



Evaluation Report



Nutrition interventions in Marial Lou,
Tonj County, South Sudan
&
Compared with the Niger nutrition outcomes

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Introduction

The evaluation unit in Vienna (MSF-Austria) was requested to analyse the different nutritional strategies¹ implemented in Marial Lou over the past years (2003 – 2006) in terms of appropriateness, effectiveness and efficiency, and, to identify recommendations for future similar contexts.

After presenting the first results, the evaluator was requested to extend the analysis of outcome data to those of the **Niger nutrition program 2005 and 2006**, for better comparison of results.

Hence this report focuses mainly on the Marial Lou evaluation; data and issues concerning Niger are, however, included within the chapters on effectiveness and efficiency and considered in the final conclusions and recommendations.

Executive summary

In 1997, MSF-CH established Maria Lou hospital (Bahr el Ghazal, South Sudan) with the aim to respond to humanitarian emergencies, with a particular focus on nutrition crisis in a timely and effective manner and to ensure that all malnourished children identified are provided with high quality of nutritional care in the nutrition ward and –centres. The malnourished children received the best care possible in the context and the “newest” available nutritional food supplies (e.g. Plumpy Nut, F75) on the market.

Appropriateness

After the famine 1998, MSF-CH responded to the recurring nutritional crisis in the county and had the past years a regular nutritional survey (performed twice a year) implemented. The MUAC (mid upper arm circumference) was screened within the PHC program, and in 2003 were food security indicators set up for Tonj county. However, those were finally not effectively followed through the years. Food security indicators are necessary in the context, as a survey cannot predict the food situation in the coming months.

The strategies chosen were adopted over the years with the experience MSF-CH gained. The decentralised approach of the TFC into CTF (2005) and A-TFC (2006) seemed to be appropriate in Tonj county (e.g. considering distances, cultural context). Nevertheless, before the implementation the prevalence of severely malnourished children within a highly dispersed population and the morbidity burden of the season have to be considered. If the morbidity is high, as it was 2005, most of the children had to be referred to the I-TFC. The referral system faced its limits on the bad roads and sick children had to stay behind. In such situation the set up of a MSF traditional TFC should be taken in consideration.

The main problem of the 2005 intervention can be seen in the timing. The logistics (e.g. food supply order and its transport) faced major constrains. The team has learned from the experience and pre-positioned 2006 the food before the rainy season at the distribution point. Further, MSF-CH had in 2006 a defined nutrition team for the support of the regular field team in place.

¹ According to the strategies of the MSF guideline

The communities accepted the MSF strategy of targeting the individual children but also stated that the amount of ration received were never enough to last for one week. Considering the cultural habit of “sharing” it is obvious that it cannot be enough.

Effectiveness

The main **outcome indicators** (average weight gain, -length of stay and mortality rate) in the Marial Lou interventions were **within reference values in most of the years**. The added value of the new approach (A-TFC) so far can primarily be seen in the **bigger coverage, better assistance and much easier access for the beneficiaries**; and this is very much confirmed by the satisfaction expressed by mothers. An increase in the number of children admitted (severely- and moderately malnourished) can be seen, after the decentralised approach was taken in 2005 and 2006.

The **defaulter rate** did not show a huge difference between the years but were during all interventions **above the reference value** (TFC: > 10.0 % and decentralised approach: > 15.0 %). It seems that within the BeG context a slightly higher defaulter rate has to be accepted. Referring to outcome reports of “Valid international” (supporting nutritional actors in South Sudan) similar defaulter rates are reported within the decentralised approaches in the BeG context (between 15.4 and 17.3 %). The rate reached its highest and unaccepted extent in 2005 (52.2 %), which had an influence in the recovery rate. The main factors were the difficult access for both parties (nutrition team and beneficiaries) and the limited mobilisation beforehand.

Assessing coverage of the interventions is difficult, because accurate population figures are not available, and the survey results with its first beneficiary estimation changes within the following months. Also the number of estimated beneficiaries was based on the total area surveyed, although the MSF nutrition facilities were not allocated so to cover the same area. Hence it can not be assumed that all mothers would have been able to find the service within their radius to walk on foot.

In overall the nutritional outcome indicators on e.g. recovery- and defaulter rate, and average weight gain and -length of stay, were good in the Niger intervention. The defaulter rates decreased to a level far below the reference value, as the first emergency months passed and both parties (beneficiaries and nutrition team) entered a kind of routine. The main concern is the high mortality rate within the CRENI (2005: 6.6 % and 2006: 8.9 %); especially close to the Nigerian border. The team invested in quality improvements of medical care and in health education to minimise the use and increase the awareness of traditional medicine.

The **average weight gain and -length of stay** within the **CRENI / I-TFC** set up in 2006 shows **no significant differences with the one of Marial Lou**.

Efficiency

The main difference did appear in the costs of transport-freight-storage between 2005 and 2006. The costs increased enormous as the food supplies had to be transported with aircrafts.

The investment into a new tractor in 2005 brought an available resource in 2006. The nutrition teams could not count on available local human resources. Each year the team had to invest first in trainings. The training costs were of small expenses but a lot of training effort and supervision was needed. This situation limited the handover of more and defined responsibilities to the local staff within the distribution points.

