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# Interagency Review of Selective Feeding Programs in South, North and West Darfur States, Sudan, March 8 – April 10, 2008

Emily Mates, Hedwig Deconinck, Saul Guerrero, Shahed Rahman and Mary Corbett

March 2009

AED

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## Acknowledgments

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## Acronyms and Abbreviations

| | |
|---|---|
| ACSI | Accelerated Child Survival Initiative |
| AED | Academy for Educational Development |
| CHW | Community Health Worker |
| CSB | Corn Soy Blend |
| CMAM | Community-Based Management of Acute Malnutrition |
| CTC | Community-Based Therapeutic Care |
| FANTA | Food and Nutrition Technical Assistance Project |
| GFD | General Food Distribution |
| HIS | Health Information System |
| IDP | Internally Displaced People |
| IGA | Income Generating Activity |
| IMCI | Integrated Management of Childhood Illness |
| IP | Implementing Partners |
| LLITN | Long Lasting Insecticide Treated Net |
| M&E | Monitoring and Evaluation |
| MAM | Moderate Acute Malnutrition |
| MOH | Ministry of Health |
| MUAC | Mid-Upper Arm Circumference |
| NGO | Non-Governmental Organization |
| NNP | National Nutrition Program |
| NSS | National Surveillance System |
| OFDA | Office of U.S. Foreign Disaster Assistance |
| RUTF | Ready to Use Therapeutic Food |
| SAM | Severe Acute Malnutrition |
| SFP | Supplementary feeding program(s) |
| TFC | Therapeutic feeding center(s) |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| WFH | Weight for Height |
| WFP | World Food Program |
| WHO | World Health Organization |

# 1. Introduction

In March 2008, United Nations Children's Fund (UNICEF), the World Food Program (WFP), and the Academy for Educational Development's Food and Nutrition Technical Assistance (FANTA) Project, funded by the U.S. Agency for International Development (USAID), in collaboration with the Federal Ministry of Health (FMOH) and the South, North and West Darfur State Ministries of Health (SMOHs) conducted a joint review of the quality and effectiveness of selective feeding programs in South, North, and West Darfur States.

The review covered selective feeding programs and services for center-based and community-based management of acute malnutrition, including community outreach, inpatient care for stabilization of severe acute malnutrition (SAM) with complications, inpatient care for SAM until full recovery, outpatient care for SAM without complications, and blanket and targeted supplementary feeding programs (SFP). The purpose of the review was to provide evidence-based recommendations to improve selective feeding programs in the short and medium term through both direct action (including training and technical support) and indirect action (including advocacy).

While some issues relating to general food distributions were considered, a full assessment into the impact of the general food distributions on the nutritional status of the population was beyond the scope of the review.

This joint report consolidates the analysis and recommendations of the interagency review of selective feeding programs in South, North and West Darfur States (Greater Darfur). This report, like the trip to Darfur, cannot hope to be exhaustive; rather it intends to highlight pertinent issues for selective feeding programming in Greater Darfur. The draft findings from the review were presented to the Nutrition Coordination Group in Khartoum and the report incorporates feedback from stakeholders.

## 1.1 OBJECTIVES

The overall objective of the review in Greater Darfur was to assess the quality, efficacy and effectiveness of selective feeding programs.

Expected outputs focused on specific recommendations to:

1. Strengthen coverage and community involvement
2. Promote good practice for improved quality performance of selective feeding programs
3. Improve appropriateness of selective feeding programs
4. Enhance sustainability of selective feeding programs
5. Strengthen capacities of FMOH/SMOH and implementing partners (IP) in Community-based management of acute malnutrition (CMAM)

## 1.2 METHODS

To meet these objectives, a 5-person interagency review team organized visits to Greater Darfur between March 12 and April 1, 2008. The review team observed a variety of programs for the management of acute malnutrition ranging from center-based to community-based approaches. Key elements for quality programming and effectiveness of selective feeding programs were identified within an analytical framework for CMAM integration, consisting of five domains, that was developed for previous country reviews and applied to Greater Darfur:

1. Enabling environment
2. Access to selective feeding services
3. Access to selective feeding supplies
4. Quality of selective feeding programs, and
5. Competencies for selective feeding

The review of selective feeding programs consisted of document reviews; field visits with direct observation of selective feeding services; semi-structured interviews (available upon request) with key informants at national, state, health facility and community levels; and discussions with health system staff, community health workers, community volunteers, beneficiaries and non-beneficiaries. The review team met with representatives of all relevant stakeholders, including the national and state governments, the UN, IPs, community leaders, community members, and selective feeding beneficiaries and non-beneficiaries. While sites were not randomly selected for visits, efforts were made to visit a wide variety of selective feeding sites to appreciate the diverse range of operational programs. The team often broke into two in order to increase the number of site visits. Some sites were selected based on service availability on the day of the visit by the review team, others on access and security.

**Box 1a: Specific data collection activities included the following:**

Desk review:

- Review of literature on nutrition and related reports on Greater Darfur and the recent crisis
- Review of nutrition status information from survey database
- Review of selective feeding center database at state and national level
- Review of available coverage information from survey database
- Review of guidelines for selective feeding
- Review of MOH policies and strategic plans, including health and nutrition initiatives launched by MOH, WHO, UNICEF

Discussions:

- Consultation with key implementing partners and key individuals who have contributed to selective feeding programs in Greater Darfur since 2004
- Key Informant Interviews and Focus Group Discussions with stakeholders at federal, state, health facility and community level, including caregivers and beneficiaries and non-beneficiaries on community perceptions of acute malnutrition and the role of selective feeding programs in health-seeking behaviors

Observation during site visits:

- Review of adherence to national guidelines at field level
- Review of the modalities of implementation of the selective feeding programs
- Review of individual outcome of treatment.
- Identification of effective linkages between CMAM components

Triangulation of information and verification as needed

## 1.3 LIMITATIONS

Some areas where nutrition interventions were implemented were not selected for visits as they were inaccessible due to security or distance. However, discussions were held with the IPs in the state capitals or Khartoum. The time allocated for this review was relatively short, hence only a brief ‘overview’ of the current programs was possible.

A full analysis of the status of the Greater Darfur health system was beyond the scope of this review. It would however be extremely beneficial to have a better understanding of the current strengths and weaknesses of health service delivery, and what opportunities there may be to integrate at least some aspects of emergency nutrition interventions (particularly SAM service provision) within the wider context of health system strengthening. This will be vital if Greater Darfur is indeed able to move from the emergency phase to the “early recovery” phase.

# 2. Context

## 2.1 EMERGENCY PROFILE

The Darfur crisis is now in its fourth year, despite a peace agreement between the government and one faction of the Sudan Liberation Army (SLA), signed in May 2006. Fighting among armed opposition factions, Sudanese Armed Forces (SAF), and militias persisted throughout 2008. This has resulted in increased displacement of the population and has exacerbated the food insecurity situation for 4.2 million people who were already affected by chronic food insecurity, inadequate health services, a high burden of disease, inadequate water services and a lack of sanitation facilities. The combination of these factors has resulted in increased levels of malnutrition and mortality.

During FY 2007, USAID humanitarian assistance to Darfur totaled almost $370 million. Of that, more than $100 million was provided by the Office of U.S. Foreign Disaster Assistance (OFDA) to 34 grantees. Eight grantees are implementing programs with a nutrition component (*Action contre la Faim* (ACF), American Refugee Committee (ARC), Catholic Relief Services (CRS), GOAL, Relief International, Save the Children/US (SC/US), Tearfund, and UNICEF). The total program value for these eight grantees is more than $30 million; nutrition is one of several components for most of the programs.

The present crisis in Darfur, compounded by conflict and insecurity over the last four years, has led to the displacement of about 2.4 million people (January 2008), with an additional 1.8 million considered to be seriously affected by the conflict and requiring humanitarian assistance. This has exacerbated problems in an already-marginalized region in Sudan affected by chronic food insecurity, inadequate health facilities, and lack of safe drinking water and sanitation facilities.

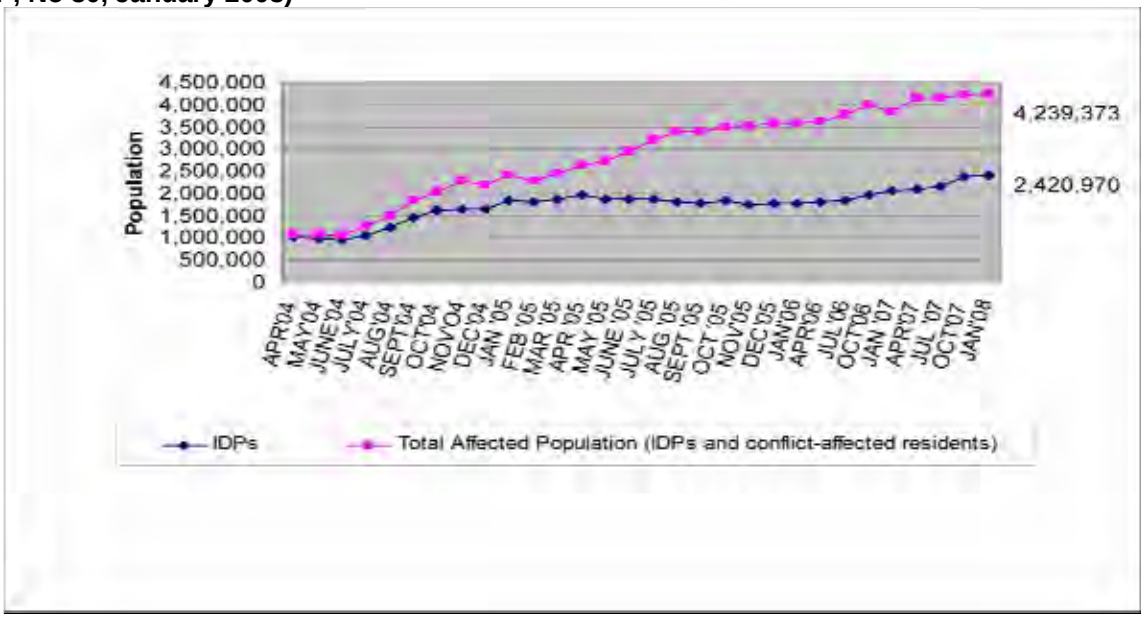
Table 1 provides an overview of the conflict-affected population of Greater Darfur (January 2008). The proportion of the population that are internally displaced (IDPs) is greatest in West Darfur, while the absolute number of IDPs is much higher in South Darfur. The proportion of affected residents varies considerably across the Darfur States. In North Darfur almost half of the residents are affected, in West Darfur one third and in South Darfur, only one eighth. The number of children under five in the conflict-affected population per state is close to one-quarter million and is greater in South Darfur and similar in North and West Darfur.

**Table 1: Population and Conflict-Affected Population (DHP, No. 30, January 2008)**

| | North Darfur | South Darfur | West Darfur | Greater Darfur |
|---|---|---|---|---|
| Estimated population | 1,874,318 | 3,626,155 | 1,904,320 | 7,404,793 |
| Estimated under 5 population (16.7%) | **318,447** | **616,084** | **304,691** | **1,239,222** |
| Estimated population 6-59 m (14.8%) | 282,288 | 546,560 | 270,137 | 1,098,985 |
| Estimated number (%) of IDPs | 521,012 (27.8 %) | 1,183,856 (32.7 %) | 716,102 (37.6 %) | 2,420,970 (32.7 %) |
| Estimated number (%) of non-IDP conflict-affected residents | 819,857 (43.7 %) | 443,263 (12.2 %) | 555,283 (29.2 %) | 1,818,403 (24.6 %) |
| Estimated number (%) of conflict-affected population (IDP + non-IDP conflict-affected residents) | 1,340,869 (71.5 %) | 1,627,119 (44.9 %) | 1,271,385 (66.8 %) | 4,239,373 (57.2 %) |
| **Estimated under-fives in conflict-affected population (16.7%)** | **223,925** | **271,729** | **212,321** | **707,975** |

Figure 1 shows the trends in the affected population over the past three years (April 2004 to Jan 2008). In less than four years, the number of IDPs doubled from one to two million, while the conflict-affected population (IDP plus non-IDP conflict-affected residents) quadrupled from one to four million. The growth in non-IDP conflict-affected residents was particularly pronounced from mid-2005 to early 2008.

**Figure 1: Estimated number of IDPs and conflict-affected residents (April 2004-January 2008) (DHP, No 30, January 2008)**




The sheer scale of the current crisis with population displacement and continued insecurity has dramatically affected normal livelihood strategies, with much of the population reliant on external food aid to meet their basic daily caloric requirements. The livelihood activities that rural communities in Darfur still manage to implement include a mixture of livestock raising and crop planting, depending on the area and its soil suitability, access to land (land rights) and rain/water sources. Some external sources of income exist, including labor migration and remittances. Other coping strategies include the collection of natural resources such as firewood, wild grasses and wild foods for sale; however, these activities put the female population at risk of sexual violence.

## 2.2 NUTRITION ANALYSIS

### 2.2.1 Nutritional Status

Pre-conflict, in 2000, the nutrition situation in Darfur was serious, with global acute malnutrition (GAM) and severe acute malnutrition (SAM) prevalence rates well above emergency levels averaging around 17 percent and 4 percent respectively. Moderate stunting prevalence rates were above 40 percent and severe stunting were above 20 percent, with West Darfur showing highest rates. Acute malnutrition has consistently been higher in North Darfur. Table 2 summarizes other health information pre-conflict that was available for Greater Darfur through the MICS in 2000.

**Table 2: North, South and West Darfur Health Information Pre-conflict (MICS 2000)**

| | North Darfur | South Darfur | West Darfur |
|---|---|---|---|
| Urban population | 18.9 | 19.6 | 12.2 |
| Literacy rate > 15 y | 61.0 | 58.7 | 51.2 |
| Access to safe drinking water | 96.7 | 81.6 | 84.2 |
| Sanitary means of excreta disposal | 63.9 | 71.4 | 57.1 |
| Children exclusively breastfed < 6 m | | 50.1* | |
| Vitamin A supplementation | 47.2 | 18.2 | 27.8 |
| Children vaccinated (DPT3) at 12 m | 51.6 | 24.8 | 12.3 |
| Children with health card 12-23 m | 37.3 | 16.4 | 15.0 |
| Undernutrition | | | |
| Underweight WFA <-2 z score NCHS | 47.4 | 39.4 | 37.4 |
| WFA <-3 z score NCHS | 18.8 | 14.3 | 14.4 |
| Stunting HFA <-2 z score NCHS | 44.3 | 46.7 | 51.2 |
| HFA <-3 z score NCHS | 22.4 | 26.7 | 32.2 |
| Wasting WFH <-2 z score NCHS | 22.5 | 12.4 | 8.8 |
| WFH <-3 z score NCHS | 5.9 | 3.6 | 3.8 |

* Overall average for North Sudan

From April 2004 and onward, the escalation of the conflict ensured that international attention focused resources in the area and a major humanitarian response was set up. The first interagency Darfur Food Security and Nutrition Assessment (DFSNA) survey was conducted in September 2004 and has been repeated on an annual basis since then.

Table 3 and Table 4 provide the GAM, Moderate Acute Malnutrition (MAM) and SAM prevalence rates for Greater Darfur. GAM and SAM rates significantly improved in 2005. The following years acute malnutrition prevalence rates showed trends of deterioration with MAM rates significantly increasing in 2007 in comparison to 2005 and SAM prevalence rates showing a trend to gradual increase in 2006 with high levels being maintained in 2007. Moreover, children aged 6-29 months are more vulnerable to GAM than children aged 30-59 months (2007) (GAM of 21.3 percent (95% CI 18.2-24.5) and 10.7 percent (95% CI 8.4-13.1) respectively), reflecting poor feeding and caring practices of infants and young children.

**Table 3: Trends in GAM and SAM prevalence rates for Greater Darfur (DFSNA, 2004-2007)**

| **Greater Darfur** | **2004** (N: 884) | **2005** (N: 1,943) | **2006** (N: 2,177) | **2007** (N: 2,222) |
|---|---|---|---|---|
| **GAM** WFH <-2 z-score NCHS or bilateral pitting oedema (95% confidence interval) | 21.8 % (18.2 – 25.3) | 11.9 % (10.3 – 13.6) | 12.9 % (11.1 – 14.8) | 16.1 % (14.1 – 18.2) |
| **MAM** WFH ≥-3 z-score and < - 2 z-score NCHS (95% confidence interval) | NA | 10.6 % (8.9 – 12.2) | 11.1 % (9.3-12.8) | 14.3 % (12.4 – 16.2) |
| **SAM** WFH <-3 z-score NCHS or bilateral pitting oedema (95% confidence interval) | 3.9 % (2.3 – 5.6) | 1.4 % (0.9 – 2.0) | 1.9 % (1.3 – 2.5) | 1.9 % (1.3 – 2.6) |

Starting in 2005, the DFSNA has provided state-specific prevalence rates. Trends in MAM prevalence vary significantly among the states (see Table 4). The rates in North Darfur are almost double those of West Darfur.

With regard to SAM, North Darfur showed an increase in SAM prevalence rates followed by a slight decrease, between 2005 and 2007, South Darfur showed a steady decrease, and West Darfur increased throughout the period, with a close to doubling of SAM prevalence rates between 2006 and in 2007, resulting in the highest prevalence rates among the three states. When comparing intra-State MAM and SAM rates for 2006 and 2007, one observes a rise of MAM and decrease of SAM in North Darfur; constant MAM and SAM prevalence rates in South Darfur, and constant prevalence of MAM but an increase of SAM in West Darfur. Clearly, the dynamics of acute malnutrition are very different in the Darfur States, with MAM rates in North Darfur at more critical levels and higher SAM rates in West Darfur.

**Figure 2: State specific trends in MAM and SAM prevalence rates for Greater Darfur (DFSNA, 2005-2007)**

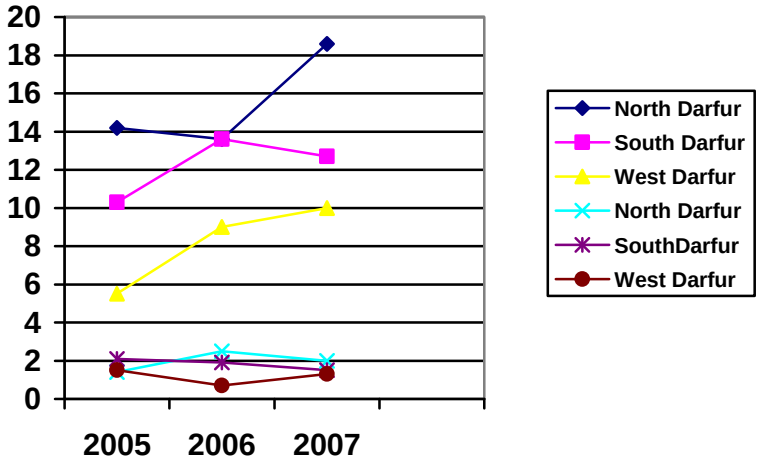



**Table 4: State-specific MAM and SAM prevalence rates (DFSNA, 2005-2007)**

| | North Darfur | | | South Darfur | | | West Darfur | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 |
| **MAM** ***WFH <-2 and ≥ -3 z-score NCHS reference*** (95% CI) | 14.2% (11.0--17.2) | 13.6% (10.0-17.2) | 18.6% (15.0-22.1) | 10.3% (7.3-13.4) | 13.6% (10.0-17.2) | 12.7% (9.6-15.9) | 5.5% (3.9-7.1) | 9.0% (6.9-11.2) | 10.0% (7.6-12.4) |
| **SAM %** ***WFH <-3 z-score or oedema NCHS references*** 95% CI | 1.4% (0.7-2.2) | 2.5% (1.3-3.7) | 2.0% (0.9-3.0) | 2.1% (0.8-3.3) | 1.9% (0.9-2.9) | 1.5% (0.1-2.9) | 0.7% (0 – 1.5) | 1.3% (0.5-2.1) | 2.3% (1.3-3.2) |

The DFSNA provides an overall average of nutritional status and determinants of the affected population, while IPs in conjunction with SMOH conduct surveys in their impact area (usually covering an administrative unit (sub-district or a camp) on a relatively continuous basis. Between January 2006 and June 2007, 38 localized nutrition surveys were conducted in South (20), North (11) and West Darfur (7) by eight IPs, including the SMOH and UNICEF. Survey findings include:

1. 21 out of 38 surveys had a GAM rate higher than the emergency threshold of 15 percent,
2. 16 out of 38 surveys had a SAM rate higher than the emergency threshold of 2 percent,
3. 15 out of 38 surveys had a death rate higher than the alert threshold of two deaths/10,000/day.

The nutrition surveys show a consistent pattern of seasonal variations in malnutrition, with rates at their lowest around January, beginning to climb in early March, peaking in June/July, and declining again in October/November.

