survey were to estimate:

- The prevalence of acute malnutrition in children 6-59 months of age, based upon weight-for-height z scores and oedema
- The prevalence of clinical signs of micronutrient deficiencies (riboflavin (vitamin B_2), vitamins A and C) in children 6-59 months of age and their mothers as well as iodine deficiency among the mothers
- The prevalence of anemia, based upon hemoglobin concentration, in children 6-59 months of age and their mothers
- The two-week cumulative prevalence of diarrhea and acute respiratory infection in children 6-59 months of age

[1] Weight-for-height z-score < -2.00 S.D.

[2] Weight-for-height z-score < -3.00 S.D.

- The coverage of recent measles vaccination campaigns among children 9 months to 5 years of age
- The coverage of vitamin A supplementation among children 6-59 months of age
- The coverage of supplementary and therapeutic feeding programs for malnourished children 6-59 months of age
- The coverage of the general ration distribution, in terms of frequency and content
- Crude mortality rate and causes of death
- Age-specific mortality rates, including the mortality rate among children less than 5 years of age

5.3 Methods and benchmarks

Information about the sampling frame, selection of households, training of enumerators for this survey, and limitations of this survey are briefly summarized in Section 2 of this report and are described in greater detail in Annex 10.

5.3.1 Anthropometry

Most analyses of anthropometric data on children in this survey use z-scores. However, percent of median is used in many situations where a simpler calculation is needed, such as screening for admission to feeding programs. Therefore, for purposes of comparing the results of this survey to other data, the prevalence rate of acute malnutrition is also presented as percent of median. The relevant definitions are presented in Table 5.1 below.

Table 5.1 Definitions and cut-points used for defining malnutrition

Type of malnutrition	Anthropometric index	Degree of malnutrition	Definition using z-score	Definition using percent of median
Acute	Weight-for-height	None	≥ -2.0	≥ 80%
		Moderate	≥ -3.0 but < -2.0	≥ 70% but < 80%
		Severe	< -3.0 or edema	< 70% or edema
Global Acute (GAM)	Weight-for-height	Moderate + Severe	<-2.0 or edema	<80% or edema
Severe Acute (SAM)	Weight-for-height	Severe	<-3.0 or edema	<70% or edema

Note: Z-scores and percent of median were derived from comparison of children in the survey sample to the NCHS/CDC/WHO reference population.

5.3.2 Anemia

The cut-off points for hemoglobin concentration used to define anemia depend on the age and sex of the person tested, as shown below.[14] All consenting mothers and children 6 to 59 months of age were assessed for anemia.

Table 5.2 Cut-off points of hemoglobin concentration for anemia

Age or sex group	Hemoglobin concentration (g/dL) defining anemia
Children 6 – 59 months	< 11.0
Non-pregnant and women >13 years	< 12.0
Pregnant women > 13 years	< 11.0

5.3.3 Vitamin A deficiency

Additionally, the children 6 to 59 months of age were examined for the presence of Bitot's spots and their mothers were questioned about the presence of night blindness. Vitamin A deficiency is considered to be a significant public health problem in a population if more than five percent of women reported experiencing night blindness during the last live-birth pregnancy in the past three years.[11]

5.3.4 Vitamin B_2 deficiency

Ariboflavinosis develops when there is insufficient B_2 in the diet. Clinical signs include: cheilosis (shiny and dry cracked lips) and angular stomatitis (fissures at the corner of the mouth, including healed, scarring from previous fissures).[15] Mothers and children aged 6 to 59 months of age were assessed for clinical signs of ariboflavinosis- riboflavin deficiency.

5.3.5 Vitamin C deficiency

Mothers were assessed for the presence of bleeding gums (inter-dental papillae) and children 6 to 59 months of age were assessed for bleeding gums (inter-dental papillae / teeth eruption) as clinical signs of vitamin C deficiency.[16]

5.3.6 Iodine deficiency

Mothers were assessed for the presence of visible goiter (grade 2) as an indication of iodine deficiency disorder.[17]

5.4 Data Analysis

Data were entered into Epi Info version 6.04d.[6] The calculation and analysis of anthropometric indices was conducted in Epinut, a module within Epi Info. Analysis of all other variables from the clinic based survey was carried out in SUDAAN version 8.0.2.[18]. A p-value <0.05 was considered to be statistically significant. To account for clustering and differing sample weights, SAS-callable SUDAAN 8.0.2 was used to compute the 95% confidence.[18] A sample weight was associated with each record to account for the probability of selection and a post-stratification adjustment based on the population size of each camp/village.

5.5 Description of survey sample

5.5.1 Households

The survey sample included 880 households. Of the total number of households 282 were in the North, 342 in the West and 256 in the South. More than half of households (64.7% 95% Confidence Interval (CI): 54.9, 73.9) were displaced at the time of the survey (Table 1), with the majority being in West Darfur. The mean time of displacement was 7.5 months (1-60 months).

5.5.2 Individuals

Overall, the survey collected information on 5339 members in selected households; these included 2677 (48.7) males, 2711 (49.6) females and 82 for whom no gender was recorded. The survey collected more detailed data on 888 children less than 5 years of age. Among these children, 457 (51.6%) were boys, 429 (48.4%) were girls, and 2 did not have gender recorded. The survey sample also included 603 mothers of children 6 to 59 months of age. Accurate age in children was extremely difficult to assess, even with the use of the local calendar, therefore the data is not presented by age breakdown.

5.6 Shelter and sanitation situation

Among all households, 40% reported no access to a latrine; 45% of IDPs did not have access to latrines. Overall, traditional housing and plastic sheeting were the most common shelters, 63% and 34%, respectively. Among the IDPs, 52% lived under plastic sheeting, 43% were residing in traditional housing, and 2% had no shelter.

5.7 Child nutritional status

5.7.1 Child acute malnutrition

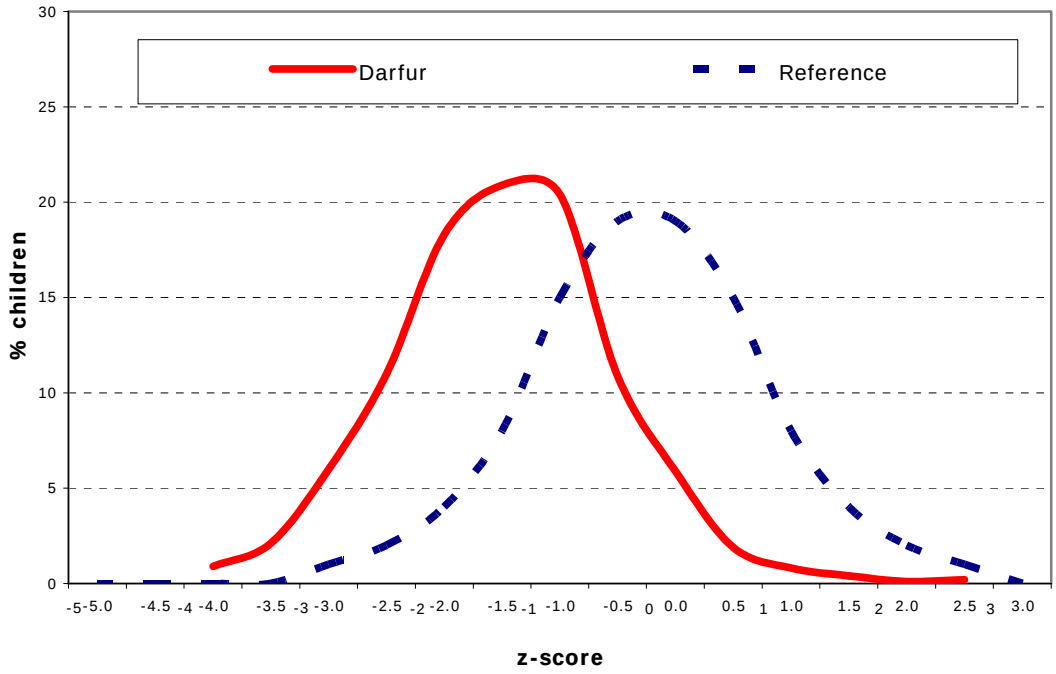
Anthropometric measurements were available for 844 children. The prevalence of global acute malnutrition was 21.8% (95% CI: 18.2, 25.3); severe acute malnutrition was 3.9% (95% CI: 2.3, 5.6), Table 5.2. About 1% of all children had oedema, which was 24% of all cases of severe malnutrition. Excluding children with oedema, the mean weight-for-height z-score was – 1.23 and the standard deviation was 0.97. For children less than 5 years of age, the prevalence of acute malnutrition was not statistically different between boys and girls (23.2% vs. 17.0% respectively).

Table 5.3 - Prevalence of acute malnutrition (< -2 whz) among children 6 to 59 months (N=844)

Acute Malnutrition	Prevalence	95% CI
Global acute malnutrition	21.8%	(18.2, 25.3)
Severe acute malnutrition	3.9%	(2.3, 5.6)
Edema	.9%	-

The distribution of weight-for-height z-scores is shown in Figure 5.1 on the next page. The entire curve for the survey sample is slightly shifted to the left when compared to that of the reference population.

Figure 5.1 - Distribution of weight-for-height z-scores among children 6 to 59 months of age



Child acute malnutrition expressed as percent of the median

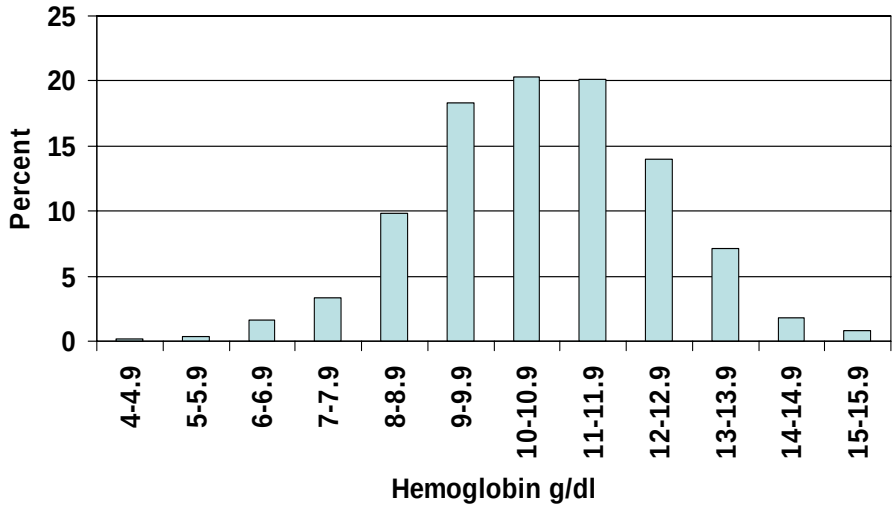
While the use of z-score cutoffs is considered to be the most appropriate method for analysis of data on acute malnutrition, for purposes of comparison between this survey and other surveys, the prevalence rate of global acute malnutrition expressed in percent of median was 16.4% (95% CI 13.5, 19.3), and severe acute malnutrition was 2.5% (95% CI 1.5, 3.4).

5.7.2 Micronutrient status

Anemia

The prevalence of anemia was elevated, with 55.3% (95% CI: 50.4, 60.2) of assessed children falling below the cut-off of <11 g/dl; 1.3 % of children were found to have severe anemia (<7.0 g/dl). The mean hemoglobin concentration of children was 10.7 g/dl (range: 4.3 to 15.9). The distribution of hemoglobin concentration in children is shown in Figure 5.2 on the next page

Figure 5.2 - Distribution of hemoglobin concentrations (g/dL) among children 6 to 59 months of age



Riboflavin and vitamin C

Children were assessed for signs of riboflavin and vitamin C deficiency. However, due to a lack of clinically trained nurses and differences in assessment methods, prevalence results are not reported. However, observations by trained nutritionists on the teams confirmed the presence of individuals in the sample with symptoms of riboflavin deficiency (angular stomatitis) and vitamin C deficiency (scurvy).

Vitamin A

Children were examined for the presence of Bitot's spots, but none were identified among the children included in the survey. Dried blood spot cards for the assessment of serum retinol concentration were prepared on 511 children 6 to 59 months of age. Specimens will be analyzed at Craft Technologies Institute in the United States. Results are expected in November 2004.

5.8 Nutritional and health status of mothers

Overall, 86 (14.3%) mothers of children 6 to 59 months of age were pregnant at the time of the survey. Almost half of mothers (48.8%) were breastfeeding a child. Illness during the prior 2 weeks was reported by 72.5% (155/562) mothers; 27.6% of mothers reported fever. Supplementary feeding enrollment was uncommon among women. Only 4.8% of mothers were currently in supplementary feeding; 5 (17.8%) were pregnant and 16 (57.1%) were lactating.

Among mothers of children 6-59 months of age who were assessed for micronutrient deficiencies, 118 (25.5%) had detectable goiter, indicating substantial iodine deficiency

and a risk of having iodine-deficient children at birth. Additionally, 96 (16.4%) women reported night-blindness during their last pregnancy, a symptom of vitamin A deficiency.

Anemia, assessed by hemoglobin, was common among women. In non-pregnant mothers, 28% were anemic and 1.1% had severe anemia. For pregnant mothers, 18.8% were classified as anemic. There were no cases of severe anemia identified among pregnant women. The mean hemoglobin concentrations were 12.8 g/dl and 12.4 g/dl for non-pregnant and pregnant mothers, respectively.

5.9 Health and mortality in Darfur

5.9.1 Childhood morbidity

Mothers or caretakers reported that 74.9% (95% CI: 68.9, 80.94) of children 6-59 months of age had been sick in the previous 2 weeks. Diarrheal disease was the most frequently reported illness (41.0%, 95% CI: 33.8, 48.3), followed by fever (30.7%, 95% CI: 25.2, 36.2), acute respiratory infection (18.0%, 95% CI: 14.5, 21.6), and malaria (6.5%, 95% CI: 3.9, 9.0). Measles was reported in 2.1% of children.

Among children who were either moderately or severely malnourished, 84.8% (95%CI: 76.8, 92.7) were sick in the two weeks prior to the survey, where as 72.8% (95% CI: 66.8, 78.8) of non-malnourished children reported illness during the same time period. This difference was statistically significant at $p < 0.01$. There is also a statistically significant difference among malnourished and non-malnourished children reported diarrhea during the same recall period, 55.2% (95% CI: 41.6, 68.8) and 37.7% (95% CI: 31.5, 43.9), $p< 0.05$. Almost all severely malnourished children, 97.2%, reported illness in the 2 weeks prior to the survey. When compared to non-malnourished children, 74.5%, there is a statistical difference, $p< 0.01$.

Table 5.4 Reported illness (two-week recall) among children 6 to 59 months of age

Illness	Number (%)	95% CI
Any illness in last two weeks	657 (74.9)	(68.9, 80.9)
Diarrhea	346 (41.0)	(33.8, 48.3)
Fever	254 (30.7)	(25.2, 36.2)
ARI	160 (18.0)	(14.5, 21.6)
Malaria	63 (6.5)	(3.9, 9.0)
Measles	11 (2.1)	(0, 4.5)

5.9.2 Mortality

A total of 5,339 persons were reported to have been living in survey households as of February 10th 2004. The recall period between this date and the date of the survey was 215 days. Of these, 4932 (91.9%) were reported to be alive and still living in the household, 313 (6.3%) were reported to be alive and living elsewhere, 81 (1.5%) were reported to have died since that time and 13 (0.2%) were reported missing or their status was not recorded. In the results that follow, missing persons are not classified as dead.

The point estimate for the crude mortality rate during this period was 0.72 (95% CI 0.44-1.04) which is not above the emergency threshold. The under-five mortality rate for the seven-month recall period was 1.04 which is below the emergency benchmark of 2/10,000/day and is only slightly higher than the crude mortality rate. Crude and under-five mortality rates were higher among the displaced than the non-displaced population. However, these differences are not statistically significant.

The CMR in males is higher than that among females. This difference is statistically significant ($p < 0.01$). There is no significant difference between males and females under five years of age. Mortality among those IDPs living in organized camps and spontaneous settlements compared with IDPs living among the host community and affected residents was also analyzed. Although the CMR and under five mortality rates

are higher among IDPs living in camps and spontaneous settlements, these difference are not statistically significant. If the missing are classified as dead, the difference in CMR becomes significant ($p < 0.05$). Of the 81 persons who died during the recall period, cause of death was not reported for 39 (48.2%).

Table 5.5 Crude and under five mortality rates among sample of displaced persons compared with crisis –affected residents

Mortality rates expressed as deaths/10,000/day (95% Confidence Interval)				
	All population (n=5,347)	**Displaced (n=3,3302)**	**Non-displaced (n=1,994)**	**Threshold**
CMR*	0.72 (0.45-0.99)	0.88 (0.49-1.27)	0.46 (0.21-0.71	1/10,000
U5MR*	1.03 (0.38-1.68)	1.15 (0.27-2.03)	0.80 (0.07-1.53)	2/10,000

**CMR= crude mortality rate as deaths per 10,000 persons per day*
**U5MR= under five mortality rate as deaths per 10,000 under five per day*

Of the 12 reported deaths due to violence, none were among those less than five years of age. There was one reported violent death among individuals 5-14 years of age and the remaining 12 were among those aged 15 years and above. Of the 11 deaths in the older age group for whom gender was reported, nine were among males.

Table 5.6 Crude and under-five mortality rates by gender and residential status among sample of crisis affected populations in Darfur, Sudan

Category	**CMR* (95%CI)**		**U5MR* (95%CI)**
Gender	Male	0.98 (0.66-1.31)	0.66 (0.22-1.09)
	Female	0.40 (0.10-0.69)	1.17 (0.14-2.21)
Residential status	IDP camps and spontaneous settlements	1.07 (0.36-1.78)	1.25 (0.00-2.62)
	IDPs integrated with residents	0.55 (0.37-0.73)	0.69 (0.16-1.22)

**CMR= crude mortality rate as deaths per 10,000 persons per day*
**U5MR= under five mortality rate as deaths per 10,000 under five per day*

The overall crude mortality rate among the survey population was 0.72 (95% CI 0.45-0.99) which is not above the emergency benchmark of 1 per 10,000 deaths per day. However, the limitations mentioned above are particularly relevant for mortality. The following must be born in mind when interpreting these data:

- Mortality rates are averaged over a seven-month period. The figure given does not represent recent mortality and it says nothing about future mortality.
- Mortality data represent average mortality across a population of close to 1.6 million persons. There may have been sub-population groups or geographic areas where mortality was higher.
- The survey does not represent mortality in areas that were insecure at the time of the survey (mostly in north Darfur) or SLM/A areas, where conflict related deaths may have been higher.
- Finally, among the displaced, the mean length of displacement was 7.5 months. Since the recall period for the survey was seven months, deaths prior to displacement will not have been captured, some of which may be conflict related.

The crude mortality rate is significantly higher for males rather than females. This may be related to causes of death. Unfortunately, no cause was reported for a large proportion of deaths which limits the ability to examine this finding. The CMR among those living in camps and spontaneous settlements appears to be higher than that among IDPs living mixed in with the local population and affected residents. However, this difference only reaches statistical significance if the missing are classified as dead. It is particularly important in crowded settings that strong preventive public health

programs are in place, since for example, exposure to diseases such as measles at a higher infective dose can increase the case fatality ratio. Additionally, these populations may be easier to target for such interventions as they are gathered together in one location.

Other surveys conducted in camp populations in Darfur have reported mortality levels above the emergency threshold. Two surveys carried out among a mixed population of IDPs and residents report mortality at around the expected baseline level for Africa. However, since this study is the first investigation of the entire crisis-affected population, IDPs as well as residents, it is not possible to compare the results with these other surveys. It also essential to emphasize that mortality rates in this survey do not predict future mortality. With high levels of malnutrition and communicable disease, substantial mortality is to be expected in the coming months if conditions do not improve. This survey suggests that there is a small window of opportunity in which effective interventions implemented immediately may prevent future mortality.

5.10 Health program coverage

5.10.1 Measles vaccination

The mothers of 555 (66.7%, 95% CI: 56.8, 77.6) children aged 9 to 59 months reported that their child had received measles vaccination in the previous six months. This figure includes children with cards and those with verbal history. Cards were not provided during the most recent mass vaccination campaign which targeted children 9 months to 15 years of age. When younger children (6 to 59 months) are included, the coverage slightly decreases to 65.1% (95 % CI: 55.7, 74.6).

Reported coverage with measles vaccine among children aged 9-59 months in this survey is low, despite the recently conducted measles vaccination campaign. The Federal Ministry of Health in Sudan has reported 93% coverage across accessible areas in Darfur.[19] While it was acknowledged that many areas were not reached owing to security and logistical reasons, measles outbreaks have continued to be reported in West and North Darfur, even after the measles immunization campaign.[19] Eleven cases were self-reported in the survey. Measles prevention must be a priority in emergencies given the elevated malnutrition and mortality rates associated with outbreaks. For this reason, urgent mop-up campaigns are necessary, particularly in areas where the population is living under crowded conditions, such as camps, spontaneous settlements and towns with large populations of IDPs. Mop-up should not just be confined to areas which were missed in the previous campaign. In camps, a system must be established to vaccinate newcomers. Outside of such settings, perhaps advantage could be taken of the upcoming National Immunization Days (NID) for polio to include mop-up measles vaccination, at least in the 1.6 million persons identified as crisis affected. Consideration should be given to lowering the age of vaccination from nine months to six months, as younger children are at greatest risk of measles death.

Table 5.7 Measles and vitamin A coverage among children aged 6-59 and 9 to 59 months, Darfur Region, Sudan

Program	Coverage*	95% CI
Measles coverage in previous 6 months		
Children 6-59 months	65.1%	(55.7, 74.6)
Children 9-59 months	66.7%	(56.8, 76.6)
Vitamin A coverage in previous 6 months		
Children 6-59 months	74.1%	(67.2, 81.1)
Children 9-59 months	74.2%	(66.8, 81.5)

** 95% coverage needed to prevent measles outbreaks*

5.10.2 Vitamin A supplementation

Among children 9 to 59 months of age, 74.2% (95% CI: 66.8, 81.5) had received a vitamin A supplement since Wahid (February). When younger children are included, the coverage remains the same, with 74.1% (95% CI: 67.2, 81.0) of all children receiving vitamin A since Wahid. Vitamin A supplementation is provided outside of the measles vaccination campaign.

Vitamin A supplementation rates are also low, although coverage is higher than for measles. This is most likely a result of additional opportunities for vitamin A supplementation in supplementary feeding programs and at primary health facilities. The planned inclusion of vitamin A in the upcoming National Immunization Days should increase coverage among children and adolescents. However, 16% of mother reported night-blindness in their most recent pregnancy and this target group needs a strategy to reach them.

5.10.3 Water and sanitation

Reported diarrhea among children aged 6-59 months in the two weeks prior to the survey was 39.3%, and is indicative of poor water and sanitation coverage. This is a high prevalence and greater than the rate found in the MICS survey.[4] A significant portion of households, 42.2% reported no access to a latrine. Data on access to a sufficient quantity of water of adequate quality were not collected at the household level. However, several large outbreaks of hepatitis E have been reported among this population. Hepatitis E is not commonly reported even in emergency settings where water and sanitation conditions are often of poor quality, suggesting that conditions in this setting may be even worse. Efforts to improve water and sanitation must be made, and gains may more easily be achieved in the short term in camps.

5.10.4 Other health interventions

Other communicable diseases frequently reported among children 6 to 59 months of age, such as malaria/fever and respiratory infections, further exacerbate malnutrition. While data on worm infections was not specifically collected, anecdotally intestinal parasite infections appear to be common. *Parasitemia* in relation to malaria and intestinal helminths, may be contributing factors to the high prevalence rate of anemia. However, the cause of anemia was not determined by the survey, it is most likely due to a combination of parasitic infections and a diet low in iron.

5.11 Nutrition programme coverage

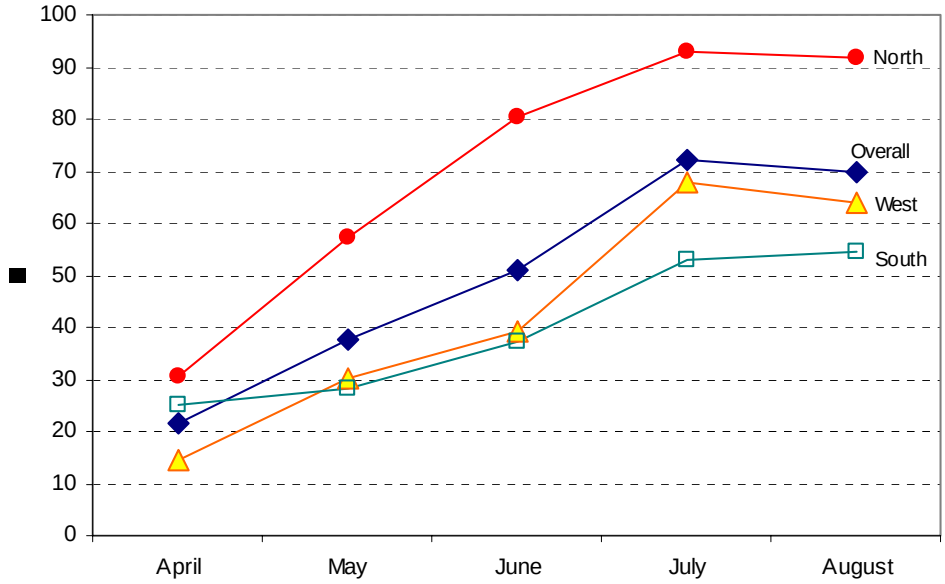
5.11.1 General Food Distribution

Ration card ownership
Ration card ownership was reported by both resident and IDP populations. Overall, 574 (65.9%) households had a ration card at the time of the household interview. More displaced households, 414 (77.5%), than resident households, 156 (47.3%), reported having a ration card. Twenty-two percent of displaced households did not have a ration card.

Frequency of receipt of general ration
Households were asked whether or not they had received a general ration for each month beginning in April, 2004. The average number of months that households reported receiving a ration was 2.76. As shown in the figure below, the proportion of households receiving food through the general ration increased steadily from April to August. In April, 21.4% of households with a ration card received a general ration, this increased to 69.7% in August. However, 30.3% of registered ration card households still

did not receive a ration in August. As the survey was conducted in September, not all populations may have received their distribution at the point of the household interview.