Before implementing an A-TFC, the highly dispersed population and the prevalence of severe acute malnutrition within the intervention radius and its seasonal morbidity burden of the under-5 year old children has to be considered. The hypothesis made that the more children are admitted and followed within a decentralised TFC approach the cheaper it is, could not be confirmed with the Niger

intervention. The operating expenses in 2005 (e.g. infrastructure, nutrition items, medicine, construction and logistical material, human resources) required massive investments in the first emergency months. 2006, the costs could be minimised for approximately one third.

It will be a future challenge to define a good balance between the decentralised set up, the needed resources and costs.

Acknowledgement

The evaluator thanks everyone who gave his input and shared his ideas and is grateful to the Marial Lou hospital staff, community members and authorities for their warm reception and understanding.

The community did share their appreciation on MSF-CHs assistance during emergencies. Especially talking about nutrition with the decentralised approach, it did allow an easier access for the beneficiaries, which were finally saved.

The workload during each intervention, with its faced difficulties, was huge and thankfully served by a highly motivated team.

Great thanks have to be stated to the financial department, Mrs. Alnaaze Nathoo and Mr. Enrique Jimenez, in Geneva. Their work supported highly the efficiency chapter in this report.

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Anita Sackl
Evaluator

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Abbreviations

A-TFC	Ambulatory Therapeutic Feeding Centre
A-TFP	Ambulatory Therapeutic Feeding Program
CCM	Comitato Collaborazione Medica (Italy)
Comboni	Comboni Missionaries
CTF	Community-based Therapeutic Feeding (Program)
CTC	Community Therapeutic Care
BeG	Bahr el Ghazal
BFP	Blanket Food Program
GAM	Global Acute Malnutrition (Rate)
GFD	General Food Distribution
GoS	Government of Sudan
HoM	Head of Mission
IPD	Inpatient Department
IDP	Internal Displaced Person
MoH	Ministry of Health
MSF	Médecins Sans Frontières
MSF-CH	Médecins Sans Frontières Switzerland
MUAC	Mid Upper Arm Circumference
NGO	Non-Governmental Organisation
NHCW	Nomadic Health Care Worker
PHC	Primary Health Care
PHCC	Primary Health Care Centre
PHCU	Primary Health Care Unit
OPD	Outpatient Department
PoA	Plan of Action
SAM	Severe Acute Malnutrition (Rate)
SFC	Supplementary Feeding Centre
SFP	Supplementary Feeding Program
SPLM/A	Sudanese People Liberation Movement/Army
SRRA	Sudanese Relief and Rehabilitation Association
SRRC	Sudanese Relief and Rehabilitation Commission
TFC	Therapeutic Feeding Centre
TFP	Therapeutic Feeding Program
ToR	Terms of Reference
U5MR	Under 5 Mortality Rate
VSF	Vétérinaires Sans Frontières
W/H	Weight for Height nutritional index
WFP	World Food Program
WHO	World Health Organisation
WVI	World Vision International

Context

Sudan was engulfed in a civil war from 1956 until 2005 when the comprehensive peace agreement was signed between the Government of Sudan (GoS) and the Sudanese People Liberation Movement (SPLM) in January. The human cost of the conflict has been overwhelming and is difficult to estimate, however, estimates suggest 2 million deaths and 4 million internally displaced people. The basic services have almost entirely depended on emergency relief aid during the years of war and recurring natural disasters in the form of droughts and floods have aggravated the situation throughout this time.

MSF-CH has been involved in the primary- and secondary health care in Bahr el Ghazal (BeG), Tonj county, since 1997. The main aims of MSF-CH in South Sudan, Tonj county, are to provide access to health care for the most vulnerable population affected by 20 years of war, chronic poverty and limited or non-existent health services and to respond to humanitarian emergencies, with a particular focus on nutrition crises, conflict and returning refugees and IDPs in a timely and effective manner².

1998, World Vision International (WVI) handed over their primary health care (PHC) program in the area to MSF-CH and for some years, MSF-CH was the main health care provider in the area. MSF-CH did provide a rural hospital with two PHCCs and six PHCUs in the county until the handover of the PHC program to Comitato Collaborazione Medica (CCM)-Italy in November 2004 and the hospital OPD (Outpatient Department) in November 2006.

In addition to the PHC and hospital based activities, MSF-CH has been significantly involved in emergency responses to the nutrition crises in BeG. In 1998³, MSF-CH did launch its first nutrition emergency response, which was caused by drought, insecurity and displacement of people due to the war. The nutritional status did start to improve steadily until mid 2001 to the pre-famine status but in the following year's the arrival of IDPs (e.g. 2002, 2004), clan clashes and natural disasters (drought and floods), did lead to reduced harvests with its result in a deterioration of the nutritional status of the population, especially the children under 5 years. In that case, MSF-CH did launch nutrition interventions in 2003, 2005 and 2006.

When needed WFP dropped food (rainy season) or arranged a GFD (General Food Distribution) for defined community members with their implementing partner WVI. WFP does consider Tonj county as food secure with pockets of food insecurity.