### 2.2.2 Mortality

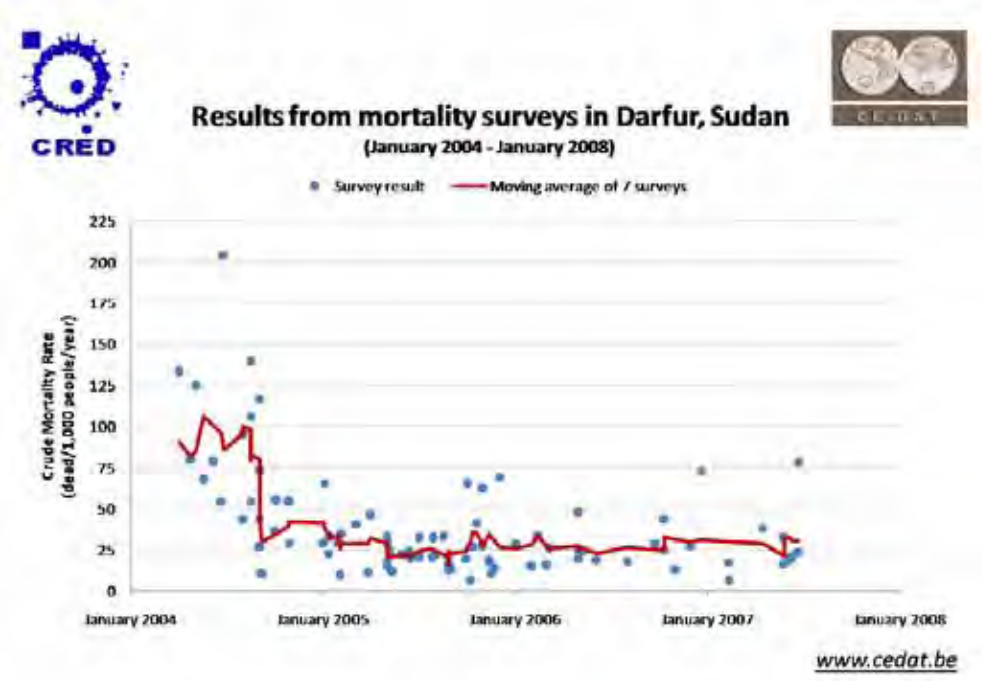
Mortality rates, assessed by the DFSNA at the same time each year, show a decrease. The causes of mortality include both violence and disease.

**Table 5: Mortality Trends, Greater Darfur, 2004-2007 (DFSNA2004-2007)**

| /10,000/day | Alert threshold | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| **Crude Death Rate** 95%CI | >1.0 | 0.72 0.45-0.99 | 0.46 0.36-0.55 | 0.35 0.27-0.44 | 0.29 0.21-0.36 |
| **0-5 Death Rate** 95% CI | >2.0 | 1.03 0.38-1.68 | 0.79 0.50-1.10 | 0.77 0.50-1.01 | 0.66 0.42-0.90 |

The figure below (Source: EMDAT, CRED) merges crude death rates reported in the many surveys conducted in Greater Darfur from January 2004 to 2008. The continuous line shows the average of death rates across seven surveys, and suggests that, on average, death rates have remained low since 2004.

**Figure 3. Results from Mortality Surveys in Darfur, Sudan (January 2004 – January 2008)**




### 2.2.3 Disease Burden and Public Health Environment

The DFSNA reports a high burden of disease for children 6-59 months during the two-weeks prior to the survey: more than half of the children had an episode of fever (55.7 percent), half of them had an episode of diarrhea (49.3 percent had watery and bloody diarrhea) and over one third had an episode of acute respiratory infection (36.4 percent). Vitamin A supplementation (VAS) and measles vaccination coverage are reported at 54.4 percent and 73.7 percent, respectively, but will have further improved with the National Immunization Day (December 2007, polio and VAS).

Access to safe water and sanitation has been a major problem in Greater Darfur, but is consistently improving: according to the DFSNA, 76 percent of the conflict-affected households (IDPs and non- IDP affected residents) had access to a safe water source.

### 2.2.4 Feeding and Caring Practices

Poor infant and young child feeding and caring practices have been highlighted as major cause of undernutrition by multiple authors. Major issues include: delayed initiation of breastfeeding (no colostrum given), low rates of exclusive breastfeeding until six months, abrupt weaning with new pregnancy, lack of timely introduction of appropriate energy-nutrient-dense complementary food in a resource-poor environment, insufficient daily number of meals offered to young children, and eating from one household plate.

Lack of knowledge and perception of undernutrition, especially of MAM, has been mentioned as an issue. Furthermore, the role of religious leaders and traditional healers as the main health care provider is a major factor and remains understudied. Good feeding and caring practices are further hampered by the employment of mothers as wage laborers who, by necessity, contribute to the livelihood of their crisis-affected households.

UNICEF plans to implement a Knowledge, Attitudes and Practices (KAP) survey that will ideally reveal additional factors and be informative for tailoring a Behavior Change and Communication (BCC) strategy.

### 2.2.5 Food Security and General Food Distribution

WFP has been conducting large scale targeted general food distributions (GFD) since 2004. The ration includes cereals (millet or sorghum), pulses (beans or lentils), oil (usually vegetable, sometimes sesame and fortified with vitamin A), sugar and corn soy blend (CSB). The fortified oil has reportedly been unpopular, as the taste and smell is different from the groundnut oil traditionally used in this area. The ration is calculated according to the household family size. For continuity within the Darfur states the same ration is distributed in all states (e.g., if there are pipeline difficulties which require a cut or a change in the ration, the ration is cut equally across all states). Multiple pipeline breaks (interruption of supplies often due to security incidents) have resulted in adaptations of the rations. For example, during a recent pipeline break, CSB was removed from the general food distribution system and prioritized for targeted SFPs.

WFP targets approximately 2 million people per year under its GFD program. All of the IDPs living in camps receive a year-round full ration, equivalent to 2,167 K/cal/person/day. Where the displaced population is greater than the resident population (over 50 percent) in a town or village, both the IDP and the host population receive a full ration. Where the displaced population is less than the host population, a half ration is given. It is considered that IDPs living in towns have more access to potential income-generating activities (IGAs) and support from family members, and therefore are less vulnerable to food insecurity. Additionally, there is some seasonal targeting of the GFD during the hungry season (June – September) for populations that are affected by the conflict and have limited access to land for planting and harvesting.

Inclusion and exclusion errors with the GFD targeting were reported: there was an estimated inclusion error of around 20 percent, and an exclusion error of around 14 percent (DFNSA 2007). Moreover, the population in Greater Darfur is highly mobile, which makes it difficult to track the movements of newly displaced and returning refugees. UN-OCHA and WFP keep a comprehensive database of all registered beneficiaries. However, reporting on family members moving around the IDP camps in attempts to acquire more than one ration card exist.

The GFD is distributed exclusively through IPs. In each community, there is a food aid committee, which assists with both the targeting and distributions, particularly if the IP is not able to access the community due to insecurity. The GFD is distributed in one of two ways: a “group distribution” where a number of families of the same size receive a quantity of food and distribute it amongst themselves, or through

"scooping" whereby individual families receive their own individual household ration. Post-distribution monitoring is conducted by both WFP and the IPs.

Due to the precarious nature of much of the populations' livelihoods, some of the food aid is reportedly sold for household needs, including milling of the cereals provided in the GFD ration. Oil from the ration was clearly visible for sale in many of the markets located in the towns.

The DFSNA 2007 reports that the overall level of food insecurity in Greater Darfur still remains very high with little improvement compared to last year.

### 2.2.6 Livelihoods

Even though the agricultural sector has been the traditional main source of income (sales of crop production, sales of livestock and agricultural labor), a ranking of sources of household cash income among the affected populations highlights that the non-agricultural sector (non-agricultural wage and sale of firewood) actually provides the main source of income. Insecurity remains a major hindrance to agricultural production and animal husbandry. The proportion of households that are engaged in agriculture declined in 2007 compared to 2006, however the area cultivated per household engaged in agriculture increased, suggesting a shift in livelihood activity (DFSNA 2007).

The finding that selling firewood is the second-highest source of income is extraordinary considering the total depletion of environmental resources and the high risk of assault involved for women during the collection of firewood.

**Table 6: Source of Cash Income of Conflict-Affected Populations (DFSNA, 2007)**

| Source of Income | Proportion |
|---|---|
| Non agricultural wage | 31 % |
| Sale of firewood | 19 % |
| Agricultural wage | 15 % |
| Sale of crop production | 9 % |
| Petty trade | 9 % |
| Sale of food aid | 5 % |
| Transfers | 5 % |
| Sale of handicrafts | 4 % |
| Sale of livestock | 3 % |

## 2.3 IDENTIFIED CHALLENGES IN THE NUTRITION RESPONSE

Multiple reviews and interagency discussions have been conducted on the quality and effectiveness of programming and training in the management of MAM and SAM.

Major issues that were identified and addressed in previous evaluations include:

1. Access to selective feeding programming remains low across Darfur, suggesting low SMOH capacity, and lack of sufficient IPs and resources.
   Examples: Low access and service uptake of selective feeding interventions; decrease in funding and number of IPs since 2005.

2. Poor performance of selective feeding programs over the past three years indicate poor quality of care.
   Examples: High proportions of defaulting and non-responding; absence of endorsed national guidelines allow non-standardization of case management, program implementation, monitoring and reporting.

3. Numerous contextual factors that limit effectiveness and efficacy of selective feeding in Darfur. Examples: Inappropriate infant and child feeding and caring practices and the need for including behavior change approaches; traditional high demands of labor placed on mothers; continued and repeated population displacement and insecurity; effects of protracted crisis on mental health; exhaustion of coping mechanisms and weakened resilience; weak inter-sectoral coordination of interventions.

Funding cuts due to the improved GAM rate and the small-scale programs with low numbers of MAM and SAM in treatment, resulted in reduced numbers of implementing partners from October 2005 onwards. Unfortunately, low access and coverage and great need for these services were not used as counter arguments to prevent funding cuts. Response capacity was reduced, with fewer nutrition interventions in 2007 compared to 2006 and 2005. However, UNICEF has increased its response capacity for nutrition over time.

Overall, there is a need to define further the underlying reasons for poor performance of selective feeding programs to strengthen quality performance and effectiveness, improve practices adapted to the very challenging context of Darfur, and guide future interventions and strategic responses.

# 3. Discussion of Findings

The effectiveness of the emergency nutrition intervention programs, in combination with GFD and health and WatSan interventions, stabilizing the nutrition situation in Darfur must not be underestimated. The Darfur-wide overall malnutrition rates (GAM) dropped from 22 percent in 2004 to 12 percent in 2005. SAM rates were also dramatically reduced in 2004 to 2005, from 4 percent to 1.4 percent.

Malnutrition rates are, however, again on the rise (GAM 16.1 percent, SAM 1.9 percent in 2007). While this could be related to the reports of poor harvests and protracted insecurity in certain areas of Darfur, it may also be related to the dwindling number of IPs able to operate programs in light of the dangerous security situation in the Region as well as to the quality and effectiveness of these programs within the current enabling environment. The below paragraphs discuss the key elements of the selective feeding intervention programs and services.

## 3.1 ENABLING ENVIRONMENT

Overall, the review found that the enabling environment in Sudan does not currently facilitate the advancement of nutrition issues in several ways, including:

- lack of leadership at all levels, with insufficient technical expertise to help guide nutrition programming
- lack of coordination of services
- lack of agreed-upon and endorsed national guidelines
- separation of nutrition from the wider health context and associated fragmentation of responsibility

### 3.1.1 Leadership, Roles and Responsibilities

Sudan's health system is overstretched, and conflict in regions exacerbates the problems. The FMOH does not have adequate capacity to fulfill a leadership role in the development of policies for malnutrition services, a problem that is compounded by a high level of staff turnover.

The management and coordination of emergency nutrition interventions thus falls to the state-level ministries. Unfortunately, however, state ministry staff are also generally unable to fulfill the management and leadership roles due to a lack of capacity. They are further constrained by restricted ability to travel. In all three of the Darfur states, the MOH is confined to urban areas for security reasons, which makes it impossible for them to adequately supervise or coordinate selective feeding programs. IPs usually implement programs using their own strategies, protocols and priorities. This has a significant impact on any sense of SMOH "ownership" and involvement in the programs.

UNICEF plays a key role in supporting the MOH at both federal and state level, but the capacity of the MOH to take on a leadership role remains underdeveloped despite attempts to promote such leadership by bringing in international experts to review proposed guidelines and conduct trainings in the management of SAM.

Moreover, there has been no establishment of a "CMAM support unit" at the FMOH, and hence, there is no consolidated CMAM expertise in-country that could support and enhance technical leadership.

### 3.1.2 Coordination of Services

All selective feeding programs fall under the auspices of the national nutrition directorate of the MOH. The structure of the MOH is similar at both federal and state level, consisting of a Director General of Preventative Medicine, Curative Medicine and Primary Health Care (PHC). The nutrition directorate comes under the General Directorate of PHC. At the state level there is a nutrition department manager and positions for nutritionists, although these are not always filled due to the difficulties of recruiting and retaining suitably qualified staff.

*Federal-Level Coordination*

A task force of senior pediatricians was established in 2005, but is no longer functioning. Although there is no official coordinating body for CMAM services at either the federal or state level, nutrition coordination meetings (MOH- and UNICEF-led) are regularly held at the federal level. Additionally, key actors (e.g., FMOH nutrition department, UNICEF, IP technical staff) have regular informal communication regarding both ongoing and newly arising issues.

*State-Level Coordination*

Due to capacity constraints within the MOH at the State level, coordination of services is generally weak. Differences were observed between the three states, however: the MOH in South Darfur is currently able to fulfill a stronger role than in North or West.

Nutrition coordination meetings are regularly held in all three states (weekly in West Darfur and biweekly in South and North Darfur). The meetings are used to convey information on program performance, rather than act as a forum for coordination of activities or discussion of outstanding technical issues. The meetings do ensure that there is relatively good communication between implementing partners, although there is high turnover of IP staff, probably due to the nature of the extended crisis.

While communication within the nutrition community and the wider humanitarian community is generally good (particularly regarding supplies and security issues), cross-sectoral coordination of services is not strong. For example, nutrition (e.g., selective feeding programs) and primary health (e.g., vaccination campaigns) services are not well coordinated at the State level. There are also weak linkages to other sectors such as water and sanitation or food security initiatives.

### 3.1.3 National Health and Nutrition Policies Relevant to Nutrition Interventions

Nutrition issues in Sudan have become more visible in recent years with nutrition topics figuring in a number of recently developed health policies (see Box 1b).

**Box 1b: Government of Sudan National Health and Nutrition Policies and Initiatives**

**Health policies, plans and initiatives:**

- National health policy (2006)
- National child health policy (2006)
- Five-year strategic plan for the health sector (2005) (no mention of treatment for SAM or MAM)
- National policy on HIV/AIDS (2004)
- Accelerated Child Survival Initiative (ACSI) (2007)
- IMCI initiative, since 1996
- Child Friendly Community Initiative / Integrated Community based Recovery and Development (CFCI/ICRD) (2008)

**Nutrition policies and plans and initiatives:**

- National Nutrition Policy (2007)
- Minimum Nutrition Package (UNICEF, 2007)

The National Nutrition Policy (NNP) was developed recently and a consultant is currently in-country to translate the policy into a plan of action. The NNP is a multi-sectoral initiative that aims to address underlying causes of malnutrition, increase capacity and coverage of nutrition-related services as well as

embed both curative and preventive nutritional actions within routine health services. Of the eight key objectives, the first objective relates to the prevention and treatment of acute malnutrition and is summarized below in Table 7.

**Table 7: National Nutrition Policy 2006 – 2010 (excerpt MOH July 2007)**

| ***Objective 1*** | ***Strategies*** |
|---|---|
| Ensure the prevention and treatment of nutrition-related disorders in emergency and non-emergency situations | a. Prevent, detect and treat acute malnutrition (including response to emergencies)<br>b. Prevent, detect and treat Iodine Deficiency Disorders (IDD) through Universal Salt Iodization<br>c. Prevent, detect, and treat Micronutrient Deficiency Disorders (MDDs) through a combination of supplementation, fortification, education, and food-based approaches.<br>d. Prevent obesity and lifestyle diseases through the promotion of optimal eating and physical exercise habits. |
| | **Strategy 1.a.**: ***Prevent, detect and treat acute malnutrition (including response to emergencies)***<br>• Ensure FMOH capacity to respond in emergencies through developing appropriate emergency preparedness plans at state and federal levels. This includes development of systems to ensure adequate supply of human resources, supplies, and supervisory support.<br>• Develop emergency response guidelines (including assessment techniques and specifications for needs of all age groups and special cases) in consultation with relevant agencies. These guidelines would outline initial situation assessment procedures, criteria for response, individual targeting criteria, and minimum standards to ensure quality programming.<br>• Ensure that adequate services are established to prevent and treat moderate and severe acute malnutrition where needed within the public health system based on evidence and prevalence of malnutrition in the catchment area.<br>• Ensure that the procurement of therapeutic products and equipment is incorporated into the Essential Drug Lists and minimum equipment standards for facilities where acute malnutrition is treated.<br>• Strengthen the system of screening and referral within the public health system.<br>• Develop appropriate refresher training/capacity building/standards for emergency nutrition staff (government and nongovernment).<br>• Ensure supplementation of vitamin A and iron/folate as appropriate in emergencies.<br>• Ensure that food aid, which aims to meet nutritional needs, is safe, is adequate in quality (including fortification levels) and quantity and is effectively targeted to the most vulnerable groups.<br>• Where there is significant nutritional risk or a demonstrated increase in the prevalence of acute malnutrition, ensure timely and appropriate implementation of emergency supplementary feeding programs as a short-term intervention.<br>• Increase community capacity to respond in emergencies through developing response plans through community level planning and education. |

A further development in terms of policy evolution is the Accelerated Child Survival Initiative (ACSI). This five-year MOH/UNICEF initiative consists of three phases of intervention: jump-start, pulse and routine services. During the jump-start phase, the under-5 population of the 15 states of Northern Sudan received

a one-time package of interventions. The jump-start consists of two rounds: the first one was conducted in October 2007, and the second round was planned for mid-May 2008. Originally, the plan was to include mass screening for acute malnutrition using MUAC. The MOH decided, however, not to include the screening component during this phase of the program, due to the lack of referral points currently available for treatment of those children found to be malnourished.

During 2008, following the completion of the jump-start campaign, the pulse activities of the second phase of ACSI are planned for three states: Gedaref, South Kordofan and North Darfur. The pulse activities will be similar to the jump-start, although mass screening for malnutrition will also be included. Pulse activities will be conducted in a campaign style through the use of child health days twice a year for five years. This stage of the program offers an important window of opportunity to increase uptake of selective feeding services by the malnourished population in North Darfur. Pulse activities will be rolled out to the other 12 states of Northern Sudan from 2009 onwards.

The third stage of the ACSI features routine services aims to integrate the aforementioned campaign activities (with additional focus on health promotion messages such as optimal breast feeding practices) into routine health service delivery across all states in North Sudan.

Although the IMCI initiative was introduced in 1996, nationwide coverage and quality of this initiative remains suboptimal. Difficulties include institutionalizing changes in quality of care so that standards remain at the same level once trained providers leave. In recognition of this, the MOH (with support from UNICEF and WHO) is currently aiming to rapidly accelerate coverage rates and enhance pre-service training in IMCI concepts. Continuous in-service training will also be provided. In the Darfur states, IMCI coverage is negligible. The lack of sufficient health facilities and trained personnel to implement IMCI negatively affects coverage of IMCI.

A “minimum nutrition package” is currently under development by UNICEF and will be piloted in the Darfur states within the coming months. It consists of training for nutritionists, nutrition educators and health facility workers in preventive nutrition, health and hygiene measures. Training of key community figures will follow. This initiative is still in the development stage and is expected to be piloted and evaluated before expansion.

### 3.1.4 Status of National Guidelines

*Guidelines for the Management of SAM*

Several versions of national guidelines for the management of SAM have been drafted but are not finalized. A variety of international inputs into guideline development appears to have complicated the process. TFCs run by MOH or IPs provide centre-based care for the management of SAM using the WHO guidelines from 1999 to guide treatment. Some IPs providing services for the management of SAM with complications in inpatient care and for SAM without complications in outpatient care use their own CMAM guidelines. The latest draft FMOH SAM guidelines combine both approaches and are being finalized in collaboration with WHO and UNICEF (see Box 2 on the next page).

*Guidelines for the Management of MAM*

National guidelines for supplementary feeding programs were developed through consultative mechanisms in the Federal-level Nutrition Coordination Group, although they officially remain in draft form. They have been translated into Arabic and are in the process of being back translated to cross-reference technical terms and procedures. Once this process has been completed, it is expected that the guidelines will be endorsed by the FMOH. The draft SFP guidelines are generally being followed by implementing agencies, although some minor differences with both screening cut offs and admission criteria were observed.