Figure 5.3 Proportion of households with ration cards receiving a general ration, by month and by region



Food commodities received

Households self-reported receiving the following commodities at their last distribution-sorghum, wheat, pulses corn-soya blend (CSB) and oil. Of those households with a ration card that received a ration in September (169 households), more than half of households did not receive oil or pulses, 64.5% and 72.8%, respectively. Coverage of cereal was higher with 75% of the households receiving wheat and 52.1% receiving sorghum. More than half of households (57%) only received a cereal in the general ration in September.

While the quantity of food aid reaching Darfur and the number of recipients has increased substantially since April, the general ration distributed during the recall period of the survey was nutritionally inadequate in terms of commodities and calories. Many households received only a single commodity. More than half of households were missing oil, pulses and CSB in the month of September, severely reducing the amount of micronutrients available in the general ration distributed. On average, this would provide about 1500 kcal, meeting only 71% of the minimum 2100 kcal/person/day. The distribution of the ration has also been inconsistent with significant time gaps between ration distributions in some areas. However it is important to note the logistical constraints associated with both the rainy season and an unstable security situation. For example, much of the food distributed in West Darfur during the previous several months of the rainy season had been air-dropped, limiting the ability to include oil in the ration. At the time of the survey, the WFP guidelines for temporarily substituting foods missing in the general ration in order to preserve the energy and protein content of the ration was not being applied in such cases. Furthermore, there is no retroactive distribution of commodities once they become available. Therefore, the ration has not consistently met the planned nutritional needs of the population.

Cereals distributed in Darfur are either whole grain wheat or whole grain sorghum. In the milling process, there are losses which occur, especially for sorghum. For white sorghum, losses due to the milling process are estimated at 5-7% and for red sorghum at 30-35%.

Milling losses should be taken into account during ration planning so that post-milling, individuals will have access to a ration providing 2100 kcal.

5.11.2 Selective feeding programmes

Coverage
Supplementary and therapeutic feeding programs have been established in Darfur, although programs had not been set up in many of the locations included in this survey. Only a small proportion (18.0%) of the children who were eligible for supplementary feeding based on their weight-for-height[3] measurements were reported to be enrolled in supplementary feeding programme. No children identified as severely malnourished were enrolled in therapeutic feeding.

Given the high prevalence of acute malnutrition, there is a clear need for selective feeding programs, both to reduce mortality among moderately and severely malnourished children, as well as to prevent vulnerable populations from becoming malnourished. Feeding programs are still not operational in some areas and those functioning appear to have had limited success thus far. This survey found unacceptably low rates of programmatic coverage for supplementary feeding. While there are particular challenges to conducting such programs in Darfur, it should be possible even within these constraints to improve coverage, especially in camps where beneficiaries are concentrated in one location.

In July, WFP recommended the initiation of blanket supplementary feeding for all children 6-59 months of age and pregnant and lactating women. Due to missing commodities, insufficient capacity of partners, and operational difficulties, the program was not widely implemented in Darfur. It is recommended that the move from supplementary feeding from a curative program of targeting to a preventative program of blanket supplementary feeding be made operational as quickly as possible. During the transition, which may be influenced by security and logistics, it is crucial that targeted supplemental feeding continue with efforts to improve coverage and performance. It is important to emphasize that supplementary food rations should not be used to compensate for an inadequate ration. Without providing a sufficient general ration, supplemental feeding commodities are unlikely to reach targeted groups and moderate and acute malnutrition will persist.

A comprehensive review of feeding programs should be undertaken immediately to identify gaps in programs and improve coverage. While the survey was not designed to determine causes affecting the success of supplementary feeding programs, field consultations indicate that protocols, capacity of implementing partners, strategies for outreach, lead sector coordination, commodities provided and used, elevated defaulting rates, and protection issues should all be included in the review. UNICEF, WFP, and implementing partners must all be involved in this process.

The prevalence rate of malnutrition among children 6 to 59 months is elevated and indicates that the situation in Darfur is serious. Additionally, micronutrient deficiencies are widespread among women and children- particularly anemia, vitamin A and iodine deficiency. In the framework of nutrition in emergencies, malnutrition rates above 15% call for interventions. Given the context of the situation in Darfur with elevated rates of diarrheal disease, continued reporting of measles cases and low measles vaccination coverage in conjunction with the prevalence of malnutrition, specific interventions called for are: distribution of a general ration, blanket supplementary feeding and therapeutic feeding. Ideally, before establishing selective feeding programs, the first action should always be to ensure the provision of an adequate general ration.

[3] For these analyses, standard supplementary and therapeutic feeding screening criteria were used, i.e. children with a weight-for-height between 70 and 79% of the median were considered eligible for supplementary feeding, and <70% of the median were considered eligible for therapeutic feeding.

6. FOOD SECURITY AND AGRICULTURAL SITUATION

6.1 Overview on agriculture and markets

The findings in this section refer to the sample of 705 respondent households, which only represents a part of the Darfur population. As the total population is unknown, the findings cannot be extrapolated to represent the overall situation in Darfur. Furthermore, in such a volatile environment, these findings are time-bound (a snapshot) and have limited time validity hence, they require verification in the near future.

The emergency food security assessment was designed to collect information at the community and household levels and not as an agricultural census or market survey. Therefore factors such as cross-border trade, pastoralist migration, livestock trade towards Khartoum, labor migration, remittances and food markets within the Greater Darfur region, particularly between the surplus producing areas of South and West Darfur and the food deficit areas of North Darfur. Conflict-related trade disruption is undermining food security and coping abilities at present, and is a major hazard in the future, also curtailing options for recovery.

Despite the above limitations, the present assessment captured salient features of the Darfur crisis and helps to define the problems and possible intervention strategies. Furthermore, it is a key step in establishing a surveillance system which monitors changes in household food security and the linkages to agricultural production and markets. The information presented below does not disaggregate findings by state – which would require further detailed analysis but would not add any validity in terms of extrapolation.

6.2 Area planted and cereal crop forecast [1]

Overview

A meager 2004 harvest is expected because farmers cultivated less land than usual due to insecurity and many crops are expected to fail (especially in North Darfur) because of erratic, late and below average rainfall in several areas. The average reduction of area planted for residents was around 30-40% as compared to the 2003 season. The IDPs fared far worse: an 80-90% decrease in area planted for IDPs residing outside camps and a negligible total area cultivated by IDPs in camps – most likely due to inaccessibility of their own land and lack of available land around the camps.

Approximately 10-20% of IDP respondents have managed to cultivate sorghum and/or millet this season, as opposed to 60% of residents. Both residents and IDPs planted approximately 1 hectare of sorghum, while millet planting areas range from 1.2 to 1.5 hectares (with IDPs on the lower end). Five percent of IDPs and 20% of residents are cultivating groundnuts; watermelon is grown by 12% of residents, but by virtually no IDPs.

As a result of the conflict, IDPs lost 75-85% of their grain stocks; residents less than 20 percent. In general, two thirds of the interviewees declared no current stock of cereals, either from own production, purchase or food aid. Approximately 60% of farmers purchased seed this year, against 25% in 2003. FAO's distribution of agricultural inputs covered only about 5% of the sample out of which two thirds are IDPs. NGOs (with FAO-sourced seed) and MOA distributions reached around 1% each. In 2003, only 2% of farmers had received seed aid.

[1] This section was supported by complementary information from FAO assessments

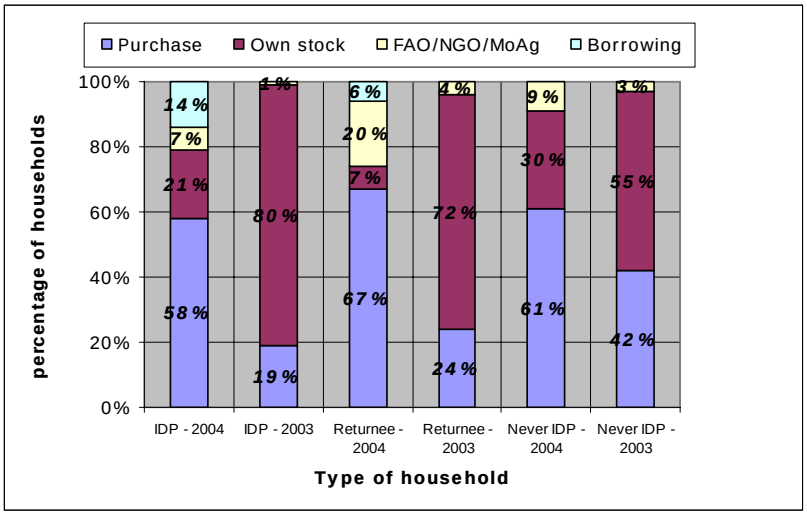
The region is facing a seed famine and the potential permanent loss of local sorghum and millet landraces due to severely depleted traditional seed stocks from the looting of seed stores, the razing of village fields during 2003 and the extremely reduced area planted in 2004. This problem has been compounded by the fact that many farmers in the irrigated, mechanized and high yielding farming areas planted cash crops instead of food crops this year because of a lack of government support in 2003. Only 2-3% of IDPs own a plough, as opposed to 15% of residents; 10-15% of IDPs own a hoe, in comparison to 60% of residents; and 30% of IDPs own an axe, unlike 70% of residents.

Detailed analysis

Overall, only 34% of the sample households reported any agricultural cultivation in the 2004-05 season. More than half of the never displaced and returnee households reported some agricultural production this season as compared to only 20% of the currently displaced households. Only 10% of the IDP households were cultivating sorghum this year, down from 73% in the previous season.

Nearly 60% of the returnee households cultivated sorghum in the previous season but only 35% were cultivating this season. For the never displaced, about half had cultivated last season with around 33% cultivating this season. Overall, the area cultivated in sorghum this year is much lower for all groups (*73% less*) but even lower for IDP households (*88% reduction*). Average area cultivated in sorghum this year is around 1.6 *mukhammas*.

Figure 6.1 - Source of sorghum seeds by household type



The graph shows the change in source of sorghum seeds by household type and season. For each group, the cultivating households relied more on purchase of seeds this season as compared to last. In addition, it appears that the Returnee households benefited from the seed distribution programs run by FAO, NGOs and the GOS.

Millet production was also down this season as compared to the last with only 12% of IDP households reporting any cultivation as compared to almost 40% of the resident households. The average area cultivated this season was about 2.8 *mukhamas*, a 74% reduction from 4.5 *mukhammas* reported for last season. The greatest reduction in area cultivated for millet was found in the IDP households where 84% reported planting last season for an average of 5 *mukhammas* which was 89% higher than the current season. For millet seeds, there was also a big shift in source from own stock to reliance on purchase and borrowing, especially for IDP households.

Very few households reported cultivating any tobacco this season. Eleven percent of never displaced households were cultivating watermelons. Groundnut production was reported by more than 20% of the resident households as compared to only 6% of the currently displaced.

Overall, more than 60% of sampled households reported losing grain stocks in the conflict – 86% of IDPs and 79% of returnees but only 18% of the never displaced households. When asked about current stocks of grain (either from production, purchase

or food aid), only around 30% of IDP and returnee households had some stocks, which was much lower than the 45% of the never displaced households.

6.3 Livestock performance[2]

The conflict has devastated the region's livestock. For the IDP population in Government of Sudan (GoS) controlled areas, losses are greater than 90 percent; in Sudan Liberation Movement (SLM)/Sudan Liberation Army (SLA) controlled areas in North Darfur, losses range between 60 and 90 percent. About 40% of residents reported loss of livestock as a result of the conflict, as compared to 90% of the IDPs. In decreasing order of magnitude, current livestock ownership for sampled households includes donkeys (25-30% of IDPs own donkeys), followed by poultry, goats and sheep. Livestock sales don't show among income activities for IDPs and returnees, whereas 10-20% residents still rely on this income source.

Many IDPs who managed to retain livestock have since disposed of their animals by selling them at negligible prices (*crash selling*) as they lacked the means to support the animals or feared repeated looting. Many looted animals (primarily sheep, goats, cattle and camels) are said to be hidden in the bush, in the mountains, emptied plains or have crossed into Chad and Central African Republic (CAR).

It is estimated that 75% of the donkeys in IDP camps died during the dry season from a lack of feed and water, compounded by stress. Head counts of donkeys in IDP camps in North Darfur indicate that a number of donkeys survived the rainy season (roughly half the number of households). Although the seasonal rains have provided these pack animals with land to graze for the time being, overgrazing around IDP camps continues.

6.4 Food market supply and price [3]

Over the 6-month period from September 2003 to March 2004, prices of millet, sorghum and sugar showed a slight increase, the price of water increased appreciably (approximately 20%), while the price of cooking oil declined slightly. Subsequently, over the last 6 months, there has been a steep upward trend in prices for millet, sorghum and sugar (approximately 30% higher), potentially owing to the normal intra-annual price fluctuations or resulting from a good 2003 harvest and expectations for a moderate/poor 2004 harvest. The price of cooking oil and groundnuts also increased over the last 6 months (by approximately 15%) while the price of water stabilized. The food security assessment data also indicates that the price of firewood increased by approximately 40% over the last 12 months.

Conflict-related market disruption overlapping with the seasonality factor (rainy season) resulted in the periodic closure of some local markets and a loss in consumer purchasing power. Complementary information is required to confirm these hypotheses and analyze the interplay of factors on an area-specific basis. The interviewee communities reported that over the last year cattle prices sharply increased (by approximately 35%), whereas the price of sheep increased by approximately 45% over the same period. The market price for donkeys in the main towns has increased nearly 100 times.

A recent CARE study [4]

[2] This section was supported by complementary information from FAO assessments

[3] This section was supported by complementary information from FAO assessments. See also "*6.2.6 Seasonality, risks and vulnerability*"

As of August 2004, in the Darfur region most rural and urban markets are well functioning and competitively operating. The flow of grains between the main producing areas and the rural/urban markets is smooth with no barriers and/or interventions from the local authorities, however, the insecurity and onset of rainy season did affect flow of grains and other consumer goods. Some markets closed during peak of the conflict but most resumed operations.

Each rural market usually operates for one or two days per week. Market days are usually attended by residents of nearby villages with traders from different areas moving between markets. Men and women from different ethnic groups were observed in all markets, trading and exchanging commodities.

Rural and urban markets of Darfur are integrated and monthly price movements for grains show similar patterns in all urban markets and most of the visited rural markets. The quantities of grains supplied in the rural and urban markets are limited as a result of security situation, the start of rainy season and nature of grain selling behavior (usually sold in small quantities by producers in rural markets, resulting in small but steady supply overtime). Grain prices have increased over the past six months by about 50 percent. Prices normally increase during the rainy season due to bad road conditions and increased transport cost from producing areas to the main consumption centers which ranges between 20-25% (dry season) to 30-35% (rainy season) of consumer price.

Short marketing channels characterize grain markets. The profit margin of grain traders is small even for middlemen or retailers, and does not exceed 12% of the purchase price and is even smaller for wholesalers - around 5-8 percent. All the retailers in the rural and urban markets are women. Darfur grain markets are not integrated with markets of central Sudan as the region is self-sufficient most of the time, as high transport cost renders grain trading with Darfur unfeasible. Therfore the flow of grains between central Sudan and Darfur is almost negligible.

The insecurity in Darfur has affected market accessibility and functioning, especially during the peak of the conflict period, as about 35% of the increase in price level is attributed to insecurity. The purchasing power of most IDPs is quite limited or non-existent. Some IDPs sell part of their food aid basket - especially grains - at comparatively low price to meet other needs. Furthermore, the prices of six main food items have increased by an average of about 60% over the past six months.

The reduction in grain production for 2004-2005 season was estimated to be around 60% in an optimistic projection, 50% for a moderate projection, and 34% under a pessimistic scenario.

Regardless, there will be shortage in grain supply, even after taking into account the quantity of food aid to be distributed by WFP during the period November 2004 – October 2005 for 1.5 million people (1.2 million IDPs & 300,000 host families) in Darfur. The expected shortage in local grain supply would cause grains prices to escalate, however the rise in price is expected to be moderate due to the limited purchasing power of the IDPs and reduced purchasing capacity of the host families in the larger towns. For grains markets to operate and function efficiently and competitively, shortage in grains supply addressed through interventions such as cash transfers to IDPs and market support interventions to stabilize markets. The range of market support interventions includes buffer stock to target markets when price goes up markedly; food-for-recovery to rebuild destroyed social institutions and infrastructure, but essentially to cutback demand and keep grain prices reasonably low; transport subsidy to encourage flow of grains from

[4] This section summarizes a recent CARE study '*Rationale for a Possible Market Support Programme in Darfur, Sudan; A brief Look at Markets and Food Security*', commissioned by the USAID and implemented by CARE, August-September, 2004. The findings indicate options for intervention which requires close scrutiny and cross-checking.

other surplus regions of the country and cash transfer to IDPs to help them access basic needs that are not covered by the current food basket.

Other long-term interventions include: establishing a food information system all over greater Darfur linked with central Sudan; increasing connectivity with central Sudan through improving roads and railway as well as local feeder roads; compensation package for returning IDPs, peace-building projects directed towards rehabilitation of essential resources (land and water), and capacity building to open new livelihood avenues for many who remained unemployed.

Central Sudan has a potential to cover some of the production shortfalls in Darfur this year. It would be necessary assess the production and market situations in October-November to determine which of the three scenarios is being realized. Amount and source of food assistance can then be determined. Sorghum shipment from central Sudan could be considered if there is a bumper crop this season in order to avoid possible price distortions as the result of off-take of sizable quantities for the Darfur program. If central Sudan has good production, transportation of food to Darfur will be cost effective and will enhance market operation in central Sudan. However, the infrastructure that enhances markets operation, including the storage capacity and rural roads are generally poor. Grain storage capacity in the three states of Darfur, especially West Darfur is traditional and very limited as most of the available storage capacity is multi-purpose stores, used mainly for cash crops like groundnuts and karkadeh.

6.5 Constraints to agriculture, livestock and trade [5]

Conflict and prevailing insecurity continue to disrupt all livelihood systems and impede the return of IDPs to their areas of origin. This is compounded by the fact that the affected communities have developed a stern distrust for local authorities. Veterinary services, for instance, cannot work properly as the state veterinary authorities cannot utilize GOS-branded vehicles to conduct routine vaccination campaigns for fear of being confiscated by armed opposition forces.

Migratory patterns, transhumance routes and trade routes are severely disrupted, with animals concentrated in cultivation areas such as Jebel Si, Jebel Marra and South Darfur because traditional grazing areas in the north (predominantly Mellit and Malha) and cross border trade are blocked by armed SLM elements. Camels in particular are threatened because they cannot access their northern winter breeding areas. Instead, camels and other animals have remained in cultivation areas: (i) further disrupting farming; (ii) exposing livestock to the risks of disease outbreaks (*trypianosomiasis*); and (iii) potentially exacerbating tensions in the region by moving westwards towards Chad and Central African Republic. New migratory routes could be in the making.

The unofficial closure of the Libyan/Sudanese border has devastated the camel trade and impacted financial remittances. The cost of transporting animals has also soared to prohibitive levels, particularly affecting the South Darfur cattle trade and the annual westward cattle route from El Fasher to Omdurman market in Khartoum.

6.6 Overview of Food Economy Zones

The major food economy zones are described below to contextualize the assessment findings and determine issues that deserve further analysis and variables to be monitored and were developed jointly by SC-UK and others.

[5] This section was supported by complementary information from FAO assessments.

North Darfur

There are seven Food Economy Zones (FEZs) in North Darfur State, where community options to acquire food and cash incomes differ from one zone to the other:

- **Goz economy zone** - Millet production is the major sources of food, which is often carried over from year to year. Sale of livestock and agricultural labor are the main cash income sources. Important coping mechanisms are dry grass and firewood collection for those close to towns and wild food for those living far away and particularly the pastoralists.
- **Tombac economy zone** - In this economy, farmers cultivate *tombac* in the alluvial valleys running eastwards towards the Jebel Marra Mountains. The labour intensive *tombac* production provides income for farmers and traders as well as labor casual opportunities.
- **Pastoral economy zone** - Livestock sales (mostly sheep and camel) are the predominant source of cash. Poor households collect and consume large amounts of wild foods.
- **Mixed-cash crops economy zone** - Located in areas southeast and south of the state. In this economy in addition to millet, farmers cultivate groundnut, sesame and occasionally they produce gum Arabic.
- **Wadi economy zone** - In this economy irrigated winter crops are grown and cash crop production (vegetable, etc.) is used to support the income generated from livestock and petty trade.
- **Non-Wadi economy zone** - Is a transitional zone between pastoral and wadi economies. In this zone and in the Jebel one, male migration to central Sudan constitute a dominant coping strategy.
- **The Jebel economy zone** - Includes Jebel Si and part of Kebkabiya LCs (northern extension of Jebel Marra and adjacent areas lies in both and eastern parts of the highlands).

South Darfur

Nyala, Kass and *Shaeria* lie within the semi-arid savannah zone and underwent severe drought within the past three years. Locations south of the state have better rainfall and production and considered as surplus areas. Hence, the South Darfur food economy can be divided into three food economy zones: (1) the semi-arid savannah considered as drought prone zone. This zone includes the localities of *Nyala, Shaeria* and *Kass*. (2) The cereal livestock producing zone includes *Buram, Tulus, Reheed El-Berdi* and *Idd El-Firsan*. (3) The sharecropping food economy zone includes the two localities hosting Southern Sudanese IDPs: *Ed-Daein* and *Adilla* and intensively apply sharecropping relations of production. The transition state of South Darfur is considered moderately food insecure. The main staple food crops grown in the state are millet complemented by sorghum for local consumption; groundnuts, watermelon and kerkade[6] are the major cash crops. Livestock raising is an important source of income due to the fact that South Darfur is linked to the livestock export markets of Sudan.

West Darfur

West Darfur State is divided into two major economy zones: (i) the pastoral food economy and agro-pastoral in the North and (ii) the agro-pastoral with relatively high productivity in the south. Pastoralists constitute 5-15% of the population in the northern zone; they own large herds of animals and practice seasonal mobility from north to south and across the border. The annual average of rainfall is between 500 mm in the southern

[6] Hibiscus dry flowers used as an infusion.

parts and 300 mm in the northern parts, with most occurring from June to October. Vegetation varies from semi-desert savannah north to mainly arable land in the south. Numerous wadi run across West Darfur and valleys are seasonally flooded (mostly in August-September) thereby giving opportunity to farmers to grow vegetables and fruit trees. But severe limitations are posed to transportation of commodities during the rainy season. There are three food economy zones in West Darfur:

- **Pastoral Economy:** The people of this economy are mainly Arabs, include *Awlad Ganub*, *Shigarat* and *Maharia*. They raise camels, sheep and a few cattle and goats Seasonal mobility: in dry season the pastoralist stay around wadi Barie, west Geneina Wadi, Kaja/Mahbas, and Sirba/Seliyat area. In the rainy season they move to North up to the border with North Darfur. In a bad year, they move toward the south, to Foro Bronga. Insecurity: usually occurs during October to February, especially in bad years, when the pastoralists drive their animals to farming areas, before farmers harvesting their crops.
- **Agro-pastoral with low productivity:** The main settled tribes, from north to south are *Gimir*, *Maseria Jebel*, *Eringa* and *Massalit* living alongside many other smaller tribes. The settled community constitutes 85-95% of the population and they grow mainly millet plus okra, sesame and groundnuts - mostly in the south. A few households have access to Wadi land with ground water, in which they grow mainly onions, tomatoes, okra and mangoes. They own sheep and goats. The people close to El Geneina town rely heavily on wood/charcoal, grass selling and labor in El Geneina town. Male migration to Khartoum, El Fasher, and El Gezeira is of the feature of this economy. Insecurity: *Massalits* were been seriously affected by the tribal conflict since 1996 and have lost their livestock (cattle, camel). *Eringa* and *Gimir* are less affected. The insecurity has seriously affected the livestock market; in the past people took their animals from Kulbus and Seleya areas to Suraf Umra (North Darfur). Instead people take their animals to local markets, mainly sold at lower prices for local consumption. The Arabs have also been affected, having lost grazing in *Massalit* areas over recent years.
- **Agro-pastoral with high productivity:** The population of this economy is composed of mixed tribes include *Massalit*, *Singar*, *Fur*, *Burgo* and *Zaghawa*. The annual rainfall is between 500-700 mm. The people of this area are mainly settled agro-pastoralists, the majority live in a fertile wadi land. In the rainy season they grow sorghum on the flooded wadi and groundnuts as cash crops on sandy clay soil. The area is more humid in the rainy season, which is unfavourable for camel and sheep. Cattle and goats are commonly owned by the people in this economy. The *Massalit* in this economy were also affected by the tribal conflict since 1996 and the cattle holdings have also been reduced. Foro Boronga is the largest market which lies in the border with Chad and not far from Central Africa Republic, an important market for cash crops, livestock and other trades.

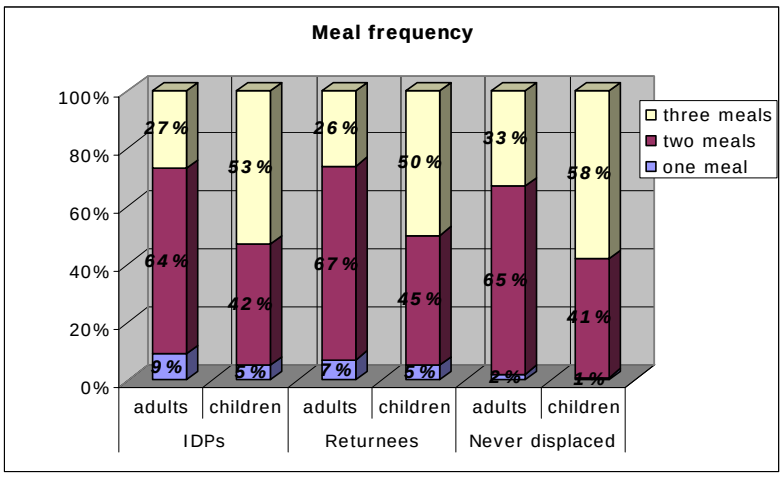
6.7 Diversity and frequency of food intake

Meal frequency

Analysis of consumption data showed that the majority of households are consuming at least two meals per day, regardless of IDP status. However, there were nearly 10% of IDP households where the adults were consuming only one meal per day. In general, children are eating more frequently than adults with little difference between household typologies. More adults are eating three meals per day in the households never displaced by conflict. In addition, it appears that food aid contributes directly to increased meal frequency for IDPs and Returnees. For example, only 7% of adults from IDP households receiving food aid are consuming one meal per day as compared to 17%

not receiving food aid. In addition, 28% of adults in IDP beneficiary households are consuming three meals per day as compared to 21% in non-beneficiary households.