Due to the increased investment in nutrition interventions in South Sudan since 1998, MSF-CH did request the Evaluation Unit at MSF-Austria to conduct an evaluation of the nutrition related interventions implemented over the past few years. The Terms of Reference (ToR) focused on three dimensions: appropriateness, effectiveness and efficiency, of the different nutrition strategies which were implemented in this context. A further goal was to identify recommendations for future similar contexts.

The first result presentation led to the decision to extend the evaluation process to a similar analysis on nutrition outcome indicators and costs for Niger 2005 and 2006. The main aim was to emphasise some points for Marial Lou.

² Country policy paper, MSF-CH, Nairobi coordination, September 2005

³ At the peak of the famine the prevalence of GAM was 33.4 % and SAM 9.9 %. MSF-CH opened a feeding centre in June 1998, where at the peak of the crisis more than 400 children were admitted at a time.

Country setting

Tonj county⁴ is situated in the south east of BeG, bordering the Lakes region to the east and Wau and Gogrial counties to the west. BeG is the largest and one of the most remote regions of Southern Sudan.

The combination of inconsistent rainfall and extreme temperatures results in periods of heavy flooding as well as extended periods of drought. The low elevation, clay soils and proximity to the river Nile contribute to the flooding that occurs each year with the rains.

The county borders to the east to the swamp (toic) serving also as the border between the Dinka and Nuer tribes. The estimated **population** of the county was in 2006 177,984⁵ (2002: approximately 325.000 people⁶). It is difficult to come up with a reliable figure however. The nutrition survey in 2005 gives a population of 212,786 persons.

The main **ethnic group** are the Dinka from the Reek clan. The Dinka are agro-pastoralist (97.0 %), subsisting on livestock, cropping and fishing. The remainder (3.0 %) is the Bongo, an agriculturalist tribe. Thus, the main source of livelihood is livestock with a very small percentage engaging in farming. The communities do migrate with their livestock (cattle) to the swamp (toic) during the dry season (October to April) and return for the rainy season (May/June) when the cultivation start. The seasonal migration can be considered as a coping mechanism for the lack of water sources and grazing land during the dry season. As the eastern swamp does serve as a border between Dinka and Nuer tribes, both use in dry season the resources, clashes can happen. Unfortunately this season is particularly critical for the big majority of the population who are forced to share the grass with their livestock to be able to survive.

The **main food** of the Dinka population is milk, sorghum and maize. Lalop leaves, water lily and fish are added to the sorghum/maize diet depending on their availability. During the hunger gap⁷ period and given to the growth during the rainy season, the community depends higher on fish, wild leaves and -fruits and the sale of goats to buy grains and even migrate to towns in search of food or moves to look for further swamps close to other main rivers, especially during droughts. During the months of limited food sources, people reduce their daily meals and will become slowly more and more moderate malnourished until the first harvest is ready (increase of GAM prevalence).

The experience that during the 1998 crisis, and during the following years, food was distributed through an existing health service, has given rise to the expectation that health care providers will take responsibility for any future food insecurity.

Cattle play a vital role in the food economy of the Dinka. Even when the harvest is poor, cattle have always remained a key source of food security, both in terms of direct milk and meat consumption as well as their value as an asset to be traded for seed or grain. The loss of cattle can therefore provoke permanent destitution, unless a family has daughters who can bring cattle back to the family upon marriage. While a family retains cattle, they always maintain some resources. When many cattle are slaughtered in times of need, it is the clearest sign of a deteriorating humanitarian situation; the Dinka will attempt to retain and maintain the lives of their cattle at almost all costs, knowing that the loss of

⁴ The county was divided, due to its large size, in May 2004 into Tonj East, Tonj North and Tonj South. The old payams of MSF-CH presence are under those new regions: Ananatak, Makuac, Paweng and Akop.

⁵ Number according to WHO/EPI, 2006

⁶ Number according to WHO, NIDS, 2002

⁷ Hunger gap: seasonally food availability is low from April to July

their cattle renders them destitute. In that case, VSF (Vétérinaires Sans Frontières) do play an important role in the improvement of animal health in Tonj county.

The domestic unit for a **Dinka family** usually consists of a man, his wife and his children. The joint family includes the wives of a man, the man's mother (often a widow who stays at the home of her youngest son) or the man's sister's children (often children spend some time with their maternal kin). In that family setting sharing is common.

Traditionally Dinka people do not give names to illnesses but related them to the spirits that brought the disease. The community members believe that also malnutrition is brought by the spirit.

Objectives

The objectives and key questions are defined in the ToR (annex 1).

Methodology

The evaluation methodology was defined in the ToR, actually was following performed:

All documents⁸ received by the program management at headquarter from the nutrition interventions in the years 2003 – 2006 were read and taken into consideration for the analysis. It is assumed that the evaluator did receive all available reports and documentations concerning each intervention.

37 key interviews with persons on different level of involvement were preformed, depending on the access, through personal talks, phone interviews or email communication:

- MSF HQ (desk managers, medical department) and -capital coordination
- Expatriates leading the nutritional interventions (2005 and 2006)
- Expatriates of the nutritional intervention 2003
- Medical staff at all level (MSF and local health staff in Maria Lou and surrounding locations involved in the past interventions)
- CCM staff in the different former SFC sites
- WFP, Comboni and VSF were visited for an interview
- Payam administrators in Akop, Kacuat, Langkap, Paliang, Ngabakok and Wunlit

Four group discussions with women of the former SFC sites were conducted. On one location the women refused to talk. An additional discussion round with the CCM staff in Kacuat took place.