**Box 2: Nutrition Guidelines or Manuals Status (March 2008)**

**Management of SAM (different versions)**
Management of Acute Severe Malnutrition, Sudan Manual, FMOH, 2006, Final Draft
Management of Severe Acute Malnutrition, Sudan Manual for Health Workers, November 2007, Draft
National Manual on Management of Severe Acute Malnutrition (SAM) in Health Facilities and Community (CTC), For Medical Doctors and Senior Health Workers, Sudan Adaptation, FMOH, January 2008, Draft

**Management of MAM**
The Care of Acute Moderate Malnutrition, Prevention of Severe Wasting, Targeted Supplementary Feeding Program, a Suggested Manual, Draft (No date)

**Nutrition Surveillance**
National Nutrition Survey Guidelines, MOH, December 2006 (final?)
Rapid Nutrition Assessment Guidelines, MOH, November 2006 (final?)

### 3.1.5 Funding for Services and Supplies

UNICEF is the main funder for therapeutic products, including F75, F100, RUTF, basic medicines and anthropometric equipment. UNICEF itself is funded from a variety of sources, including the Common Humanitarian Fund (CHF) and OFDA. CHF, for example, funded procurement of therapeutic supplies and equipment in 2007, and OFDA has funded the National Surveillance System. Although the current funding cycle is soon ending, applications for further grants have been submitted to both OFDA and other donors to continue the surveillance system.

The IPs have a variety of short-term donors (e.g., OFDA, ECHO, DFID, private-sector organizations) to implement selective feeding programs, with funding periods usually spanning no more than one year. Overall funding opportunities decreased for nutrition programming from 2006 onwards due to improvements in GAM and SAM, a decrease in interest because of small-scale and parallel programs, and the extended nature of the crisis, with international attention being diverted to other emerging crises. Overall, even though malnutrition rates remain high overall, it has become more difficult to maintain high levels of funding and as a result, many IPs have downsized their staff and operations as a result.

*Free Treatment*

Medical treatment for children under 5 years of age and pregnant and lactating mothers in MOH facilities is generally free under a new law passed by the Government of Sudan (GOS), but is contingent on the necessary supplies being available. The expansion of free treatment has been outlined in the health sector's five-year strategic plan, in which the government has committed to "free universal treatment for basic health services."

Although treatment of SAM is provided free, it was reported that a "registration fee" (approximately $2.50) had to be paid in one SMOH-run inpatient care site. Drugs used for the systematic treatment of SAM are supplied by UNICEF or by the IP. If the patients require more than the basic medicines, they are supplied if the unit has them in stock. Otherwise, the caregiver has to purchase the required drugs from a local pharmacy.

## 3.2 ACCESS TO MANAGEMENT OF SAM AND MAM SERVICES

In response to the current crisis in Darfur, UNICEF, WFP, and numerous IPs, with financial support from donors including USAID, have been supporting the FMOH and the Darfur SMOHs to address acute

malnutrition. Selective (supplementary and therapeutic) feeding services for the rehabilitation of MAM and SAM are provided in Greater Darfur. Programs and services for the management of SAM take a variety of forms and are offered from either MOH run-facilities in the towns, or IP-established units in the IDP camps and/or resident areas with large numbers of IDPs.

Selective feeding programs in Greater Darfur consist of services for both the management of MAM (SFPs) and SAM (therapeutic feeding services, either in-patient or outpatient care): Therapeutic feeding services are implemented and managed by 15 IPs and the SMOH, while SFPs are currently implemented and managed by 14 IPs with no involvement of the SMOH.

Table 8 shows the current distribution of sites for the management of MAM and SAM and whether they are run by IPs. There are 14 IPs involved in the management of MAM with no SMOH involvement. SAM is managed by 15 IPs and the SMOH. On average, there are five to six IPs involved in selective feeding in each of the Darfur States.

Access to any form of services is severely constrained by ongoing insecurity, with the concurrent problem of lack of available, and operational implementing partners; only 15 IPs currently provide or support therapeutic services. This results in very low geographic coverage of services in all three states. Many areas of Darfur are completely without selective feeding services.

**Table 8: Mapping of Sites and Children with MAM and SAM Admitted for Treatment during the month of February 2008 (UNICEF, February 2008)**

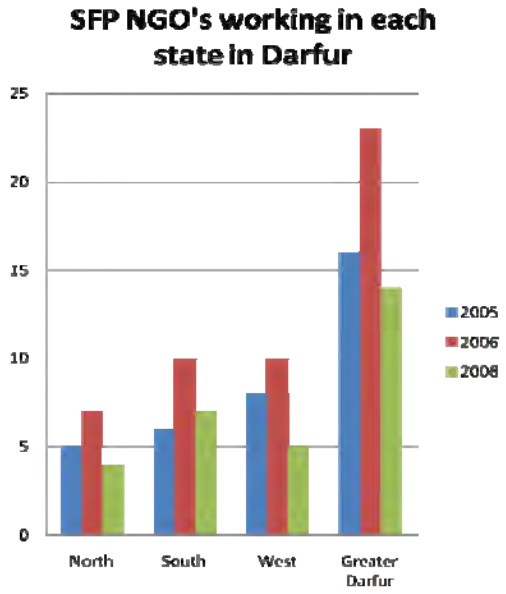
| | North Darfur | South Darfur | West Darfur | Greater Darfur |
|---|---|---|---|---|
| **Management of MAM** | | | | |
| # sites for mgt of MAM (total) all IP-run | **12** | **24** | **50** | **86** |
| Reported # of MAM cases admitted (# sites reported, average # of cases per site) | **2,131** (12 sites, 178 per site) | **1,213** (22 sites, 55 per site) | **5,462** (46 sites, 119 per site) | **8,806** (80 sites, 110 per site) |
| **Management of SAM** | | | | |
| # sites for mgt of SAM (total) | **26** | **26** | **54** | **106** |
| Reported # of SAM cases admitted (# sites reported, average # of cases per site) | **263** (21 sites, 13 per site) | **662** (26 sites, 25 per site) | **953** (47 sites, 20 per site) | **2,540** (94 sites, 27 per site) |
| # sites for mgt of SAM without complications (outpatient care) IP-run | 12 | 20 | 48* | 80 |
| # sites for mgt of SAM with complications (inpatient care) IP-run | 3 | 2 | 1 | 5 |
| # TFCs (center-based care) IP-run | 1 | 2 | 4 | 7 |
| # TFCs (center-based care) SMOH-run | 10 | 2 | 2 | 14 |

* 9 currently suspended for security reasons

### 3.2.1 Management of MAM in Supplementary Feeding Programs (SFP)

SFP services are currently offered at 86 sites (12 in North Darfur, 24 in South Darfur and 50 in West Darfur). All supplementary feeding programs for the management of MAM are run by the IPs. The number of IPs operating SFPs peaked in 2006 at 24; this number is now reduced to 14.

**Figure 4: Number of IPs involved in SFP (2004-2007*)***




**Box 3: Management of MAM in SFP**

Children of height range between 75-110 cms with acute malnutrition are generally identified in the communities and referred to SFPs based on MUAC measurements of <125 mm, although some IPs use a cutoff below 130 or 135 mm for referral.

Children 6-59 months with a weight for height (WFH) 70 to 79 percent of the median of the NCHS references are admitted to an SFP. They receive a medical assessment, a bi-weekly ration of supplementary food, basic medicines (de-worming, vitamin A supplementation, and measles immunization) and health education. Caregivers bring the child back to the center every two weeks, where they are monitored and given another ration until discharge. Programs use WFH equal or above 85 percent of the median as the discharge criteria for being recovered.

IPs use slight variations of criteria for default and non-response, but usually children who are absent from the program for two consecutive sessions are recorded as defaulters. Children who fail to reach the discharge criteria after three to four months in the program are considered non-responders. Children who die while registered in the program (usually confirmed through a home visit from a community outreach worker) are recorded as deaths.

Pregnant (third trimester) and lactating mothers with infant below 6 months are admitted to the SFP with a MUAC of < 210 mm, although one program was using < 220 mm for admission. Most programs use the following criteria for discharge: MUAC > 230 mm, the baby is born (for pregnant mothers), or the child reaches 6 months of age (for lactating mothers).

The supplementary food ration is usually a premix of a corn-soy blend (CSB), sugar and oil, totaling approximately 1,000 k/cal/day, according to standard international guidelines. IPs either make up the ration in a central location the day before distribution, or make it onsite during the distribution day. Some IPs have provided SF450 or BP5 in the past, and one is currently providing Supplementary Plumpy'®, a RUSF.

Some IPs have implemented a blanket SFP during the traditional "hungry season" from June to September to contain the rising levels of malnutrition during this time. The blanket SFPs target all children from 6-59 months in the identified population. The pre-mixed ration is the same quantity as for targeted SFPs, although it is often distributed on a monthly basis, rather than bi-weekly. One IP is planning to provide blanket distribution of Plumpy'Doz®, a lipid-based nutrient supplement (LNS) to all children 6-35 months during the coming lean period as a preventive measure.

### 3.2.2 Management of SAM in Centre-based Care or Therapeutic Feeding Centres (TFCs)

In North Darfur SMOH runs 10 TFCs in SMOH hospitals, while in both South and West Darfur the SMOH runs 2 TFCs. These TFCs are usually based in a specific dedicated hospital ward in the state or rural SMOH hospitals in the town. Usually the senior pediatrician of the hospital covers the medical care and is assisted by nurses and nutrition assistants that received specific support from MOH and UNICEF. Most often the senior pediatrician has received the WHO training for management of SAM in inpatient care.

There are 1, 2 and 4 IP-run TFCs in North, South and West Darfur respectively, usually established in a parallel health structure based in the IDP camps or resident areas with large numbers of affected populations.

The management of SAM in center-based care covers treatment until full recovery and follows the WHO protocol for the management of SAM (1999, 2003), see box 4a.

Usually children referred from an outpatient care site to the SMOH inpatient units offering centre-based care, they usually complete their treatment there and only return to outpatient care for referral and admission to an SFP for two months to prevent relapse. The SMOH-run inpatient care sites act as referral sites for many IP-run outpatient care sites for SAM without complications.

None of the center-based inpatient care sites have any community outreach services attached to them.

**Box 4a: Centre-based care for the management of all SAM until full recovery (TFC)**

Children 6-59 months are considered to have SAM if they have bilateral pitting oedema, their MUAC reading is below 110 mm or their weight for height (WFH) is below 70 percent of the median (of the NCHS references). Infants under 6 months old are considered to have SAM if they have bilateral pitting oedema or their WFH is below 70 percent of the median. They are always referred for inpatient care receiving specialized care if the caregiver accepts (i.e., re-establishing breast-feeding if appropriate and supplemental suckling technique with F100 diluted).

### 3.2.3 Management of SAM with Complications in Inpatient Care

Inpatient care for SAM with complications (for the stabilization of the medical condition) is offered in 6 health facilities in Greater Darfur (3 in North Darfur, 2 in South Darfur and 1 in West Darfur) and are usually run by IPs that are in charge of outpatient care for SAM without complications in the same catchment area.

In the rural areas, the IPs run inpatient care as part of CMAM services, as in Kutum (North Darfur). Once the medical condition of the children with SAM and complications has stabilized and/or their appetite has returned, the children are discharged to outpatient care to complete their treatment at home. The IPs usually provide transport for the child and caregiver between the inpatient and outpatient care sites.

**Box 4b: Inpatient Care for the Management of SAM with complications until stabilization of the medical complication:**

Children 6-59 months with SAM and complications or no appetite are admitted to inpatient care until their appetite returns or complication is resolving. Children are then referred back to outpatient care to complete their treatment until full recovery. Children 0-6 months are always treated in inpatient care until full recovery and receive specialized care.

### 3.2.4 Management of SAM without Complications in Outpatient Care

There are 15 IPs implementing outpatient care at 80 sites (12 in North Darfur, 20 in South Darfur, and 48 in West Darfur; nine are currently suspended due to insecurity). Outpatient care for SAM without complications are exclusively implemented and managed by IPs, with most services run in parallel to the SMOH health system. Temporary shelters are frequently constructed near health facilities to manage SAM and MAM services. Although some of these outpatient care sites are physically located within or next to the SMOH or IP-run health facility, their activities are generally run and staffed independently, with limited interaction.

With a few notable exceptions, outpatient care sites are usually neither well decentralized nor widely dispersed. For example, in a populous IDP camp (60 – 80,000 people), there is often only one outpatient care site established.

Some IPs have been implementing management of SAM in centre-based care since 2004, while some IPs who have started with centre-based care have moved towards both inpatient care and outpatient care over the past few years.

**Box 5: Outpatient Care Sites for SAM Without Complications**

Children 6-59 months with SAM without complications, good appetite, and who are clinically well and alert are admitted directly into outpatient care. They undergo a medical assessment and appetite test, and receive routine medication and a weekly ration of RUTF, and health education. The caregiver is advised to return to outpatient care with the child the following week to monitor the progress of the treatment and undergo the same medical assessment by a health care provider until discharge.

Children with SAM are considered recovered when they are free of bilateral pitting oedema for two consecutive sessions, or stay minimum 2 months in treatment and reach MUAC equal or above 110 mm if admitted on MUAC, or reach a weight for height equal or above 80 percent of the median of the NCHS references for two consecutive measurements if admitted on WFH. None of the IPs are currently using percentage weight gain for discharge of children admitted with the MUAC criterion.

Indicators for assessing performance vary across programs, e.g. for default and non-response, but most use absenteeism.

Children are referred to inpatient care if their medical condition deteriorates, based on an action protocol. In the case, the referral is to centre-based care (TFC) then they will usually remain in centre-based care to complete their recovery unless a good referral system is put into place, else they return to their outpatient care site as soon as the complication is resolving.

### 3.2.5 Referral System between Supplementary Feeding, Outpatient Care and Inpatient Care (or TFCs)

Outpatient care sites and SFPs are generally managed in the same area and links between the two are therefore well developed. Children with MAM who are deteriorating are referred to therapeutic services and children with SAM who have recovered are admitted to SFPs for two months to prevent relapse.

When a child needs to be referred from an outpatient care site to inpatient care site (or back to outpatient care once recovered), transport is usually provided by the IP. Some IPs run the outpatient care and refer the child with complications to the TFC run by MOH or another IP. In that case return after the complication subsides is not always well organized as some health care providers or health managers at the TFC are not accustomed to the CMAM protocol.

### 3.2.6 Health Care Providers Involved in the Management of MAM or SAM

Although SMOH-run inpatient care sites have variable levels of staff, both in terms of numbers and qualifications, they usually employ at least one doctor, one nutritionist, two to three nurses and several nutrition assistants. Overall, the SMOH suffers from a chronic lack of qualified staff willing to work in the region and a shortage of resources to fund enough staff salaries. Although there is no plan to recruit young people in Darfur to be trained as nurses, there is a medical and nursing school in North Darfur. SMOH has also recruited 12th-grade graduates as nutrition assistants for secondment to IPs to assist with surveys and selective feeding services. The conditions and duration of the secondment vary from partner to partner.

IP-run selective feeding programs are predictably better staffed, although most report that finding enough qualified staff to effectively run programs is an ongoing challenge. IP-run programs involve existing SMOH staff that are seconded to assist with program implementation. These staff continue to receive their MOH salary, with a “top up” paid by the IP; the rates for such “top ups” can vary amongst the IPs, although the SMOH provides guidance on the amounts. In-service training for the seconded staff is given in management of SAM/MAM. Staff who are seconded often work with the IP for long periods and usually do not work in MOH facilities for the duration of the secondment.

### 3.2.7 Community Outreach

Most of the selective feeding programs for both management of SAM and MAM include elements of community outreach, with the exception of the MOH-run TFCs, although the methods, amount and quality of such activities vary widely. Some use either outreach workers (employed with contracts and salary) or volunteers (not employed but with incentives) exclusively for community mobilization, community screening and referral. Other outreach workers trace absentees and defaulters from programs. In some programs, the outreach workers conduct health and nutrition education at the community and household levels.

Where IPs have employed a strategy for outreach, the targeted resident areas or IDP camps are covered in a systematic fashion: the community workers divide the areas into sections and routinely visit their allotted section. In programs without an outreach strategy, targeted areas are visited on an *ad hoc* basis.

IPs allocate varying amounts of time and energy to community outreach: some use the same outreach workers from their selective feeding sites to assist with service implementation (thus reducing the number of days they can spend in the community), while others use dedicated workers for community outreach only.

Volunteers are selected from the community by community leaders. While a gender balance is sought, it can prove elusive as the leaders (all male) tend to favor male volunteers, especially where incentives are provided through in-kind payments. Prospective outreach workers are usually suggested by the community, with the final decision made by the IP through interviews and other selection mechanisms.

Community mobilization activities, in particular those designed to inform communities about selective feeding programs, appear to be decreasing. For programs operating since 2004, this decrease is linked to a perception that communities are aware of the services SFPs offer. Yet the population (both in camps and in the rural areas) has undergone considerable changes since the start of the crisis. New IDPs continue to arrive in many of the camps covered by these programs, and rural populations are also on the move. Analysis of nutrition survey data often suggests that more than half of the severely malnourished children identified belonged to recently arrived IDP families. This lack of awareness of services (or of the seriousness of a SAM condition) within the community is one of the contributing factors to children being admitted to inpatient care with advanced disease, e.g., bilateral pitting edema and/or severe wasting.

*Community Screening Based on MUAC and Admission Based on Weight for Height*

The MUAC cutoff points used by many IPs for community screening and referral of children with acute malnutrition for treatment range between 125 and 135 mm. The referred children then are measured again at presentation at the SFP site, TFC or outpatient care site using WFH -not MUAC - and only admitted to the services for the management of MAM and SAM if their WFH percentage is between 70 and 80 percent or below 70 percent of the median NCHS respectively.

This use of a two-stage screening and admission method results in high rates of referred cases (using MUAC) subsequently being rejected because they do not fit the admission criteria (using WFH percent of median). Some IPs that have analyzed their SFP rejection rates report them to be between 70 and 80 percent. The use of MUAC as independent admission criterion to TFC or outpatient care is more widely accepted and applied in the Greater Darfur.

To try to mitigate negative associations with the program, some of the IPs are giving the rejected cases a bar of soap as compensation. Another IP is attempting to reduce the rejection rate at the distribution sites by bringing the WFH measuring services closer to the community in both North and South Darfur. Another one provided immunization services (i.e., EPI schedule update) to all children that presented him/herself.

Adding to the confusion is that the draft National Manual on Management of SAM in Health Facilities and Community provides conflicting information on the use of MUAC as a referral or admission criterion for wasting. While MUAC is cited as an admission criterion for therapeutic feeding for children 6-59 months (Chapter 2, Evaluation of Malnourished Child, Criteria of Admission, page 10), MUAC for screening of children is suggested only for those above one year and elsewhere on the same page for those with a height of 65 cm (Chapter 8, CTC, Screening and Admission Criteria, page 90).

*Use of Outreach Workers versus Volunteers*

Many of the selective feeding programs visited had planned to develop volunteer networks to conduct outreach activities. Volunteerism, however, has proved to be difficult to foster, and IPs have been unable to sustain these networks without incentives. IPs have thus resorted mostly to payments in-kind (e.g., soap, sugar, oil) or payment of a small monthly salary. Volunteers are increasingly demanding financial compensation for their work, in part due to the considerable workload that is often assigned to them. IPs that have provided financial payment but failed to provide a comprehensive contract have been subject to legal action (one IP reportedly has 200 petitions against it currently in court). According to Section V, paragraph 28 (1) of Sudan's 1997 Labor Code, "any employment contract exceeding three months shall be put in writing by the employer." Once in writing, contracts must include a number of provisions including annual leave, termination packages and insurance.

Providing such comprehensive contracts to outreach workers puts a considerable financial burden on IPs, particularly those with limited funding. This has led many to employ outreach staff for less than three months. The staff are then dismissed, and new staff are hired. This has a number of negative repercussions. First, the lag time between one set of "volunteers" and the next can extend for as long as three months, which in effect leads some programs to have outreach personnel for only half of the year.

Second, it creates negative feedback in the communities, particularly among the volunteers themselves. Third, uncertainty about staff availability significantly hampers the strategic planning for outreach activities.

*Use of Community Outreach Coordinators*

Although the presence of an Outreach Coordinator has been associated with the adequate performance of outreach activities, the large majority of selective feeding programs visited did not have a coordinator to plan, implement and monitor outreach activities. Instead, the responsibility fell largely on nutrition program managers or individual nutrition teams. With only a couple of exceptions, no strategic planning seemed to be in effect, and no systematic area coverage of outreach activities appeared to be taking place. For the most part, programs did not express any real awareness of the need for an Outreach Coordinator; those that did pointed to budgetary constraints as the main barrier.