Figure 6.2 - Meal frequency



The analysis used data on the frequency of food consumption (i.e. zero to 7 days) for twelve food items: sorghum, millet, other cereals, pulses, vegetable oil, meat, eggs, milk, vegetables, fruits, sugar and wild foods. These data were analyzed using multivariate statistical techniques with the intent to create groups of households characterized by distinct food consumption patterns.

The household classification followed a set of criteria based on the consumption of food items belonging to four main **staple food** groups: cereals; oils and fats; legumes and oilseeds; sugar; and three **other food groups**: animal products; dairy products; vegetable and fruits. Consumption of wild foods was also taken into account.

In order to qualify the household food consumption, identify whether or not some of them have a food gap and estimate this gap, clear consumption criteria were applied. The first step was to identify what it should be considered the typical **minimum food consumption** in the Darfur context. This was agreed to be a regular (i.e. daily) intake of at least one food item from each of the four main staple. In other words, a daily consumption of one source of carbohydrate (e.g. sorghum, millet or wheat), one source of protein (e.g. pulses, eggs or meat), one source of fat (e.g. vegetable oil or other cooking fat) and sugar given the habit to drink tea and/or coffee. Based on this minimum food consumption the following considerations were applied:

- **Very poor food consumption** - The household consumes less than three staple foods and cannot ensure their regular (i.e. daily) intake;
- **Borderline food consumption** - The household regularly consumes cereals, cooking oil and sugar but has an inadequate protein intake (1 or 2 times per week only); and
- **Acceptable food consumption** - The household regularly consumes the four staple foods and has also access to other food items, 2 or more days per week.

Very poor food consumption

Two profiles are associated with this food consumption group. Profile 1 includes about five percent (5.5%). These households have a serious consumption problem; they hardly cover their daily cereal needs and do not consume other foods on an adequate basis. With no protein intake and a much below minimum consumption of cooking oil and sugar, their **estimated food gap** is on average **greater than 50%** even after

Table 6.1 - Profile matrix for very poor food consumption

Profile 1	Always (7 days)	Often (5-6 days)	Some times (3-4days)	Rarely (1-2 days)
Sorghum		■		
Millet				
Cereals				■
Pulses				
Meat				
Oil				■
Vegetables				
Milk				
Eggs				
Sugar				■
Wild Food		■		

taking into account wild food consumption. Furthermore, one every three households have only one meal per day.

Profile 2	Always (7 days)	Often (5-6 days)	Some times (3-4days)	Rarely (1-2 days)
Sorghum				
Millet				
Cereals				
Pulses				
Meat				
Oil				
Vegetables				
Milk				
Eggs				
Sugar				
Wild Food				

The **second profile** includes a group of households (11%) that are slightly better off but still characterized by very poor food consumption. Despite better daily cereal consumption and a much lower prevalence of households eating only one meal per day (12%), they are unable to eat enough from other staple foods. Sugar is consumed more often but cooking oil is still rarely consumed. Their **estimated food gap**, after taking into account the consumption of wild foods is **on average 30%**.

Borderline food consumption

largest group of households, 53%, is characterized by partial food consumption. Despite a regular daily consumption of cereals, cooking oil and sugar, and a much smaller prevalence of households consuming only one meal per day (4.5% of them) these households lack of adequate protein intake. Some households indicated to eat pulses whereas others indicated to consume meat, in both cases these foods are rarely consumed. Their main food gap is therefore in terms of protein intake.

Table 6.2 Profile matrix for borderline food consumption

	Always (7 days)	Often (5-6 days)	Some times (3-4days)	Rarely (1-2 days)
Sorghum				
Millet				
Cereals				
Pulses				
Meat				
Oil				
Vegetables				
Milk				
Eggs				
Sugar				
Wild Food				

After taking into account the consumption of wild foods, which are regularly eaten by some households only, the estimated **average food gap** for the households included in this group is **10%**.

Acceptable food consumption

Two profiles are associated with this food consumption group. The first includes nineteen percent of the households which are characterized by fairly good food consumption. They have a diversified diet though the different foods are consumed with varying frequency. These households are however able to ensure a regular consumption of cereals, protein (from either a combination of pulses and meat, or dairy products and meat) fat and sugar. Vegetables remain of very little consumption but it is quite common in the Darfur context.

Table 6.3 - Profile matrix for acceptable food consumption

Profile 1	Always (7 days)	Often (5-6 days)	Some times (3-4days)	Rarely (1-2 days)
Sorghum				
Millet				
Cereals				
Pulses				
Meat				
Oil				
Vegetables				
Milk				
Eggs				
Sugar				
Wild Food				

None of these households have reported to eat only one meal per day, whereas 85% of them consume two meals. **None of these households has a food gap** and in several cases their overall food consumption is above the minimum requirement for the Darfur.

Profile 2	Always (7 days)	Often (5-6 days)	Some times (3-4days)	Rarely (1-2 days)
Sorghum				
Millet				
Cereals				
Pulses				
Meat				
Oil				
Vegetables				
Milk				
Eggs				
Sugar				
Wild Food				

A second profile includes 12% of the households characterized by good food consumption. They have a more diversified food intake than any other group. Staple foods and other foods are regularly consumed. Also quantities seem to be larger as 60% of the households reported to eat two meals per day and the other 40% three meals. Their overall food consumption is well above the minimum requirement.

6.8 Food security situation among IDPs and Resident households

In order to better understand the impact of displacement on households, we analysed the distribution of the three food consumption groups among IDP and the resident populations living in the three types of communities.

Box 2 - Crises impact on food consumption and child care

As men eat first and women eat leftovers, women often consume a smaller share of high value food items such as meat. Sometimes small children receive preference if food is scarce. Boys seven years and older tend to eat with their father. Pregnant and lactating women and adolescent girls are likely to have difficulties meeting their special nutritional needs in times of food shortages.

In many camps the food basket is incomplete with one to three items missing, putting the households without additional income in a precarious situation. Often, CSB is only given to children as an additional snack. Most women in camps reported that their families were eating only twice a day, compared to three times in their villages, where they consumed meat and milk at least twice per week. If they have cash, women try to supplement the rations with sugar, meat and dried vegetables.

IDPs in towns, depending on their income and support from relatives, can afford two or three meals per day. They usually consume less meat than before and no milk anymore. If camps are near, women admit their malnourished children to feeding centers and may receive food ration cards (El Fasher, Nyala).

Compared to their earlier life, most women in camps have **more** time for childcare due to lack of agricultural wage activities. They also spend less time for food preparation as they eat only twice a day compared to three times before the conflict - and less for fetching water. But this is partly offset by more time spend on firewood collection. Also, more caring time is needed as many children have more health problems than when in their home villages.

In some places a considerable amount of time is spend on “lining up” for relief items and health services, which is usually done by women. For female-headed households who have no support from the extended family, young children are often left unattended, as their mothers go to work or look for food, water, firewood or other household requirements. The older children, especially girls, help with these chores, sometimes at the expense of going to school. As a result these women and children tend to eat less frequently.

Displaced women living in urban areas are likely to have less time than those in camps, as they need more time to meet the basic needs in terms of water and food, and are more pressed to earn an income to be able to eat. However, many seem to receive a lot of support from relatives with whom they are staying, although no data are available on the extent of this support system.

Furthermore, as large amounts of **food aid** have been so far distributed, particularly to ensure a minimum food consumption of the displaced populations, the main sources of the foods consumed (e.g. purchased, own production, etc) and the contribution from food aid were also factored into the analysis.

IDP households living in IDP-dominant communities

The overall **food security** situation of the households living in these communities is **poor** but not dramatic. With six out of ten households having **borderline food consumption** and two in ten having **very bad food consumption**, the situation is far from being optimal although food aid is playing a critical role for about 70% of the households.

As indicated in Table 6.4, food aid is received by the majority of the IDP households. However, given the high proportion of households still remaining below the minimum food requirements (24%), it is evident that, additional to an 8% exclusion error (households with very poor food consumption and not receiving food aid), the current **food aid basket appears to be insufficient** for those households targeted but still unable to meet their food needs. None of these households reported having sold food aid for cash. Nonetheless, they do not have enough pulses, sugar and cooking oil for a balanced food intake.

Most of the households with borderline food consumption currently receive food aid. This is an indication of good targeting. Nonetheless, their food gap, due to the lack of protein intake, would largely benefit from a regular distribution of a **full food ration** (i.e. including pulses) despite two households in ten reported to sell part of what they received to obtain an income, and perhaps a larger coverage to include the 15% currently not receiving food aid and relying on purchases.

Table 6.4 - Food consumption and main source for IDP HH in IDP-dominant communities

Food Consumption	Proportion of households (%)		
	Total	Relying on Food Aid	Relying on Purchases
Acceptable	12%	6%	6%
Borderline	64%	49%	15%
Very poor	24%	15%	8%

IDP households living in communities with IDP-resident mixed population

Compared with displaced households living in prevalently IDP communities, the overall **food security** of the IDPs living in these communities is **slightly better** as fewer households have very poor food consumption and many more have acceptable levels of consumption. Nonetheless, despite a more favourable situation, 19% of the households are still characterized by **very bad food consumption**.

Food aid, although important, does not seem to be enough to sufficiently enhance the food consumption of the poorest households. Furthermore, with less than half of the very poor food consumption households receiving food aid, targeting has a **larger exclusion error** than among IDP households living in communities with predominantly displaced population

Table 6.5 - Food consumption and main source for IDP HH in IDP-resident mixed communities

Food Consumption	Proportion of households (%)		
	Total	Relying on Food Aid	Relying on Purchases
Acceptable	30%	15%	15%
Borderline	51%	23%	27%
Very poor	19%	9%	10%

Resident households living in resident-dominant communities

In these communities the overall **food security** situation of the resident households is **acceptable**. More than half of the households have an **acceptable food consumption**, although a group of 38% of the households have **borderline food consumption** and 9% have very poor food consumption.

As presented in Table 6.6, food aid is received by only 20% of the resident households. Inclusion error is very small as only 7% out of the 53% households with acceptable food consumption receive food aid. However, the exclusion error is relatively high, with the vast majority of the households with very poor and borderline food consumption not receiving any food aid.

It is interesting to note that none of the households receiving food aid have reported to sell part of it to obtain an income.

Table 6.6 - Food consumption and main source for resident HH in resident-dominant communities

Food Consumption	Proportion of households (%)		
	Total	Relying on Food Aid	Relying on Purchases
Acceptable	53%	7%	46%
Borderline	38%	12%	26%
Very poor	9%	1%	8%

Resident households living in IDP-resident mixed communities

Resident households are **negatively affected** by the presence of displaced people but not in a dramatic manner. The prevalence of households with acceptable food consumption is lower than in communities with predominantly resident population and more households fall in the borderline category. That the prevalence of households with very bad food consumption is also lower than for the pre-dominantly resident communities appears to be the result of food aid.

Significantly more resident households receive food aid than IDP households living in the same communities (59% vs. 47%). This is due to the exclusion error indicated in the previous section about IDPs living in communities with prevalently non-displaced population.

This being said, it must be noted that food aid is making a key difference for most of the resident households affected by the presence of IDPs. This is the case also for those households presenting adequate food consumption. None of them in fact reported to sell part of the food aid to obtain an income.

Table 6.7 - Food consumption and main source in resident HH in IDP-resident mixed communities

Food Consumption	Proportion of households (%)		
	Total	Relying on Food Aid	Relying on Purchases
Acceptable	45%	24%	21%
Borderline	48%	31%	17%
Very poor	7%	4%	3%

6.9 Income, assets and expenditure

Expenditures

All households are characterized by high shares of food expenditures. However, their absolute expenditures have huge variations and their levels are very much related with their food consumption typology and of course with their main source of food (i.e. food aid or purchase).

Weekly per-capita food expenditures divided by quintiles have been cross-tabulated with the three main food consumption typologies to obtain a better understanding of their respective cash availability for food and non-food.

As indicated in Table 6.8, households with **very poor food consumption** generally have very **low per-capita food expenditures** (first and second quintiles). Moreover, those relying on food aid have exceptionally low food expenditures and most of them did not report any expenditure for non-food.

Better off households with acceptable food consumption tend to be characterized by higher per-capita food expenditures particularly among those not receiving food aid. These households have also reported much higher non-food expenditure (> 500). Borderline food consumption households are quire equally spread throughout the five quintiles, with those receiving food aid leaning towards the lowest quintiles whereas those purchasing their food leaning towards the central quintiles.

Before the crisis, most households estimated that around 60% of their total monthly expenditure was for food.

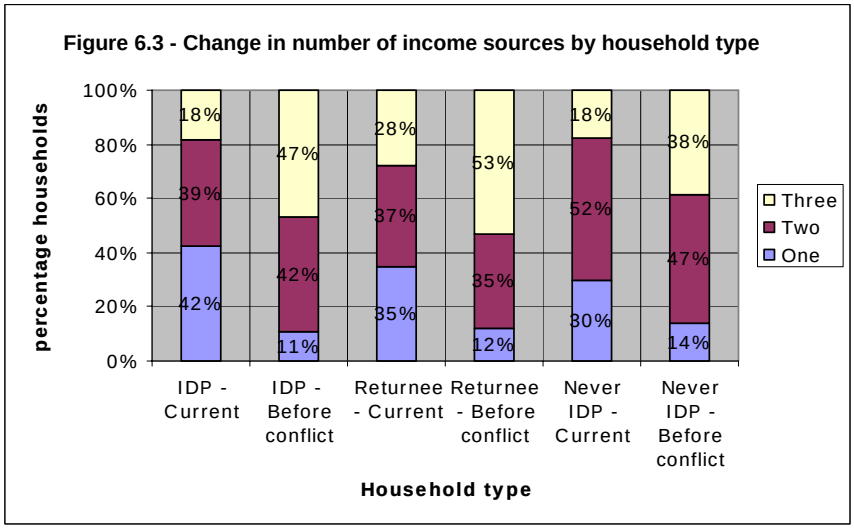
Table 6.8 - Households by food consumption and per-capita weekly food expenditure quintiles

Food Consumption	Major food source to rely on	Expenditure group				
		I (<160)	II (161-270)	III (271-380)	IV (381-545)	V (>545)
Acceptable	Food Aid	-	23%	18%	20%	28%
	Purchases	-	-	21%	24%	43%
Borderline	Food Aid	29%	22%	20%	18%	-
	Purchases		18%	29%	26%	20%
Very Poor	Food Aid	59%	25%	8%	-	-
	Purchases	35%	29%	15%	17%	-

Income diversification

The survey data show that both the number and type of income sources for all groups has changed as a result of the conflict. The chart below shows that for each type of household, the number of current different income sources is reduced as compared to before the conflict. More than 40% of the IDP households rely on only one source of income as compared to only 11% before they were displaced. Even those never displaced have been affected in terms of income diversity with more having only one source of income and fewer with three sources. In total, the median estimated decrease

in relative income due to the conflict was about 80% for the IDPs and 70% for the others.



Before the conflict, more than 70% of the **IDP households** were selling non-cereal agricultural products for income, followed by livestock sales (51%), cereal sales (40%), sales of animal products (22%), petty trade/small business (18%) and wage labor (16%). Currently, the main source of income is **wage labor** for almost half the IDP households, followed by **firewood sales** (31%), grass sales (17%), sale of non-cereal agricultural products (14%) and petty trade/small business (13%). This indicates a heavy reliance on labor and collection of natural resources for income, which is, in the long-term not very sustainable.

For the **returnees**, there was also a shift from agriculture (70%) and livestock (49%) production to **wage labor** (56%) and **sales of grass** (28%) and **firewood** (21%) with just over 20% earning income from sales of non-cereal agricultural products.

For those **never displaced**, fewer were reliant on agricultural production before the conflict so the changes in income activities, it is a bit less drastic. Just over half were selling non-cereal agricultural products before the conflict, followed by about one-quarter of the households engaged in wage labor, petty trade/small business, livestock sales or cereal sales and about 16% relying on firewood sales and another 15% having salaried work. As a result of the conflict, use of **wage labor** increased to 38% while **sales of non-cereal agricultural products** decreased to 33% of the households. Firewood sales increased slightly while **livestock sales** dropped to 12% but still accounted for a certain amount of household income. The percentage relying on salaried work remained about the same.

Irrespective of their current status (i.e. displaced or resident), households with **acceptable food consumption** tend to rely on more profitable activities such as sales of non-cereal agricultural products, wage labor, petty trade/small business, and sales of livestock whereas more common activities such as firewood sales were often reported as secondary. Conversely, those with **very poor consumption** largely depend on wage labor, sales of firewood and grass for income.

Furthermore, 74% of the better off households reported to have at least two activities vs. 58% and 54% among households with respectively borderline and very poor food consumption.

Asset ownership

The vast majority (95%) of IDP households reported losing household and/or productive assets due to the conflict as compared to 74% of the returnees and only 14% of the never displaced - an average loss of 7 assets. Therefore current asset ownership is low with most only owning 1 or 2 assets and nearly 15% reporting no assets at all. IDP households are likely to own cooking utensils (84%) and maybe an axe (33%) or bed (34%). Only 17% own a hoe as compared to 35% of returnees and 61% of never

displaced, who are also less likely to rely on agricultural production as a main source of income.

Nearly 90% of the very poor consumption and 70% of the borderline consumption groups lost assets, which is significantly more than the 46% of the households with acceptable consumption. Current asset ownership levels were quite low, especially for the very poor consumption households.

Box 3 – Changing livelihoods of women

In most agro-pastoralist communities in Darfur, women traditionally are involved all agricultural activities, from land preparation, planting, weeding to harvesting, food processing and storage. The different plots of land that belong to the husband and his wives are cultivated jointly, although men tend to work more in the cash crop sector and women more in the traditional sector. Being responsible for household food security, women have sometimes gardens, where they grow vegetables, spices and fruits. During the agricultural season, women often have an eighteen-hour workday that revolves around working in the field, collecting water and firewood, food preparation and child care.

Women in Darfur also engage in economic activities such as sale of surplus farm produce in the market, sale of handicrafts, firewood and grass, and casual labor. They produce substantial amounts of goods and services for the local economy. However, in most cases the income realized is spent on household requirements like food, soap, salt, clothing, payment of school fees and health services. Whatever is not spent on meeting household requirements is often managed and controlled by male members of the family, making it difficult for women to build assets, or save for further investment and expansion of their businesses. If women don't earn cash, men give a certain amount of their income to their wives, determined by the number of their children, while sex of the children doesn't play any role. This money is given on a daily basis for small household expenditures. Bulk purchases on the market of food and more expensive household items are usually done by men.

In pastoralist communities lives and livelihoods revolve around the cattle and the movement from one area to another in search of pasture, which is, traditionally, the domain of the male. Marriages and divorce are highly influenced by the need to acquire and keep livestock. Here, women have the additional tasks of milking cows or goats and processing milk to sour milk, cream, butter and cheese.

The conflict is changing these gender roles. In households where men have been killed or migrated, their wives have come under the care of another male adult family member, such as the father–in-law or the brother. Women's agricultural workload increases, while their lives continue to be determined by men. Where men avoid not only going to the field but also to the markets of fear being killed, they let women take over new responsibilities in managing the household economy, e.g. handling bigger cash amounts, selling livestock and cash crops. Thus, women have an opportunity to learn new skills and become more self confident.

For displaced women changes in their lives are even more distinct. Coming from rural villages, they find themselves in an unfamiliar (semi-)urban environment, either in a camp or living with relatives, where they struggle to find a new income source. Some women produce handicrafts, normally continuing what they did at home, such as weaving baskets and mats or making caps and pots. While income from these products varies, depending on the local markets, it is rarely more than US$ 0.70 per day. Towns offer employment opportunities for these women such as domestic help (Nyala: 3,000 Dinar/month), carrying soil for construction (Nyala: 200 Dinar/day) and brick making (El Fasher: 250 Dinar/day). Displaced women also form the bulk of small food vendors in the towns. Sale of Firewood and grass is another income source for women, though often linked with high risks of physical abuse by *Janjaweed* for a small return. In Nyala, a bundle of firewood, which may take 6- 7 hours to collect, is sold for only 50 Dinar (US$ 0.20). Large camps also offer a few jobs for IDPs with aid agencies. However, this often requires basic educational achievements, while most of the displaced women are illiterate.

Livestock - Ninety percent of the very poor consumption households, nearly 80% of the borderline consumption households and more than half of the acceptable consumption households lost livestock as a result of the conflict. However, households with acceptable food consumption currently have much higher levels of livestock ownership than the other two groups. These are mainly resident households. Despite some stock losses, households who were never displaced still had high ownership of donkeys (53%), goats (28%), sheep (12%) and poultry (26%) with some even owning cattle (9%) and camels (6%). Conversely, more than 90% of IDP households and 86% of the returnees reported losing livestock. Consequently, current animal ownership is low for the IDP households, with those few owners claiming only a donkey (32%). Returnee households have higher donkey (58%), poultry (37%) and goat (16%) ownership as compared to IDPs.

Grain reserves - Many households reported losing important grain reserves as a result of the conflict. More than 40% of the acceptable consumption households reported grain stock losses as compared to 67% of the borderline consumption households and 84% of the very poor consumption households. At the time of the survey, 70% of the very poor consumption, 66% of the borderline consumption and 60% of the acceptable consumption households had no grain stocks at all – either from production, purchase or food aid.

6.10 Perceived food insecurity and coping mechanisms

Households were asked if, in the past 30 days, they did not have enough food or money to meet their family's food needs. In all, 87% of the IDP households, 90% of Returnees and 77% of Never displaced had experienced household food insecurity in the past month.

Box 4 - Household food: Role of social support systems

Traditionally, women's groups exist in Darfur. They differ in structure, composition and meeting modalities, but appear to have more or less the same function: providing a safety net for needy households, and fulfilling women's traditional role in ceremonies such as funerals.

In one community a women's society was established almost two decades ago, and has a chairwoman, female secretary and a treasurer. They meet once a week and collect money from all members during the harvest season (100 Dinar/month). The generated funds are usually used to support needy families, or for ceremonies (dishes, food etc.). They also conduct literacy programmes, discuss how to improve agriculture, marketing of their products and envisage having their own plot of land (women's farm) to earn an income for the society. In another community women have a grain bank with a similar purpose.

Families in the Sudanese societies depend very much on their extended family as social support system for labor, physical and psychological well-being. In polygamous households, the wives often support each other in case of illness and financial problems.

Another government safety net that exists in most communities is the *Zakat* system. Though originally a religious duty, *Zakat* payment was taken over by the state and turned into legal institution "to empower" the poor. Sheikhs select poor households and hand out money from tax revenues. However, the cash amounts are so small (~US$ 6 per year per household) that *Zaka*t is not really important as a safety net.

One reason for the poor performance of *Zakat* is that its institutions are interlocked with state structures, rendering the system susceptible for manipulation by powerful, rent-seeking groups whose interests run counter to those of the poor. Social support structures such as *Zakat* and *Sanduk* or women's societies are not functioning anymore among the displaced population. Relatives appear to provide the main support system now.

In order to manage the household food insecurity experienced in the past 30 days, the most common strategies used by IDP households were to reduce the number of meals eaten (64%), shift to less preferred foods (60%), to reduce the amount of food eaten by adults and

Significantly more households in the very poor consumption group (93%) had experienced a lack of food or money in the past 30 days when compared to households with acceptable (81%) and borderline (83%) consumption. There were also some differences in the number and type of strategies households used to manage this food insecurity with the poorest households relying on a greater number of coping strategies. Households with acceptable consumption are more likely to purchase food on credit than the others, as well as to sell or slaughter livestock as a coping strategy. Furthermore, households with very poor or borderline consumption are more likely to go an entire day without eating or to work for food only when faced with food or money shortages.

6.11 Cost of milling, firewood and lighting

Cost of milling

One issue that was to be investigated from this survey was that of the costs of cereal milling. The section on household expenditure enumerated the weekly amount of money spent for milling. About 90% of the resident households and 83% of IDPs reported that they had paid for milling in the past week. Average monthly milling costs were around 600 dinars which was less in IDP households (560 dinars) and the highest in resident households (700 dinars).

When milling costs are considered as a percentage of total household expenditure, the share is about 7% for those households receiving food aid and 4% for those not receiving food aid. Some of this difference is due to the effects of food aid on household spending/priorities. From additional analysis of the data it is shown that as percentage expenditure on food decreases, the expenditure for milling increases, indicating that households will spend extra for milling only when they have the resources. This relationship is even more pronounced in the IDP populations.

Cost of cooking fuel and lighting

Figure 6.4 shows the main sources of lighting for households, by type. More than 60% of IDP households rely on wood for lighting as compared to 44% of returnees and 21% of those never displaced. In addition, 15% of IDP households had no source of lighting at all. Nearly all of the households used

Figure 6.4 - Source of lighting by household type

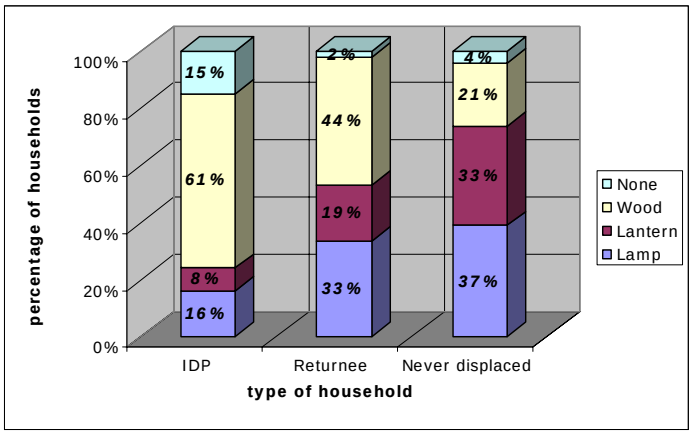
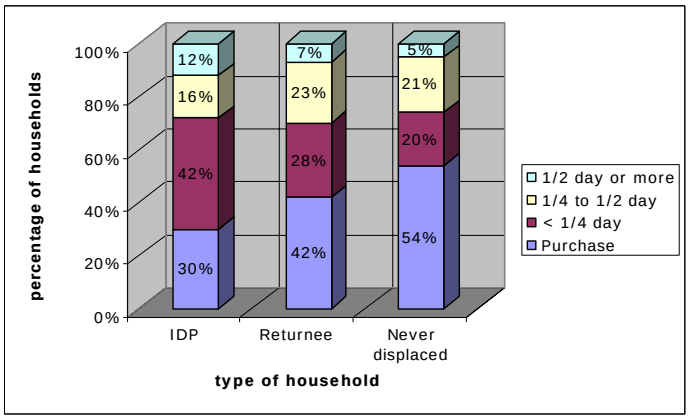


Figure 6.5 - Source of fuel wood by household type



wood for cooking, regardless of type.