During the field visit, the access to all former SFC sites was given and ensured meetings with local authorities (e.g. payam administrator), women and former SFC workers. During this visits also the road condition and distances could be observed.

The main questionnaire was updated each time to the position the interview partner occupied in the mission. The different personnel (national- and international staff) involved in the different nutritional

⁸ Documents: country policy, background information, nutrition policy, nutritional surveys, intervention proposals, field visit reports, end of mission report of each intervention including the statistical data and budget, additional nutritional reports of other humanitarian actors etc.

interventions were identified through the reports read and contacts forwarded from persons interviewed. The first contact and introduction was done through an introduction letter. It was up to the expatriate and regional staff to respond, nobody was forced.

All interview partners were informed about the use and storage of the notes taken during the interview and where the filled questionnaires will be kept (evaluation unit in MSF-Austria). The interview partners were assured that their names will not be stated. The annex 2 summarises the conducted interviews and discussion rounds through a coding system.

No appointment with the Ministry of Health (MoH) could be contacted, as the office was too busy with Cholera outbreaks in different locations in South Sudan. The responsible person excused himself.

The focus for the intervention in 2003 was mainly based on the documents received by the desk management team, as the memory limits the value of the interview. General comments were found through some interviews.

Additionally were two interviews within the headquarter coordination for the Niger mission contacted.

Findings

Appropriateness

One of the objectives of this evaluation was to examine the appropriateness in the specific contexts of the different years (2003, 2005 and 2006) of MSF-CH's nutritional interventions in Tonj county, South Sudan. Appropriateness of intervention, for the purposes of this evaluation, was defined as the extent to which MSF-CH's nutritional interventions were appropriate as measured against MSF standardised nutritional guidelines considering the specific factors of influence in the environment of the set up (e.g. problem of regular hunger gaps, dependency and coping mechanism). The analysis of appropriateness here focused on surveillance, intervention strategy (opening and closing criteria, decentralisation, BFP, access, food supply) and timeliness.

Surveillance

As a result of the different factors leading to possible nutritional deterioration in Tonj county, MSF-CH performed nutritional surveys twice a year: before (March-May) and after the seasonal hunger gap (October-November). On a continuous way the initiated surveillance systems did work through the OPD and nutrition ward in Marial Lou rural hospital and the PHC program⁹ in the county. Since 2004, MSF-CH had to rely and depend on the collaboration with CCM-Italy to whom the PHC program was handed over, followed by the OPD handover in 2006. With the PHC program handover an important information source with the NHCW (Nomadic Health Care Worker) program¹⁰ was lost. The NHCWs did move with the community and seemed had the closest communication. This actual situation limits the access and awareness of the environment because the daily surveillance follow-up relies on mothers coming with their children to the PHC program.

In 2003, a seasonal calendar and food security indicators¹¹ (annex 4 and 5) were set up and the IDP movement was followed regularly. WHO (World Health Organisation) did conduct a EWARN training for both programs of MSF-CH (hospital and PHC in Tonj county). The training aimed to strengthen the surveillance system and response. Further training and refreshment courses (e.g. MUAC screening) done, were important but it faced its limits because of the high turn over of national staff due to personal reasons.

The **nutrition surveys** performed by MSF-CH during the past years are of good quality. The surveys took place always (2001 – 2006) in the same areas: Akop (Tonj North), Ananatak (Tonj South), Paweng and Makuac (Tonj East). The clusters were calculated to the actual available population figures¹², which covered all bumans in each payam. The persons involved stated that the data represented an accurate picture of the situation; each survey team was supported by a supervisor to ensure the methodology and quality of the process. The main concern of the yearly first survey each year was the movement of the population to the "toic" in search of water or food where they also take the children with them.

The reports from 2004, 2005 and 2006 did state the methodology applied and followed standards of MSF and recommended by WHO/UNICEF. During the years the same analysis system and tools were

⁹ MUAC measurements of all children between 1 and 5 years were and are done in the OPD in Marial Lou hospital and the PHCUs/Cs in the county.

¹⁰ NHCWs program was started in 1998 as a pilot project in search of better ways to provide health care to a semi-nomadic population (reference: report of MSF-CH, 2001).

¹¹ An introduction to food security and nutrition issues in Tonj County, MSF-CH nutritionist, South Sudan, July 2003

¹² The population figures differ from year to year and from source to source (e.g. SRRC, WHO/EPI, MSF). No census was ever done and movements appeared during the years of MSF-CH presence due to the security situations, the peace agreement and in search for food or water.

used: WHO reference tables, EPI Info version 6.04 and the EpiNut 2. The reporting system did follow most of the time the same line and the most necessary figures (e.g. GAM, SAM and oedema) for decision taking were provided. Each survey report concluded with the teams' recommendation and those were reasonable towards the nutrition guidelines in place by MSF-CH.