### 3.2.8 Links with Formal Health Systems

As initially noted in the section on “Coordination of services” (section 1.2), links between nutrition intervention programs and the formal health system are under-developed, with most programs operating in parallel to the MOH system (although in some cases the distribution site is located in or near the local health center). IPs that offer outpatient care of SAM often use the SMOH-run inpatient care site as the referral point for cases with complications or for cases with poor appetite. Once children are referred to inpatient care however, they generally complete their treatment there and do not return to outpatient care.

The review team witnessed little referral between outpatient care and the health facility (for routine vaccinations, for example). Only one outpatient care site that was visited had a SMOH vaccinator at the outpatient care site.

### 3.2.9 Links with Other Nutrition Programs

There are very few nutrition initiatives in operation beyond emergency selective feeding programs. One IP attempted to implement a “PD Hearth”-type program in West Darfur, but had to abandon it due to increased insecurity. Moreover, although it is well understood that many of the contributing factors to malnutrition require behavior change, programs to address such behaviors are usually not emergency focused and are thus not considered priorities in the current climate. However, protracted emergencies such as the Greater Darfur crisis, should include adapted community-based infant and young child feeding programs for promoting optimal caring and feeding practices. This would assist caregivers to gain access to an improved information regarding complementary food and health and nutrition education for promoting best caring and feeding practices. Health campaign activities that are undertaken in Darfur (e.g., polio eradication, micronutrient supplementation) are not linked to selective feeding programs.

### 3.2.10 Links with Food Security and Livelihoods Programs

The catastrophic destruction of people’s livelihoods during the conflict in Darfur has been well documented in previous studies, along with recommendations that implementing partners focus on supporting and developing alternative livelihood strategies to maintain and develop beneficiaries’ coping mechanisms.

While linkages between selective feeding programs and longer-term livelihood initiatives are not well developed, there have been some attempts by the FAO, with assistance from the IPs and the Ministry of Agriculture (MOA), to support farmers with seed distributions and tools. Although the quantity of seeds distributed increased by 60 percent from 2005-2006, the population receiving them still only covered around 36 percent of the total need. In 2006, it was reported that farmers who received seeds had doubled their harvest production.

In addition, WFP is planning to scale-up the implementation of “food for recovery” programs during 2008, such as school rehabilitation and water harvesting schemes. WFP also aims to increase numbers of children registered in school feeding programs this year.

### 3.2.11 Links with Informal Health Systems

Links with the informal health care system are non-existent. There is ample anecdotal evidence to suggest that a large proportion of caregivers are seeking support from traditional healers and religious leaders prior, during or after being enrolled in selective feeding programs. There are also reports that the use of traditional healers and religious leaders as the primary tiers in health-seeking behavior is closely linked to the late presentation of severely malnourished cases. Despite this, no comprehensive assessment of local perceptions of malnutrition and health-seeking behaviors has been conducted. Furthermore, there have been no formal attempts, neither by the SMOH nor by the IPs, to identify, approach, train and/or integrate traditional healers and religious leaders into outreach activities.

## 3.3 ACCESS TO FOOD AND NON-FOOD SUPPLIES

### 3.3.1 Supply System

*SAM Services*

UNICEF is the main financer, purchaser and supplier for both food and non-food items for inpatient and outpatient care. This includes the provision of all therapeutic products (RUTF, F-100 and F-75) to both the MOH and IPs, with the exception of a few partners who procure their own supplies, usually through private funds.

Anthropometric equipment and basic medicines are provided through UNICEF to MOH facilities and some partners, although many IPs also purchase and supply their own equipment and medicines, often through a long and complicated drug importation process. Where the procurement of medicines is done locally (thus supporting local industry), questions on product quality inevitably arises. The MOH has a stock of drugs at the state level that is supplemented by basic Primary Health Care kits from UNICEF or Emergency Drug kits from the WHO. A few IPs who are generally privately funded supply themselves with the necessary products, medicines and equipment.

Caregiver food for inpatient care facilities is provided by WFP. There were some (unverified) complaints, however, that food was not supplied to inpatient care sites in rural areas, resulting in caregivers being unwilling to stay at the centers.

*MAM Services*

In addition to the general food ration, WFP is the main supplier and transporter of the food required for the both targeted or blanket SFPs (supplementary ration based on a premix of CSB, sugar and oil). The CSB has to be imported into Sudan from abroad. The GOS’s ban on genetically modified products means that CSB from the U.S. cannot be imported. The CSB currently in use is imported either from Europe or nearby countries.

The few programs that are using or intending to use other products designed to treat or prevent MAM (e.g., SF450, ready-to-use supplementary food (RUSF) such as Supplementary Plumpy’®, Plumpy’Doz®) tend to procure, import and transport the products themselves.

*General Food Ration*

The GFD ration includes cereals, pulses, oil, sugar and small amounts of CSB. Some of the items for the GFD are imported, while others are purchased in Sudan. All of the food is transported to Darfur by truck; there are reportedly more than 2,000 trucks on the road at any one time bringing the food to Darfur – an

enormous logistical operation to provide the ration to over 2 million people. The food is stored in WFP warehouses until distribution. Distributions are usually handled by food aid committees established in each town or IDP camp with support from the relevant IP.

*National Production of RUTF*

National production of RUTF has not started in Sudan, although an initial feasibility investigation was conducted by a team from UNICEF headquarters in October 2007. The team identified some potential local producers, but the cost of locally produced RUTF was estimated at approximately 1.5 times the cost of internationally produced RUTF. It was decided to continue importing RUTF from France, while continuing to investigate the possibility of importing from nearby countries (e.g., Ethiopia) to reduce transport costs.

### 3.3.2 Supply Transportation and Management

The selective feeding supply system operates outside of the routine MOH system, usually under the auspices of UNICEF or the respective IP. Therapeutic supplies and equipment are imported to Sudan by UNICEF from its central department in Copenhagen either by sea to Port Sudan and then by road to Khartoum, or by air directly to Khartoum. Supplies need to be cleared by two different agencies to secure the release order: the Sudan Standards and Metrology Organization (SSMO) and the Quality Control Agency (QCA).

Therapeutic supplies are transported from Khartoum to the Darfur states by UNICEF, usually by road, according to the amounts that each state has requested. The amount requested is usually based on the number of cases treated the previous year and the current treatment capacity. Supplies are stored in a central location in the capital of each state until requisition and collection by IPs. UNICEF annually negotiates Project Cooperation Agreements (PCAs) with implementing partners. The MOH usually collects supplies from the central store in urban areas but will often request either UNICEF or IPs to assist with the transportation to rural areas. The MOH supply system is currently only involved in the storage and management of supplies for inpatient treatment. Both the supplementary food and the food required for the GFD are supplied and transported through WFP by road to Darfur (from Khartoum if it is locally purchased, or more often, from Port Sudan for the supplies imported by sea, a huge distance of more than 4,000 km).

The difficulties in getting food to Darfur are increasing, with a recent rise in the number of truck hijackings and driver kidnappings (21 drivers were reportedly still missing during the first three months of 2008). While some of the food transport is undertaken by WFP themselves, much of it is contracted out to private companies. It was reported that some of these companies no longer wish to accept these contracts due to the high risk associated with them.

### 3.3.3 Stability and Reliability of the Supply System

The majority of the IPs report that there are very few stock-outs of therapeutic supplies. If they face a shortage, they borrow from each other until the shortage is resolved. The MOH reports that it sometimes faces shortages of F-100 and F-75, although this could be exacerbated by the misuse of some supplies (e.g., in one TFC the review team witnessed the use of a whole packet of F-100 to make up milk for only five patients, thus wasting the surplus). Difficulties with communicating shortages of certain products can compound the problems.

There were some concerns raised about peroxide levels in therapeutic milks (F100 and F75) during 2007, which resulted in the imposition of a temporary ban on use of the milks in inpatient care units for four months. Independent laboratory analyses were conducted and confirmed that the peroxide levels were within acceptable limits. The ban was lifted and procurement, supply and use of these products continued as before. The temporary ban did, however, delay the procurement of new stocks, causing a shortage of

therapeutic milk during the last few months of 2007. During this time, partners were obliged to reconstitute the therapeutic milk with local ingredients and imported Combined Mineral Vitamin mix that was made available by UNICEF. It was reported that the children did not like the new taste.

The supply of supplementary food has been uninterrupted because WFP prioritizes selective feeding program needs over the GFD. There have been some pipeline problems with the GFD ration, particularly during 2006. When there are pipeline problems, the ration is cut across all of the Darfur States to ensure continuity. It was observed that the continuing increase in global food prices is likely to seriously affect the content and availability of the GFD ration, as it is now approximately twice as expensive to procure the food than it was in 2005-2006. If GFD rations are not safeguarded, they will inevitably directly affect the wider impact of selective feeding programs.

## 3.4 QUALITY OF SERVICES

### 3.4.1 Standardization of and Adherence to Treatment Protocols of MAM and SAM

The draft Supplementary Feeding guidelines are generally being followed by IPs, although some differences with both screening cutoffs (using MUAC) and admission criteria and tools were observed.

The lack of agreed-upon national guidelines for outpatient care for SAM without complications results in a lack of standardization of treatment protocols, with resulting variability in quality of services. At present the IPs are using a variety of international guidelines, with differing criteria for admission to programs and protocols for treatment, with some implementing partners adhering to criteria and protocols more closely than others. This variation in protocols inevitably affects how children are treated, and results in differences in outcomes. It also makes the process of comparing programs difficult.

MOH-run inpatient facilities typically follow the WHO 1999 manual for the treatment of SAM, although the principles are not always strictly adhered to. The review team observed instances where incorrect application of protocols (e.g., incorrect dilution of therapeutic milks, amount of milk feed not given according to weight) were likely to be having a negative effect on the recovery of children. Some staff involved in treating the children had not been trained in the protocols, thus increasing the likelihood of non-adherence.

### 3.4.2 Organization of Services for the Management of MAM and SAM

Malnutrition service delivery varied widely among between organizations. Some IPs had an extremely well-organized site, with a good flow of beneficiaries, short waiting times for the caregivers, appropriate areas for medical checks and treatment, suitable areas for mixing premix, well set up health education areas, and clear strategies for community mobilization.

Other IPs had poorly organized sites, with none of the above. The poorly organized sites affect the quality of care given to both SAM and MAM cases and increase the burden and workload for the staff. At the poorly organized sites, medical checks are not thorough, which means that potential complications can be missed, and waiting times are long, which discourages the caregivers. Staff managing these sites currently are unable to deal efficiently with modest caseloads, thus calling into question whether they will be able to scale up services with rising admissions during the hungry season.

### 3.4.3 Support and Supervision of Services for the Management of MAM and SAM

The persistent and worsening insecurity in Darfur results in a lack of access to selective feeding sites, which impedes effective supervision by the UN, IP staff, or the MOH. Road transport is increasingly difficult, if not impossible, in all three states, with support staff generally needing to fly by helicopter or travel with armed escorts to visit sites. This inevitably reduces the number and duration of support visits that are possible.

Although the SMOHs have a nutrition focal person appointed in each state, staff cannot travel outside of the urban areas for security reasons and therefore cannot supervise any programs that are located outside of the immediate vicinity of the towns. Supervision/support visits by the MOH to programs located in urban areas tend to be infrequent and unstructured.

In the government-run TFCs, support given to staff to ensure adequate service delivery was variable. In South Darfur, the SMOH and UNICEF were conducting regular visits, while visits were infrequent in North and West Darfur. IPs did not play a role in this support service in any of the states.

While all of the IPs interviewed have their own 4x4 vehicles, none are able to use them due to the fear of carjacking. Partners therefore are resorting to the expensive practice of hiring local vehicles, which places an additional strain on budgets.

*Monitoring of Individual Children*

There is a lack of standardized formats for registration and monitoring. Most IPs are using their own tools and formats for registration into inpatient care, outpatient care and SFPs. Registration tools vary; some facilities use a registration book while others do not. Moreover, a number of different inpatient and outpatient care treatment cards were in use. In South Darfur, for example, an up-to-date "critical care card" for monitoring in-patients is used, while most facilities in North and West Darfur are using an outdated version of the multi-chart that is missing several key components (e.g., a space to record when milk feeds are given and how much was taken by the child each day). This variation makes it difficult to assess whether appropriate care is being given.

With the exception of one or two CMAM programs, no system is in operation to track referrals of individual children between outpatient care and inpatient care, or vice-versa.

### 3.4.4 Monitoring of Services for the Management of MAM and SAM

*Monitoring of Program Processes*

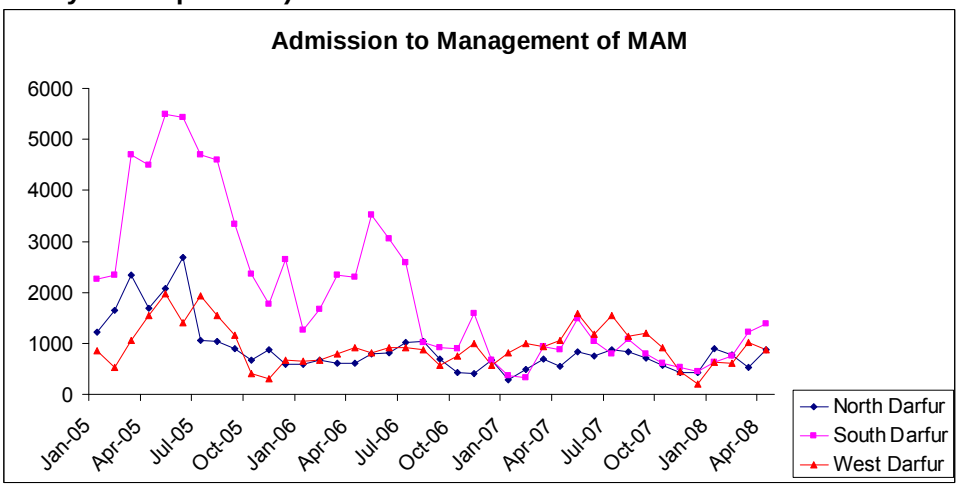
The MOH/UNICEF statistical reporting format for MAM and SAM programs is used by the majority of IPs. Each compiles and analyzes its own program data before sending it to MOH/UNICEF, which enters this information into a therapeutic database at the state level before sending it to Khartoum. Not all partners send statistics reports on time, however, which can delay analysis (e.g., between 44 and 60 percent of expected monthly statistics reports were submitted for inclusion into the Darfur Therapeutic Database during each month of 2007). At the Khartoum level, the data are collated and reported in the bi-monthly Darfur Nutrition Updates. This report serves as a feedback mechanism to the IPs in the states. At the state level, UNICEF provides the compiled data to the SMOH, which sends it to the FMOH along with other health information data. Neither SAM nor MAM program statistics are integrated into the routine health management information system. It is not clear how the SAM data are collated, as many approaches to the delivery of services of SAM management are in use: patients are managed or treated in inpatient care only, outpatient care only, or a combination of both.

*Monitoring of Program Results*

The impact of selective feeding programs on reduction of morbidity and mortality amongst the malnourished population cannot be reliably assessed because of the many contributing factors.

<u>MAM Program Admissions</u>
Over 170,000 children beneficiaries were admitted to and treated in (not all cured) services for the management of MAM over the last four years. There was a peak in admissions between March and June 2005 at between 8,000 and 9,500 new admissions each month. In 2006, this had dropped to around 4,500 for the same period. This decrease corresponds to an improvement in nutritional status in Darfur by late 2005 (see Table 4 and Figure 5).

**Figure 5: Admission trends to management of MAM in the North, West and South Darfur States (UNICEF, January 2005-April 2008)**




Targeted SFP interventions were initially set up in 2004 and then expanded in 2005 in response to high rates of global acute malnutrition (GAM). As can be seen in the figure above, admission numbers peaked during 2005 before falling in 2006 and 2007. There are several possible reasons for this rapid scale-up and reduction in admissions. Initial high levels of admissions were linked to the major displacement of the population in 2004-2005 and establishment of large IDP camps, with accompanying high rates of acute malnutrition. During this period, many IPs started selective feeding interventions. Decreased levels of GAM in 2006 led some IPs to cease operations (Figure 5). Reduced access due to increased insecurity also led to a number of operations being suspended.

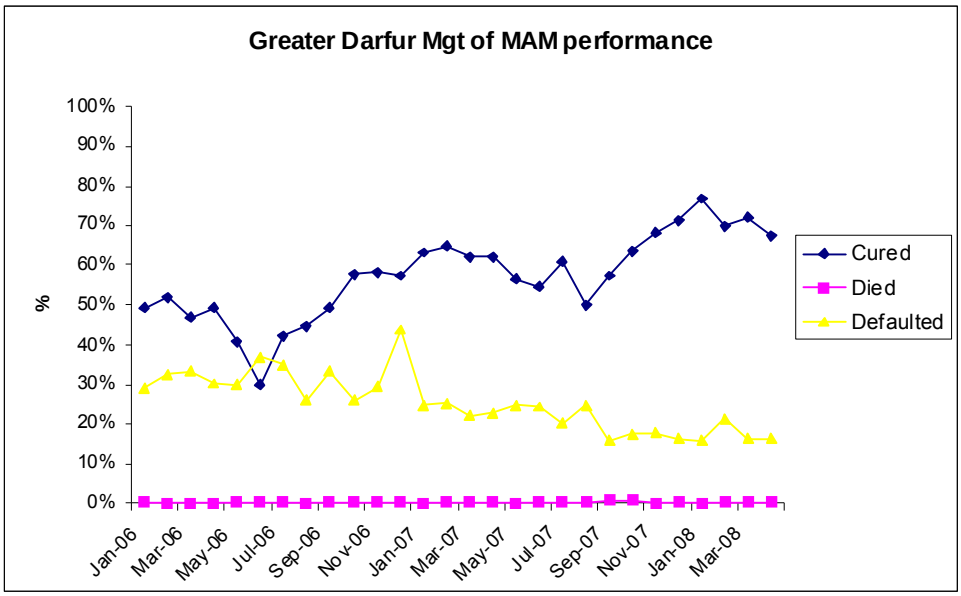
**Figure 6: Total SFP admissions by year for Greater Darfur (UNICEF, 2004-2007**


MAM Program Performance

SFP program performance indicators in Greater Darfur have been consistently sub-optimal, particularly the high defaulter rate (see figure 7). In 2006, the defaulter rate varied between 28-38 percent, with North Darfur having the highest defaulter rate (38 percent), well over the Sphere standard recommendations of less than 15 percent. This high level of defaulting affected cure rates (49-55 percent), which are well below Sphere standard recommendations of less than 75 percent.

In 2007, program performance improved substantially, with defaulter rates down to 13 percent and 11 percent for North and South Darfur, respectively. This is an impressive achievement. The defaulter rate remained high in West Darfur, however, reaching almost 27 percent. The cure rates concurrently improved for North and South Darfur (at 71 percent and 64 percent, respectively), although they did not quite reach Sphere recommendations. The cure rate for West Darfur remained very low at 52 percent. Overall, death rates were low at less than 1 percent. Again, if not all defaulters were followed up on, there may be hidden mortality within the defaulter rate.

**Figure 7: Trends in performance indicators for the Management of MAM in the Greater Darfur (UNICEF, January 2006-April 2008)**



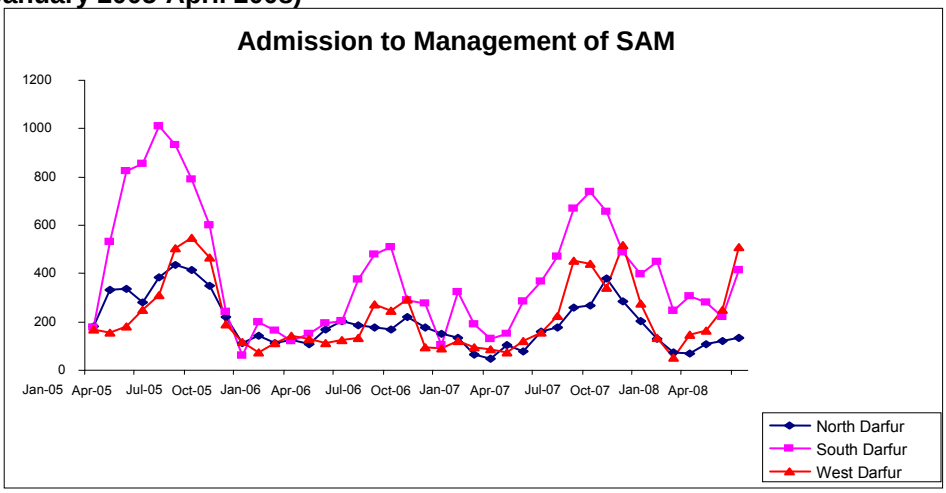

SAM Program Admissions

A total of 33,874 children 6-59 months with SAM were admitted to therapeutic programs in Greater Darfur from September 4, 2007 to January 8, 2008 although these figures do not include data from some of the IPs that do not submit their program statistics to the MOH/UNICEF for inclusion into the national therapeutic feeding database. This total number of admissions is therefore an underestimation.