Around 40% of the sample reported paying for wood – 39% of IDP households, 42% of returnees and 51% of those never displaced. The median reported cost for wood, per week was 700 dinars for IDPs, 900 dinars for returnees, and 600 dinars for the never displaced. Wood collection generally takes longer than water, but with no particular pattern found between household types. The following graph illustrates the differences between groups in purchase and collection of fuel wood for cooking. There is a small group of 12% of IDPs who are spending at least half the day collecting wood.

Box 5 - Firewood and water collection: Risks and burden for women

A large part of Darfur is arid or semi-arid and water and firewood are scarce resources, especially in the North. Traditionally, fetching water and collecting firewood is done by women and girls. Boys may get water if there are hand pumps, otherwise they rarely help out. In the north, daily firewood collection can easily take 4-5 hours, while in the south it is less than half the time. In Darfur, as a result of intermittent droughts and deforestation, the time required for collecting fuel wood has increased fourfold in a decade.

The conflict has exacerbated the problem and added a new dimension - exposure to violence. Fire wood collection has become a protection concern, as many women become victims of physical and sexual abuse once they leave the relative safety of the IDP camp environment. Another concern is the severe impact on the environment by concentrated population's demand on wood. The lack of sufficient firewood also compromises the quality of meals prepared, with particular impact on children.

Collecting firewood in the surrounding of urban camps and towns is becoming increasingly difficult for IDPs as well as residents living at the outskirts, as they are competing for this very scarce resource. Where *Janjaweed* pose a threat to security, women don't go far, but rather buy additional firewood from the market or use other fuel, such as thorny plants that grow in the desert. If they rely on the markets, they face rising prices. Better off households buy charcoal. In Kass the price of charcoal doubled from 500 Dinar/bag in 2003 to 1,000 Dinar today. One bag lasts 7 days.

In well established camp water supply is usually not a major problem anymore. Urban residents, who have to purchase water, feel the impact of soaring prices. For instance in Kass, the price of one barrel of water (12 l) increased from 100 Dinar to 200 Dinar within one year.

6.12 Seasonality, risks and vulnerability [7]

In general, market prices of major grain change according to season. In Darfur, there are three seasons in which prices differ as follows[8]:

- **Post-harvest season (November to January):** Usually, prices of grains are low because of excess supply to the market by producers who sell surplus crops for cash to purchase family requirements. Once households start selling their cash crops, they grains sales drop and only those who have no cash crops would continue selling their grains, but in smaller quantities. There is a period of low grain supply coinciding with the peak of cash crop selling.
- **Dry season (May to July):** Prices usually increase late in the dry season due to excess demand and limited supply. Supply is reduced because most or the entire marketable surplus would have been sold and also because of the

7 For the See also "*6.1.3 Food market supply and price*"

8 CARE. *Rationale for a Possible Market Support Programme in Darfur, Sudan; A brief Look at Markets and Food Security,* 2004

expectation of the upcoming season where people mitigate against the possible risk of bad rainy season by holding back any grains until there is assurance that the rains are promising.

- **Rainy season (August to October):** The prices of grains are relatively lower particularly in September and more supply is on the market if rainfall is normal and promising. However, if the prospect of upcoming season is not good for vast areas, the prices in this season will continue to rise till harvest from early harvested areas starts reaching the market and lowers prices.

However, the prices of sorghum and millet in the state capitals of Darfur region rather continued to increase in May to July 2004, which are low-price season in normal years (Figure 6.6 and Figure 6.7). This is because of both poor rainy season in 2004 and the limited areas planted. CARE forecast lower cereal production in the harvest season 2004-2005, i.e. 33% (worst) and 60% (best) of normal year. For this reason, it is anticipated that the prices of grains will not become as low as normal year and possibly further continue to increase.

Figure 6.6 - Price change of sorghum in Darfur state capitals, 2004

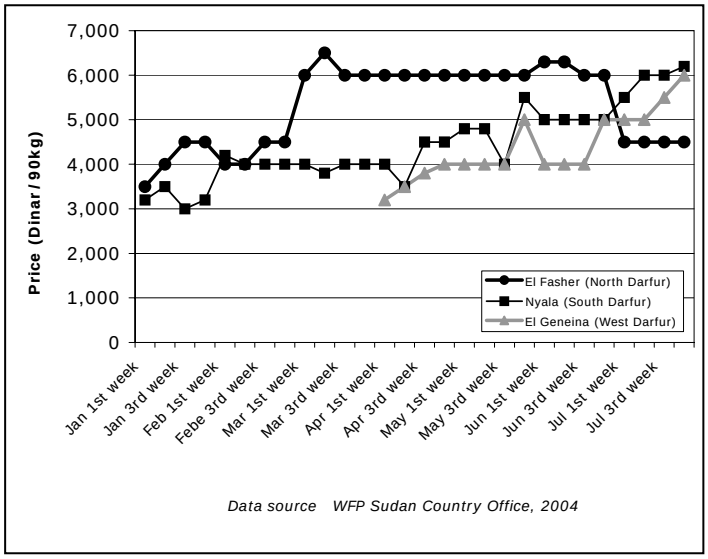
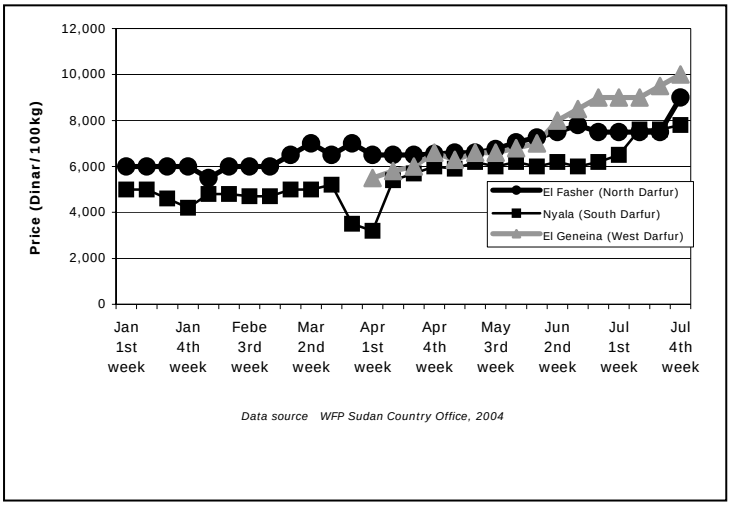


Figure 6.7 - Price change of millet in Darfur state capitals, 2004



The level of food insecurity among the vulnerable who purchase foods will definitely increase in dry season, (May to July). The number of people who rely on food assistance will increase accordingly. Thus, it is anticipated that both the number of the vulnerable and depth of vulnerability will further increase in 2005.

7. SIGNIFICANCE OF FOOD AND OTHER HUMANITARIAN ASSISTANCE

7.1 Extent of utilization of food rations for milling

The number of households currently receiving food aid (in the past 60 days) was greater than that in pre-crisis situation, regardless of type of community (Table 7.1). In total, of 705 households, 461 households (65.4%) received food aid in the past 60 days, i.e. from July to September 2004. This overall higher food aid coverage is expected to also contribute to reduction of households' economic burden on milling cost, as a possible means of in-kind payment.

However, only 136 of 705 households (19.3%) traded or sold food provided by food aid programs. In addition, in-kind payment for milling cost was recognized in only 7 of 56 communities (12.5%). This may indicate that food rations were not commonly converted into a means of payment of milling cost. In those communities, the price of in-kind payment tremendously varied from 3.5% (the least) through 87.5% (the greatest) of total amount of grain to be milled. At least these two figures (3.5% and 87.5%) are less realistic and reliable. This implies that since in-kind payment has been rarely practiced, community leaders do not have clear perceptions on the price of in-kind payment.

Table 7.1 Number of households receiving food aid and trading/selling food provided by aid

	Type of community						Total (N = 705)	
	Resident-dominant community (n_1 = 164)		Resident-IDP mixed community (n_2 = 277)		IDP-dominant community (n_3 = 264)			
Received food aid	#	%	#	%	#	%	#	%
Before crisis	14	9	20	8%	31	11%	65	9%
In past 60 days	54	33%	186	71%	221	80%	461	65%
Traded or sold food aid								
Cereal	10	6%	94	34%	26	10%	130	18%
Pulses	1	< 1%	14	5%	7	3%	22	3%
Vegetable oil	0	0	10	4%	3	1%	13	2%
Any of the above	10	6%	29	11%	97	35%	136	19%

Table 7.2 Cost of milling grain in the community

	Type of community						Total (N = 56)	
	Resident-dominant community (n_1 = 19)		Resident-IDP mixed community (n_2 = 21)		IDP-dominant community (n_3 = 16)			
Price of milling (dinar/sack)								
Mean	1198		1100		1273		1489	
Median	1200		1200		1200		1200	
Mode	1200		1200		1000		1200	
In-kind payment	#	%	#	%	#	%	#	%
Yes	1	5%	3	5%	3	19%	7	13%
No	18	95%	18	95%	13	81%	49	87%

On the other hand, the cost for milling grain in the form of cash payment is centered around 1200 (dinar/sack) regardless of type of community (Table 7.2). This supports the interpretation that payment of milling cost by cash is further commoner than in-kind payment. Thus, food rations most probably have not helped beneficiaries reduce the household economic burden on milling cost.

7.2 Role of government's food assistance and handling of IDPs

According to the Strategic Reserve Authority the Government has distributed 14,456 MT of assorted food commodities (mostly sorghum) in the Greater Darfur - North = 3083 MT, South = 6846 MT and West = 4527 MT – from January to August 2004. The exact locations of these food distributions are not specified. However, various assessment missions conducted over the last four months verify that some locations did in fact receive a one-time ration of 1.5 kg per person. This ration was given under the Government's "Peace Initiative" that was designed to encourage people to return to their places of origin. In addition the assessment mission verified that some of the food aid was distributed through regular market channels at subsidized rates. However, the extent of this initiative is also unknown.

7.3 Adequacy of Current Health, Shelter, and Water/Sanitation Assistance

From the household survey responses, 73% of the sampled households were using drinking water from safe sources[1] - 78% of IDP households, 56% of Returnees and 67% of the Never displaced. Only 10% of IDPs purchased water, at an average cost of 350 dinars per week. Nearly 30% of Returnee households purchased water at a cost of 425 dinars per week while 38% of the Never displaced households paid an average of 350 dinars per week for their drinking water. Most of the households could go and collect water in less than ¼ of a day. About half the IDP and Never displaced households used a pit latrine while the other half didn't use any type of latrine. Only 40% of Returnee households reported using safe sanitation.

Box 6 – The myth of female-headed households' registration

During head count and registration household members are categorized according to their age, sex and relationship to each other. However, since in polygamous households all except the first wife are considered as separate households, no adequate information is available about the number of "real" female-headed households living in the camps.

WFP registration practice in Darfur is not entirely in line with WFP's ECW IV[1], as ration cards are in the name of the head of the household instead of being always in the name of women. In case of polygamous households, the husband is heading the "household" of his first wife, while the other wives get ration cards in their own names, thus are registered as female headed households. While this categorization makes practical sense in the context of food distribution, it creates analytical problems when it is mixed up with the traditional definition of a household (persons who share their income and food) and it creates problems when targeting assistance. The number of 'real' female headed households - who are likely to be the most vulnerable - is unknown, but surely much fewer than the number of registered female headed households.

During registration it would be useful to also ask the female head of household whether she is married (husband in the camp or not), widowed or divorced. This would help to better understand vulnerabilities of displaced women, and avoid inflated figures of female headed households who are left without male support. This information on marital status was collected in both the food security and nutrition questionnaires and further analysis could provide more insight into this issue.

The first level of registration/screening is undertaken by local authorities (HAC) on the basis of lists provided by the sheikhs. NGOs have reported cases where IDPs were not put on a list or not allowed to register; this issue was particularly raised by some of the 'real' female-headed households. To avoid exclusion of vulnerable groups and to cross check the decisions by sheikhs, initial registration of newcomers or at newly accessed sites should be jointly undertaken by community leaders, women's representatives and humanitarian agencies, especially those responsible for camp management.

[1] UNICEF definition

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Populations at risk

For almost half of the households in Darfur, food consumption was found to be inadequate, not meeting the minimum requirements for an active and healthy life. One in six households was severely food insecure with a food gap greater than 50% while twice as many struggled to meet minimum levels of food intake. Global acute malnutrition (wasting and/or oedema) in Darfur region was found in 21.8% of children aged 6-59 months. This figure markedly exceeds the 15% threshold used in emergencies to define a 'serious situation'. Severe acute malnutrition (severe wasting and/or oedema) was present in 3.9% of children.

Among children with moderate acute malnutrition, only 18% were enrolled in supplementary feeding. None of the children identified by the survey to have severe acute malnutrition were enrolled in therapeutic feeding. Measles vaccination coverage for children aged 9-59 months was also very low, at 66.7%.

More than half of children had anemia (55.2%) a condition that is often indicative of iron deficiency. Among non-pregnant mothers, anemia prevalence was 28.0%, and the prevalence of iodine deficiency among adult women, as determined by visible goiter, was 25.5%. The prevalence of diarrhea in children was 39.3% and acute respiratory infection was 18.1%.

The crude mortality rate (CMR) for the period February to August 2004 was 0.72 deaths/10,000 persons/day and the under-5 mortality rate was 1.03 deaths/10,000 persons/day. Both of these figures fall below the emergency benchmarks. Due to the different sample population and a different recall period, it would be incorrect to compare these findings with previous mortality surveys conducted in IDP camps, such as the recent survey by the World Health Organization. Data from this survey suggest that mortality is highly clustered. For example, although not statistically significant, mortality rates appeared higher among the displaced population compared with residents. The CMR was also found to be significantly higher for males than for females, whereas there was no significant difference between boys and girls under-5.

As in the case of mortality, food security averages too mask a marked difference between IDP's and residents. For example, while nearly half of the resident population was found to have the means to secure adequate food intake, the same was true for only six percent of IDPs.

By the time of the survey, food aid had reached 70% of IDP households and 20% of resident households in conflict affected areas. Food aid has ensured basic food intake levels for about half of the IDP households, while strengthening the food intake of another six% to reach levels above the bare minimum. However, nearly one quarter of IDP households were found in a critical food security situation. Food aid had not reached 16% of these families in adequate amounts, and eight% were not reached at all.

The food security situation for resident households was found to be strongly influenced by their exposure to the conflict and the presence of IDP's. Resident households hosting or residing next to IDP's were found to be the worst affected, followed by resident communities who had their livelihoods impacted by the conflict. In communities hosting IDPs food aid reached and ensured basic food intake for 31% of resident households while for another 24% food aid had strengthened their food security. Targeting would need to improve for seven% of the households who either do not receive sufficient food aid (4%) or no food aid at all (3%).

Households in residential communities have received limited amounts of food aid although the bottom nine% would have been in critical need of assistance (fewer than 1 in 6 were actually reached with less than adequate amounts). For another 12% of resident households food aid has been making a critical difference in ensuring most basic levels of food intake.

Given the reported loss of productive assets by a significant share of resident households (39% have lost animals and 18% grain stocks due to the conflict), a 40% reduction of planted area as compared to 2003, current food prices that are overall 60% above normal levels and sharply increased competition for wage labour opportunities due to a reduction of other income sources, coping capacities have already come under increased stress. A more up-to-date picture of the food security and nutrition risks ahead should result from the crop estimates and food gap calculations of the FAO/WFP Crop and Food Supply Assessment Mission in November/December 2004 and also from studies such as the on-going assessment of the crisis impact on livestock trade.

With a poor crop year ahead (scenarios for overall crop production range from 60 to 33% of a normal year) the nutrition and health situation of the poorest decile of the resident population is at risk of further deterioration and the basic livelihoods for at least another decile is seriously threatened unless food and other assistance can be provided. An additional quarter of the resident population would require close monitoring as they fall slightly below the minimum food requirement and heavily rely on food purchases from the market. Also the environmental impact of the large scale population displacement and livelihood disruption will need monitoring as well as the food security impact of any continued disruption of trade routes.

Box 7 Recommendations on gender perspective

In IDP camps it is recommended to establish a women's group as an advisory body to the sheikhs. To ensure that women actively participate and are not dominated by men, it is important that this group consists exclusively of women. In order not to undermine the sheikhs' authority and to make such an institutional arrangement acceptable to both sides, this group should focus primarily on nutrition and protection issues. Such a "Nutrition and Protection Committee" could

- be a key informant for food aid monitors on issues related to the delivery of food.
- ensure that all eligible households are informed about their food entitlements.
- ensure that during distribution preference is given to the more vulnerable.
- collect information on GBV and to convey this information to the police, sheikhs and humanitarian agencies.
- ensure that women are informed about health and nutrition services, including post rape treatment, counseling etc., provided in the camps.
- support agencies in promoting nutrition, health and hygiene awareness among the camp population.

The tasks of such a committee will of course vary from camp to camp, depending on already existing structures such as female health promoters or food aid management committees.

At camps of large size, it is recommended to decentralize distribution sites within the different sectors; enhancement of camp management would also facilitate the process of distribution arrangement. To ensure that all beneficiaries are informed about ration size and composition, installation of information boards using drawings is suggested. The monthly food distribution in camps takes several days, with different groups getting their ration on a specific day. Some of the implementing partners recommended community-based distribution as an efficient method of enhancing distribution process. It is mostly women who collect the food rations. With a very few exceptions (e.g. Kalma), the food is distributed to whoever lines up first. It is recommended to adjust the distribution system by giving preference to the pregnant and lactating women (who carry their children on their backs), and the elderly. Where this is already done, all IDPs (including sheihks) support the preferential treatment for the more vulnerable. Implementing partners should be sensitized that information and consultation of beneficiaries (both men and women) on distribution modalities, and their involvement in the process are obligatory requirements that are reflected in the contractual agreement.

8.2 Needs and options for food aid

The assessment adopted the figure of 1.45 million IDPs reported by the UN in September 2004 as the basis for estimating the number of displaced people in need. This was done by multiplying the total caseload with the relative population shares for the three types of locations (including one sub-division) covered by the survey, i.e. predominantly resident communities, predominantly IDP communities and mixed communities (see Table 8.1). On the same basis the number of residents was calculated whose food security is at risk because they are hosting a multiple number of IDPs in their communities.

Provision of life saving general food rations for 1.35 million (1,106,000 + 246,000 in Table 8.1) IDPs in camps and in mixed IDP/resident locations with a majority IDP population will have to remain the core component of humanitarian response to the Darfur crisis. Some 100,000 IDPs (68,000 + 27,000) should not be targeted as they are relatively dispersed among the resident population. Moreover, in mixed communities the number of IDP households classified as having adequate food consumption from own procurement is 2.5 times higher than in camps.

Table 8.1 Estimated population at risk by community type

	Resident-dominant community P_{IDP} < 25%	IDP-resident mixed community 25% =< P_{IDP} < 50%	IDP-resident mixed community 50% =< P_{IDP} < 75%	IDP-dominant community P_{IDP} >=75%
IDPs	27,000	68,000 (34%)	**246,000 (64%)**	**1,106,000 (96%)**
Residents	*	134,000 (66%)	136,000 (36%)	48,000 (4%)
Total	*	202,000 (100%)	382,000 (100%)	1,154,000 (100%)

Note * This assessment has limitations in estimating the number of residents and total number of people in IDP-dominant communities.

The current general food ration will have to be adjusted to compensate for milling losses of sorghum and to address the lack of iodine and micronutrients in the diet. Sugar should be added in line with the local diet and the amount of salt to be doubled and distributed in small packets. The caloric content of the ration takes into account the demographic structure of the displaced population, i.e. a higher than normal share of children.

Given the global acute malnutrition rate well above the emergency threshold, blanket and targeted supplementary feeding for 270,000 under-five children (17%) and pregnant and lactating women (three%) of the IDP population should complement the general food ration. Therapeutic feeding would have to be targeted to 10,800 severely malnourished children (four% of under-five children). The continued need for supplementary and therapeutic feeding should be reviewed after six months of implementation.

The very high prevalence of diarrhea (40%) among children needs to be addressed through improved access to basic primary health care, water and sanitation. Water and sanitation challenges are greatest in mixed IDP/resident locations whereas the standards in most IDP camps have already improved due to the humanitarian effort. To prevent measles outbreaks health partners should immediately top up the vaccination campaign.

Assistance to highly food insecure resident households will require a dual track approach. Host populations in mixed IDP/resident locations should be targeted with general food rations based on registration and verification of their needs status through the local administration and aid agencies. According to the sample survey 93.4% of IDPs reside in settings (camps, mixed communities) where they heavily outnumber the resident population. The host population in these communities is estimated at nearly 200,000 people (= 136,000 + 48,000, see Table 8.1). Supplementary feeding for 40,000 under-five children and pregnant and lactating women should complement the general ration for the host population. In targeting needy resident households care must be taken to

base this on the specific local conditions with priority given to rural locations and clearly demarcated urban neighbourhoods where IDPs outnumber the original resident population. Continued attention will be required to ensure that in these mixed locations resident populations do not receive the lion share of food assistance at the expense of IDPs. According to this survey, in mixed settings IDPs are slightly more vulnerable then the residents but have been less adequately reached with food aid (48% IDPs vs. 59% of residents received food aid).

Box 8 – Recommended food rations and selective feeding

General Ration

- Step-up efforts to ensure that the net (consumed) ration is 2100 kcal met through a complete food basket consisting of a cereal, pulse, CSB, fortified oil, and salt.
- Ensure more regular delivery of the general ration.
- Adjust the planned ration for milling losses.
- If the commodities for a full food basket are not available, or cannot be delivered due to logistical constraints, compensate for missing commodities through replacement as per WFP nutrition guidelines
- To help address the problem of iodine deficiency among beneficiaries, increase the amount of iodized salt provided in the ration from 5 to 10 grams, and ensure that it is distributed in small packets and not by scoops.

•

Selective Feeding

- Given the low coverage of selective feeding programmes identified through this survey, WFP and UNICEF in conjunction with implementing partners should undertake a review of protocols and programs for supplementary and therapeutic feeding.
- Blanket supplementary feeding must be implemented on the ground for all children 6-59 months of age and pregnant and lactating women (in total, approximately 20% of the population)
- Targeted supplementary feeding should continue while blanket SFP is established.
- Ensure that proper commodities be provided for supplementary feeding- CSB, oil and sugar
- Given the limited outreach of therapeutic feeding as well as the unstable security situation existent in many areas, encourage the expansion of therapeutic feeding programs employing the approach of community therapeutic care (CTC).
- As part of programme monitoring, regular reporting of key indicators of selective feeding programs should be collected and analyzed on an ongoing basis.

The second track of assistance for the resident population most in need (i.e. the two deciles at the bottom) should be in the form of productive and preferably self-targeting food aid schemes. Residents impacted by the crisis have been calculated based on demographic data (estimating a non-IDP population for Darfur of 3.84 million) coupled with key informant information on the affected areas/populations (one quarter severely, another one third moderately) and the analysis of food insecurity categories (see above). Meeting the needs of the bottom 20% of most food insecure households in severely and moderately affected areas will thus require food assistance for some 450,000 people.

In proposing target numbers for the food aid schemes informed assumptions were made on existing implementation capacities and constraints in enhancing these. It is also expected that a part of the programmes will only be fully performing in 2005. The proposed programme types include both productive and nutrition oriented interventions. In some instances beneficiary households may benefit from more than one programme, e.g. school feeding plus food for work.

- Food for work (labour intensive public rehabilitation) for 30,000 households or 180,000 people.
- School feeding (rural and urban) for 150,000 children (initially 2/3 in the form of take home rations and the rest as school meals).
- Food transfer programme for 50,000 vulnerable (elderly, infirm) people.
- Outreach of the supplementary feeding programme to 50,000 resident children and pregnant/lactating women in the vicinity of IDP camps.

The aggregate target number of food aid beneficiaries until end 2004 is thus calculated to be 1.7 million (1.35 million IDPs, 200,000 host population, 50,000 most vulnerable residents, 90,000 Food for Work participants, 50,000 beneficiaries of supplementary feeding outreach). In 2005, with increased levels of targeted assistance to vulnerable resident households, including school children and a fully performing Food for Work programme, the target number should increase to two million people. Total food needs are approximately 34,000 tons per month. Additional food assistance targeted to selected severely affected resident communities is anticipated from agencies such as ICRC. This assistance may cover some 200,000 of needy residents.

8.3 Addressing nutrition and micronutrient deficiencies

With needs outpacing resources there is a difficult decision between improving the general ration and expanding beneficiary numbers, but reaching people with only a single commodity is unlikely to prevent malnutrition nor ameliorate the situation. With this in mind, it is important that a balance between beneficiary numbers and the sufficiency of the ration be sought. Selective feeding programs operating in the absence of a full general ration will not achieve their objective of preventing or curing malnutrition. Blanket supplementary feeding is not a long term solution to a food insecurity crisis and is designed to be more of a safety-net. The general ration must adequately address the nutritional needs of the population.

As previously mentioned the survey was not intended to be an evaluation of programs and further reviews are required to determine the factors limiting program coverage and success. In terms of program uptake, there may be a role for qualitative research techniques to work with the community and health workers to assess why coverage of certain health interventions is low. In this situation of poor security and difficult access it may be necessary to come up with a basic package of health interventions that can be delivered at intervals in a campaign manner such as immunization, vitamin A supplementation, de-worming, iron supplementation and presumptive treatment of malaria. These interventions should only serve as a stop gap measure while efforts are made to improve long-term clinic based preventive health services.