The surveys were stated as helpful and were used to foresee and compare the situation to the previous years. However, in term of being more accurate the surveys have to be placed each year within the same month. E.g. The GAM- and SAM rates increase already in April due to the seasonally given food shortage in the households. However, as the only source of information, the survey cannot predict the coming period. Further food security indicators are necessary for a proper surveillance. Useful food security indicators for the context were identified by a nutritionist in 2003 (annex 4) but were not used throughout the years. These indicators are still valid in the community and its context and can assist to identify a deterioration of the nutrition status.

An added value of the autumn surveys (e.g. November) was not given, as the 2nd harvest takes place and it is the best period of food availability in the households, including the ceremony time in December and January.

In November (MSF-CH) and December (WVI) 2004, two surveys did show immense discrepancies, which are difficult to explain with the available information through the survey reports (e.g. not known which villages were surveyed). The survey conducted by WVI (following the WHO- and UNICEF guidelines) in collaboration with "Islamic Relief Development" in whole Tonj county (Tonj North, Tonj South and Tonj East) did show a GAM of 22.8 % (Z-score) and a SAM of 4.2 % (Z-score) where MSF-CH survey data present half of the percentage. The Weight for Height nutritional index, presented by WVI, did show even a three times higher GAM- and SAM rate than MSF-CH figures. The WVI report stated 1.0 % of oedema where the MSF-CH reported none.

Possible explanations could be: the one month of time difference, different areas covered and/or population movements (December: ceremony month), a problem with the methodology used by one of the actors and/or measurement error.

Table 1: Summary table on the nutrition survey results before and after the hunger gap: Prevalence of acute malnutrition among children aged 6 to 59 months expressed as Z-score and as a percent of the reference median, Tonj County, 2003-2006.

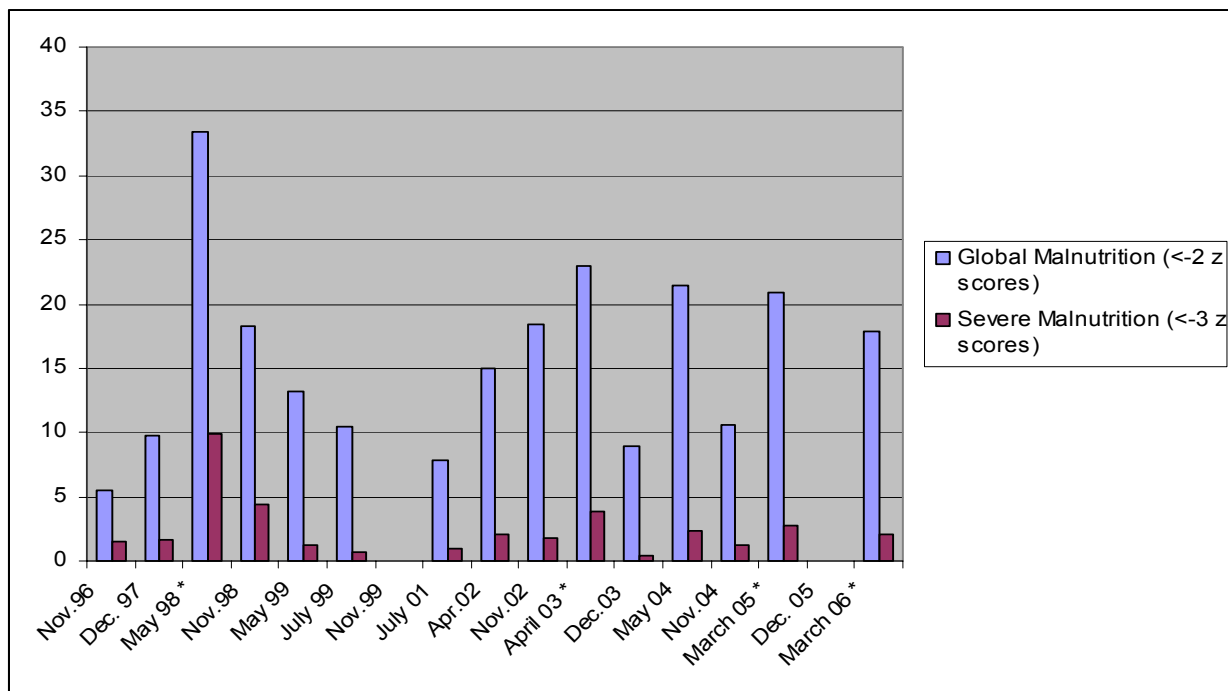
Outcome indicators	2003 (April)	2003 (Dec)	2004 (May)	2004 (Nov)	2005 (March)	2005 (Dec)	2006 (Feb/March)	2006 (autumn)
Sample size of children	472*	465*	921	797	910	**	915	No survey was performed
Z-Score:								
GAM (%) (< -2 Z-score)	22.9	9.0	21.5	10.6	20.9	**	17.9	-
SAM (%) (< -3 Z-score)	3.8	0.4	2.4	1.2	2.8	**	2.0	-
% of Median:								
GAM (%) (< 80 % W/H ¹³)	16.2	6.4	14.5	6.1	17.9	**	15.1	-
SAM (%) (< 70 % W/H)	1.1	0.2	1.0	0.4	1.4	**	1.0	-
Oedema: (#)	0	0	0	no data available in received reports	0	**	0	-

* A two-stage 30 by 15 cluster survey technique using the proportional to size (PPS) methodology

** MSF-CH did not perform a nutrition survey, as Epicentre came in for a health survey in Tonj county.

¹³ W/H: (Weight for Height) is a widely used nutritional or anthropometric index, and is the best indicator of wasting.