Seasonal trends in admission rates are clearly seen, with admissions to programs consistently lower during the months of October through December and higher during the traditional June through September hungry season. Large numbers of children have presented with SAM (from 900 to 1,900 per month) during the hungry season each year (see Figure 8 below).

The majority of admissions to programs have presented with marasmus (averaging 91 percent in 2005 and 2006, and 85 percent in 2007). Rates of admissions with bilateral pitting edema tend to be higher during November/December than in other months of the year.

**Figure 8: Admission trends to Management of SAM in the North, West and South Darfur States (UNICEF, January 2005-April 2008)**



SAM Program Performance

The performance (see figure 9) of the therapeutic programs was variable as a whole. Programs have consistently failed to reach high levels of recovery. With the exception of two months (November and December 2006), recovery rates were below the SPHERE guidelines of greater than 75 percent.

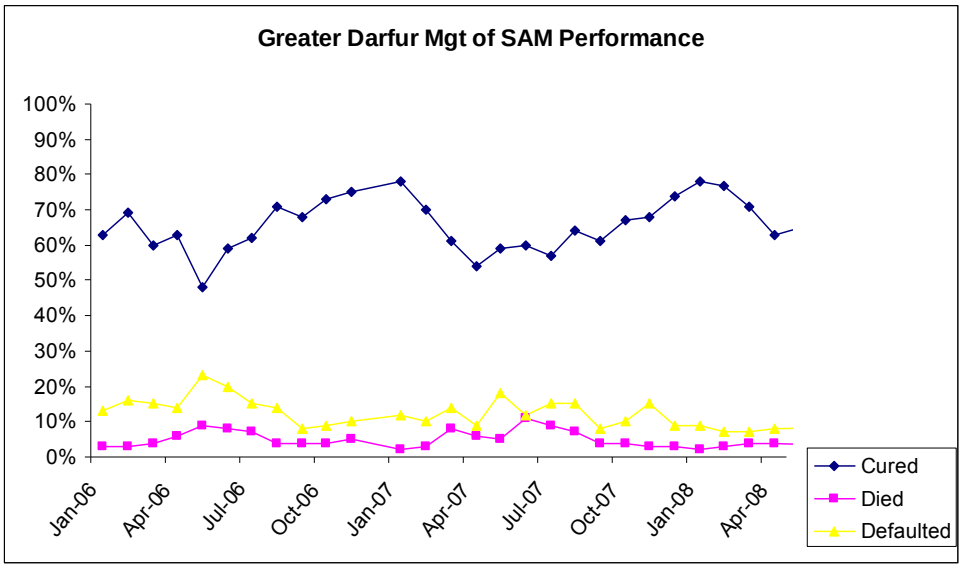
Recovery rates tend to drop during the hungry season months of June and July, which could be related to the rising number of admissions that put additional pressure on the centers. Drops in recovery rates coincide with increased levels of defaulters and deaths. For 15 months (41 percent of the reporting period), default rates were higher than the SPHERE recommendations of less than 15 percent. Seasonal peaks of defaulting were clearly seen during the hungry season. Reasons for such increases in defaulter rates may be attributable to:

1. increasing or specific insecurity shocks,
2. inaccessibility of roads during the rainy season,
3. higher levels of diarrhea or malaria,
4. seasonal migration for income-generating activities,
5. migration for insecurity,
6. planting/h arvesting season, or
7. other unidentified factors.

Mortality rates have consistently been within the SHPERE recommendations of less than 10 percent, except for one month (June 2007). It may be possible that some “hidden” mortality is included within these defaulter rates, especially if all defaulters were not followed up to confirm the reason for default.

Information on average weight gains and length of stay is not included in the Darfur Therapeutic Feeding Database.

**Figure 9: Trends in performance indicators for the management of SAM in the Greater Darfur (UNICEF, January 2006-April 2008)**




### 3.4.5 Programmatic Responses to Poor Effectiveness

High rates of defaulting in SFP programs are common across the three Darfur states. Despite the lack of formal research into the issue of defaulting, it seems to be linked to two factors: 1) women’s labor; and 2) population movement.

Recent investigations into possible reasons for defaulting in North and South Darfur suggest that approximately 25 percent of caregivers in IDP camps travel daily to the nearest urban centers looking for work. Other anecdotal estimates have placed this figure closer to 50-60 percent. The gender division of labor means that women often prioritize daily work opportunities over program attendance. The absence of caregivers (either due to labor or semi-permanent migrations) is reflected in the considerable numbers of children attending services with a grandparent or older sibling. It was reported that some programs have refused to treat these children without an adult caregiver in attendance.

Population movement also plays a role. During planting, weeding and harvest season, many IDPs look for work in the farms of the host community. The majority of these farms are located far from the camps and urban centers, so workers often migrate for periods of up to three to four months. Inter-camp movement is also reported as a means of registering in multiple GFD programs.

Many of the IPs have taken steps to investigate and counteract the high default rates through actions such as: further decentralization of services, increase in community mobilization activities, and follow up of defaulters to encourage return to the program. Most report that such actions have had a positive effect on reducing defaulting, which is reflected in the reduction of SFP defaulter rates from 2006 to 2007. One IP in South Darfur has responded to the high defaulting issue by taking different steps to address and evaluate the change of performance. One series of steps was the change of the supplement consisting of a premix basedCSB to SF450 to a Ready To Use Supplementary Food (RUSF), apparently without having a major impact on defaulting and weight gain. This experience needs to be documented.

### 3.4.6 Access and Service Uptake or Coverage of Services

The Greater Darfur constitute a wide geographical area where villages tend to cluster near major towns or follow major road axes, leaving vast empty spaces. Operational areas of selective feeding programs create a limited patchwork of service availability due to the relatively low number of implementing agencies in the states.

Table 9 below indicates the thin geographic coverage of selective feeding sites (based on the assumption that sites are homogeneously distributed and have on average the same capacities, which does not reflect the reality of the situation) and highlights the differences in service availability. North Darfur is worst-served for MAM sites and South Darfur for SAM sites. The estimated under-five catchment-population-per-site figures show the limited access to MAM and SAM services in general.

**Table 9: Under five catchment population per site in the Greater Darfur area (number of sites, February 2008, UNICEF)**

| | North Darfur | South Darfur | West Darfur | Greater Darfur |
|---|---|---|---|---|
| Affected under five population (16.7% of IDP and affected residents) | 223,925 | 271,922 | 217,100 | 713,153 |
| MAM sites | 12 | 24 | 50 | 86 |
| U5 catchment population per MAM site | 18,000 | 11,000 | 4,000 | 8,000 |
| SAM sites | 26 | 26 | 54 | 106 |
| U5 catchment population per SAM site | 8,600 | 10,000 | 4,000 | 6,700 |

Geographical coverage of selective feeding programs is restricted to areas where IPs can implement programs with some degree of safety, often limited to urban/IDP camp areas. Vast stretches of rural areas remain un-served as they are unreachable by either IPs or the UN.

To obtain coverage information, IPs generally use estimates of programmatic coverage based on nutrition survey data (e.g., proportion of children in the survey population identified with SAM and accessing treatment) that tend be imprecise. Estimates of coverage are nevertheless a vital monitoring tool. If the program is failing to reach the targeted population, the program implementers *must* have this feedback to investigate and understand the reasons for it and take corrective action if possible.

Since 2005, the annual DFSNA has compiled information about the nutrition situation in Greater Darfur, and the performance of selective feeding programs in the region. The DFSNA includes, among other things, statistics on the overall coverage of selective feeding programs at the state level. While these statistics are intended as a measure of overall coverage, they are presented as programmatic coverage rates and therefore used as success indicators of nutrition interventions in the Darfur States. The 2007 Darfur FSNA survey reported program coverage of selective feeding programs among conflict-affected populations as 13 percent (95% CI; 7.4 – 18.6). This is partly due to the lack of access to insecure areas, but also due to the limited number of IPs working in Greater Darfur. Such low levels of coverage inevitably result in limited impact of programs at a population level.

The table below compares estimates of children with MAM and SAM in the community based on a best-case scenario, to children with MAM and SAM admitted for treatment. Following the best-case-scenario prevalence rates, the comparison suggests critically low availability, access and service uptake. The figures highlight the differences in availability, access and service uptake, with the worst service use in South Darfur for MAM and in North Darfur for SAM. This exercise highlights the heavy burden that services could expect if all cases were to present for treatment. It also highlights how many resources would be needed and the supportive community outreach system that should be in place for effective and efficient identification and referral of children in the community to the existing sites. At present, North Darfur has the weakest access to services, and West Darfur the best.

**Table 10: Estimates of prevalence of children with MAM and SAM requiring admission based on the best-case scenario prevalence rates of 10% MAM and 1.5% SAM, (DFSNA, September 2007), per site and per State, compared to the actual number admitted for treatment in February 2008 (UNICEF, February 2008)**

| | North Darfur | South Darfur | West Darfur | Greater Darfur |
|---|---|---|---|---|
| **Management of MAM** | | | | |
| Estimated # of children 6-59m in affected population with MAM - **if MAM 10%*** | 19,845 | 24,099 | 19,214 | 63,202 |
| # of MAM sites | 12 | 24 | 50 | 86 |
| Reported # of MAM cases admitted (Feb 2008) | 2,131 | 1,213 | 5,462 | 8,806 |
| Proportion of admitted to estimated number of cases* | **0.11** | **0.05** | **0.28** | **0.14** |
| **Management of SAM** | | | | |
| Estimated # of children 6-59m in affected population with SAM - **if SAM 1.5%*** | 2,977 | 3,615 | 2,882 | 9,480 |
| # of SAM sites | 26 | 26 | 54 | 106 |
| Reported # of SAM cases admitted (Feb 2008) | 263 | 662 | 953 | 2,540 |
| Proportion of admitted to estimated number of cases* | **0.09** | **0.18** | **0.33** | **0.27** |

* Note: MAM and SAM rates are based on WFH (Z-score NCHS references) or edema. Admission to programs is based on WFH (percent of median NCHS references), MUAC or edema. The conversion from Z-score to percent of median is expected to decrease numbers by one third; 100 percent program coverage is never expected. Moreover, the MAM prevalence rate in North Darfur and the SAM prevalence rate in West Darfur are underestimated.

When assessing coverage of selective feeding programs, it is important to assess both geographical coverage (how much of the area is served by selective feeding programs, or program availability) and programmatic coverage (how many of the malnourished population are registered in the program, or service uptake rates). Programmatic coverage is ideally assessed through use of a Centric Systematic Area Sampling (CSAS) methodology that surveys the impact area of the service, and provides very informative spatial coverage rates. To date, only one coverage survey using the CSAS method has been conducted (Concern, January 2005, West Darfur).

While some of the IPs felt that they were getting good coverage of the population, the numbers of admissions seem to contradict this. Numbers of admissions to selective feeding programs were consistently low (e.g., one SFP had only four pregnant and lactating mothers registered in a camp of over 70,000 people) despite nutrition surveys recording rising levels of malnutrition. Additionally, children with late presentation of SAM (i.e., advanced bilateral pitting oedema and/or severe wasting) were often seen in the inpatient units, suggesting that community access to selective feeding programs still needs to be greatly improved.

### 3.4.7 Surveillance of Nutrition Situation

A monitoring system was set up in 2005 through the National Surveillance System (NSS) and is implemented by the FMOH/SMOH and UNICEF. Data from each of the Darfur States are collectively analyzed at Khartoum level. The system consists of triangulation of data from three sources: 1) nutrition surveys; 2) selective feeding center data; and 3) sentinel site data. These data are then interpreted in the context of secondary data (e.g., early warning data from FAO, WHO and WFP, and food security updates). Results are posted and discussed in the Darfur Nutrition Update (a quarterly UNICEF publication).

The National Surveillance System (NSS) is generally regarded a useful tool that works well. It is particularly helpful for identifying new events and monitoring trends in malnutrition. UNICEF invests a lot of time and resources into the collection of sentinel site data, although the collection of such data can suffer from a lack of accessibility; many of the sites chosen are in insecure areas and data often cannot be collected with any regularity. Another issue is that the data need to be sent to Khartoum for analysis (using Epi Info), as the states often do not have the capacity to conduct analysis, and this can lead to a delay in getting feedback on the results back to Darfur. In a deteriorating nutrition situation, delays in receiving data have the potential to affect appropriate responses.

The DFSNAs provide the forum to compare survey data, trends in admissions rates to selective feeding programs with surveillance data, and other secondary information

Nutrition surveys are recommended to cover administrative units (sub-districts) or camps and have been conducted regularly by partners in all three states, despite the process recently becoming more complicated. According to standardized national nutrition guidelines, permission to undertake a survey has to be given by the Humanitarian Assistance Commission (HAC) and can be a prolonged process. The results of the surveys also have to be approved by HAC before publication, which again can take some time. One IP reported that it currently has eight surveys awaiting approval from HAC. This lengthy process discourages IPs from carrying out surveys on a regular basis and hinders the appropriate and timely planning of nutrition activities.

A workshop to discuss the current problems with the surveillance system was being held in Nyala as the review team left Darfur. Based on preliminary reports, suggestions made at the workshop for improving the surveillance system are to: formalize institutional links between the different surveillance systems to ensure that the systems interact more; refine methods and tools for selection of sites and collection of data; and ensure that analysis is integrated more into the inter-sectoral analysis that happens at state level.

### 3.4.8 Acceptability and Appropriateness of Products and Programs

*CSB*

A considerable amount of ration sharing was reported by the IPs running supplementary feeding programs. This is not surprising considering the extremely difficult living conditions borne by most of the population. For much of the population, external food aid is their only source of food and is often not sufficient to feed the family. When the WFP experiences pipeline difficulties, the GFD ration is cut to ensure that the entire registered population receives at least some of the ration. (This excludes the supplementary feeding program rations, which are prioritized and have never been cut.)

Some of the IPs have tried innovative approaches to improve weight gains and reduce instances of non-response due to ration sharing. One IP in Kebkabiya reportedly approached WFP to increase the general ration for the families of children registered for therapeutic services; the residents of the town were receiving a half ration, which was increased to a full ration for families of the SAM children. It was reported that this strategy had a dramatic effect, increasing rates of recovery and weight gain and decreasing non-response and default rates.

There have been many reports of the unacceptability of the CSB for both the supplementary and general food rations and the debate on CSB acceptability and appropriateness in the Darfur context continues. WFP, the primary supplier of CSB for SFPs, has expressed concerns about the acceptability of the product, leading to plans to introduce dried-skimmed milk (DSM) into the premix as a measure to improve its acceptability and appropriateness (20 grams of CSB will be cut from the ration to be replaced by 20 grams of DSM). IPs have also expressed doubts about the effectiveness of CSB for the rehabilitation of moderately malnourished children, citing sharing among the family members, modest weight gains, high defaulter rates, and long lengths of stay. Other stakeholders expressed concerns about the acceptability of CSB, in particular vis-à-vis products such as BP5 and Supplementary Plumpy'® that are more liked by the children and caregivers but not necessarily improve program effectiveness.

No overall conclusive evidence was found to support either position. Most SFP implementers argued that while CSB acceptability could be an issue, the beneficiaries mostly found the product acceptable. (This was confirmed by post-distribution monitoring assessments conducted by WFP.) In spite of the difference of opinions, there seems to be a degree of consensus on some of the issues associated with CSB acceptability and appropriateness.

*Knowledge of CSB preparation*: the acceptability of CSB is directly proportional to the level of understanding about its preparation. Limited understanding of cooking methods can lead to poorly prepared products, which in turn can lead to future decrease in the use of the product. Programs with an increased focus on cooking demonstrations have reported improved CSB uptake. Cooking of the product is, however, time consuming for the caregiver and requires access to extra firewood and an additional pot. RUTF (e.g., BP5, Supplementary Plumpy'®) does not require cooking prior to eating, and some communities admitted that they preferred BP5 because it was easier to share among family members.

*Cooking recipes*: WFP is currently producing a recipe book for CSB. The aim is to diversify cooking options and to address concerns about the cultural acceptability of porridge as a food. Some of these new recipes are already being introduced by implementing partners in their cooking demonstrations.

*Multiple uses and multiple messages on CSB*: the use of CSB in both SFP programs (as a premix with oil and sugar for exclusive use by moderately malnourished children and not to be shared) and as part of the GFD ration (not mixed and used as a general ration to be shared by all children in the household) can lead to conflicting messages about the product. Cooking guidance and education on the use of CSB is provided by the SFPs, but not in the GFD.

*Quality of ingredients*: some reports of poor quality CSB during GFD distribution (due to weevil infestation, over-fortification, etc.) and unfamiliarity with other products (e.g., vitamin A-fortified oil) are likely to have contributed to some of the negative perceptions of CSB. Subsequent improvements in the quality of the product have led to improved perception and uptake by beneficiaries.

*Use of alternative products*: During some periods, BP5 and high-energy biscuits have been utilized in SFPs. These products are generally preferred by the community as no preparation or cooking is required and it is easier to share such rations among the family.

The impact of selective feeding programs will also be affected by the content and regularity of the GFD. The amount of CSB in the general ration was cut during 2007 from 50 grams/person/month to 16.5 grams/person/month. As there is no other fortified food suitable for young children provided in the general ration, it is possible that the reduction in CSB may be contributing to the rise in malnutrition rates observed during 2007.

*RUTF*

Acceptability of RUTF is reportedly good. Some sharing of the ration among the family is suspected. This is indicated by the relatively low weight gains. Most of the SAM programs visited were achieving between 4-6/gms/kg/day; however, weight gain data is not routinely entered into the Darfur database, so an overall assessment of weight gain rates was not possible during this review. Most SAM programs give a ration (or half ration) of CSB as a family ration to encourage the RUTF to be eaten by the SAM-affected child only, although the instructions to the family can be confusing (e.g., at one site the caregivers were being instructed to feed the SAM child with both the RUTF *and* the supplementary ration).

Some confusion between RUTF and CSB was also reported among the beneficiaries. Caregivers often question why children with MAM get CSB instead of RUTF, as caregivers (not surprisingly) associate RUTF with faster recovery and weight gain than that achieved with CSB.

### 3.4.9 Effectiveness of Health Education

While nutrition/health education sessions were being conducted at all of the selective feeding sites visited, questions regarding the quality of the education were raised. Most of the education sessions were conducted in Arabic, a language that only a few caregivers spoke or understood. The caregivers also were not actively engaged in the sessions. For example, although there were frequent cooking demonstrations, the mothers were often not in the vicinity when they were being conducted. There were also cases where Information, Education and Communication (IEC) materials were available, but they were not being properly used.

However, the review team visited one selective feeding program where excellent education sessions were being conducted. Caregivers were organized into three groups according to their local language (Fur, Zaghawa and Arabic). The health educators running the sessions were actively engaging the caregivers in discussions, and the IEC materials (provided by UNICEF) were being actively used.

Health education conducted in the inpatient units also varied. Some of the units had dedicated sessions, with weekly schedules of times and topics. Other units reported that the sessions were conducted on an ad hoc basis; it was not clear how often these would occur or what the content would be.

## 3.5 COMPETENCIES

### 3.5.1 Pre-Service Training

From discussions with recent graduates, pre-service training for medical students reportedly includes a module on nutrition at all universities with a medical school, although it does not include sections of the WHO manual for treatment of SAM. Once medical students qualify, they spend two years in "housemanship," where they rotate between the four major medical disciplines: general medicine, general surgery, pediatrics, and obstetrics and gynecology. Recent graduates report that approximately half of the pediatric course is concerned with malnutrition, but it is unclear if this includes treatment of SAM using the WHO manual.

### 3.5.2 In-Service Training

Due to the lack of an agreed-upon guideline for outpatient care for SAM without complications, MOH doctors, nurses and nutritionists have not received training in the principles and protocols related to management of SAM without complications in outpatient care, and are not currently implementing any outpatient care either in the Darfur States or across North Sudan. Staff who are directly employed (or seconded) by IPs implementing selective feeding programs receive in-service training at the sites where they are working, but the lack of standard practices across program sites will ensure that the training given is also not standardized. The training sessions are also not evaluated in a systematic fashion, nor are there proper linkages between staff capacity and training needs. SAM treatment is not incorporated into any other training curricula or courses (such as IMCI training).

In 2004-2005, an international nutrition expert conducted training in the inpatient management of SAM according to the WHO protocol, for 120 doctors, hospital nutritionists, health workers and IP workers. Following this, a series of training-of-trainers sessions was held using the WHO guidelines on the inpatient management of SAM was conducted, which resulted in a cadre of master trainers who have since gone on to train other staff involved in inpatient SAM care in some areas of the country. Training for SAM management (using the WHO 1999 protocol) has been included into the FMOH's 2008 work plan and budget, and there is currently sufficient national capacity in-country to conduct such training for inpatient care.