The relationship between malnutrition and infection is synergistic, where malnutrition increases a child's susceptibility to infections and infection increases the likelihood of malnutrition. Malnutrition cannot be addressed in a vacuum of food and nutritional interventions. Attention must be paid to the basic causes of morbidity among children. If water and sanitation are not improved, gains in nutritional status brought about by improved food and nutrition programs will be negated. This is particularly important and perhaps more easily addressed among displaced populations in camps or those settled in larger groups among the resident population. Hygiene education activities carried out during distributions (general and supplementary), in selective feeding programs, and in community based campaigns may also help to reduce diarrheal diseases.

As previously described, micronutrient deficiency diseases (MDD) are of concern in this population. Ensuring the delivery of fortified blended foods, such as CSB, and oil (vitamin A fortified) as part of the general ration will increase the micronutrient content of the ration and help to prevent these deficiencies. Additionally, a blanket supplementary feeding program that includes these commodities will help to channel micronutrients specifically to women and children, who are among the most susceptible to the detrimental effects of micronutrient deficiencies. As a long-term approach to preventing MDD, fortification of cereals at the milling point may be a possible intervention. However, in the emergency phase of response it is not a feasible solution to addressing and preventing MDD. Providing the full general ration and implementing blanket supplementary feeding should be a priority.

Iodine deficiencies disorders (IDD), assessed in this survey by the prevalence of goiter among women, are a significant threat to both health and development in Darfur. IDD

has negative health outcomes- miscarriages and stillbirths, mental defects and deaf-mutism, as well as inhibiting cognitive development. While the high prevalence of IDD in Darfur is not a specific consequence of the current crisis, it is still important to address it as a health problem. As an immediate treatment for iodine deficiency, iodized oil capsules should be considered, with a particular emphasis on targeting pregnant women. Iodized salt has been included in the designed ration, but has been infrequently distributed. Iodized salt must be consistently included in the distributed general ration. It is recommended that the quantity of salt be increased from 5 to 10 grams, thereby increasing the amount of iodized salt available to beneficiaries, as iodized salt is not readily available in all markets.

Anemia among children and women is of public health significance. The prevalence of anemia in children is twice the 20% cut-off for serious consideration of interventions to address the situation. While the cause of anemia was not assessed during the survey, iron deficiency is typically a main cause with other contributing factors such as nutritional deficiencies (vitamins A and B), parasitic infections (intestinal helminths) and chronic disease. WHO recommends that the prevention of iron deficiency be an integral part of nutrition programming in emergencies, because of the negative health consequences including increased maternal and perinatal mortality and increased susceptibility to infections.

Box 9 – Recommended micronutrient and health strategies

Micronutrient deficiencies
- Explore the possibility of local milling and micronutrient fortification of sorghum to help address micronutrient deficiencies
- Develop a strategy with partners (UNICEF, WHO, MOH) to iodized oil capsules for the treatment of iodine deficiency among women and children.

Measles
- Immediate mop-up campaign targeting children missed by the previous campaign is needed as soon as possible. Consider adding a measles component to the upcoming National Immunization Days for polio.
- Increase efforts to reach previously inaccessible areas fro the measles campaign.
- Make immediate mop-up campaigns for measles a priority in camps and set up a system in each camp for vaccinating new arrivals.
- Lower the lower-age limit for measles vaccination to 6 months.

Overall health recommendations
- Improve coverage of latrines
- Given the high prevalence of diarrhea, improve access to water in quantity and quality
- Look into opportunities to utilize food distributions to expand immunization and micronutrient intervention coverage, and other public health activities.
- With malaria season rapidly approaching, introduce insecticide treated nets, accompanied by a strong educational campaign on their proper use
- Increase access to basic primary health care services, by supporting existing clinics or mobile outreach

Anemia prevention can be based upon dietary interventions including food fortification and supplementation. Ensuring the distribution of CSB in the general ration consistently is one approach to increasing the amount of iron available in the overall ration. A well implemented blanket supplementary feeding program including CSB would also increase the iron content in the overall diet. Supplementation through health clinics and selective feeding programs should be considered, particularly for those individuals identified as anemic.

8.4 Agriculture and market interventions

In addition to the 20% most vulnerable residents there is another quarter of the resident population whose food security is severely affected due to the increased food prices and negative effects of the crisis on their sources of income. For this group targeted food

assistance will be difficult to organize and not even necessarily appropriate. With the very poor harvest expected in many areas of Darfur and the resulting food availability gap, these households would be likely to further slip in their food security status. Open market supplies of sorghum as of early 2005 up to the next harvest will be an appropriate response. The magnitude of intervention requirements may range from as little as 5,000 tons to over 200,000 tons, depending on more reliable crop estimates and gap calculations of the FAO/WFP Crop and Food Supply Assessment Mission in November/December 2004.

At least part of the price stabilizing open market supplies of food might be expected from the Government of Sudan. According to the Strategic Reserve Authority the Government has already distributed 14,456 MT of assorted food commodities (mostly sorghum) in the Greater Darfur (North Darfur 3083 MT, South Darfur 6846 MT and West Darfur 4527 MT) during January to August 2004. The exact locations of these food distributions are not specified. A good part of this food was provided under the Government's "Peace Initiative" that was designed to encourage people to return to their places of origin. However, as verified by the assessment mission Government supplied food was also distributed through regular market channels at subsidized rates.

Box 10 Addressing the food availability gap in Darfur

According to a CARE study (*Rationale for a Possible Market Support Programme in Darfur, Sudan; A brief Look at Markets and Food Security*, August-September, 2004), trade in Darfur is in the hands of many small players with little storage capacities/working capital. Trade flows are between towns and the surrounding rural area and between the surplus and deficit areas within Darfur. Volumes of food trade with other areas of Sudan is negligible and it is not likely that it can be triggered through cash assistance to food insecure households in Darfur due to the prohibitive costs of transport from the surplus regions in central and other parts of Sudan. Moreover, initial crop forecasts for overall Sudan suggest that the 2004/05 harvest will fall significantly short of the bumper harvest last season.

Options for addressing the food availability gap in Darfur through market means include transport subsidies for private traders and subsidized sales from/through Government channels or other bodies to be mandated for this task. The CARE study also suggests the setting up of a buffer stock in the three Darfur state capitals to prevent excessive price fluctuations. While experimentation with transport subsidies and buffer stocks appear to be a worthwhile undertaking they may not be sufficient to reliably secure that the gap is adequately addressed. Continued and expanded subsidized sorghum sales by the Government and, if needed, complemented by donor supported schemes will be necessary if the food gap calculated by the FAO/WFP CFSA Mission establishes that the difference between utilization and supply of food from private sources exceeds the amount of targeted food aid interventions for the most vulnerable households.

Based on the CARE study and using a middle scenario of crop harvest being 50% of normal year average the following cereal balance sheet might be anticipated:

Utilization	700,000 MT
Production	350,000 MT
Cereal food aid*/	300,000 MT
Market supply gap	50,000 MT

*/ 90% through WFP, 10% through other agencies

Seeking to fill the food availability gap through cash interventions alone is likely to be more harmful than effective. Given poor road access and insecurity, cash transfers in the Darfur context are likely to be most effective if targeted on major towns.

The secondary information on the anticipated poor harvest 2004/2005 is confirmed by the missions' own observations and data. According to the survey only 10-20% of IDPs have managed to cultivate sorghum and/or millet this season, as compared to 60% of residents. Moreover, the planted area by those residents who managed to cultivate was around 30-40% less than last season. Thus, the area planted has been estimated at 55% of normal years. As a result, the cereal crop forecast for 2003-2004 harvest season is 33% (worst) to 60 (best) of normal.

In the process of the conflict, IDPs lost 75-85% of their grain stocks; residents less than 20%. 92% of IDPs and 39% of residents lost animals. Therefore, without assistance to agricultural, the return to more normal amounts of cereal crop cannot be expected even if rainfall was sufficient and access to the fields not hampered by insecurity.

Responding to the needs of the region's estimated 466 000 conflict-, drought- and "crop failure"-affected households for the 2004 winter vegetable season (October 2004 to April 2005) and 2005 summer cereal season (July-October 2005) would require a total distribution of 4 660 tonnes of millet seeds, 796 tonnes of local sorghum seeds, 18 640 tonnes of groundnuts, 149 tonnes of assorted vegetable seeds (okra, onion, watermelon, tomato, cucumber and eggplant), 150 000 donkey-drawn ploughs and 932 000 hand tools (primarily malodas).

The scope for medium-term support to food and agricultural relief and rehabilitation activities in Darfur is enormous, far exceeding likely available funds and personnel. The following activities would be the most appropriate for reviving the food security sector and should be intensified and expanded geographically as security permits:

Emergency agriculture relief inputs to conflict- and drought-affected households to enable the resumption of minimal farming activities through: (i) the provision of vegetable, cereal and cash crop seeds, hand tools and donkey ploughs; (ii) the establishment of Emergency Response Capacity Stocks of agricultural inputs at state-level; and (iii) preparatory seed multiplication activities for the 2006 summer cereal season;

Emergency livestock asset protection through: (i) the pre-positioning of veterinary medicine and vaccines in the region; (ii) training community-selected IDPs in basic animal health care to conduct livestock scoring and provide antihelmintics and wound treatment to donkeys in accessible IDP camps; (iv) the establishment of strong community-based animal health programmes to build national capacity, preserve remaining livestock and monitor and combat disease outbreaks; (v) the purchase, drying and storage of fodder for distribution during the 2005 dry season; and (vi) the restocking of poultry and introduction of pigeon rearing on a pilot scale in selected IDP camps (as large scale restocking with small ruminants at this stage may expose the affected population to further insecurity).

Restore productive assets of IDPs by: (i) training additional female-headed IDP households in the construction and use of fuel efficient stoves; (ii) introducing grinding stones to enable more efficient utilization of food aid distributions (improving food intake and reducing the cash expenditures of displaced households); and (iii) supporting blacksmithing activities and donkey-plough construction through training and the provision of materials.

Capacity surge, coordination and assessment to (i) strengthen field infrastructure and increase implementing capacity; (ii) continue and enhance coordination of the agriculture, livestock and food security sector in Khartoum and at field level; and (iii) conduct in-depth assessments and further surveillance (in conjunction with the joint 2005 Crop and Food Supply Assessment Mission in November 2004 and beyond) to better evaluate the impact of the crisis on farming and livestock dependent populations and appropriately respond to their particular needs.

Preparing for sustainable return of IDPs and natural resource based conflict transformation

The return of IDPs to their areas of origin will require the re-establishment of a sustainable livelihood in an environment which has changed since they left. Some IDPs may instead decide to settle permanently in the areas where they had sought refuge. In order to plan for sustainable return and local integration, there is a need to assess the potential for re-establishing agriculture-based livelihoods, including crop farming, livestock management, and the use of natural resources such as water, pasture, land and forests.

Preparing for sustainable return requires monitoring of land cover and planning of land use, supported by Geographic Information Systems (GIS) and satellite data. GIS products include: (i) the Africover data sets on land cover –i.e., different classes of crop land, grazing land and forest; (ii) large-scale trends in vegetation cover (grazing, forest and crop land) over the last 20 years; (iii) more accurate estimates of planted areas; and, (iv) small-scale high resolution imagery for detailed hot-spot analyses in areas of return. The remote sensing data and the analysis will be combined with limited field verification to generate meaningful information tools for large areas where accessibility is difficult. A natural resource information management system should be established to assist local planning and emergency coordination requirements. These information tools would enable natural resource-based conflict transformation and enhanced planning for interventions on crop and pasture land, forest, water points for livestock, water harvesting and soil conservation works.

There is also an urgent need to test and pilot viable solutions for a number of key challenges that are already surfacing in the context of IDPs and returnees. Claims for the restitution of property and land rights, requests for just compensation of lost property, problems of non owner occupation of land are only some issues that warrant close attention and urgent interventions. Securing access to and holding of property and land rights, negotiating access to land and natural resources among different stakeholders, especially for women headed households, identifying and negotiating mechanisms to share the use of resources between different social groups are other challenges that need to be addressed.

The assistance should provide technical and operational support that includes (i) tested methodologies for action-oriented land and property tenure interventions, (ii) development of an operational land administration system and (iii) strengthened basic capacity for community driven land management.

The assistance should reinforce land administration services in selected urban and peri-urban areas. In rural areas, it envisages supporting a decentralized land management capacity, mainly relying on customary institutions, to facilitate community driven approaches to the recovery process. Local institutions' capacity should be strengthened through specific training programmes on methods for land and property dispute solving, securing access to land to vulnerable and socially challenged households, and sustainable natural resources management.

As the Darfur crisis has a regional dimension and is impacting on neighbouring countries, agencies such as FAO have already identified complementary interventions in Chad and Central African Republic that are included in the relevant CAPs.

8.5 Food logistics and scope for local food purchase

Over the past months Sudan's transport industry has already been overstretched because of existing demands from the oil and agricultural sector as well as new private sector investments in infrastructure and oil projects. Consequently, food aid quantities

delivered to the Darfurs in the weeks prior to and during the survey were restricted by insufficient local transport capacity as well as by the effects of the rainy season and insecurity. However, WFP has been building up the food transport capacity through the import of 120 6x6 all terrain trucks and contracts for another 200 trucks to augment logistics operations as of mid-October. Moreover, agreements were reached for increased use of the railroad to Nyala, South Darfur. During the rainy season and in situations of access problems due to insecurity WFP has also been making extensive use of airlifts. Thus, much of the logistics constraints that might potentially prevent the delivery of humanitarian assistance have already been proactively addressed by WFP with the support of the donor community.

The scope for local purchase of food will become clearer after the FAO/WFP Crop and Food Supply Assessment Mission in November. Last year's bumper harvest in Sudan, coupled with limited regional export demand enabled WFP to procure over 70,000 tons of sorghum against an annual average of 25,000 tons in the previous years.

8.6 Needs in inaccessible areas not covered by the survey

The survey sample covered several sites that at the outset of the field work were classified as inaccessible. Even during the rather short 20 day field work period the security situation kept changing and several of the presumably inaccessible sites became accessible and vice versa. Thus in Darfur it would be inappropriate to speak of areas that can never be accessed. However, it is generally true that areas under rebel control are more difficult to both, assess needs and deliver humanitarian assistance.

Out of the 56 sites covered by the sample survey eventually only three were in rebel controlled areas, a significantly smaller share than originally envisaged. An ICRC rapid food security assessment conducted parallel to this survey may shed some more light on the situation in these areas as a higher share of sites in rebel controlled areas were meant to be included.

8.7 Risks of inadequate or protracted humanitarian response

There can be inherent dangers in protracted humanitarian assistance. As humanitarian services and stability of food supplies in IDP camps improves, these locations may soon constitute a pull factor where nutrition and health standards surpass the surrounding areas. Poor residents would be tempted to move into the camps and the IDP population be less motivated to return to residential areas. Thus parallel assistance to the poorest residents and the most affected (infrastructure, housing) residential areas must receive high priority.

However, there is also ample evidence from the current survey about the critical role played by humanitarian assistance and the negative impact where this assistance has not yet reached.

- For 55% of IDPs the food aid provided protected them from serious malnutrition and eventual starvation. A demonstration of the negative consequences of the lack of assistance is the 24% of IDPs who up to the survey were not or not adequately reached with food aid. Their highly inadequate food intake corresponds very closely with the GAM estimated for IDPs.
- The same picture emerges for the resident population. Of the 9% of people who suffer from severely inadequate food intake only 1% has been reached with (inadequate) amounts of food aid.
- The positive effects of humanitarian assistance in terms of access to water and sanitation is evidenced by the inverse picture that the most vulnerable households

who reside in IDP camps are less exposed to related health risks than the slightly better off resident and IDP families outside the camps.

- The limited success of some 12% of IDP families who were able to cultivate land this season is very likely to have benefited from the seed distribution programme implemented by FAO/NGOs/Government that reached 7-8% of the IDPs and 15% of the resident households.

With improved performance of the humanitarian effort the "targeting errors" will be reduced and the situation for the most vulnerable will stabilize. Increased coverage (it is encouraging that in September some 1.3 million people were reached with food aid compared to 950,000 during July/August) will be critical because coping capacities have been stretched to the limit. 92% of IDPs and 39% of residents lost most animals and 88% and 40% respectively had to reduce the area planted. Competition for wage labour opportunities has become much stiffer and opportunities decreased. Livestock trade has been constrained and negatively affects the purchasing power in the region. Food prices have already risen by an average of 60% over normal levels.

The vast majority of IDPs in camps has nearly no reserves and would not likely be able to maintain their nutrition and health status if food aid was disrupted for any longer period. Also many resident households have exhausted their ability to cope with the increased food prices and the reduced income opportunities. Lack of assistance to these households would very likely quickly lead to increased malnutrition rates and loss of assets.

Regular up-dates on changing needs and effects of the humanitarian intervention will be essential to counter risks of inadequate or excessive humanitarian response. A system for on-going surveillance and periodic assessments should be established. Collection of nutrition and food intake primary data through interviews –as in the current assessment- should be complemented with market analyses (labour, livestock and staple foods) to assess: (i) food supply prices and flows; (ii) livestock product prices and availability in urban areas, terms of trade of livestock against grains; and (iii) migration and labour market wages. Ad-hoc assessments, e.g. of natural resource depletion or nutrition may have to complement the food security monitoring system.

Finally, due to difficult accessibility in such a vast area, spatial analyses of land use in Darfur would enhance the accuracy of current and future needs assessment and intervention impact monitoring. Remote sensed data and satellite imagery should be processed, field verified and interpreted in close collaboration with relevant Sudanese institutions and partners working in the area. Key products would include (i) trend analysis of different classes of vegetation –including a detailed classification of cropland, grazing and forest- over the last twenty years; (ii) monitoring of vegetation and estimate of planted areas for the years 2002 to 2004; and, (iii) detailed analyses of the use of natural resources in areas surrounding IDP camps.

Annex 1 - Questionnaire form for food security community interview

Date /__/__/__/__/ 2004
State _____ Scode |__
Locality _____ Lcode |__|__|
Community_____ Ccode|__|__|
Y-coordinate (latitude) N_____
X-coordinate (longitude) W_____

Section 1: Demographic Information (Approximately)

Current population

1.1a - Population of ***Residents*** |__|__|__|__|__|

1.1b – Number ***Resident*** households |__|__|__|__|

1.1c – Percent Female headed households (***Residents***) |__|__| %

1.1d - Population of **IDPs** |__|__|__|__|__|

1.1e – Number **IDP** households |__|__|__|__|

1.1f – Percent Female headed households (**IDPs**) |__|__| %

Population one year ago

1.2a - Population of ***Residents*** |__|__|__|__|__|

1.2b – Number ***Resident*** households |__|__|__|__|

1.2c – Percent Female headed households (***Residents***) |__|__| %

1.2d - Population of **IDPs** |__|__|__|__|__|

1.2e – Number **IDP** households |__|__|__|__|

1.2f – Percent Female headed households (**IDPs**) |__|__| %

1.3a – What are the main tribes of ***Residents*** living in this community?
(i)_____ |__|__| (ii) _____ |__|__|
(iii)_____ |__|__| (iv) _____ |__|__|

1.3b – What are the main tribes of ***IDPs*** living in this community?
(i)_____ |__|__| (ii) _____ |__|__|
(iii)_____ |__|__| (iv) _____ |__|__|

1.5 – In the past 2 years, have more people moved to your community, or have there been more people that moved away? *(Circle answer)*
More arrivals.....1
More departures.....2
About the same of both.....3
Neither arrivals nor departures.....4

1.6 - For about how many years has this community existed?

YEARS: |__|__|__|

Section 2 – Economy and Infrastructure

Using the following codes, please answer the following questions:

1 = Cereals/staple crop farming	2 = Cash crop farming (tobacco, vegetables, etc)	3 = Sale of livestock
4 = Sale of livestock products	5 = Trading	6 = Agricultural labour
7 = Remittances	8 = Small business	9 = Handicrafts
10 = Blacksmiths	11 = Leatherwork/Tannery	12 = Other *(Specify)*

2.0a – *In order of importance* what are ***currently*** the major income sources of the ***Residents*** of this community?

2.0b – *In order of importance* what **were** the major income sources of the ***Residents*** of this community ***before the conflict***?

2.0c – *In order of importance* what are ***currently*** the major income sources of the ***IDPs*** of this community?

2.1a - Do you think life for the people of this community is better or worse than it was in 2002 (two years ago)? *(Circle answer)*

1 = Better 2 = Worse 3 = No change

2.1b Why? WRITE THE THREE MAJOR RESPONSES

(a) _____ |__|__|
(b) _____ |__|__|
(c) _____ |__|__|
(d) _____ |__|__|

2.3c - Is the road that comes to (or passes by) this community impassable by trader's truck during certain times of the year? *(Circle answer)*

YES.....1 NO.....2 *(skip to 2.4a)*

2.3d - For how long is the route usually impassable during the year?

MONTH? [ ] **NUMBER OF MONTHS:** [ ]

2.4a - Is there a permanent (daily) market in this community?

YES.....1 NO.....2 *(skip to 2.4c)*

2.4b - Is there a travelling market in this community?

YES.....1 *(skip to 2.5a)* NO.....2

2.5a - During certain times of the year, do **Residents/IDPS** in this community temporarily leave to look for work elsewhere?

1 = Yes 2 = Never *(skip to 2.8a)* 3 = Currently Not *(skip to 2.8a)*

2.5b - Where do most of them go? *(Circle answer)*

1 = Community in this state **2** = Community in other Darfur state
3 = Community outside Darfur 4 = Chad, Libya or other country

2.5c - What type of work do they look for during these times of the year?

Agricultural wage labour.....1 Non-agricultural wage labour.....2
Employment/Salary.....3 Livestock herder.....4
Trading.....5 Other (specify)_____6

2.5d – Each year, how long do they work away from the community before returning?

WEEKS |__|__|

2.5e - What ages are most of the people who find seasonal work outside the community?

AGE
15 – 19
20 – 24
25 – 29
30 – 34
35 and above

[ ]

Section 3 – Land Use & Food Production

3.1a What proportion of ***Resident*** households in this community is cultivating land for agricultural production?

1. Almost all
2. Half of households
3. Less than half of households
4. Very few
5 = None

[ ]

3.1b - For ***Resident*** households cultivating, how do most access the land?

1. Sheikh allocation
2. Inherited
3. Squat by permission
4. Share cropping
5. Others (specify)_____

[ ]

3.1c - For those ***Residents*** not, what are the reasons for not cultivating? *(Circle all that apply)*

1 = No access to land 2 = Lack of manpower
3 = No seeds and tools 4 = No tools
5 = Rely on other income sources 6 = Insecurity
7 = Poor rains 8 = Distance to farms
9 = Not a farmer 10 = Others (specify) _____

3.2a – What are the main farming systems used by ***Residents*** in this community? *(Percentages)*

Owner |__|__| **%** Labourer working for landowner |__|__| **%**

Share cropping |__|__| **%**

3.2b – Compared to last year, how is the total area planted by ***Residents*** this year different?

1 = Increased 2 = Decreased 3 = Remained the same

3.3a What proportion of ***IDP*** households in this community is cultivating land for agricultural production?

1 = Almost all
2 = Half of households
3 = Less than half of households
4 = Very few
5 = None

3.3b For ***IDP*** households cultivating, how do most access the land?
(Circle all that apply)

1 = Sheikh allocation 2. Share cropping
3. Squat by permission 4 = Other *(specify)*_____

3.3c - For those ***IDPs*** not, what are the reasons for not cultivating?
(Circle all that apply)

1 = No access to land 2 = Lack of manpower
3 = No seeds and tools 4 = No tools
5 = Rely on other income sources 6 = Insecurity
7 = Poor rains 8 = Distance to farms
9 = Not a farmer 10 = Others (specify)
_____

3.3d – What are the main farming system used by ***IDPs*** in this community?
(Percentages)

Owner |__|__| **%** Labourer working for landowner |__|__| **%**

Share cropping |__|__| **%**

3.3e – Compared to last year, how is the total area planted by ***IDPs*** this year different?

1 = Increased 2 = Decreased 3 = Remained the same 4 = Did not plant

What is the date of first planting? *(Convert from local calendar)*

3.4a - Normal year: |__| ***week*** |__|__| ***month***

3.4b - This year: |__| ***week*** |__|__| ***month***

3.5 – What types of soil are found in agricultural areas surrounding this community? *(Percentage)*

Sandy |__|__| *Clay* |__|__| *Wadi* |__|__|

3.6a – **Before the conflict**, what are the main crops cultivated by ***Residents*** in this community, and the average area *(mukhamas[1])* per household?

a. Millet |__|__|.|__| ***mukhamas***
b. Sorghum |__|__|.|__| ***mukhamas***
c. Groundnuts |__|__|.|__| ***mukhamas***
d. Vegetables |__|__|.|__| ***mukhamas***
(watermelon, okra, tomato, etc.)

3.6b – **This year**, what are the main crops cultivated by ***Residents*** in this community, and the average area *(feddan)* per household?

a. Millet |__|__|.|__| ***mukhamas***
b. Sorghum |__|__|.|__| ***mukhamas***
c. Groundnuts |__|__|.|__| ***mukhamas***
d. Vegetables |__|__|.|__| ***mukhamas***
(watermelon, okra, tomato, etc.)

3.6c – **This year**, what are the main crops cultivated by ***IDPs*** in this community, and the average area *(feddan)* per household?

a. Millet |__|__|.|__| ***mukhamas***
b. Sorghum |__|__|.|__| ***mukhamas***
c. Groundnuts |__|__|.|__| ***mukhamas***
d. Vegetables |__|__|.|__| ***mukhamas***
(watermelon, okra, tomato, etc.)