Graphic 1: Summary on nutrition survey results before and after the hunger gap: Prevalence of acute malnutrition among children aged 6 to 59 months expressed as Z-score, Tonj County, 1996-2006.



* Nutrition interventions were implemented after the nutrition survey (2003 – 2006)
 In November 1999, December 2005 (health assessment, Epicentre) and autumn 2006 was no nutrition survey performed.

Retrospective mortality surveys were always part of the nutrition surveys. All retrospective mortality surveys had one wide range of recall period (ranging from 90 to 234 days). Not one report focused on a first recall period of 7 days. When the recall period was not stated in the report only an assumption can be made that the team followed the MSF guideline (e.g. March 2005). The reports, except from Epicentre, did not define how the categorization of the cause of death was done or the process for the investigation.

Table 2: Summary table on the CMR and U5MR before and after the hunger gap, Tonj County, 2003-2006.

Rates	2003 (April)	2003 (Dec)	2004 (May)	2004 (Nov)	2005 (March)	2005 (Dec)*	2006 (Feb / March)	2006 (autumn)
Recall periods	Jan. 1 st to April 1 st : N=90 days	May 1 st to Dec. 15 th : n=234 days	No data found in the MSF reports! **	No data found in the MSF reports! **	Not defined in report!	July 30 th to Dec. 6 th : n=130days	December 25 th to when was not defined	No survey was performed
CMR (10,000/day)	1.58	1.13	-	-	0.9	1.2	0.4	-
U5MR (10,000/day)	1.79	0.6	-	-	3.4	3.0	0.9	-

* Health assessment, Epicentre 2005

** The CMR in the MSF-CH surveys was not calculated in 2004. The report states: 3 deaths in total since the New Year: 1 adult of fighting and 2 children < 5 years because of Measles and bloody diarrhoea.

However, it can be clearly seen that in March 2005 the U5MR (Under 5 Mortality Rate) of 3.4 % did show a very serious situation, which was not the case 2006 or even 2003. Next to the main causes of death (Malaria, respiratory tract infections, bloody diarrhoea) also two cases of malnutrition were

reported. A health assessment by Epicentre in December did still report a high rate (3.0 %) with the main causes of diarrhoea, Malaria, intentional injury and respiratory infections. The highest number of death rate did appear in the northern and most isolated area of Tonj county. No special response from MSF followed this information.

The main causes of mortality did not differ during the years. The U5MR was mainly due to Malaria, respiratory tract infection, diarrhoea and vomiting. Sometimes cases of malnutrition were reported.

Intervention strategy

The indicators (**opening criteria**) for an intervention were **based on the actual MSF guideline**¹⁴. The data showed the necessity to implement a TFP (Therapeutic Feeding Program), SFP (Supplementary Feeding Program) and lobby for GFD (General Food Distribution). A BFP (Blanket Feeding Program) can be considered, especially when no GFD is in place. In 2004, even with the median GAM of 21.5 % (Z-score) no strategy in term of SFP was implemented but preparation for any further deterioration was done. No indicators within the available reports showed the need for a decentralised approach.

In 2003, the threshold for an intervention preparation was defined with 10.0 % (the cut off point does also indicate a severe situation with the need to intervene). Also when the definition was set up it did seem that for different reasons (e.g. different field team) the attention to it was limited. In any way, it is not only of following a cut off point. The whole food security monitoring has an important impact.

The **strategy decision** was based on the nutrition guideline of MSF and the experience of the person involved. A change can be seen in the follow up of the different years. Following the former MSF nutrition guideline before the 2000 version, MSF-CH was used to set up SFCs (Supplementary Feeding Centers) and TFCs (Therapeutic Feeding Centers). For the intervention in 2003, the MSF team followed the revised draft of May 2002 and in the year 2005 was the first time a new approach called CTF (Community-based Therapeutic Feeding (Program), based on the experience in Ethiopia, implemented. 2006, the CTF was called A-TFP (Ambulatory Therapeutic Feeding Program) based on the experience gained during the nutrition emergency intervention in Niger.

Over the years the decentralization of the SFCs was expanded to decrease the distance to the centers for an easier access of the beneficiaries. Where in 1998, MSF-CH was only running three SFCs in Marial Lou, Akop and Paliang in 2005 and 2006 SFCs were also set up (next to the former PHCUs) in Ngabakok, Langkap and even in Aliek (2005).

The TFC was always placed in the rural hospital of Marial Lou, where the nutrition unit was extended.

The **decentralisation** of the nutrition activity through SFP and CTF / A-TFP did increase the geographic coverage and the access to the service for the beneficiaries. E.g. in 2005 was an additional set up was done in Aliek to allow mothers to attend the service, as the security to Langkap was not given due to clan clashes between their communities. The security situation is a key factor, which can influence the decentralisation (e.g. in 2003 the tribal clashes between Dinka clans and between Dinka and Nuer for reasons of water and cattle did lead to a reduction of team personalities and –movements).