At the state level, doctors, nurses, nutritionists, medical assistants and nutrition assistants usually receive training when they are involved in inpatient care. There is, however, no annual planning done for formal training sessions in any of the three states. The review team observed that not enough staff receive the full training. Furthermore, not all of the relevant staff are trained (i.e., the senior doctors may have received training, but the nurses and medical assistants who are managing the inpatient wards on a daily basis are not trained and thus do not understand the importance of close adherence to the protocols).

Formal training alone is not enough to ensure high-quality service delivery. It needs to be supplemented by on-site support, mentoring and good supervision in order to be truly effective. The review team believes insufficient follow-up mentoring and/or supervision is being conducted after the formal training sessions.

### 3.5.3 Information Sharing

While there is relatively good information sharing at the State level during nutrition coordination meetings about current program status, information on best practices or lessons learned is very rarely shared amongst actors. The IPs focus on documentation is largely confined to completion of monthly statistical reports to MOH/UNICEF and donor reports; documentation of programmatic strengths and weaknesses is limited.

The FMOH and UNICEF produce a bi-monthly "Darfur Nutrition Update" that combines a variety of information from the NSS, nutrition surveys, selective feeding program performance, secondary data and other related information from Darfur. These updates are well written and provide a useful summary of the current situation, although some of the analysis, particularly of the NSS, can result in delays in release of the updates. Even though the updates are posted on web sites, hard copies should be even more widely distributed.

Information exchange among peers is weak in all of the Darfur states. As previously noted, the nutrition coordination meetings offer a forum for sharing programmatic data, but do not take sufficient advantage of the opportunity to share lessons learned. This is sometimes the result of IPs working in remote areas with limited access to the major towns and other partners. However, even the IPs that have good access to each other do not appear to take full advantage of each other's knowledge and expertise. IPs were often not aware of what was happening in nearby programs or how different actors had overcome certain obstacles.

### 3.5.4 Research

Several studies have been commissioned to better understand the nutritional situation and the precarious nature of livelihoods (e.g., Livelihoods under Siege, Tufts University, June 2005; OFDA Rapid Nutrition Assessment, September 2007; Causal Analysis of Malnutrition, UNICEF, February 2008) and provide useful insights into both the current situation and the history of malnutrition in Darfur. What is missing is documentation of context-specific best practices for program implementers. These would prove invaluable for agencies wishing to start selective feeding programs, or those wanting to improve program performance. Currently, many IPs "start from scratch" in developing programs.

A major research project into use of different products for nutrition prevention and the management of MAM is planned for 2008 for five months during the hungry season starting in April, using Plumpy'Doz® and Supplementary Plumpy'® in the Zalingei area of West Darfur. Plumpy Doz® will be given to all children aged 6-35 months. The project will target approximately 12,000 children. To date, national research institutions have not been included in this project but a conference to present these alternative approaches to a larger audience is scheduled in June 2008. While the results from this operational research will be eagerly awaited (and will need to be widely shared within the Darfur context and beyond), the products used may ultimately prove to be prohibitively expensive for the MOH and IPs that have limited funding capacity.

# 4. Conclusions and Recommendations

Despite four solid years of experience with selective feeding programs, the Greater Darfur remains a challenging area. The Region continues to be in a state of crisis, with a complex political situation that appears to have no immediate solution. External support will be required for some time to prevent excess morbidity and mortality among the conflict-affected population as food insecurity remains at critical levels. The fact that many of the areas where IDPs are residing are difficult to access for security reasons means that many of the vulnerable population are not being reached with selective feeding programs.

While the needs of the vulnerable population remain extremely high, the number of operations has decreased. UN agencies report difficulties finding enough IPs to carry out selective feeding programs. As the conflict in this region continues unabated, waning interest coupled with a certain amount of donor fatigue is creeping in, as international attention becomes diverted to other emerging crises. Moreover, the resilience of the affected populations is seriously eroded.

Indeed, the challenges in implementing effective selective feeding programs in the context of Darfur are manifold and should not be under-estimated. MOH and IPs that implement effective programs should be commended.

The UN is hoping that Darfur can move from “emergency” status into a period of “early recovery” during 2008. While this would be a positive development, it may be a premature move if insecurity in the Region continues to deteriorate. A change of status would, however, provide a real opportunity to develop a comprehensive strategic plan for the early stages of recovery in Darfur, with nutrition and health issues being a major part of inter-sectoral planning and programs. Such a strategy would need to be both well funded and well coordinated to ensure that enough resources are made available and are used to maximum effect.

Despite the evident difficulties of working in Darfur, some IPs are managing to implement high-quality selective feeding programs. Why are some programs able to achieve good results while others are not? Overall, it seems that the programs with adequate numbers of qualified CMAM experts who are able to build and strengthen the capacities of national staff on a continuous basis have a greater likelihood of success than ones that do not have this capacity-building support.

Another positive development is that the FMOH and SMOH are increasingly involved in building staff capacity and are making staff available for secondment and involvement in program activities. The SMOH has served as the lead agency for the inpatient care of SAM. Moreover, the nutrition surveillance system effectively involves a broad base of surveyors in the Darfur States.

Through the intensive exposure to the nutrition program activities, involving a broad base of local staff, temporary surveyors and volunteers, a vast number of communities have been sensitized to, and have exposure experiences with CMAM services.

The following are additional conclusions based on the review, organized by the five domains of the analytical framework for CMAM integration: enabling environment, access to services, access to supplies, quality of services and competencies. A summary of key recommendations for each of these five domains are listed at the end of this section.

## 4.1 ENABLING ENVIRONMENT

For most programs, the enabling environment within which the programs are being implemented is not conducive to effective coordination of services or to the development of leadership within the MOH. The MOH suffers from a lack of capacity at all levels.

In other African countries, the creation of a CMAM Support Unit at the Federal level has greatly helped with program coordination, strategic planning processes, guideline and policy development, emergency preparedness and response, development of pre-service and in-service training, and the crucial and often neglected documentation process. The CMAM Support Unit can also help to link the treatment of SAM into other health service delivery systems, and ensure that the *existing* network of MOH outreach personnel (health visitors, assistant health visitors, midwives and community health workers) are utilized for regular malnutrition screening -- or that the regular health campaigns also include screening for malnutrition. The creation of a CMAM Support Unit could help focus endeavors to transform emergency-based vertical programs into longer-term, integrated interventions by having experts function at two levels: at the federal level to provide guidance and policy; and at decentralized state levels to assist with coordination, service implementation, training and support, and information sharing.

Experience from other countries has shown that the engagement of senior pediatricians, academics and other key members of the health policy community in a CMAM task force can be a vital tool to help embed CMAM service provision within the framework of wider health service delivery.

Because most programs were initiated during an emergency situation, integration of selective feeding programs into the routine health system is almost non-existent; most programs are run in parallel to routine health services. As long as the MOH does not take a leadership role and malnutrition service provision is not integrated into MOH policies, plans and job descriptions of health care providers, prospects will remain very limited for any MOH ownership or sustainability.

Thus, there is a need to provide the FMOH with sufficient and continuous technical support to enable them to take the lead in the provision and coordination of malnutrition services, both in the Darfur States and across the country. Funding should be identified for creating a capacity development strategy that can take into account opportunities for strengthening health and nutrition services and initiatives, and collaboration with national training institutions.

Such opportunities may arise with the operationalization of the NNP or with health initiatives such as ACSI that could be used to embed malnutrition service provision (particularly for SAM) within the MOH at all levels. Other operations include, ensuring that the procurement of therapeutic products and equipment is incorporated into the minimum equipment standards for facilities where acute malnutrition is treated may be provided.

To further facilitate good provision of selective feeding services, existing guidelines (all still in draft form) should be thoroughly reviewed, updated and finalized according to international best practices and the latest evidence.

## 4.2 ACCESS TO SERVICES

Access to selective feeding services depends on many factors including human capacity, availability and willingness of IPs to operate programs, sufficient funds, and security considerations. Human capacity in Darfur remains very limited for both IPs and the UN. Many IPs report difficulties in identifying and hiring expatriate staff, and even when suitable staff are deployed, they are often willing to stay for only short periods due to the challenging working environment in Darfur. While at the start of the crisis many experienced staff were in Darfur to set up programs, international staff who are currently willing to work there are often near the start of their careers and therefore relatively inexperienced. Local staff capacity is minimal, with many of the IPs competing for a dwindling pool of suitably qualified staff. This lack of human capacity is indicative of limited investment in the capacity development of local Darfurian staff over the last few years.

Despite these obstacles, a variety of services are currently available (targeted and/or blanket SFPs for MAM, a mixture of inpatient and outpatient care modalities of treatment for SAM) and there has been an encouraging move from exclusive inpatient treatment to more community-based treatment for SAM cases over the last few years. Raising community awareness about selective feeding services would help to continue this trend. While some IPs focus sufficient attention on outreach activities, many do not,

assuming that the population is well aware of what is available because the programs have been running for some time. The highly mobile nature of the affected population, however, raises doubts about the validity of such assumptions.

IPs should set clear timeframes for community mobilization activities that are based on innovative and culturally appropriate means of communication. Partners could explore the use of mass media (radio in particular) to inform inaccessible communities about the type and location of nutrition interventions that are available, and about the use and preparation of foods (e.g., CSB) used in these programs. Links with the Nyala-based Darfur Lifeline Radio, as well as the more popular Radio Omdurman, could be explored. IPs also need to continuously monitor population movements within their program catchment areas to ensure that all new arrivals are informed and screened for available services.

A key challenge for any SAM treatment program is the late presentation of malnourished children, as caregivers often take the sick child to the traditional healer or religious leader first. This speaks to the importance of establishing linkages with the informal health sector to improve program uptake. IPs interested in developing such links could contact the WHO-sponsored Traditional Medicine Research Institute at the Medical Research Council in Khartoum. Furthermore, IPs should ensure that children are screened for acute malnutrition during *any* contact they may have with the health system (e.g., during vaccination campaigns). Links between malnutrition services and food security/livelihood programs are also crucial in light of the deteriorating food security situation observed during the last few months of 2007.

Even if community mobilization activities are strong and links to traditional healers are pursued, programmatic coverage of SFP programs will be difficult to improve if the extensive negative feedback in the community is not resolved. The negative perceptions are mostly due to the high number of rejections to programs (estimated at around 70-80 percent) that result from the use of a two-stage screening and admission process (screening using MUAC and admitting using WFH). Experience suggest that if a child is rejected once, then the caregiver will refuse to re-visit programs even if the child's condition deteriorates or they are referred by an outreach worker. High rejection levels also lead to caregivers advising their friends and neighbors not to visit the program, as they will likely not be admitted.

The use of MUAC for both screening *and* admission to services for the management of MAM and SAN are the only way to resolve the high-rejection-rate issue. It is not, however, current international practice to use MUAC as an independent admission criterion for the management of MAM. While the draft SFP guidelines include MUAC as an admission criterion (<120 mm), the majority of the implementing partners still use WFH for admission only rather than MUAC. It is expected that in the coming year a Joint Statement from WHO, UNICEF, WFP, and UNHCR will be released to cover the existing gap for the use of MUAC for identification of MAM and admission to MAM services (See Joint Statement for severe acute malnutrition and low MUAC (<110 mm) as independent criterion for identification of SAM and admission to services for the management of SAM). However, in the meantime it depends on national governments to decide to use MUAC as criterion for MAM precipitately.

The use of MUAC as the only admission criterion for both MAM and SAM services (along with bilateral pitting edema) would increase the quality of services because of more accurate identification of cases, increased admission of cases, decreased rejection rates and an accompanying increase of community trust and hence service uptake. Discharge could be based upon minimum length of stay and percentage of weight gain.

The use of MUAC as an admission criterion for SFP may raise a number of issues, including the potentially large increase in the number of admissions, and debate on which discharge criteria are most appropriate to use. To address the first question, nutrition survey data could be analyzed to estimate numbers of admissions to programs using different cut-offs. Advice on which discharge criteria may be suitable could be sought from international experts, who could review current SFP data to assess the rates of weight gain that are currently being achieved and what percentage weight gain may be appropriate for recovery of MAM cases. If the use of MUAC for admission to SFPs is pursued, it would be useful for at least one IP to pilot this approach to identify and iron out any operational glitches.

Examples of elements that could be included in guides addressing SAM outpatient care are provided in Box 6.

**Box 6: Examples of Best Practices for the Management of SAM in Outpatient Care**

- Anthropometric measurements accurately measured
- Appetite test conducted, with enough time allowed to assess the appetite properly
- Comprehensive medical check conducted, in a separate area so the health worker can elicit a proper medical history from the caregiver
- SAM patients with medical complications or those with poor appetite correctly identified and referred for in-patient care
- Patient monitoring card well filled in
- Routine/follow-up medicines given correctly, with clear instructions for take home medicines
- Clear instructions for caregiver to administer RUTF ration at home, how much, how often
- Key health education messages delivered to caregivers in a language they can understand
- Completion of monthly statistics and reports done correctly, including rates of weight gain and length of stay
- Regular supervision by both management and technical staff, with feedback given for improving performance

## 4.3 ACCESS TO SUPPLIES

Access to the supplies required to implement programs has been steady despite the multiple (and increasing) difficulties in transporting the necessary products and equipment to Darfur. As in many other countries, sufficient budgeting and provision of expensive products used in the treatment of malnutrition (particularly RUTF) is the major threat to long-term sustainability of services. To date, UNICEF has been committed to providing supplies and equipment for SAM/MAM programming, and WFP has been providing products for SFPs and the GFD. Future support is not secured, however. There is currently no donor commitment to provide the necessary supplies on a longer-term basis.

While many questions regarding the appropriateness of CSB for the treatment of MAM have been raised, no conclusive answers were identified by this review. A study to examine the pros and cons of CSB should be conducted to help resolve some of these contentious issues.

Furthermore, if the current exponential rise in world food prices continues, the sustainability of this massive food aid operation may come into question.

Some investigation into new products to treat MAM has been conducted and a major research project is planned for early 2008. While the results of such studies will surely make important contributions to the global debate regarding appropriate treatment for MAM, the products used may ultimately prove to be too expensive for IPs with limited budgets.

National production of RUTF may not be viable at present, however, it may be possible to import RUTF from neighboring countries to reduce transport costs. Some capacity building of the federal and state MOHs regarding which products are appropriate and accepted for the treatment of malnutrition may help to avoid potential misunderstandings in the future.

## 4.4 QUALITY OF SELECTIVE FEEDING SERVICES

The quality of selective feeding services currently offered varies considerably. While it is clear that the conditions under which these programs operate are often extremely difficult, the difference in the quality of programs appears to be rooted in the basics of programming. The IPs that focus on well-designed

community mobilization strategies, well-run distribution sites and well-trained staff who receive adequate support and supervision are more likely to implement high-quality operations. IPs that were not focusing enough attention on these basics of programming were operating at sub-optimal levels, as reflected by poor program performance documented by indicators of cure, case fatality, default and non-response rates and coverage ratio.

The lack of standardized guidelines on protocols and treatment modalities, hampers the design, implementation and assessment of programs.

### 4.4.1 Monitoring

The monitoring of programs is generally good, although irregular submission of program statistics compromises effective and timely analysis. Furthermore, monitoring and evaluation tools need harmonizing and linking to the national health information system. The review and development of standardized quality tools could be conducted as part of the review of guidelines (mentioned earlier as part of improving the enabling environment), which could then be used for capacity assessment, monitoring, supervision and reporting.

### 4.4.2 Access to Services and Coverage

Major concerns with poor coverage of services were raised throughout this review. Because geographical coverage of the needy population remains very low, many of the most vulnerable populations are unable to access and use appropriate services (e.g., coverage), and be retained (e.g., defaulting) or successfully graduate (e.g., non responding to treatment). IPs implementing selective feeding programs need to take measures to accurately assess and increase coverage. Strategies that could be used include adopting best practices that have been successful in other programs (e.g., use of songs during outreach, recruiting IDPs for mobilization activities in the camps, and using existing social fora and local markets for sensitization sessions). The involvement of the community in both program design and implementation is crucial and not currently well addressed.

To better understand what the current rates of programmatic coverage are, a survey should be conducted under the supervision of an experienced coverage surveyor. A CSAS-like survey was conducted around Al Geneina in 2005, and could serve as a blueprint for future surveys. UNICEF and the IPs should also consider the other emerging (and complementary) coverage assessment tools as they become available (e.g., Semi Quantitative Evaluation of Access and Coverage (SQUEAC)).

Research not related to coverage should also be considered to bolster the evidence base and improve the quality of services. For both MAM and SAM, studies should delve into the nature of defaulting, the failure to respond to treatment, and barriers to service uptake and coverage. With regard to defaulting in particular, factors that should be examined relate to: 1) the quality of the program (e.g., attitude of staff, the opportunity cost to the mother/caregiver, distance to the site, ration acceptability, understanding of services, awareness of malnutrition symptoms and its treatment); 2) loss (e.g., migration, death); or 3) other household circumstances (e.g., absence of mother, no backup childcare for other children, social or family events).

### 4.4.3 Program Relevance and Appropriateness

Overall, the selective feeding services offered throughout the region are appropriate and relevant to address the ongoing malnutrition crisis. While many IPs implement treatment for MAM and SAM, more attention is generally given to the SAM programs. Some IPs have terminated their MAM programs due to poor program coverage, poor program results and concerns over the CSB. The review team questioned the appropriateness of implementing SAM programs in the absence of SFPs; perpetuating high numbers of children with SAM where there is no program to prevent the development of SAM and to address MAM. Furthermore, if there is a high level of GAM (reported as 20 percent in one IDP camp where a SFP was no longer functioning), the question arises whether it is appropriate to be offering services for SAM children only, without putting in place efforts to address MAM and prevent SAM.

## 4.5 COMPENTENCIES

While there is a significant amount of expertise currently in Darfur to implement selective feeding programs, competencies risk being lost due to a lack of formalized documentation and sharing of experiences and lessons learned. Identification of best practices and the establishment of demonstration sites or centers of excellence, perhaps linked to academic institutions, could considerably help to improve both the knowledge and the quality of services by IPs. Best practices guides should be developed to address the various components of SFPs. This would include promising practices for SFPs for MAM, community outreach, and inpatient care and outpatient care for SAM with and without complications.

To develop the longer-term capacity of the MOH, a strategic plan for both pre-service and in-service training for different levels of health workers needs to be developed to ensure that health staff have good knowledge about the causes and treatment of acute malnutrition. It might also be useful to advocate for broadening the base of qualified staff for CMAM by encouraging the enrollment of Darfurian 12$^{th}$ graders in the nursing school in North Darfur. Updating the national curricula for all levels of health care providers also needs to be accelerated.

Because many of the contributing factors to malnutrition require behavior change, behavior change skills should also be nurtured, with particular emphasis on improved breastfeeding practices, appropriate complementary feeding, and hygiene and sanitation practices. All trainings need to be augmented by practical sessions organized at identified learning/demonstration sites (or centers of excellence) and through on-site mentoring, support and supervision. To bolster the NSS, learning fora and other information-sharing events specifically on CMAM could be organized.

In summary, while many of the IPs are managing to implement high quality and effective programs, there are a number of missed opportunities at present that could improve service provision. As the nutrition situation of the population of Darfur is likely to remain precarious for the near future, these potential missed opportunities need to be acknowledged and acted upon to improve access to, and quality of, malnutrition service provision and prevent unacceptably high levels of malnutrition. Better integration of services into routine MOH systems needs to be prioritized to pave the way for the transition of emergency services into a development context once the crisis in Darfur has been resolved.

## 4.6 SUMMARY OF KEY RECOMMENDATIONS

### Enabling Environment for CMAM

1. Establish and identify funding for a CMAM support unit (based at the FMOH, with units being replicated at the SMOH) and a CMAM Task Force to act as a steering committee.
2. Develop and identify funding for a capacity development strategy, taking into account opportunities for strengthening health and nutrition services and initiatives.
3. Thoroughly review and update CMAM (draft) guidelines according to international best practices and latest evidence, including standardized monitoring and evaluation tools. Endorse the guidelines and ensure adherence by all IPs involved in services for the management of MAM and SAM.

### Access to Services of CMAM

Strengthen access to services addressing MAM and SAM, including community-based prevention of acute malnutrition and improved complementary foods in lean periods to strengthen IYCF with BCC, involving informal health systems (including religious leaders and traditional healers), and engaging communities.

### Access to Supplies for CMAM

National production of RUSF and RUTF could play an advocating role in the importance of and create opportunities for strengthening services addressing MAM and SAM.

**Quality of Services for CMAM**

1. Pilot and document MUAC and bilateral pitting oedema as only admission and discharge criterion for the management of MAM and SAM.
2. Develop standardized quality tools for capacity assessment, monitoring, supervision and reporting.
3. Continue the NNS and further strengthen F/SMOH capacity to take over.
4. Investigate for MAM and SAM: 1. defaulting related to quality of programs, loss, or other household circumstances; 2. failure to respond to treatment; 3. barriers to service access and uptake (coverage).
5. Document the Al Salam SFP response strategies to high defaulting.