[1] *1 mukhama = 1.72 feddan and 0.72 hectares*

3.7 – **Currently**, what is the (percentage) crop stage for:

a. **Millet**:
Vegetative |__|__|__| Weeding |__|__|__| Flowering |__|__|__|

b. Sorghum:
Vegetative |__|__|__| Weeding |__|__|__| Flowering |__|__|__|

c. **Groundnuts**:
Vegetative |__|__|__| Weeding |__|__|__| Flowering |__|__|__|

3.8a – **Currently**, what are the main constraints to good agricultural production for people in this community?
(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|

3.8b - What are the suggestions to solving these problems for agricultural production for people in this community?
(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|

3.9 Currently, what proportion of households in this community has a *jubraka*?

1 = Almost all
2 = Half of households
3 = Less than half of households
4 = Very few
5 = None

Section 4 -Livestock and pasture

4.1a – ***Before the conflict*** what type and number of livestock were owned by ***Residents*** in this community? *(Put '0' if not present)*

Cattle |__|__|__|__| Sheep |__|__|__|__|
Goats |__|__|__|__| Donkeys |__|__|__|__|
Horses |__|__|__|__| Camels |__|__|__|__|
Poultry |__|__|__|__|

4.1b – ***Today,*** what type and number of livestock are owned by ***Residents*** in this community? *(Put '0' if not present)*

Cattle |__|__|__|__| Sheep |__|__|__|__|
Goats |__|__|__|__| Donkeys |__|__|__|__|
Horses |__|__|__|__| Camels |__|__|__|__|
Poultry |__|__|__|__|

4.1c – What happened to the livestock during the conflict? *(Circle all that apply)*

1 = Looted 2 = Abandoned 3 = Killed 4 = Sold

4.2 – ***Today,*** what type and number of livestock are owned by ***IDPs*** in this community? *(Put '0' if not present)*

Cattle |__|__|__|__| Sheep |__|__|__|__|
Goats |__|__|__|__| Donkeys |__|__|__|__|
Horses |__|__|__|__| Camels |__|__|__|__|
Poultry |__|__|__|__|

4.3 – What are the main sources of water for livestock? *(Circle all that apply)*
1 = Streams/ponds 2 = *Hafir*
3 = Hand pumps 4 = Other_____

4.4a – For **all community members**, what are the problems facing the livestock **today**? *(Circle all that apply)*

1 = Not enough pasture 2 = Not enough water
3 = Lack of veterinary treatment 4 = Lack of vaccination
5 = Theft/looting 6 = Other_____

4.4b - What are the suggestions to solve these problems for livestock raising for people in this community?
(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|

4.5a – What are the main sources of feed for livestock? *(Percentages)*

Fodder (own resources) |__|__|__| Fodder (Min Agr) |__|__|__|

Fodder (Other) |__|__|__| Pasture |__|__|__|

4.5b – How is the pasture situation for livestock feeding?
1 = Excellent 2 = Good 3 = Average 4 = Poor

Section 5 - Health

5.1 Is there a functioning health centre/clinic in the community?
YES.....1 *(skip to 6.3)* NO.....2

5.2 If not how far is the nearest one? _____ *(Minutes walking)*
Name of the location_____

If YES please fill in the following information for the health centre/clinic

	Clinic 1 ***(5.3)***	**Clinic 2** ***(5.4)***
a. What is the name?		
b. Is it public or private? *1 = Government, 2 = Private, 3 = NGO*		
c. Physical condition *1 = Good, 2 = Average, 3 = Poor,*		
d. Functioning condition? *1 = Good, 2 = Average* *3 = Irregular, 4 = Poor*		
e. How many nurses are there?		
f. How many doctors are there?		
g. How many beds are there?		
h. How much does it cost for a basic consultation?		
i. How much does it cost for a maternity consultation?		
j. Availability of essential drugs 1 = Good, 2 = Average, 3 = Poor, 4 = None available		

5.5 Where do most of the women of the community give birth? Who assists them in delivery?

	Where do women give birth?	**Who assists them?**
Most common	5.5a	5.5b
2nd most common	5.5c	5.5d

5.6 What are the major health problems for **children** in this community? List them in order of importance.

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|
(4)_____ |__|__|

5.7 What are the major health problems for **adults** in this community? List them in order of importance.

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|
(4)_____ |__|__|

5.8 What are the main problems with health services for the people of this community? List them in order of importance.

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|
(4)_____ |__|__|

Section 6 - Education

6.1. Are there any functioning schools in this community? YES.....1 *(skip to 6.3)* NO.....2

6.2. If not how far is the nearest one? ..... *(Minutes walking).* Provide also the name of the location_____

If yes please fill in the following information for the schools.

FOR ALL OF THE SCHOOLS ASK:	**School 1 (6.3)**	**School 2 (6.4)**	**School 3 (6.5)**	**School 4 (6.6)**
a) What is the name of the school?				
b) Type of school? *1 = Formal, 2 = Informal (Madrassa)*				
c) Is it public or private? *1 = Government, 2 = Private, 3 = NGO*				
d) Physical condition: *1 = Good, 2 = Average, 3 = Poor*				
e) Functioning condition: *1 = Good, 2 = Average/some problems, 3 = Irregular, 4 = Mostly not functioning*				
f) How many classes/grades are there?				
g) How many classrooms are there?				
h) Total capacity and Current enrolment				
i) Number of teachers				
j) Tuition per year ***(Sudanese dinars)***				
k) Costs of uniform/books, etc per year ***(Sudanese dinars)***				
l) In what year was this school established?				

6.7a About what proportion of the ***Resident*** boys of primary school age are enrolled and attending?

Almost all of the boys.....1
More than half, but not all.....2
Half of the boys.....3
Less than half.....4
Only a few boys.....5
None.....6

6.7b About what proportion of the ***Resident*** girls of primary school age are enrolled and attending?

Almost all of the girls.....1
More than half, but not all.....2
Half of the girls.....3
Less than half.....4
Only a few girls.....5
None.....6

6.7c What are the main reasons why ***Resident*** children in this community are not attending primary school? *List them in order of importance.*

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|
(4)_____ |__|__|

6.8a About what proportion of the ***IDP*** boys of primary school age are enrolled and attending?

Almost all of the boys.....1
More than half, but not all.....2
Half of the boys.....3
Less than half.....4
Only a few boys.....5
None.....6

6.8b About what proportion of the ***IDP*** girls of primary school age are enrolled and attending?

Almost all of the girls.....1
More than half, but not all.....2
Half of the girls.....3
Less than half.....4
Only a few girls.....5
None.....6

6.8c What are the main reasons why ***IDP*** children in this community are not attending primary school? *List them in order of importance.*

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|
(4)_____ |__|__|

6.9 What are the most serious schooling problems/needs from the point of view of the people of this community? *List them in order of importance*

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|
(4)_____ |__|__|

Section 7 – Food Aid and External assistance

7.1a – **Before the conflict**, were there any households in this the community receiving any type of food assistance?

YES.....1 NO.....2 *(Skip to 7.2a)*

7.1b – If yes, what type of assistance? *(Circle all that apply)*

a) General food distribution **b)** Supplementary/therapeutic feeding
c) Vulnerable group feeding **d)** School feeding
e) Food for Work **f)** Other_____

7.2a – **Today**, are any households in this the community receiving any type of food assistance?

YES.....1 NO.....2 *(Skip to Section 8)*

7.2b – If yes, who are they?

1 = Resident 2 = IDPs 3 = Both

7.2c - If yes, what type of assistance? *(Circle all that apply)*

a) General food distribution **b)** Supplementary/therapeutic feeding
c) Vulnerable group feeding **d)** School feeding
e) Food for Work **f)** Other_____

7.2d – Who is providing the food aid? *(Circle all that apply)*

1 = ICRC 2 = Government of Sudan

3 = World Food Programme

Section 8 – Price information *(key informants and merchants)*

8.1 - For the following items in the chart below, please provide the following information for each item: the common retail unit of measure and the price during the last month.

Item	Retail Unit	Price per retail unit	Price per unit 6 months ago	Price per unit 1 year ago
Millet	8.1a	8.1b	8.1c	8.1d
Sorghum	8.1e	8.1f	8.1g	8.1h
Groundnuts	8.1i	8.1j	8.1k	8.1l
Cooking oil	8.1m	8.1n	8.1o	8.1p
Sugar	8.1q	8.1r	8.1s	8.1t
Water	**1 jerry can** *(20 litres)*			

8.2 - Livestock prices

	Current price/head	Price same time last year
Cattle	8.2a	8.2b
Sheep	8.2c	8.2d
Goats	8.2e	8.2f
Donkey	8.2g	8.2h

8.3 - Other prices

	Current price	Price same time last year
Fodder (bundle/heap)	8.3a	8.3b
Firewood (small)	8.3c	8.3d
Firewood (large)	8.3e	8.3f

8.4 – What is the cost of milling one sack of grain?

a. Cash (dinars) |__|__|__|__| **b**. In kind:_____

8.5a – What are the ***current*** main cereal suppliers for this location? *(Percentage)*

Commercial merchant |__|__| % Local stock |__|__| %

GoS supply (Zaka, etc) |__|__| % Food aid |__|__| %

8.5b – **Last year**, what were the main cereal suppliers for this location? *(Percentage)*

Commercial merchant |__|__| % Local stock |__|__| %

GoS supply (Zaka, etc) |__|__| % Food aid |__|__| %

8.6a – Where is most of the ***current*** commercial cereal supply coming from?

Same locality |__|__| % other locality |__|__| %

Other states |__|__| % Other country |__|__| %

8.7 – How does the current supply of cereals compare to last year?

1 = Increase 2 = Decrease 3 = Same/similar to last year

8.8 – What are the main issues in cereal supply, if any? *(Circle all that apply)*

1 = Transport 2 = Insecurity 3 = No local production

4 = Rains 5 = Other_____

Section 9 – Community Priorities

9.1 – For ***Residents*** of the community, what are the main three **immediate** priorities?

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|

9.2 – For ***Residents*** of the community, what are the main three **long-term** priorities?

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|

9.3 – For ***IDPs*** of the community, what are the main three **immediate** priorities?

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|

9.4 – For ***IDPs*** of the community, what are the main three **long-term** priorities?

(1)_____ |__|__|
(2)_____ |__|__|
(3)_____ |__|__|

Annex 2 - Questionnaire form for food security household interview

Date |__|__||__|__| 2004 *dd/mm* Name of Interviewer (print) _____ IntID |__|__|

State _____ Stcode |__| Locality _____ Lcode |__|

Community _____ Ccode |__|__| Household |__|__| Name of Respondent _____

Language of interview: 1 = Arabic 2 = Zaghawa 3 = Tor 4 = Fur 9 = Other _____

Section 1 – Household Demography

1.1 – Sex of household head
Male = 1 Female = 2

1.2 – Age of HH head (in years)
|__|__| *years*

1.3 – Marital status of HH head *(circle one)*
1 = Married – one wife
2 = Married – more than one wife
3 = Divorced/separated
4 = Widow/widower
5 = Never married

1.4 – Total number of persons currently in household:

TOTAL	**|__|__|**
Males 0-5 years	|__|
Males 6-14 years	|__|
Males 15-59 years	|__|
Males 60+ years	|__|
Females 0-5 years	|__|
Females 6-14 years	|__|
Females 15-59 years	|__|
Females 60+ years	|__|

1.5a – Is any member of your household disabled?

1 = Yes 2 = No *(skip to Section 2)*

1.5b - Is the head of the household disabled?

1 = Yes 2 = No

Section 2 – Household Circumstances

2.1a – In the past 2 years, was your household ever displaced from its normal place of living?
1 = Yes 2 = No *(skip to 3.1)*

2.1b – Is your household currently displaced from its normal place of living?
1 = Yes 2 = No

2.2 - Did members of this household return from formal refugee camps or settlements in Chad in the past 2 years?
1 = Yes *(Skip to 2.4a)* 2 = No

2.3 - Did members of this household return from living in Chad as informal, unregistered refugees, in the past 2 years?
1 = Yes 2 = No

2.4a - Are most of your household members resettled in your normal place of living after being displaced due to fighting in the past?
1 = Yes *(Skip to 2.5)* 2 = No

2.4b - If not, what problems have prevented you from returning to your normal place of living?

(Circle all that apply)
Insecurity – continued fighting.....1
No land in normal place of living.....2
Land there is occupied by others.....3
Cannot earn enough money there.....4
Roads and bridges destroyed.....5
Don't have enough money/resources to return....6
Other_____.....7

2.5 –How many times did you change your place of residence in the past two years?
(Definition: This refers to moves that involve most HH members to settlements, refugee camps, towns or camps for a minimum period of 1 month.)

Times |__|__|

2.6a - When did your household move to this current settlement?

Season |__| **Year** |__|__|__|__|

1 = Land preparation *2 = Planting*
3 = Harvest *4 = Dry season*

2.6b – Where did your family live before?
1 = nearby village *(< 10 km)*
2 = other village/same locality
3 = Village/other locality in this state
4 = other state
5 = Chad/other country

2.6c – How long does it take to travel from your ***normal*** home village to this location? *(Circle days or hours)*

Walking/donkey cart |__|__| *days/hours*

Truck/vehicle |__|__| *days/hours*

2.7 – Were any members of your household injured or disabled as a result of the fighting? If so, how many? *('0' if none)*

Injured |__| *(Not permanent)* Disabled |__| *(Permanent)*

2.8 – Were any household members killed as a result of the fighting? If so, how many?
Killed |__| *('0' if none)*

2.9 – Is this household caring for any children who were orphaned or abandoned as a result of the conflict?
1 = Yes 2 = No

Section 3 – Housing and household facilities

3.1 – What type of house? *(Enumerator observation)*
1 = Mud/mud brick
2 = Stone/concrete/brick
3 = Thatch
4 = Temporary shelter
5 = Other_____

3.2a – How many rooms (living & sleeping) are in this house?
Rooms |__|__|

3.2b – How many people usually sleep in this house?
People |__|__|

3.3 – Was this house damaged during the fighting?
1 = Yes 2 = No

3.4a – What is the main source of drinking water for your household?
Piped 1
Tubewell/borehole with pump.....2
Protected dug well.....3
Open/unprotected well.....4
Protected spring.....5
Rain water.....6
River/stream.....7
Pond/lake/dam.....8
Tanker/bladder.....9
Other_____.....10

3.4b – How long does it take to go there, get water, and come back? *(Circle one)*
1 = < ¼ day **2** = ¼ to ½ day **3** = more than ½ day

3.4c – How much do you pay for water ***per week***?

|__|__|__|__| ***dinars***

3.5 - What kind of toilet facility does your household use?
Pit latrine.....1
None/bush.....2
Other (specify)_____.....6

3.6 - What is the main source of lighting for this house?
Pan/bottle lamp.....1
Kerosene lantern.....2
Candle.....3
Generator.....4
Wood/fire.....5
Other (specify) _____6
None.....9

3.7a - What is the main source of cooking fuel for this household?
Wood.....1 *(see 3.7b)*
Charcoal.....2
Gas.....3
Kerosene.....4
Dung.....5
Other (specify)_____6

3.7b – If you collect wood, how long does it take for you to go there, get wood and come back?

1 = < ¼ day **2** = ¼ to ½ day **3** = more than ½ day

3.7c – How much do you pay for cooking fuel & lighting ***per week***?

|__|__|__|__| ***dinars***

Section 4 – Household Assets

4.1 – Before, did you own household assets that were lost as a result of the fighting?
1 = Yes 2 = No *(Skip to 4.3)*

4.2 – If so, which assets did you lose?
Bed.....4.2a
Table.....4.2b
Chair.....4.2c
Lantern.....4.2d
Cooking utensils.....4.2e
Bicycle.....4.2f
Cart.....4.2g
Hoe.....4.2h
Axe.....4.2i
Muharat.....4.2j
Radio/Tape.....4.2k
Jewellery/watch.....4.2l

4.3 - Does your family currently own any of the following household/farming assets? *(Circle all that apply)*

Bed.....4.3a
Table.....4.3b
Chair.....4.3c
Lantern.....4.3d
Cooking utensils.....4.3e
Bicycle.....4.3f
Cart.....4.3g
Hoe.....4.3h
Axe.....4.3i
Muharat.....4.3j
Radio/Tape.....4.3k
Jewellery/watch.....4.3l

4.4 – Did you lose animal assets as a result of the fighting?
1 = Yes 2 = No *(Skip to 4.6)*

4.5 – If yes, how many were lost?

4.5a – Cattle |__|__|

4.5b – Donkeys |__|__|

4.5c – Camels |__|__|

4.5d – Goats |__|__|

4.5e – Sheep |__|__|

4.5f – Poultry |__|__|__|

4.6 - How many of the following animals do your family currently own? *(Either on site or away)*

4.6a – Cattle |__|__|

4.6b – Donkeys |__|__|

4.6c – Camels |__|__|

4.6d – Goats |__|__|

4.6e – Sheep |__|__|

4.6g – Poultry |__|__|__|

4.7a – Did you lose any grain stocks as a result of the fighting?
1 = Yes 2 = No *(Skip to 4.8a)*

4.7b – How much did you lose?
|__|__|.|__| *sacks*

4.8a - Did you bring any grain with you?
1 = Yes 2 = No *(Skip to 4.9)*

4.8b – If yes, how many sacks did you bring?
|__|__|.|__| *sacks*

4.9 – What is your *current* stock of grain?
|__|__|.|__| *sacks*

Section 5 – Agricultural production

5.1 – Did your household cultivate any agricultural land this year?
1 = Yes 2 = No *(Skip to 5.2c)*

5.2a – This year, how many ***mukhamas***[2] did you cultivate with ***sorghum***?
|__|__|.|__| ***mukhamas***

5.2b – What was the main source of ***sorghum*** seed this year?
1 = purchase 2 = own stock
3 = borrowing 4 = FAO
5 = Government 6 = NGO

[2] *One **mukhamas** equals 1.72 feddan or 0.72 hectares*

5.2c – Last year, how many ***mukhamas*** did you cultivate with ***sorghum***?
|__|__|.|__| ***mukhamas***

5.2d – Last year, what was the main source of ***sorghum*** seed?
1 = purchase 2 = own stock
3 = borrowing 4 = FAO
5 = Government 6 = NGO

5.3a – This year how many ***mukhamas*** did/will you cultivate with ***millet***?
|__|__|.|__| ***mukhamas***

5.3b – What was the main source of ***millet*** seed this year?
1 = purchase 2 = own stock
3 = borrowing 4 = FAO
5 = Government 6 = NGO

5.3c – Last year, how many ***mukhamas*** did you cultivate with ***millet***?
|__|__|.|__| ***mukhamas***

5.3d – Last year, what was the main source of ***millet*** seed?
1 = purchase 2 = own stock
3 = borrowing 4 = FAO
5 = Government 6 = NGO

5.4a – This year how many ***mukhamas*** did/will you cultivate with ***tobacco***?
|__|__|.|__| ***mukhamas***

5.4b – What was the main source of ***tobacco*** seed this year?
1 = purchase 2 = own stock
3 = borrowing 4 = FAO
5 = Government 6 = NGO

5.5a – This year how many ***mukhamas*** did you cultivate with ***groundnut***?
|__|__|.|__| ***mukhamas***

5.5b – What was the main source of ***groundnut*** seed this year?
1 = purchase 2 = own stock
3 = borrowing 4 = FAO
5 = Government 6 = NGO

5.6 – This year, did you cultivate watermelon?
1 = Yes 2 = No

5.7 – If you didn't cultivate anything this year, why not? *(Circle all that apply)*
1 = Not living in normal place 2 = No land available
3 = No inputs or tools 4 = No labour
5 = Lack of animal traction 6 = Poor/irregular rains
7 = Not a farmer 8 = Other_____

Section 6 – Sources of income

Using the following codes, complete the following questions. When completed, use beans to estimate the relative contribution of each income source to the total income of the household.

Income activity codes

1 = sale of cereals	2 = sale of other agric. products	3 = sale of livestock
4 = sales of animal products	5 = wage labour	6 = skilled labour
7 = salaried work	8 = petty trade/small business	9 = firewood sales
10 = grass sales	11 = kinship	12 = begging *(musada)*
13 = borrowing	14 = Food aid sales	15 = other_____

Participant codes

1 = men only	2 = women only	3 = Both M & W	4 = Everybody

For the HOUSEHOLD, CURRENTLY……..

6.1a - What is your most important income activity? **|__|__|**

6.1b - Who participates in this activity? **|__|**

6.2a - What is your second most important income activity? **|__|__|**

6.2b - Who participates in this activity? **|__|**

6.3a - What is your third most important income activity? **|__|__|**

6.3b - Who participates in this activity? **|__|**

6.4 - Using proportional piling or 'divide the pie' methods, please estimate the relative contribution to total income of each activity and record below.
6.4a - % Most important income (Q6.1a) _____
6.4b - % Second income (Q6.2a) _____
6.4c - % Third income (Q6.3a) _____
= 100%

Note: If less than 3 sources are named, put '0' in the empty spaces above.

BEFORE the conflict……..

6.5a - What was your household's main income activity? **|__|__|**

6.5b - Who participated in this activity? **|__|**

6.6a - What was the second most important income activity? **|__|__|**

6.6b - Who participated in this activity? **|__|**

6.7a - What was your third most important income activity? **|__|__|**

6.7b - Who participates in this activity? **|__|**

6.8 - Using proportional piling or 'divide the pie' methods, estimate the relative contribution to total income of each activity and record below.
6.8a - % Most important income (Q6.5a) _____
6.8b - % Second income (Q6.6a) _____
6.8c - % Third income (Q6.7a) _____

6.9 – Did your income change from before the conflict? *(Circle one)*
1 = Increase: 100% **+ |__|** ***beans***
2 = Decrease: 100% **- |__|** ***beans***
3 = No change

Section 7 - Household expenditures

Expenditure activities – in past WEEK	**Total expenditure** *(in Dinars)*
7.1 – Cereals (sorghum & millet)	
7.2 – Cooking oil	
7.3 – Meat	
7.4 – Groundnuts/beans/pulses	
7.5 – Sugar	
7.6 – Other foods	
7.7 – Milling	
7.8 – Tobacco	
In past MONTH	
7.9 – Medical expenses/health care	
7.10 – Transportation	
7.11 – Housing/rent	
7.12 – Fines or debts	
7.13 – Equipment/tools/seed	
7.14 – Education/school fees	
7.15 – Clothing/shoes	
7.16 – Celebrations/social events	

Before the conflict, how much of total expenditures did you use for food?

Food **|__|__| %**

Use proportional piling with 10 beans to obtain this information.

Section 8 – Food Consumption

8.1a - Yesterday, how many meals did the **adults** in this household eat? ☐

8.1b – How many **adults** (15 years and older) were eating yesterday? ☐

8.2a - Yesterday, how many meals did the **children** in this household eat? ☐

8.2b – How many **children** (0 to 14 years old) were eating yesterday? ☐

I would like to ask you about all the different foods that your household members have eaten in the last 7 days. Could you please tell me how many DAYS in the past week your household has eaten the following foods?

	Food item	**DAYS – 0 to 7**	**Sources of food (see codes below)**	
8.3a	Sorghum			
8.3b	Millet			
8.3c	Other cereals *(wheat, maize)*			
8.3d	Groundnuts, legumes			
8.3e	Meat/Chicken, bush meat, etc			
8.3f	Cooking oil			
8.3g	Vegetables			
8.3h	Fruits			
8.3i	Milk, yoghurt, cheese, etc.			
8.3j	Eggs			
8.3k	Sugar			
8.3l	Wild foods *(including leaves)*			

Source codes: *1 = Own production/collection* *2 = Purchase*
3 = Traded goods or services *4 = Kinship/gift* *5 = Borrowed*
6 = Food aid *7 = other*

Section 9 – Food Security coping

9.1 - In the past 30 days, did your household ever not have enough money or food to meet your food needs?

1 = Yes 2 = No *(Skip to Section 10)*

During that time, did you ever use any of the following strategies?
(Circle all that apply)

In past 30 days

9.2 – Shift to less preferred foods
9.3 – Reduce number of meals eaten per day
9.4 – Reduce the amount of food eaten by adults
9.5 – Borrow food from family or friends
9.6 – Purchase food on credit
9.7 – Collect wild foods, hunt or harvest immature crops
9.8 – Sell or slaughter livestock (goat, sheep, and chickens)
9.9 – Migrate out for work
9.10 –Go an entire day without eating
9.11 – Worked for food only
9.12 – Begging (*mosada*)

Section 10 – Food aid and other assistance

10.1a – Did your household receive any food aid before the crisis?

1 = Yes 2 = No

10.1b – Has your household received any food aid in the past 60 days?

1 = Yes 2 = No *(Skip to 10.5)*

10.2 – If so, how much of the following commodities did you receive?

- Cereals (sorghum/wheat) |__|__|.|__| *kgs*
- Pulses |__|__|.|__| *kgs*
- Vegetable oil |__|__|.|__| *kgs*
- Blended food (CSB) |__|__|.|__| *kgs*

10.3 – How much of each did you trade or sell?

- Cereals (sorghum/wheat) |__|__|.|__| *kgs*
- Pulses |__|__|.|__| *kgs*
- Vegetable oil |__|__|.|__| *kgs*

10.4 – How much do you have left of each commodity?

- Cereals (sorghum/wheat) |__|__|.|__| *kgs*
- Pulses |__|__|.|__| *kgs*
- Vegetable oil |__|__|.|__| *kgs*

10.5 – Did you receive hand tools/*muharat* from any agencies this year?
(Circle if 'yes')

1 = FAO
2 = NGO
3 = Ministry of Agriculture

Measurements in Darfur:
1 *rotule* = 0.444 kgs
1 kilogram = 2.25 *rotules*
1 *kora* = 4 *rotules* = 1.75 kgs = small bowl
1 *mite* = 12 *rotules* = 5.3 kgs = large bowl
1 *melva* = 16 rotules = 7.1 kgs = one cylinder

1 *gontar* = 100 lbs = 44.8 kgs

Note:
Kora used by Fellata and Arabs = 3.1 kgs

Annex 3 – Questionnaire form nutrition survey

Interviewer_____

State: North/ West/ South *(circle)* **Locality**: _____ *(circle)* **Community**: Village / Camp / Town: _____ *(write out)*

Team No: 1 2 3 **Cluster**: _____ **Household No**: _____ **Date (dd/mm): ____/09**

Consent: Read introduction paper. Check once it has been read and if household has given permission.