The mothers participated also when they did not understand the difference between the different strategies. Their aim was to receive the help and food for their children. According to the interviews, the mothers knew that when one child was sick it was referred to Marial Lou. The positive impact of the A-TFP is that it does allow mothers to fulfill their duties at home, instead of staying for weeks in a hospital setting with their malnourished child.

¹⁴ E.g. based on the MSF guideline March 2002: GAM > 10.0 % or 15.0 % W/H of median and SAM > 3.0 – 4.0 % W/H of median, CMR increased and > 1/10.000/day and food accessibility reduced for vulnerable households

In 2005 a **BFP** was anticipated in the first days of June with the argument to reach the children in need, including pregnant- and lactating women, as the GFD was not predictable. Disagreements between the field team and headquarter appeared with the planned BFP approach (July). The team in the field was concerned that a BFP in Marial Lou and Paliang would enlarge the number of beneficiaries but still would not reach all, as no further locations were considered. For different reasons the first and only BFP distribution round took place in Marial Lou in August. The second round and a BFP extension to other locations were cancelled due to the situation that the first harvest arrived and the need was not given.

The **access** to the distribution points was manageable for the beneficiaries and could be still improved through more set ups. However, it also has to be seen that MSF-teams faced all the years a difficult access to the distribution sites and its logistical constrains. The seasonal situation and road condition is the main factor, which limit the access immense during the rainy season. A regular referral system was implemented for the severely malnourished and/or sick children, but had the risk of getting stuck with children and mothers on the road. Airstrips were used when possible for the food supply, especially for the northern parts of Tonj county (e.g. Langkap), where the nutrition team used to take the plane too.

The criteria for **closing down** the different interventions were primarily based on the first harvest and the decreased numbers of children in the different programs. In 2005 and 2006 were mid-term rapid assessments through MUAC screening performed, which did assist the field team to define the need. The actual situation and the nutrition guideline in place were the main reference, as the nutrition surveys took place later in the year (November, December). The data, approximately assessed two months after the closing, were and cannot be used as a reference source. When the 2nd surveys took place around November/December, the 2nd harvest was available in the households and also when the harvest was not that good it provided still some resources for the coming weeks.

Timeliness of the intervention

In autumn 2004 food security indicators and reports of other humanitarian actors in the surrounding predicted a nutrition crisis in 2005, because the erratic and delayed rain destroyed most of the harvest. The survey data in March 2005 showed a high malnutrition rate and gave the justification to intervene because the food availability in the households were limited, inter-clan fights did lead to looting of food and animals in the north (Aliek and Langkap) and Makuac was invaded by Nuer people. The survey document did also state that the majority of the population depended on wild fruits and green leaves.

The field team followed the first recommendations defined in March for a nutrition intervention. In April the TFC was opened and followed by the first SFCs in May. The work started with the field resources (e.g. human resources, cars). The first incoming nutrition reports with its concerns, limited access and defaulter rates signed the urgent need of an intervention through additional staff. The emergency desk took over and sent a nutrition team to manage the intervention in June 2005. Hence **timeliness is a great concern** looking at the long time span between first alerts (in late 2004), the confirmed needs (March 2005) and appropriate intervention with an emergency team in June 2005. A year later, the nutrition strategy was implemented **much more timely** (e.g. human resources brought in and the food pre-positioned in the distribution sites). Finally, also the strengthened operational relationship with CCM did improve the referral system and the surveillance for communicable diseases and nutrition.

Food supply

A rupture in the food supply by WFP supporting the Marial Lou hospital appeared the first time in the months March/April 2005 and MSF-CH was obliged to purchase two months of food. MSF-CH

purchased CSB (Corn Soya Blend) from NUTRO manufacturing EPZ¹⁵ for the nutrition program and the hospital. Considering the time pressure, the food was bought and immediately transported to the field without the final laboratory result on the food quality. However, finally the result showed that the food was not usable for the community. MSF-CH lost again time because food supply had to be ordered from Bordeaux.

WFP, itself as an organisation, faced difficulties delivering food to regions in South Sudan and/or to ensure the amounts of food ration due to serious pipeline- and logistic constrains. That was especially the case during the years, as Darfur was in huge needs of food supplies.

Effectiveness: Marial Lou

The overall objective for the different nutrition activities was to reduce the mortality, to prevent severe malnutrition and to treat morbidity associated pathologies of children less than 5 years in the area of MSF-CH presence in Tonj county. The interventions established in 2005 and 2006 reduced the rate of severe acute malnutrition and further the under-five mortality rate but exact figures on impact can not be established. For this evaluation, effectiveness was measured in terms of the nutrition intervention outcome indicators.

¹⁵ NUTRO manufacturing EPZ: the new English factory, inspected by SGS (for WFP) and Polycon (for UNICEF)

Table 3: Revised outcome indicators of the nutrition interventions, MSF-CH, Tonj County 2003-2006.