**Competencies for CMAM**

1. Put in place pre-service and in-service training services for CMAM according to the capacity development strategy, and involve national training institutions.
2. Establish centers of excellence with additional expert mentors and provide internship and learning visit opportunities (national and international).
3. Strengthen the NSS and add specific CMAM learning fora and information sharing.
4. Advocate for creating opportunities to broaden the base of qualified human resources

## Annex 1: Map of Greater Darfur

# Annex 2: Itinerary (March 8 - April 10, 2008)

| Date | Location | Activities & Visits |
|---|---|---|
| **08/03/08** | Khartoum Arrive Khartoum | |
| **09/03/08** | Khartoum | Meeting with Diane Holland & Wigdan Madani (UNICEF) |
| **10/03/08** | Khartoum | Meeting with Dr. Amani Mustafa & Wafaa Mustafaa Osman (FMoH), Meeting with Marcio Barbosa (UNICEF Security Officer) |
| **11/03/08** | Khartoum | Meeting with Hassan Taifour & Rukia Yacoub (WFP), Meeting with Sureka Khandagle & Michaleen Richer (OFDA) |
| **12/03/08** | Khartoum - Nyala | Travel to Nyala. Meeting with Abdalla Janakat (UN Field Security Coordination Officer), Meeting with Mohammed Omar (Nutrition MoH), meeting with Erin Boyd (UNICEF Nutrition) |
| | Nyala | Team 1 (Corbett/Rahman): visit ACF OTP (Al Saleem Camp) meeting with Azeb Asarat, Samir Wanmali, Kanis Khan and Francisca De Cleglie (WFP) & Pam Fesden & Eric Meissner (OFDA), meeting with Guma Bashir Bouri (World Vision) |
| | Ed Daein | Team 2 (Deconinck/Guerrero): Travel to Ed Daein. Visit Tearfund OTP Sites (Khor Omer Camp & Higuba Health Centre). Meeting with local chiefs from Khor Omer Camp. |
| | Nyala | Team 1 (Corbett/Rahman): visit MoH TFC (Nyala Hospital), meeting with Victor de Gurrea-Ivgo & Joseph Wesonga (Merlin) |
| | Ed Daein | Team 2 (Deconinck/Guerrero): Meeting with Peris Mwaura (Tearfund), meeting with William Malual (Health Promoter Supervisor), visit Tearfund/MoH Ed Daein Stabilisation Centre (SC), meeting with Peter Akol (OTP Auxiliary) |
| | Nyala | Team 1 (Corbett/Rahman): meeting with Samir Wanmali & Francisca De Cleglie (WFP), meeting with Talal Faroug Mahgoub (UNICEF), meeting with Aurelie Fournier (ACF) |
| | Ed Daein/Nyala | Team 2 (Deconinck/Guerrero): Meeting with Ingrid Kelters & Wim Piels (CordAid), Meeting with Abdu Rahman (Sudanese Red Crescent Society) travel to Nyala. |
| **16/03/08** | Nyala | Visit World Vision SFP (Otash Camp), Visit ACF TFC (Kerere Camp), meeting with WHO, meeting with Sheila Donaghy (NCA) |
| | Kass | Team 1 (Corbett/Rahman): travel to Kass. Visit CARE SFP Programme, meeting with Kai Roehmn, Joseph Okony Ajang and Issac Azza Peter (WFP), meeting with Benson Wakoli, Margaret Kariuki and Ibriham Ettahir (CARE) |
| | Nyala | Team 2 (Deconinck/Guerrero): visit World Vision SFP (Derech Camp), meeting with MoH (Mohammed Omar), Nutrition Coordination Meeting (UNICEF, MoH, MSF-F, NCA, ACF, AMI, PeaceCorp, Tearfund) |
| | Nyala – Al Fasher | Team 1 (Corbett/Rahman/Guerrero): Travel to Al-Fasher. Meeting with Dr. Haydar Nasser (UNICEF), meeting with Leo Matunga, Taj Eldin Bashir & Afaf Briema (UNICEF), meeting with Salah Mohammed (UN Field Security Officer – North Darfur) |
| | Khartoum | Deconinck: Meeting with Dr Abumedian Abdurahman, General Director Nyala Teaching Hospital, and Dr Mubarak Abdurahman, Sr Pediatrician and Master TOT Trainer IMCI; Meeting with ARC, Dr Assayed, medical coordinator; Discussion on IMCI with Dr Mohamed Diaa, Health Unity UNICEF. |
| | Kutum | Team 1 (Corbett/Rahman): travel to Kutum. GOAL programme briefing, meeting with Elizabeth Whitaker, Hilda Kawuki, Ehsan Saeed, Milena Ribotto and Faroog Ahmed Adam (GOAL) Visit Kasab camp, visit OTP |
| | Al-Fasher | Team 2 (Mates/Guerrero): visit Relief International OTP/SFP Programme (Zamzam Camp), meeting with Rowida Hassan & Jamila Karimova (Relief International) |
| | Khartoum | Deconinck: Mid review-debriefing Dr Amani and Wafaa, FMOH Nutrition; Meeting Dr Babikr Ashraf Bedri, Nutrition Centre for Training and Research, Ahfad University for Women; Meeting Diane Holland UNICEF and Rukia Yacoob WFP; Meeting Erik Meissner Field officer Nyala and Lynn Thomas Disasters Operations Specialist, OFDA. |

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|---|---|---|---|
| | Kutum | Team 1 (Corbett/Rahman): visit GOAL SFP Programme, visit Stabilization Centre (SC) in Kutum Hospital | |
| | Al-Fasher | Team 2 (Mates/Guerrero): visit MoH Al-Fasher TFC, meeting with Sister Margaret & Fatima Sherief (MoH), meeting with Abdur Rahim Siddiqui & Yukako Sato (WFP) | |
| | Kutum | Team 1 (Corbett/Rahman): meeting with Dr Ahmed Adam (MoH) Team 1 (Corbett) meeting with Patrick Yankuba (WFP) | |
| | Al-Fasher | Team 2 (Mates/Guerrero): Document Review | |
| | Kutum | Visit GOAL Garbia SFP in Kutum, meet with Lelia Osman (GOAL nutrition supervisor), interview beneficiaries | |
| | Al-Fasher | Team 2 (Mates/Guerrero): meeting with Monica Camacho (MSF-Spain) | |
| | Kutum | Team 1 (Corbett/Rahman): travel to Al-Fasher | |
| | Al-Fasher | | |
| **24/03/08** | Al-Fasher | Visit ACF OTP/TFC (Abu Shock Camp), meeting with Aurelie Fournier (ACF), meeting with Robert Graves (PAI), meeting with Ute Kirch (Malteser), meeting with Abdur Rahim Siddiqui (WFP), Mike Brateke (GAA) | |
| **25/03/08** | Al-Fasher-Al Geneina | Travel to Geneina. Meeting with Naqibullah Safi (UNICEF), meeting with UNDSS, meeting with Douglas Jayaskeran & Joyce Ayume (UNICEF), meeting with Meezam Mohamed, Mariko Kawabata & Paolo Mattei (WFP) | |
| **26/03/08** | Al-Geneina | Visit Concern OTP/SFP (Ryad Camp), visit MoH TFC (El-Geneina Hospital), meeting with Dr. Karar Makki & Khalid Ismail Ibrahim (MoH), meeting with Bahr Lissan & Brent Potts (Concern Worldwide) | |
| | | Team 1 (Corbett/Mates): travel to Azirni, visit World Relief OTP/SFP programme, travel to El-Geneina | |
| | | Team 2 (Rahman/Guerrero): visit Save the Children site (Krinding Camp), meeting with programme beneficiaries & staff | |
| **28/03/08** | Al-Geneina | Field Data Consolidation by Team | |
| | | | Team 1 (Rahman/Guerrero) travel to Khartoum |
| | | | Team 2 (Corbett/Mates); meeting with Catholic Relief Services (Corbett)meet with FAO and OCHA |
| **30/03/08** | Al-Geneina-Mornei | Team 1 (Corbett/Mates) Travel to Mornei, meeting with Concern Worldwide, Janu Rao (country director) and Zeine Muzeiyn (nutritionist), visit Concern SFP/OTP. Visit MoH TFC (Dr Mohamed Sadik). Meeting with SCF (US) Dr Mohamed Safi. | Team 2: (Rahman/Guerrero) met with Unicef Khartoum. Commence write up of findings |
| **31/03/08** | Mornei Al-Geneina | Team 1 (Corbett/Mates) Travel back to Al-Geneina. Debriefing with cooperating partners in Al-Geneina including Zeinab Mohamed CRS, Gerard Cofie-Dsangmah WR, Dickson Sigei WR, Douglas Jagasekaran UNICEF, Mohammed Eltahir WFP | Team 2 (Rahman/Guerrero) Travel back to countries of origin and write-up |
| **01/04/08** | Al-Geneina Khartoum | Al- Geneina Team 1 (Corbett/Mates) Debrief with Ayda Eke (Acting Officer in Charge) UNICEF. Travel to Khartoum from Al-Geneina | |
| **02/04/08** | Khartoum | Team 1: (Corbett/Mates) UNICEF Khartoum, start compiling data and writing draft report | |
| **03/04/08** | Khartoum | Write up report, (Mates) meeting with Magdy El Sanady, Health Specialist, UNICEF | |
| **04/03/08** | Khartoum | Write up report | |
| **05/03/08** | Khartoum W | rite-up report | |
| **06/03/08** | Khartoum | | |
| **07/03/08** | Khartoum | Team 1(Corbett/Mates) Meeting with WFP/UNICEF, Shanoo Saran , William Nall, Elvira Pruscini , Rukia Yacoob and Paul Buttard (All WFP) and Dianne Holland (UNICEF) | |

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| **08/03/08** | Khartoum | Team 1: (Corbett/Mates) Implementing Partners Presentation with GOAL, ICRC, MDM, OCHA, WFP, WVI, SHO, DADA, UNICEF, ACF, MSF(F), MSF(S) |
| **09/03/08** | Khartoum | |
| **10/03/08** | Khartoum | |

## Annex 3: List of People Contacted

| Name | Agency/Organisation | Title | Telephone Contact | Email |
|---|---|---|---|---|
| Sureka Khandagle | OFDA (Khartoum) | Team Leader | 0912174496 | skhendagle@ofda.gov |
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| Eric Meissner | OFDA (Nyala) | Disasters Operations Specialist | 0912174492 | emeissner@ofda.gov |
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| Saul Guerrero | FANTA/AED | Community Development Advisor | 0910198252 | saul@validinternational.org |
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| Wigdan Madani | UNICEF (Khartoum) | Nutrition | 0919705255 | wmadani@unicef.org |
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| Afaf Briema | UNICEF (Al-Fasher) | Health & Nutrition Officer | 0912813447 | abriema@unicef.org |
| Dr. Haydar Nasser | UNICEF (Al-Fasher) | Chief Field Office | 0912174639 | hnasser@unicef.org |
| Leo Matunga | UNICEF (Al-Fasher) | Nutrition Specialist 0912 | 177943 | lmatunga@unicef.org |
| Taj Eldin Bashir | UNICEF (Al-Fasher) | Surveillance Officer | | tebashir@unicef.org |
| Joyce Ayume | UNICEF (Al-Geneina) | Nutrition Officer | 0122560320 | jayume@unicef.org |
| Douglas Jayaskeran | UNICEF (Al-Geneina) | Nutrition Officer | 0915936307 | djayaskeran@unicef.org |
| Naqibullah Safi | UNICEF (Al-Geneina) | RPO UNICEF (West Darfur) | 0912177570 | nsafi@unicef.org |
| Ayda Eke | UNICEF (Al-Geneina) | Child Protection officer (Acting OIC) | | aeke@unicef.org |
| Hassan Taifour | WFP (Khartoum) | Nutrition Officer | 0912170215 | hassan.taifour@wfp.org |
| Yvonne Forsen | WFP (Khartoum) | VAM Officer | | |
| Rukia Yacoub | WFP (Khartoum) | Nutrition Programme Officer | 0912167053 | rukia.yacoub@wfp.org |
| Shanoo Saran | WFP (Khartoum) | Programme Officer | | shanoo.saran@wfp.org |
| William Nall | WFP (Khartoum) | Strategy Planning | | william.nall@wfp/org |
| Elvira Pruscini | WFP (Khartoum) | Monitoring and Evaluation | | elvira.pruscini@wfp.org |

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| Paul Buttard | WFP (Khartoum) | | | paul.buttard@wfp.org |
| Yukako Sato | WFP (Al-Fasher) | Programme Officer | 0912177890 | yukako.sato@wfp.org |
| Abdur Rahim Siddiqui | WFP (Al-Fasher) | Head of Programme Unit | 0912170213 | abdurrahim.siddiqui@wfp.org |
| Azeb Asarat | WFP (Nyala) | Head of Area | | azeb.asarat@wfp.org |
| Samir Wanmali | WFP (Nyala) | Head of Programmes | | samir.asarat@wfp.org |
| Francisca De Cleglie | WFP (Nyala) | Programme Officer | | |
| Kanis Khan | WFP (Nyala) | Head of Field Office | | kanis.khan@wfp.org |
| Kai Roehmn | WFP (Kass) | Head of Field Office | | kai.roehmn@wfp.org |
| Joseph Okony Ajang | WFP (Kass) | Field Monitor | | |
| Issac Azza Peter | WFP (Kass) | Programme Assistant | | |
| Patrick Yankuba | WFP (Kutum) | Head of Field Office | 0912167960 | patrick.yankuba@wfp.org |
| Paolo Mattei | WFP (Al-Geneina) | Head of Programmes | 0912177974 | paolo.mattei@wfp.org |
| Mariko Kawabata | WFP (Al-Geneina) | Vulnerability Analysis & Mapping Officer | 0912177039 | mariko.kawabata@wfp.org |
| Meezam Mohamed | WFP (Al-Geneina) | Nutrition Officer | 0912262196 | meezam.mohamed@wfp.org |
| Julius Wekesa | WHO (Al-Fasher) | Head of Sub-Office (Al-Fasher) | 0912174695 | wekesaj@sud.emro-who-int |
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| Yusosif Fadol Gomaa | WHO (Al-Fasher) | PHC Officer (North Darfur) | 0912178491 | gomaay@sud-emro-who-int |
| David Mwesigwa | FAO, (Al Geneina) | Emergency Area Coordinator | 0912396701 | David.Mwesigwa@fao.org |
| Gry Tangstad | OCHA (Al-Fasher) | Humanitarian Affairs Officer | 0912167762 | tangstad@un.org |
| Andy Barash | OCHA ( Al Geneina) | Humanitarian Affairs Officer | | barash@un.org |
| Annette Hearns | OCHA (Khartoum) | Darfur Deputy | | |
| Salah Mohamed | UN Security | Field Security Officer – North Darfur Team | 0915938556 | ahmed@un.org |
| Marcio Barbosa | UN Security | Field Security Officer - Khartoum | 0912170353 | mbarbosa@unicef.org |
| Abdalla M. Janakat | UN Security | Field Security Coordination Officer | 0912501183 | abdalla.janakat@undp.org |
| Jamila Karimova | Relief International (Al-Fasher) | Head of Office/Health Coordinator | 0924156529 | jamila@ri.org |
| Rowida Hassan | Relief International (Al-Fasher) | Nutrition Officer | 0918190678 | rowida@ri.org |
| Olivia Freire | ACF (Khartoum) | Nutrition Coordinator HQ | | |
| Aurelie Fournier | ACF (Nyala/Al-Fasher) | Medico Nutrition Coordinator | 0912175082 | cmn-darfur@su.missions-acf.org |
| Benedicte Hilaire | ACF (Nyala) | Nutritionist 0913 | 341894 | nut-nyala@su.missions-acf.org |
| Peris Mwaura | Tearfund (Ed Daein) | Nutrition Coordinator/Field Manager | 0912175272 | perismwaura@gmail.com |
| Ingrid Kelters | CordAid (Ed Daein) | Acting Health Coordinator | 0122443628 | |

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|---|---|---|---|---|
| Wim Piels | CordAid (Ed Daein) | Programme Manager | 0122443628 | |
| Abdu Rahman | Sudanese Red Crescent Society (Ed Daein) | | 0121450679 | |
| Sheila Donaghy | Norwegian Church Aid (Nyala) | Health & Nutrition Manager | 0912172734 | healthmanager@ncasudan.org |
| Lis List | MSF-Holland (Nyala) | Health coordinator | | |
| Khalid | MSF – France (Khartoum) | | | |
| Augustin Augier | MSF-France (Nyala) | Head of Mission | 0912133246 | msff-nyala@paris-msf.org |
| Nigeeb Hamnad | MSF- Spain(Khartoum) | | | |
| Monica Camacho | MSF-Spain (Al-Fasher) | Head of Mission | 0912179089 | msfe-khartoum-cg@barcelona.msf.org |
| Anja Lund | MSF-Spain (Al-Fasher) | Medical Coordinator | 0912161972 | msfe-khartoum-medco@barcelona.msf.org |
| Gefish Tamrat | World Viion International (Khartoum) | Health and Nutrition Manager | | |
| Guma Bashir Bouri | World Vision International (Nyala) | Nutrition Coordinator | | |
| Dixon SIgei | World Relief (Al-Geneina) | Nutritionist | 0910110637 | darfurnutrition@worldrelief.org |
| Victor de Gurrea-Ivgo | Merlin (Nyala) | Country Health Director | | |
| Joseph Wesonga | Merlin (Nyala) | Nutrition Focal Point | | |
| Benson Wakoli | CARE (Kass) | Health, Nutrition and Livelihood Coordinator | 0912161874 | benson@sdn.care.org |
| Margaret Kariuki | CARE (Kass) | Nutrition Manager | 0122512596 | margaret@sdn.care.org |
| Ibrahim Ettahir | CARE (Kass) | Nutrition Officer | | |
| Tereza William | GOAL (Khartoum) Nutritioni | st | | |
| Elizabeth Whitaker | GOAL (Kutum) | Assistant Area Coordinator | | |
| Hilda Kawuki | GOAL (Kutum) | Nutrition Coordinator | | kutumnutco@goalsudan.com |
| Ehsan Saeed | GOAL (Kutum) | Nutrition Manager | | kutumnutco@goalsudan.com |
| Milena Ribotto | GOAL (Kutum) | Health Manager | | |
| Faroog Ahmed Adam | GOAL (Kutum) | Head of Logistics | | |
| Lelia Osman | GOAL (Kutum) | Nutrition Supervisor | | |
| Brent Potts | Concern Worldwide (Al-Geneina) | Assistant Country Director (Darfur) | 0912146871 | brent.potts@concern.net |
| Bahr Lissan | Concern Worldwide (Al-Geneina) | | 0915361416 | bahr.lissan@concern.net |
| Sarah Butler | Save the Children-US | Nutritionist | 0912531519 | subtler@savechildren.org.sd |

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|---|---|---|---|---|
| | (Al-Geneina) | | | |
| Dora Wani | Save the Children-US (Al-Geneina) | Nutrition Supervisor | 0912299389 | dwani@savechildren.org.sd |
| Dr Mohamed Safi | Save the Children (US), Mornei | Health Sector Manager | | |
| Janardhan Rao | Concern Mornei | Concern Country Director | 0912158945 | Sudan.cd@concern.net |
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| Mike Brateke | German Agro Action (GAA) | Head of Project (North Darfur) | | mike.brateke@web.de |
| Ute Kirch | Malteser (Al-Fasher) | Programme Coordinator (North Sudan) | 098089076 | darfur-coordinator@malteser-africa.org |
| Fabrice Bossolini | Medicines Du Monde (Khartoum) | Representative | 0915619454 | mdmsudancd@gmail.com |
| Miriam Bord | Medicines Du Monde (Darfur) | Nurse | | |
| Robert Graves | Partner Aid International (PAI) | Country Director | 0123004123 | graves@parner-aid-international.org |
| Salwa Ibrahim | Sowahed Health Organization | | | |
| Afaf Ibrahim fadl | DADA | | | |
| Adam Salah Eldin | ICRC (Khartoum) | Ecosecsecretary | | |
| Dr. Amani Mustafa | Federal Ministry of Health (Khartoum) | Director of Nutrition Programme | 0912218575 | |
| Wafaa Mustafaa Osman | Federal Ministry of Health (Khartoum) | Deputy Director of Nutrition Programme | 0122900660 | |
| Mohammed Omar | State Ministry of Health (Nyala) | Head of Nutrition Department | 0912958639 | |
| Khalid Sahima | State Ministry of Health (Nyala) | Nutritionist | | |
| Dr Abumedian Abdurahman | State Ministry of Health (Nyala) | General Director Teaching Hospital Nyala; Senior Paediatrician | | |
| Dr Mubarak Abdurahman | State Ministry of Health (Nyala) | Senior Paediatrician Teaching Hospital Nyala | | mubarakoja@hotmail.com |
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|---|---|---|---|---|
| Fatima Sherief | State Ministry of Health (Al-Fasher) | Head of Nutrition | 0918087928 | |
| Dr Karara | State MOH (Al Geneina) | Pediatrician, Geneina Hospital | 0918281244 | |
| Dr Babikr Ashraf Bedri | Nutrition Centre for Training and Research, Ahfad University for Women | (member of founding Bedri family) | 0912370353 | ashbedri@hotmail.com |
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| Dr. Khalid Adam | State Ministry of Health (Al-Geneina) | Director General of Health (Al-Geneina Hospital) | | khalidadam2@yahoo.com |
| Dr Mohamed Sadik | State Ministry of Health, Mornei | Hospital Medical Doctor | | |
| Duty Driver | UNICEF (Khartoum) | | 0912390624 | |