SECTION A:

1. Respondant (check)
- ☐ Male head of household
- ☐ Female head of household
- ☐ Other female adult
- ☐ Other male adult

2. **Marital status of HH head (check)**
- ☐ Married (family has one wife)
- ☐ Married (more than one wife)
- ☐ Widowed/widower
- ☐ Never married / single
- ☐ Divorced

3. Is your family currently displaced from your normal place of living? *(circle)* **Y / N / DK** **3a. If YES, how many months has your family lived here?** ☐☐

3b. If YES, where did your family live before? ***(check)***
- ☐ 1. Nearby village (<10 km)
- ☐ 2. Other village/same locality
- ☐ Village/other locality in this state
- ☐ Other state/country (list)_____

SECTION B*: I would now like to ask you about each person who lived in this household* ***at the time of the most recent Eid Al Adha (Wahid)***

First fill out the age column

1. Alive (living in this household)
2. Alive (living elsewhere, migrated) > **If code is 2 or 3, enter month**
3. Died > **If code is 3 enter cause of death from card**
4. Missing/unknown

Person No.	Age (years)	Sex (circle)	Current Status as of TODAY	Month of migration/ death	Cause of death **(Enter code)**	If code 8 or 9, describe
1 (HH head)		**M / F**	**1 2 3 4**			
2		**M / F**	**1 2 3 4**			
3		**M / F**	**1 2 3 4**			
4		**M / F**	**1 2 3 4**			
5		**M / F**	**1 2 3 4**			
6		**M / F**	**1 2 3 4**			
7		**M / F**	**1 2 3 4**			
8		**M / F**	**1 2 3 4**			
9		**M / F**	**1 2 3 4**			
10		**M / F**	**1 2 3 4**			
New Born	Age (years)	Sex (circle)	Current Status as of TODAY	Month of migration/ death	Cause of death **(Enter code)**	If code 8 or 9, describe
11		**M / F**	**1 2 3 4**			
12		**M / F**	**1 2 3 4**			

SECTION C:

4. Do you have a ration card or token? Y / N / Don't know (Show example of ration card)

5. In which months did you receive a general ration? (Read each month)

April	May	June	July	August	September
☐	☐	☐	☐	☐	☐

6. IF household has received food aid (general ration) since July, please tell me how much of each item you received last food distribution.

6b. Sorghum _____ kgs (1 bag = 50 kg)
6c. Wheat _____ kgs (1 bag = 50 kg)
6d. Pulses _____ containers (1.5 kg each)
6e. Oil _____ liters
6f. Blended food _____ containers (1.5 kg each)

7. In the past 7 days, how many days has your household eaten the following items:

		8 How is it prepared? *(check answer if appropriate)* **Milled**	**Boiled**
7a. _____ Millet	**8a.**	☐	☐
7b. _____ Sorghum	**8b.**	☐	☐
7c. _____ Wheat	**8c.**	☐	☐
7d. _____ Meat/fish			
7e. _____ Dried Vegetables			
7f. _____ Fresh vegetables			
7g. _____ Oil			
7h. _____ Pulses			

9. Does your household have any bednets that are being used while sleeping? Y / N / DK

10. Current shelter (circle one): 1. No shelter 2. Plastic sheeting 3. Tent 4. House

11. Description of toilet facilities available:

☐ Pit latrine
☐ No facility/bush/field
☐ Other

Mother Questionnaire-Darfur Nutrition Survey, September 2004
**** TO BE FILLED OUT FOR EACH WOMAN WITH A CHILD AGED 6-59 MONTHS**

State: North/ West/ South **Province**: _____ **Community**: Village / Camp / Town: _____
(*circle*) *(circle)* *(write out)*

Team No: 1 2 3 **Cluster:** **Household No:** **Date (dd/mm):** **/09 /04**

1. Age (years) ☐☐

2. Are you currently pregnant? Y / N / Don't know

2a. If pregnant, MUAC ☐☐.☐ cm

3. Are you currently breastfeeding? Y / N

4. During the pregnancy of your last child, did you suffer from night blindness (local term) Y / N / Don't know

5. Are you currently enrolled in a supplementary feeding program? Y / N / Don't know

6. Morbidity Question: Have you had any illnesses in the past 2 weeks? What have you had?

6a. ☐ No illness *(check all that apply)*

6b. ☐ Watery diarrhea

6c. ☐ Bloody diarrhea

6d. ☐ Cough

6e. ☐ Fever/Malaria

6f. ☐ Other

7. Clinical exam: (use colored card and check if symptom is present)

7a. ☐ Gums bleeding spontaneously

7b. ☐ Angular stomatitis

7c. ☐ Goitre

8. Hemoglobin level ☐☐.☐

9. DBS Y / N ☐

Child (6-59 months) Nutrition Questionnaire-Darfur Nutrition Survey, September 2004
[Respondent of this questionnaire should be the mother]

State: N / W / S **District:** _____ **Area:** Village / Camp / Town: _____
(circle) *(circle)* *(write out)*

Team No: 1 2 3 **Cluster:** _____ **Household No**: _____ **Date (dd/mm):** **_____/09 /04**
(circle)

Child	**Respondent Relationship to child** (1=father, 2=mother, 3=sibling, 4=grandparent, 5=aunt/uncle, 6=other)	**Child age (months)** Use local calendar	**Sex** (Circle one)	**Child Currently enrolled in:** S=SFP T=TFP N=No	**Measles Vaccination** 0=No, 1=yes, by card, 2=yes, no card, 9=unknown	**Vitamin A Capsule Since Wahid?**	**Was your child sick in last 2 weeks? What did they have?** 1. diarrhea 2. measles 3. ARI 4. fever 5. malaria 6. other (list up to 3)	**Weight (kg)**	**Height (cm)**	**Oedema**
Child 1			**M / F**	**S/ T/ N**		**Y/ N/ DK**				**Y / N**
Child 2			**M / F**	**S/ T/ N**		**Y/ N/ DK**				**Y / N**
Child 3			**M / F**	**S/ T/ N**		**Y/ N/ DK**				**Y / N**
Child 4			**M / F**	**S/ T/ N**		**Y/ N/ DK**				**Y / N**
Child 5			**M / F**	**S/ T/ N**		**Y/ N/ DK**				**Y / N**
Child 6			**M / F**	**S/ T/ N**		**Y/ N/ DK**				**Y / N**

1. Diarrhea = 3 or more loose watery stools in 24 hour period *** If more children, fill out additional page**

3. ARI = Cough and difficulty breathing

Child (6-59 months) Nutrition Questionnaire-Darfur Nutrition Survey, September 2004
Clinical Exam

State: North / West / South *(circle)* **District:** _____ **Area:** Village / Camp / Town: *(circle)* _____ *(write out)*

Team No: 1 2 3 *(circle)* **Cluster:** _____ **Household No**: _____ **Date (dd/mm):** **_____/09**

Child	Bitot's Spots	Gums bleed spontaneously	Angular somatitis	HB	DBS
Child 1	**Y / N**	**Y / N**	**Y / N**		
Child 2	**Y / N**	**Y / N**	**Y / N**		
Child 3	**Y / N**	**Y / N**	**Y / N**		
Child 4	**Y / N**	**Y / N**	**Y / N**		
Child 5	**Y / N**	**Y / N**	**Y / N**		
Child 6	**Y / N**	**Y / N**	**Y / N**		

Child 1 Child 2 Child 3 Child 4 Child 5 Child 6

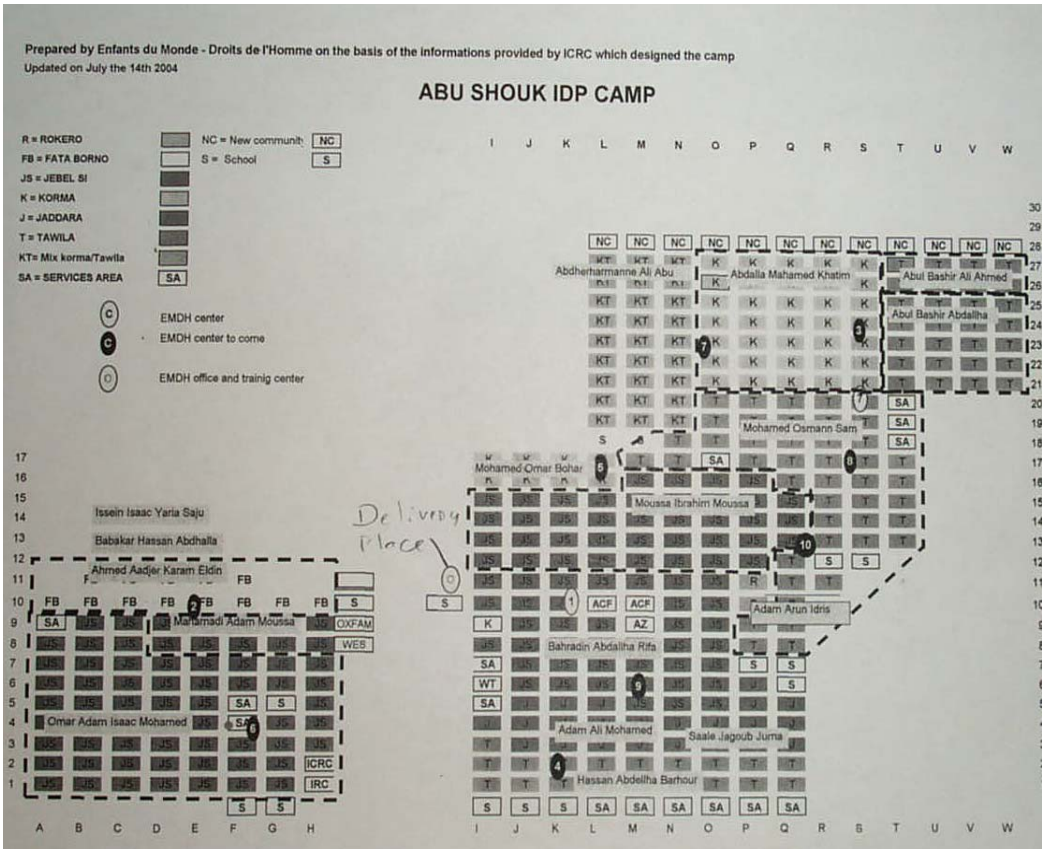
*** If more children, fill out additional page**

Verbal autopsy to determine cause of death: Darfur 2004

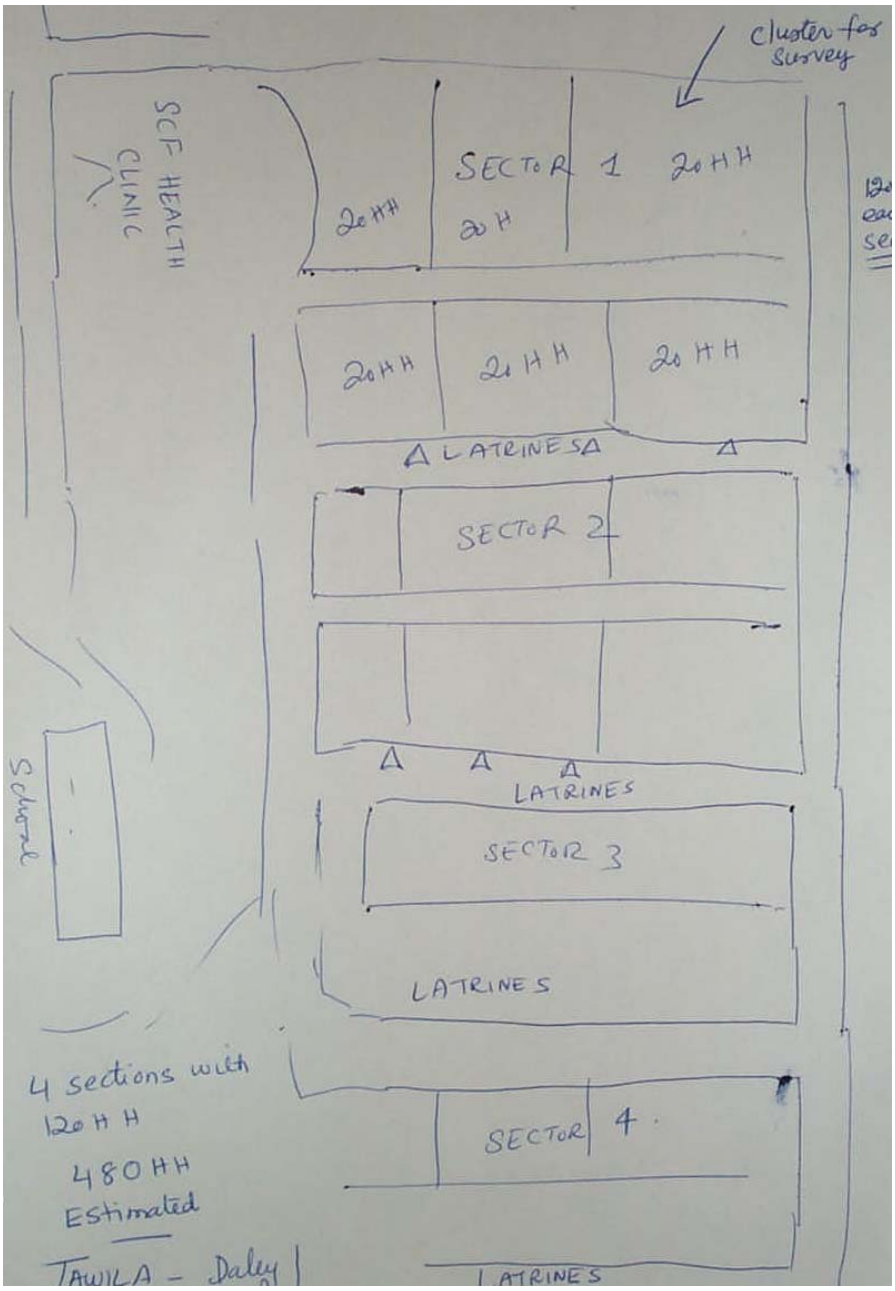
1)	Did _____ have (local term for measles)?	If YES.....	**STOP. Record code 1**
	If NO	Go to next question	
2)	Did _____ have (local term for tetanus)?	If YES.....	**STOP. Record code 2**
	If NO	Go to next question	
3)	Did _____ have liquid, watery, soft, OR frequent stools?	If YES.....	Go to next question
	If NO	Skip to question #6	
4)	Did _____ have (local term for diarrhea)?	If YES.....	Go to next question
	If NO	Skip to question #6	
5)	Did _____ have blood in the stool?	If YES	**STOP. Record code 4**
		If NO	**STOP. Record code 3**
6)	Did _____ have fever OR hot body?	If YES	Go to next question
	If NO	Skip to question #8	
7)	Did _____ have stiff neck OR bulging fontanelle?	If YES.....	**STOP. Record code 5**
	If NO	Go to next question	
8)	Did _____ have cough OR difficulty breathing?	If YES.....	Go to next question
	If NO	Skip to question #10	
9)	Did _____ have fast breathing OR chest indrawing?	If YES.....	**STOP. Record code 6**
	If NO	Go to next question	
10)	Did _____ have convulsions?	If YES	**STOP. Record code 7**
		If NO	Go to next question
11)	Did _____ die from an accidental injury? (car accident, fall)	If YES……	**STOP. Record code 8**
	If NO	Skip to next question	
12)	Did _____ die from a violent (intentional) injury?	If YES.....	**STOP. Record code**

FOR CODES 8 OR 9 DESCRIBE ON CHART

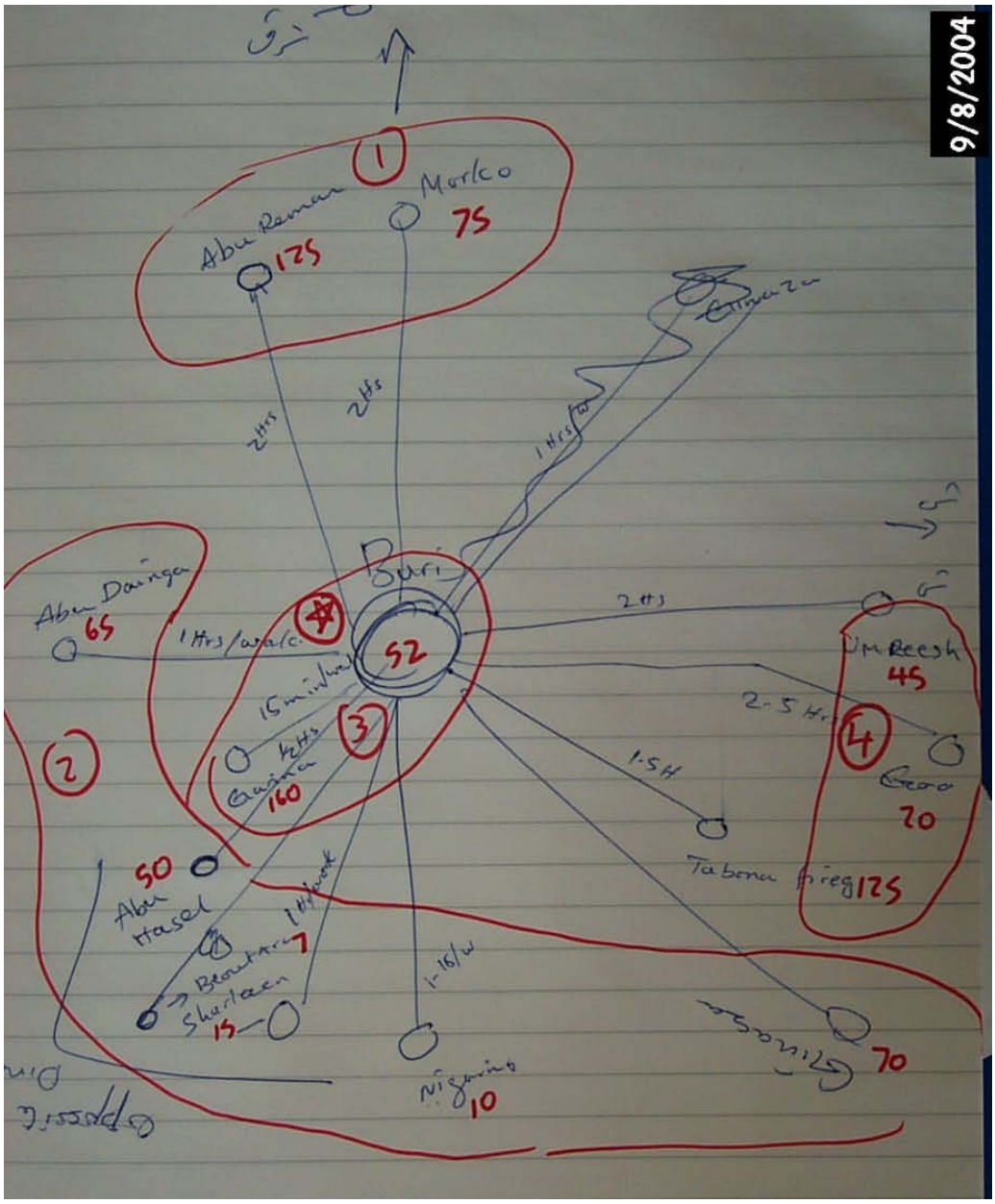
Annex 4 - Cluster sampling based on map available in a managed camp



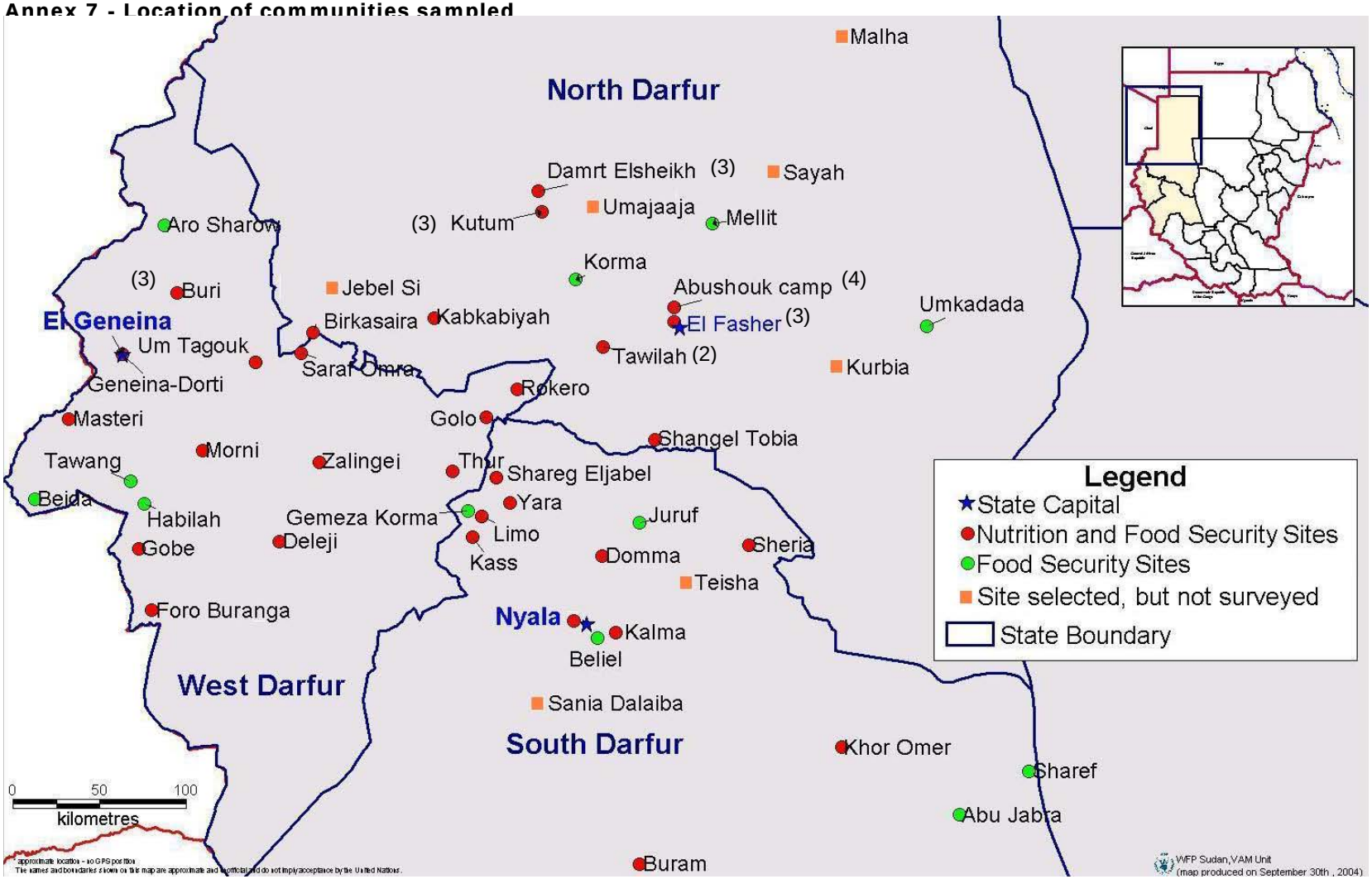
Annex 5 - Cluster sampling based on sketch in a spontaneous / unplanned camp



Annex 6 - Cluster sampling based on sketch in a remote village



Annex 7 - Location of communities sampled



Note * Though Umajaaja was selected as nutrition and food security sites, only food security survey was conducted.
† The numbers in the brackets stands for the numbers of sub-communities the surveys covered.

Annex 8 - Gender analysis matrix (1)

	IDPs in Rural Camps	IDPs in Urban Camps	IDPs in towns	Urban Residents	Rural Residents
ASSETS & OWNERSHIP	Women (their households) lost all productive assets (land and livestock). Very few could rescue some furniture, a donkey, food stocks etc. While legally all land is owned by men, various forms of land use (usufruct rights) by women exist. Traditionally a husband gives some land and livestock to his wife/wives, according to the number and sex of her/their children, and they cultivate the land jointly. In some cases, women entirely control the income from their land and decide how to spend it. However, money is the domain of men, and any amount beyond the daily needs will normally be controlled by men. Abandoning their fields, women have lost the only assets from which they derived a kind of ownership and certain rights.			Farmers may have lost livestock and may now cultivate less or no land due to insecurity.	Some have lost livestock; many cultivate less or no land due to insecurity.
PRODUCTION & INCOME ACTIVITIES	Women compete for the few employment opportunities outside the camp, e.g. as agricultural laborer (Kass: 300 Dinar or US$ 1.25 per day). If Janjaweed are close, men would often not dare to work on the fields. Some women sell firewood for 50 Dinar (US$0.20) per bundle, which may take them 6- 7 hours to collect. If there is sufficient demand (large IDP camp such as Kalma, local markets) women continue making handicrafts as they did at home, such as baskets, pots, mats and caps. These income generating activities usually bring less than US$ 1 per day. Large camps offer some jobs for IDPs with aid agencies.	Nearby towns offer employment opportunities for women such as domestic help (Nyala: 3,000 Dinar per month or US$ 12), carrying soil for construction (200 Dinar per day or US$ 0.77), brick making (El Fasher: 250 Dinar per day). Some women continue making handicrafts as they did at home, such as baskets, mats and caps. Income from this kind of handicraft is usually much less than US$ 1 per day.	IDPs in urban areas compete with residents and IDP s in camps close to town for casual and agricultural labor. Quite a number of IDPs in El Fasher have rented houses, and are obviously better off.	Poor urban residents compete with IDPs for employment opportunities as casual laborers. The ones with jobs in the public sector and service sector are mainly affected by the price increase of basic goods. Many families support displaced relatives, sometimes stretching their resources to a point where they have to reduce food intake.	Women do most of the agricultural activities: land preparation, planting, weeding, harvesting and food processing. Men seem to be more involved in land preparation and harvesting, and rather in the cash cop sector. Since the conflict, men avoid going to the field of fear being killed, leaving women - often elderly - doing all the work alone. Women continue with income generating activities such as handicraft and food processing. However, where trade has been disrupted due to insecurity, and reduced income depresses demand for NFI, market activities have slowed down reducing turnover of market sellers. In rural Berkasaria, elderly female IDPs work on land, occupied by Janjaweed, for daily wages.
EXPENDITURES	Depending on what sectors are adequately covered in the camps, water, health services and schools are free, relieving IDPs from an otherwise huge burden on their income.		IDPs in urban areas as well as many urban residents depend entirely on the market to access food and NFI. They are severely affected by the steep increase in market prices of water, firewood, food, sometimes school fees and other items. E.g. in Kass, prices of meat, charcoal and water doubled within one year (from 400 Dinar for one kg meat to 700 Dinar, and from 100 Dinar for 12 l water to 200 Dinar). Casual laborers are most affected, as not only their expenditures skyrocket, but also their daily income opportunities are reduced by the increased labor supply.		Rural residents might have additional expenditures if they cannot collect firewood anymore and have to buy it from the market. Depending on whether the household is still able to produce surpluses for the market or whether they need to buy food, they will be positively or negatively affected by the market price increases.