# Annex 4: List of Documents Consulted

A Retrospective Study of Supplementary Feeding Programmes; C. Navarro-Colorado, for Emergency Nutrition Network and Save the Children, June 2007

Aide Memoire, Mission to ODS, Tina van den Briel, PDPN-HQ; Rukia Yacoub, ODS, Dates: November 24- December 6, 2007, World Food Programme

An Analysis of Causes of Malnutrition in Darfur, UNICEF (draft report, McDowell, 2008)

CFCI/ICDR Child Friendly Community Initiative / Integrated Community based Recovery and Development, UNICEF

Darfur CSB post distribution monitoring report Nov 07, summary of highlights

Darfur Humanitarian Profile (DHP No 30, 2008)

Darfur, Livelihoods under Siege, H. Young, A. Osman, Y. Aklilu, R. Dale, B. Badri, and A. Jabbar A. Fuddle, TUFTS, Al Ahfad University, June 2005

Darfur Nutrition Update,UNICEF with FMOH, Issues 1-11

Darfur: Impact of the conflict on livelihoods, M. Buchanan-Smith and S. Jaspars for WFP, June 2006

Emergency Food Security and Nutrition Assessment in Darfur, Sudan 2006

FOOD IS NOT ENOUGH: Without essential nutrients millions of children will die; Medicines Sans Frontiers

Food Security and Nutrition Assessment of the conflict–affected population in Darfur, MOH/UNICEF/WFP/CDC surveys (2004, 2005, 2006, 2007)

Human Development Reports, Sudan, UNDP, 2008, http://hdrstats.undp.org/countries/country_fact_sheets/cty_fs_SDN.html

Humanitarian Profile, April, 15 2008, http://www.unsudanig.org/index.php

Management of Acute Severe Malnutrition, Sudan Manual, FMOH, 2006, Draft

Management of Severe Acute Malnutrition, Sudan Manual for Health Workers, FMOH, November 2007, Draft

Manual on management of Severe Acute Malnutrition (SAM) in Health Facilities and Community, For Medical Doctors and Senior Health Workers, Sudan Adaptation, FMOH, January 2008, Draft

Maps: Unit Nations Sudan Information Gateway, http://www.unsudanig.org/index.php

Minimum Nutrition Package, Facilitator's Guide, Final Draft, August 2007

Monthly supplementary and therapeutic feeding program statistics from the implementing partners, MoH and UNICEF

National Nutrition Policy (2006-2010), FMOH, July 2007

National Nutrition Strategy, FMOH

National Nutrition Survey Guidelines, FMOH, December 2006

Nutrition Package, Facilitators' guide, UNICEF, August 2007

Nutrition Survey reports from implementing partners, Various, (2004-2008)

Post-Harvest Assessment on Crop and Food Supply Situation of South Darfur of the 2007 Season by the Food Security and Livelihood coordination Forum, In collaboration with FAO, WFP, SMOA, SMOAR, HAC and SLA Nyalla, South Darfur, 15th February 2008

Rapid Nutrition Assessment Guidelines, FMOH, November 2006

Rapid Nutritional Assessment, L. Talley, CDC for OFDA, September 2007

Report of Workshop on Community-based Therapeutic Care (CTC), 9th-10th February 2005 Khartoum, Sudan

Report South Darfur, WFP/FAO, February 2008

Review of Community-based Management of Acute Malnutrition (CMAM) in the Post-emergency Context: Synthesis of Lessons on Integration of CMAM in National Health Systems; Ethiopia, Malawi and Niger, H. Deconinck et al, FANTA, April – June 2007

Review of treatment of acute malnutrition, M. Golden and Y. Grellety for UNICEF, May-June 2005

Roll Out of Accelerated Child Survival in Sudan, October 2007; Ministry of Health

Steps towards the stabilization of governance and livelihoods in Darfur, Sudan, H. Young, A. de Waal, for USAID, March 2005

Sudan Accelerated Child Survival Initiative (ACSI), UNICEF 2008-2015

Sudan Demographic and Health Survey 1989-90, http://www.measuredhs.com/pubs/pub_details.cfm?ID=321&ctry_id=38&SrchTp=country#dfiles

Sudan, Multi Indicator Cluster Survey, 2000 http://www.childinfo.org/MICS2/newreports/sudan1/FianalMICSSudan.pdf

Sudan Weekly Morbidity and Mortality Bulletin, Week No (5): 26 Jan.-1st Feb/2008: Federal Ministry of Health and World Health Organization

Summary from the Darfur Nutrition Strategic Planning Meeting; Dates 23rd – 24th September 2007

Supplementary Feeding Programme Guidelines, FMOH, August 2006, Final Draft

The impact of Low-dose, high nutrient-density food distribution on malnutrition in Niger; Michael H Golden, Emeritus Professor, University of Aberdeen

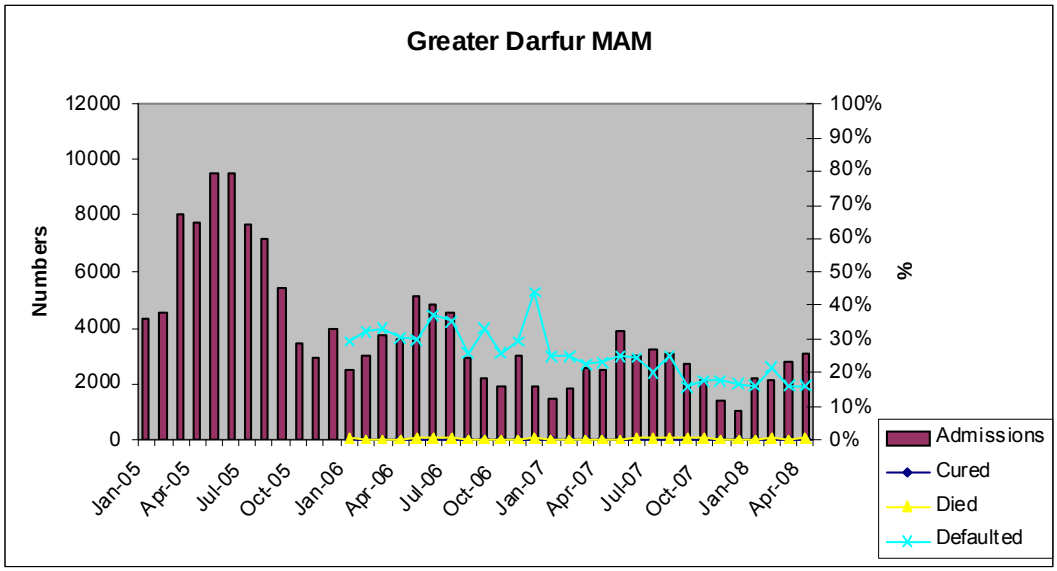
Therapeutic feeding program protocol for admissions and discharges, Action Contra La Faim Sudan, November 2006,

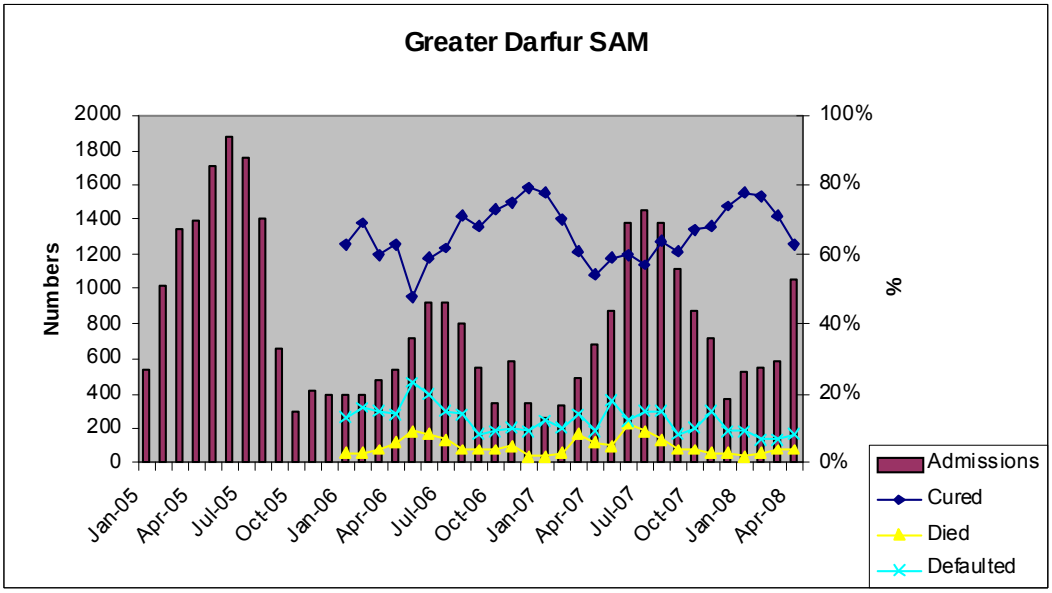
Weekly morbidity and mortality bulletin, MOH-WHO

WHO World Health Statistics, 2008

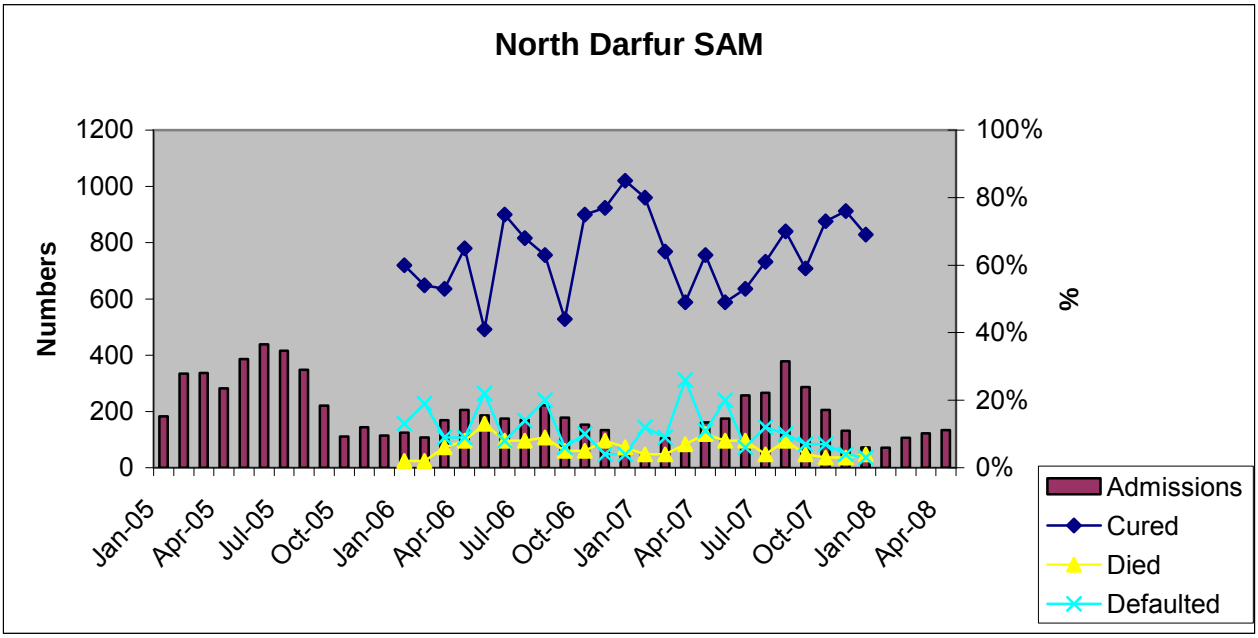
# Annex 5: Mapping of Performance

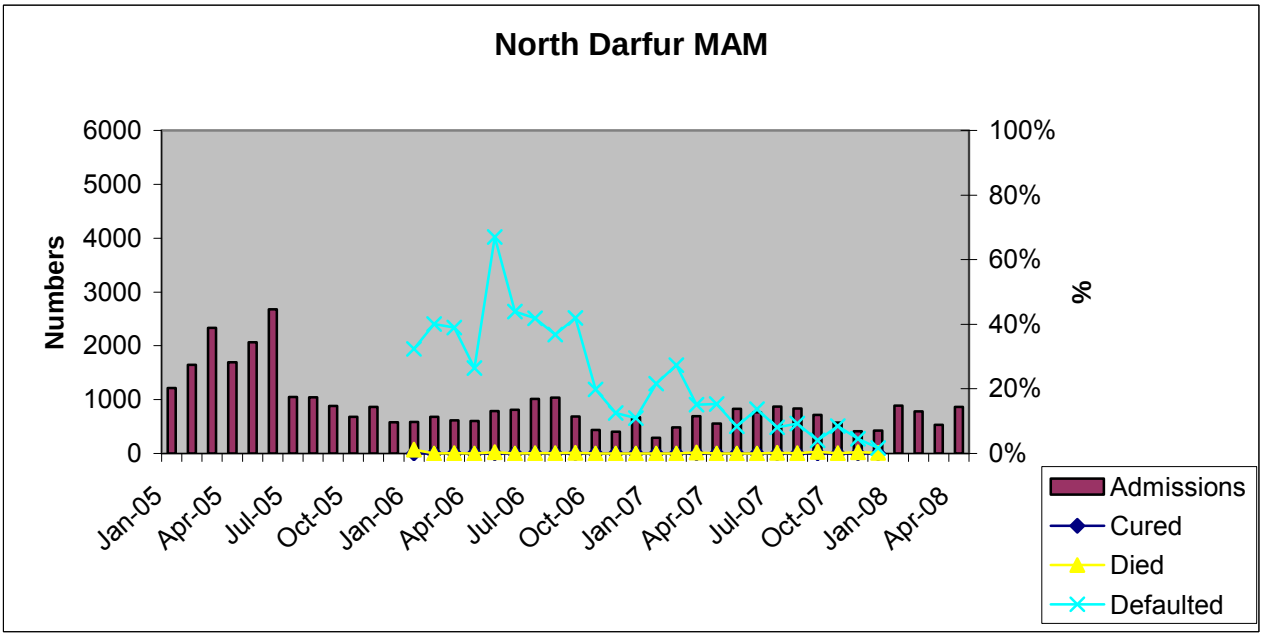
**GREATER DARFUR**
6-59 months population: 1,099,021
**U5 affected population: 712,947**
MAM Sept 2007: **14.3%**
SAM Sept 2007: **1.9%**
Mgt of MAM sites : 86
Mgt of SAM sites : 106



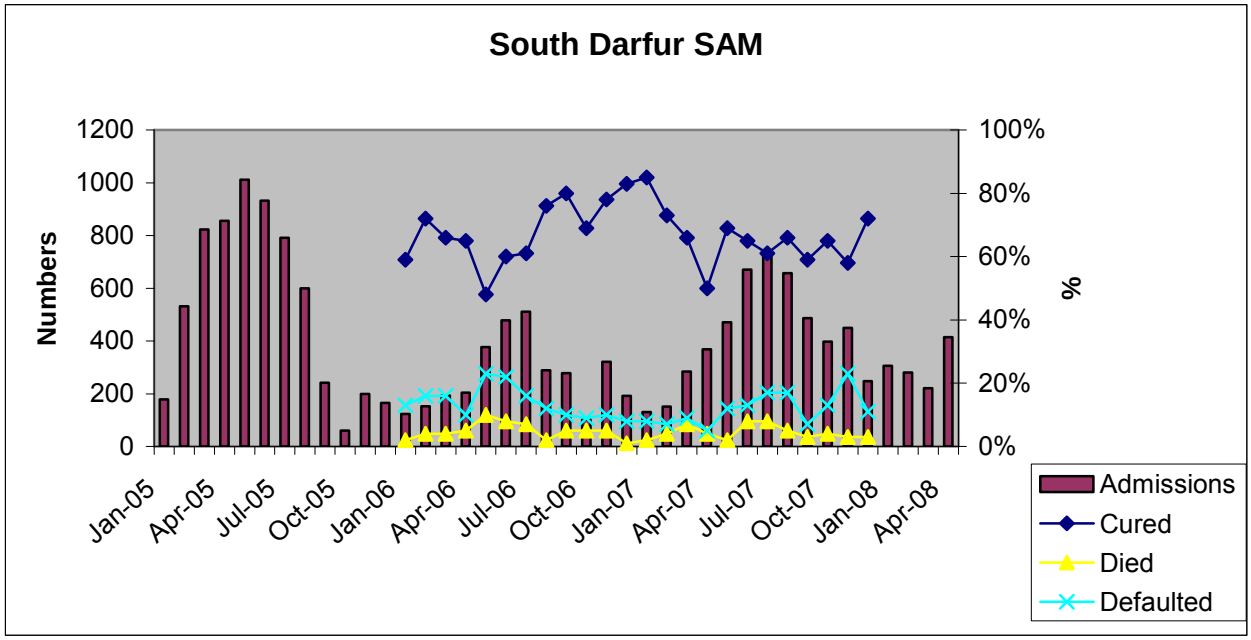



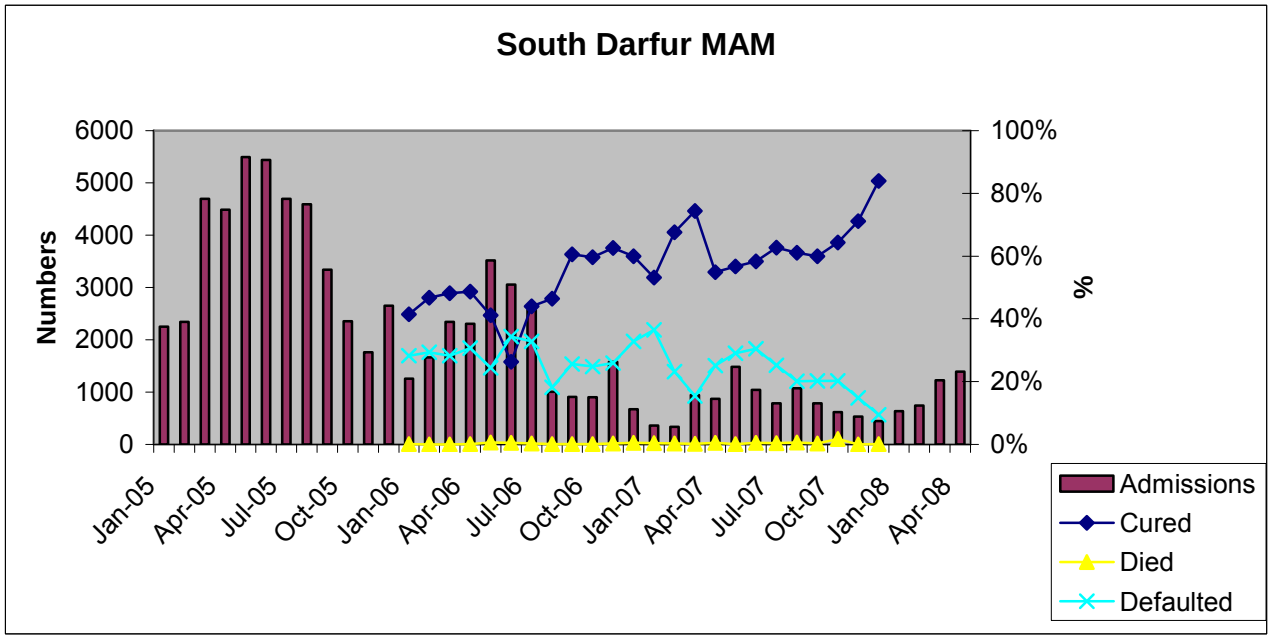
**NORTH DARFUR**
6-59 months population: 282,288
**U5 affected population: 223,925**
MAM Sept 2007: **18.6%**
SAM Sept 2007: **2.0%**
Mgt of MAM sites : 12
Mgt of SAM sites : 26



**SOUTH DARFUR**
6-59 months population: 546,560
**U5 affected population: 271,922**
MAM Sept 2007: **12.7%**
SAM Sept 2007: **1.5%**
Mgt of MAM sites : 24
Mgt of SAM sites : 26



**WEST DARFUR**
6-59 months population: 270,137
**U5 affected population: 217,100**
MAM Sept 2007: **10.0%**
SAM Sept 2007: **2.3%**
Mgt of MAM sites : 50
Mgt of SAM sites : 54