Note The information in this table is based on 12 interviews with individual women and focus groups, discussions with key informants, observations and secondary literature review. The table is a summary of this qualitative information and an attempt to point out differences between IDPs and residents in camps, urban and rural areas. The results of the quantitative food security survey will show whether and to what extent some of this information is representative for a significant number of women.

Annex 8 - Gender analysis matrix (2)

	IDPs in Rural Camps	IDPs in Urban Camps	IDPs in towns	Urban Residents	Rural Residents
ACCESS TO WATER	In well established camps this water supply is usually not a major problem anymore. It is women and girls, and in case of hand pumps also few boys who fetch water.		Many residents have to buy water from vendors, tankers etc. Market prices increased as a result of the conflict, e.g. in Kass, the price of one barrel of water (12 l) increased from 100 Dinar to 200 Dinar within one year.		In the south fetching water can take up to 2 hours, in the north even more. It is traditionally the job of women and girls. If hand pumps exist, also boys would fetch water.
ACCESS TO FUEL	Where it is difficult, for security reasons, to collect firewood, or where IDPs have already grazed the area around the larger camps, it has be bought from the market (Nyala: US$ 0.20 per bundle); or other fuel is used, such as a thorny plants that grows in the desert.	In the surroundings of urban camps firewood is very scarce, particularly in the north.	Collecting firewood in areas surrounding town is becoming increasingly difficult for IDPs as well as residents living at the outskirts. They are competing – often also with IDPs in camps close to town - for this very scarce resource. If they rely on the markets they have to pay more now due to price increase. Better off households buy charcoal. In Kass the price of charcoal doubled from 500 Dinar/bag in 2003 to 1,000 Dinar today. One bag lasts 7 days.		Traditionally, firewood collection is always done by women and girls. Rarely boys are helping out. In the north, daily firewood collection can easily take 4-5 hours, while in the south it is less than half the time. If Janjaweed are close, women go only to areas near the village and buy additional firewood from the market (Berkasaria: 100 Dinar per day).
CHILD CARE & EDUCATION	Compared to their earlier life, women in camps have more time for child care. They have now all the hours they used to work on their field. They spend less time for food preparation (many hh eat only twice a day compared to three times before the conflict) and for fetching water. But this is partly offset by more time spend on firewood collection. Also, more caring time is needed as many children have more health problems than back in their village. In some places a considerable amount of time is spend on "lining up" for food distribution and health services, which is usually done by women. If camp schools exist, most IDP children attend classes. This probably means that enrollment among these school age children is higher than it was before the conflict. Back in their villages schools were often far away, too expensive for the poorest, and not considered a priority for girls who had to help with domestic chores. If and where possible, this momentum should be seized in the recovery phase through school feeding for returnees.		Displaced women living in urban areas are likely to have less time than the ones in camps, as they need more time to meet the basic needs in terms of water and food, and are more pressed to earn an income to be able to eat. However, many seem to receive a lot of support from relatives with whom they are staying, although no data are available on the extent of this support system. Some overcrowded schools in El Fasher have either increased fees or closed doors for new students, thus making it difficult for IDPs to enroll their children.	It is the poorer women and their daughters, who depend on firewood collection and have now to spend more time foraging for wood. In towns were schools have increased fees to control overcrowding, residents suffer.	In insecure areas (Berkasaria) women fear for their children and take them with them wherever they go.
HEALTH AND HEALTH SERVICES	Women report that their children have a lot of fever and diarrhea, and that they suffer a lot, especially from the heat in places where there are hardly any shades.		IDPs in town obviously have not the advantage of free health services as IDPs in camps. Only if camps are close they may use the free health services	Deteriorating livelihoods affect health and nutrition, especially of women and children, and are most probably increasing the demand for health services.	

Annex 8 - Gender analysis matrix (3)

	IDPs in Rural Camps	IDPs in Urban Camps	IDPs in towns	Urban Residents	Rural Residents
FOOD CONSUMPTION	Most women report to eat only twice a day, compared to three times in their villages. All hh with livestock consumed meat and milk at least twice per week. In many camps the food basket is incomplete with one to three items missing, putting the hh without additional income in a precarious situation. Often, CSB is only given to children as an additional snack. Very problematic is the sharing of SF and TF rations with other children. If they have cash, women try to supplement the rations with sugar, meat, occra etc. Milk is not bought.		Depending on their income and support from relatives, families can afford two or three meals per day. They usually consume less meat than before and no milk anymore. If camps are close, women get their malnourished children admitted in SFC and TFC, and may get food ration cards (El Fasher, Nyala).	The poorer urban residents will most likely reduce quantity and quality of their diets due to price hikes. As men eat first and women eat leftovers, women will get a disproportional smaller share of high value food items such as meat. Sometimes small children get preference if food is scarce. Boys seven years and older eat with their father. Thus, women and girls are most affected in times of food shortages.	Women may still grow enough staple food for hh consumption, thus not reducing the number of meals, but due to higher market prices they are likely to have less variety of food items and less meat. As men eat first and women eat leftovers, women will get a disproportional smaller share of high value food items such as meat.
PARTICIPATION & DECISION MAKING	The conflict and displacement has not changed much for women in terms of decision making within the household. If it was common to consult women and take decisions jointly then the husband or any other men who takes care of the women in the absence of the husband would continue to do so. If men were not considering women's views, they would not do it in the camps either. In the few cases where there is no men in the extended family who takes this responsibility, women will find themselves in a new situation, where - for the first time in their lives - they are confronted with making all the choices themselves. Changes may have occurred though in terms of control over cash and other resources, depending on the change in income activities. Women, who are now working as casual laborers, may have more money than before that they can use to purchase food and NFI. Equally, female participation in community matters has not changed much, where whole village fled together with their sheikhs.			Sheikhs (only men) are the traditional local leaders, who represent their community. Many of them consult men and women, although in some communities they seem to talk only to men.	
SOCIAL SUPPORT SYSTEM	Social support structures such as *zadak* and *zamduk* or women's societies are torn apart by displacement, they are not functioning anymore in camps. Relatives appear to provide the main support system for desperate households.			Where communities have not been torn apart by conflict, women can still rely on their social support systems, such as women's societies, *zamduk and zadak* and their extended family.	
SECURITY	While it seems to be worse in rural areas, security is a major concern for most women. They all report incidents were women were beaten and raped when they ventured outside the camp, mainly for firewood collection. In the "safe zones" (such as Kalma and Kass), the stronger police presence does not seem to have changed anything in the perception of women. Some feel even more insecure now.		In urban areas security seems to be better than in other places.	Rural residents are most exposed to attacks by Janjaweeds. Differently from the camps, there is no international presence that would witness or monitor human rights abuses. Food assistance without protection puts some communities at high risk of looting and killings. Hence, in places that are surrounded by Janjaweed, residents may even reject help despite being clearly in need (Berkasaria).	
THREE MOST URGENT NEEDS	Food Health Cooking utensils Beds	Food (2 x), Beds (2 x), Cooking utensils (2 x), Meat, Security to go back home, Clothes, Shelter, Water, Blankets, Education	Food (2 x), Housing (2 x), Education (2 x), Health, Security to go back	No urgent needs, Food, Water, Education (school fees are too high)	Security, Support for Income Generating Activties

Annex 9 - Nutrition surveys conducted in Darfur since the start of the present crisis

Location	Agency	Month	Methodology	Nutritional results
North Darfur				
Abu Shok Camp	ACF	June 2004	Under 5, Multi-stage cluster	GAM: 39% SAM: 9.6%
Malha	SCU-UK	June 2004	Under 5, Multi-stage cluster	GAM: 23.2% SAM: 2.0%
Kutum	Goal	Feb-Mar/2004	Under 5 Multi-stage cluster	GAM: 12.6% SAM: 0.8 %
West Darfur				
Kirinding	SCF/US	March 2004	Under 5	GAM: 17.5% SAM: 3.75%
Sirba		First six months 2004	Under 5	GAM: 14.6% SAM: 2.43%
Kundabi		First six months 2004	Under 5	GAM: 11.25% SAM: 3.75%
Kundabi		First six months 2004	Under 5	GAM: 11.25% SAM: 3.75%
Selea		First six months 2004	Under 5	GAM: 28.75% SAM: 1.25%
Kulbus		First six months 2004	Under 5	GAM: 16.5% SAM: 3.75%
Sisi		First six months 2004	Under 5	GAM: 21.25% SAM: 6.25%
Madinat El-Hujaj		First six months 2004	Under 5	GAM: 10% SAM: 1.25%
Dorti & El-Riyad		First six months 2004	Under 5	GAM: 20% SAM: 0%
Mornie		First six months 2004	Under 5	GAM: 29.2% SAM: 8.75%
Keranic		First six months 2004	Under 5	GAM: 8.75% SAM: 2.5%
Garsilla	MSF/H	April 2004	Under 5	GAM: 21.5% SAM: 3.2%
Umkherer	MSF/H	April 2004	Under 5	GAM: 32.1% SAM: 1.6%
Bindizi	MSF/H	April 2004	Under 5	GAM: 17.7% SAM: 1.7%
Deleig	MSF/H	April 2004	Under 5	GAM: 24.6% SAM: 3.3%
Mukjar	MSF/H	April 2004	Under 5	GAM: 25.3% SAM: 4.7%
South Darfur				
Kalma Camp	MSF/H	August 2004	Under 5	GAM: 23.6% SAM: 3.6%
Kass	MSF/H	August 2004	Under 5	GAM: 14.3% SAM: 2.0%
Nyala Town	ACF	September 2004	Under 5	GAM: 23% SAM: 2.5%

Annex 10 - Detailed nutrition survey methods

Due to logistical, time, and security constraints, it was only possible to conduct one single survey covering an area that was inclusive of all three Darfur states. The same constraints also limited the total number of households that could be surveyed within the survey period.

I. Sample size

Sample size calculations used the following assumptions: 1) the limit of statistical significance (alpha) is 0.05 (that is, 95% confidence interval will be used), and 2) the power (beta) equals 0.8. Estimates of demographic data used to formulate assumptions for sample size calculations came from a CDC-assisted survey carried out by the United Nations High Commissioner for Refugees and WFP among refugees from Darfur settled in northern Chad[2]. We assumed an average of 1.35 children aged 6-59 months of age, a family size of six and one mother per household. Prevalence estimates were based on previous non-governmental organization (NGO) surveys carried out in Darfur, the survey carried out in Chad, UNICEF's State of the Worlds Children 2004 and the Mixed Indicator Cluster Survey (MICS) carried out by UNICEF in Sudan in 2000.[3,4] However, because the sample size required to achieve a given statistical precision increases as the estimated prevalence approaches 50%, assumed prevalence rates for this survey were assumed to be closer to 50% than those found in other surveys, in order to avoid having a final sample size that was too small. For some indicators (for example anemia and malnutrition in pregnant women) the required sample size was unfeasibly large for logistical reasons, and it was accepted that the survey would not be able to measure these indicators with any useful precision.

Because sampling involved using cluster survey methodology, it was necessary to increase the sample size by a factor which would allow for the design effect. The design effect is the ratio of the variance of the estimate obtained using cluster survey methodology to the variance that would be obtained if a simple random sample were taken of the same sample size. Design effects were estimated using previous CDC surveys carried out in similar emergency situations as well as published design effects from demographic health surveys. The desired precision was based on the estimated prevalence and cut-offs for programmatic action.

Assumptions and estimated sample size for selected nutrition and vaccination outcomes, Darfur Nutritional Assessment, August-September 2004.

Target group and indicator	Estimated prevalence[+]	Design effect[±]	Desired Precision[‡]	Sample size[§]	Households
Children 6-59 months					
Acute malnutrition (< -2 SD)	35%	2	±5%	698	517
Anemia (<11.0 g/dl)	50%	1.5	±5%	576	427
Vitamin A deficiency	20%	1.5	±5%	369	273
Measles vaccination coverage	50%	2.0	±5%	768	569
Pregnant women*					
Malnutrition (MUAC < 21.0)	20%	2	±10%	122	1,016
Anemia (<11.0 g/dl)	50%	1.5	±10%	144	1,200
Mothers of children <5 yrs					
Anemia (<12.0 g/dl)	50%	1.5	±5%	576	384

[+] From previous surveys and erring towards 50%
± Design effect of >1.5 chosen as malnutrition due to displacement may be clustered
[‡] Without adjusting for missing and refusals
[§] Assuming 1.35 children aged 6-59 months, 1.5 children aged 0-59 months and proportion of pregnant women of 2%
* Owing to the large sample size required the survey was not anticipated to be able to measure anemia and malnutrition in pregnant women with any useful precision

The primary objectives of this survey were to measure the nutritional status of young children, their micronutrient status and that of their mothers, and to examine the coverage of essential nutrition and health programs. However, an additional objective of the survey was to estimate the crude mortality rate (CMR) with as much precision as a logistically feasible sample size for the nutrition survey would allow. Based on a CMR of 1.0 per 10,000 per day, a 95% CI of 0.5 and a design effect of 2

and rates calculated for two-month increments a total of 854 households would be required (see below).

An estimated CMR of 1 per 10,000 per day was considered conservative. Previous surveys in conducted in Darfur reported mortality rates between 1 and 4 deaths per 10,000 per day.[1] The benchmark for an emergency is >1 deaths per 10,000 per day.[5] For the CMR a design effect of two was used. This is could be considered an underestimate, as conflict-related mortality might be highly clustered. The same design effect was assumed for under-five mortality. Deaths in this age-group are more likely to be infectious disease related and therefore less likely to be clustered. The figure of 854 households required is before adjusting for refusals and non-response. The number of households required assumes a household size of six. As mentioned above, sample size was driven by the nutrition objectives of the survey rather than mortality.

Sample size projections for a cluster survey of mortality in Darfur looking at crude mortality rates in two-month increments

Mortality indicator	Estimated rate	Design effect	95% CI	Sample size	Households
Crude Mortality Rate	1/10,000 per day	2	±0.5	5,122	854
Under-five MR	4/10,000 per day	2	±2	1,281	854

In most circumstance little additional benefit is gained from increasing the number of clusters above 30. However, in the case of the crisis affected population in Darfur, reports suggested that conditions varied from state to state and might also differ according to whether the affected population was displaced or non-displaced, or if displaced whether living within camps or among the general population. To allow for potentially significant variability in outcomes of interest within the population of interest, the number of clusters targeted was increased to 45 with 20 households to be selected in each cluster.

Selection of the primary sampling unit (clusters)

Primary sampling units were drawn from a list of 1,655,988 persons in 140 locations in all three Darfur states identified as crisis affected by the United Nations (UN) as of August 2004. The list was augmented by additional data from NGOs in Khartoum. The list comprised of IDPs in camps (official and spontaneous), IDPs living amongst the resident population, and residents considered crisis-affected- defined as a location where the IDP population was equal to or greater than that of the host community. This list is also used by WFP to target locations for distribution.

At the time the sample was drawn, some areas of Darfur were inaccessible mainly due to insecurity, but also because of seasonal rains. However, as both the security situation and the logistical access to locations were extremely fluid, it was decided to not exclude any locations from the sampling frame for these reasons. Instead, 55 clusters rather than the required 45 were initially chosen on the assumption that as many as 10 clusters would be inaccessible for the duration of the survey period. Clusters were chosen population proportionate to size using C-sample (Epi Info version 6.04.B).[6] Population data were updated at the field level in each state at the time of the survey.

Second and subsequent stages of sampling (cluster location within the chosen community)

At the state capital level, data on the affected population from UN Agencies and NGOs were reviewed. At the local level, community leaders were asked for population information following reassurances that these data would not be linked to food or non-food item allocation purposes. NGOs delivering services at the local level were also involved in population estimation and mapping.

In order to determine the actual location of clusters within selected locations, sampling population proportionate to size was used. The goal was to reach a population level of 100-200 households from which to choose the final 20. In towns and large camps, several stages of sampling were required. Three main methods to achieve this were employed to achieve population proportionate to size sampling depending on the situation.

(1) In planned camps it was often possible to obtain maps dividing the population into sectors of known population size from the NGOs providing camp services. In these cases a cumulative population list by sector was compiled and a random number table used to select the cluster location. If each sector was of equal size, one sector was chosen using a random number table.

(2) In spontaneous or unplanned camps, it was often impossible to find an existing map with population data. However, it was reported that all households belonged to a Sheik and no household belonged to more than one Sheik. Furthermore, in unplanned camps, IDPs belonging to the same Sheik were reported to live together for the most part. In these cases a cumulative list of household numbers by Sheik was compiled and a random number table used to select the cluster location.

(3) In large towns and villages and locations with a mixture of IDPs in and outside camps, and resident populations, the Sheik household listing method was used whenever possible. However, in most cases it was not. In these cases community leaders, NGOs and others participated in mapping the community and compiling cumulative population lists by section and a random number table used to select the cluster location. In a few cases, only the proportion of the population living in each section was known and this was used to select the cluster location.

Selection of the basic sampling unit (household)

A household was defined as those sleeping in the same structure and eating out of the same pot. Members of a household were not necessarily relatives by blood or marriage. If several separate families were living in the same compound they were regarded as separate households. If a polygamous family lived and ate together they were considered one household. Once the cluster location was identified, the team leader walked the boundary of the cluster with a community leader. The total number of households was divided by 20 to provide a sampling interval, which was usually between five and twenty depending on the size of the cluster location. The team leader then identified each selected household and after getting initial consent from a household member, marked the household with tape or with a number marked in the dirt or marked by rocks.

All chosen households were selected, whether or not they contained a child 6-59 months. If household members were not present, community members were asked to bring them. Households were visited at least three times in an effort to identify household members, unless security or logistic constraints prohibited the amount of time spent in a cluster. Basic demographic information was taken from an adult relative (usually brother or sister of the head of household) if available. If the members had departed permanently or were not expected to return before the survey team had to leave the village, the household was skipped and not replaced. Where possible, survey teams visited the cluster location on two successive days or (security permitting) slept close to cluster location.

Training and data collection

Training and data collection were conducted separately in each of the three states. Each state team shared issues arising from training and sampling daily by satellite telephone. State teams were comprised of at least one international WFP nutritionist and one international CDC epidemiologist who were present throughout the data

collection period. Other UN agencies, particularly UNICEF, also participated in the survey and NGOs provided staff members where possible. Team composition varied by state, due to logistical differences and access constraints. All survey workers received 2 days of classroom training and 1 day of field practice training under close supervision. Team members were trained jointly on the rationale for the survey, sampling, consent and questionnaire administration and referral. Separate training was then conducted for team members involved in questionnaire administration, anthropometric measurements and laboratory testing.

Questionnaire

A data collection tool was created after consultation in collaboration with WFP and CDC. The entire form was translated from English into Arabic, a major language in Darfur Region, and then back-translated into English by a second translator (see Annex 3 for the English form). The survey instrument was pre-tested in communities in South and West Darfur, which were not included in the survey sample and revisions made accordingly.

Following consent, interviewers asked a series of household questions about the marital status of the head of the household and displacement. Additional questions on ration cards and the receipt of rations over the previous 6 months, as well as the commodities received during the last distribution were asked. Households were also asked to answer a seven-day dietary recall. Questions on access to latrines, type of household shelter, and bed net use were included in the survey.

Mortality was assessed using the retrospective household census method. Respondents were asked to list all members living in the household at the time of the previous Eid Al Adha. This important religious event occurred around February 10th 2004 in the Gregorian calendar. This event was chosen as it was well-know to the population, even in isolated rural areas. First, all household members living in the household at that time were listed by age and sex, with the head of the household being listed first. The respondent was then asked where each person was at the time of interview. Possible choices were: alive and living in the household, alive, living elsewhere, missing and dead. Births and deaths occurring in each household between this time and the date of the survey were recorded along with month of occurrence. A local calendar of events was used to determine ages of household members and dates of death. Cause of death was assessed using a verbal autopsy adapted from the World Health Organization (WHO).

Survey workers asked questions of each mother with a child less than 5 years of age in the household regarding breastfeeding practice, pregnancy, mother's enrollment in supplementary feeding, night-blindness during the most recent pregnancy and illness in the two weeks prior to the survey.

Information was also gathered on each child 6-59 months of age from an adult household member (preferably the mother). Questions were asked regarding enrollment in selective feeding programs (therapeutic and supplementary), vitamin A supplementation and measles vaccination and recent illness. Vaccination records were reviewed where available. However, mothers' reports were also taken as evidence of vaccination against measles and receipt of vitamin A supplementation.

Anthropometric and Biochemical Assessments

Survey workers measured children's weight, height/length, and assessed the presence of edema. Children were weighed to the nearest 100 grams with a UNICEF Uniscale. For children less than 85 centimeters or younger than two years of age, length was measured to the nearest millimeter in the recumbent position using a standard height board. Children 85 centimeters to 110 centimeters were measured in a standing position. Edema was assessed by applying thumb pressure to the feet for approximately three seconds and then examining for the presence of a shallow print or pit. MUAC was measured on pregnant women using a MUAC measuring tape.

Where facilities existed malnourished children and women were referred therapeutic feeding centers for treatment of severe malnutrition (<70% weight-for-height percent of median or MUAC <18.5 cm for pregnant women) or to supplementary feeding programs for treatment of moderate malnutrition ($\geq$70 to <80% weight-for-age percent of median or MUAC <21.0 cm for pregnant women).

In every other household with children 6-59 months of age, consenting survey subjects underwent a fingerstick blood sample obtained by piercing the skin of the fingertip with a safety lancet. The first drop of blood was wiped away with dry gauze. A cuvette of the Hemocue® hemoglobinometer (anemia indicator) was filled with a second drop of blood. Two to three drops of blood were spotted onto Schleicher and Schuell Grade 903 paper and dried for return to the laboratory in the United States for dried blood spot retinol (vitamin A indicator).

The Hemocue® method of measuring hemoglobin concentration has been shown accurate and easy to use in the field.[7-10] Results can be obtained within 30 seconds of obtaining the blood specimen. Each filter paper containing blood spots was dried on site and stored in plastic bags containing desiccant and a humidity indicator card. Upon arrival in the United States, they were stored at –70 degrees C and will continue to be stored in this manner until elution and testing using an available high pressure liquid chromatography (HPLC) assay for retinol. The International Vitamin A Consultative Group (IVACG) recommends serum retinol as the biochemical indicator to assess vitamin A deficiency.[11] Studies from other labs have shown dried blood spot retinol to be comparable to serum retinol.[12,13] Where services were available, individuals found to be anemic were referred to clinics for supplementation.

The data collection form and the filter paper specimens from each survey participant were identified only by survey identification number. The data collection form contained no identifying information. The laboratory results, when available, will be merged with the questionnaire data using the survey identification number.

Consent

All households received a verbal explanation of the survey for both the household questionnaire, including anthropometry, and for the clinical and biochemical assessments for micronutrients. At the beginning of each questionnaire was a paragraph requesting consent from the interviewee. The consent or refusal was recorded on the form by the interviewer. Households were informed that the survey was confidential and that their answers would not affect food distributions. Participation was voluntary and households had the right to refuse to answer any or all questions, as well as anthropometric and biochemical assessments. Household and mother/child consent was recorded on each questionnaire.

Annex 11 – Composition of food baskets

General Distribution

Food Basket Commodities	Ration	Nutritional Value/100g Avg kcal	Protein (g)	Fat (g)	Food Basket Values (kcal)	Protein	Fat
Sorghum/Millet (*)	450	301.5	9.9	2.7	1356.8	44.55	12.15
Beans	50	335	20.0	1.2	167.5	10	0.6
Vegetable oil	30	885		100.0	265.5	0	30
Corn soya blend	50	380	18.0	6.0	190	9	3
Sugar	25	400			100	0	0
Salt	10	0	0.0	0.0	0	0	0
TOTALS	615				2079.8	63.55	45.75

(*) Losses in processing of white sorghum and cost of milling calculated at 10 percent.

Supplementary Feeding - for U5 children and pregnant/lactating women (*)

Food Basket Commodities	Ration	Avg kcal	Protein (g)	Fat (g)	(kcal)	Protein	Fat
Vegetable oil	20	885		100.0	177	0	20
Corn soya blend	200	380	18.0	6.0	760	36	12
Sugar	20	400			80	0	0
Salt	0	0	0.0	0.0	0	0	0
TOTALS	240				1017	36	32

Theraputic Feeding - (4 percent of beneficiaries covered by SF)

Food Basket Commodities	Ration	Avg kcal	Protein (g)	Fat (g)	(kcal)	Protein	Fat
Vegetable oil	15	885		100.0	132.75	0	15
Corn soya blend	100	380	18.0	6.0	380	18	6
Sugar	10	400			40	0	0
TOTALS	125				552.75	18	21

School Feeding - on site

Food Basket Commodities	Ration	Avg kcal	Protein (g)	Fat (g)	(kcal)	Protein	Fat
Sorghum/Millet (*)	100	301.5	9.9	2.7	301.5	9.9	2.7
Beans	20	335	20.0	1.2	67	4	0.24
Vegetable oil	15	885		100.0	132.75	0	15
Corn soya blend	50	380	18.0	6.0	190	9	3
Sugar	10	400			40	0	0
Salt	5	0	0.0	0.0	0	0	0
TOTALS	200				731.25	22.9	20.94

(*) Losses in processing of white sorghum and cost of milling calculated at 10 percent.

School Feeding - take home

Food Basket Commodities	Ration
Vegetable oil	Containers of 2.5 litres equivalent approx. 2.2 kg

Food For Work (Family ration for average 6 individuals for 15 days/months)

Food Basket Commodities	Ration	
Sorghum/Millet	45	kg
Beans	5	kg
Vegetable oil	3	kg
TOTALS	53	kg

Social Food Fund - monthly take home rations for

Food Basket Commodities	Ration	
Sorghum/Millet	15	kg
Beans	1.5	kg
Vegetable oil	1	kg
TOTALS	17.5	kg

Annex 12 - References

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