Marial Lou hospital:

Decentralised approach:

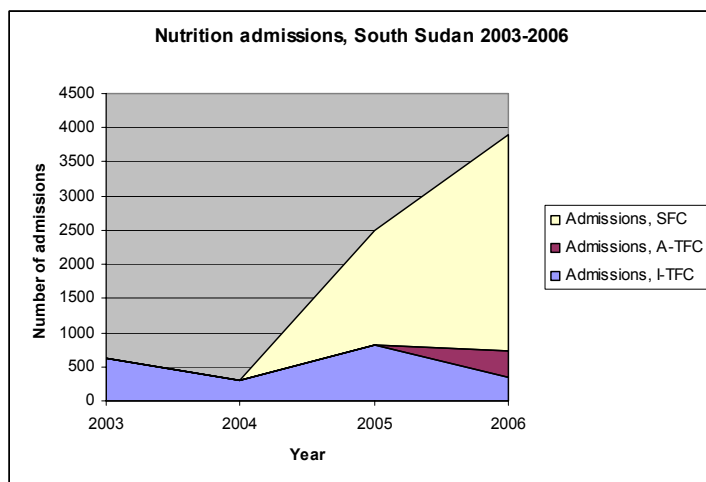
Outcome indicators	2003 (January 1 st – December 31 st)	2004 (January 1 st – December 31 st)	2005 (April 25 th – September 31 st)	2006 (March 24 th – September 31 st)	Outcome indicators	2005 (April 25 th – September 31 st)	2006 (March 24 th – September 31 st)	2006 (March 24 th – September 31 st)
Implemented intervention	TFC extension annual data analysis	TFC extension not necessary; annual data analysis	TFC annual data analysis	I-TFC program data analysis	Implemented intervention	SFC the figures include the CTF (A-TFC)	A-TFC program data analysis	SFC program data analysis
Expected beneficiaries	- (TFC: 2,485*)	-	- (TFC: 700)	648	Expected beneficiaries	3,085 (17.9 %)	972	2,527
Admission	619 (TFC: 416*)	292	814 (Intervention: 636)	342	Admission	1,689 (CTF: 59)	399	3,157
Readmission (< 5.0 %)	1 (0.2 %)	Not recorded!	0 (0.0 %)	Not recorded!	Readmission (< 5.0 %)	Not recorded!	Not recorded!	Not recorded!
Total exit	632	274	833 (Intervention: 531)	361	Total exit	1,078	363	2,709
Recovery rate (> 80.0 %)	481 (76.1 %)	201 (73.4 %)	584 (70.1 %) (Intervention: 273: 51.4 %)	242 (67.0 %)	Recovery rate (> 75.0 %)	511 (47.4 %)	70 (19.3 %) **	2,046 (75.5 %)
Movement to A-TFC or SFC	Not recorded!	Not recorded!	Not annually recorded!	68 (18.8 %)	Movement to SFC and SFC to I-TFC	Not recorded!	215 (59.2 %)	58 (2.1 %)
Defaulter rate (< 10.0 %)	109 (17.2 %)	30 (11.0 %)	111 (13.3 %)	42 (11.6 %)	Defaulter rate (< 15.0 %)	563 (52.2 %)	59 (16.3 %)	596 (22.0 %)
Transfer rate (not defined)	4 (0.6 %)	23 (8.4 %)	104 (12.5 %)	Not recorded!	Transfer rate (not defined)	Not recorded!	19 (5.2 %)	5 (0.2 %)
Mortality rate (< 5.0 %)	38 (6.0 %)	20 (7.3 %)	34 (4.1 %)	9 (2.5 %)	Mortality rate (< 2.0 %)	4 (0.4 %)	0 (0.0 %)	4 (0.1 %)
Average weight gain (> 10.0 g/kg/day)	12.2 g/kg/day	11.0 g/kg/day	12.0 g/kg/day	14.8 g/kg/day	Average weight gain (A-TFC > 5.0 & SFC > 3.0 g/kg/day)	10.0 g/kg/day (unreliable!)	5.8 g/kg/day	3.9 g/kg/day
Average length of stay for cured (< 30 days)	28 days (TFC: 34.2 days*)	24.0 days	25 days	14.6 days	Average length of stay for cured (A-TFC < 45 & SFC < 60 days)	84 days (unreliable!)	40.2 days	51.8 days
Coverage (> 50.0 % for rural area TFC inpatient)	Not defined! (TFC: 0.167*)	Not recorded!	Not recorded!	52.7 %	Coverage (A-TFC and SFC > 70.0 % for rural area)	55.0 %***	41.0 %	124.9 %

* Only numbers available through a defined protocol
 ** Total cured within the nutrition program: 285 (78.5 %)

*** The final nutrition intervention report does report different target- and coverage results than the annual report.

2003 and 2004, MSF-CH implemented TFCs for the nutrition response. The decentralised approach in 2005 and 2006 shows a **huge increase in the admission numbers** (graphic 2).

Graphic 2: Nutrition admissions during the nutrition interventions, MSF-CH, Tonj County 2003-2006.



Source: Anita Sackl, July 2007

In all the interventions MSF-CH had an active screening program implemented but the activity alone did not support a better access in 2003 and 2004 for those living in distance of Marial Lou.

The **numbers of readmissions** were not recorded in most of the programs, as the nutrition assistants had difficulties to keep the definition in their reports and statistics. It can be assumed that the children, coming back, were admitted as

new admissions. This approach might have its effect on the admission number and the finally calculated coverage.

In 2005, the annual report recorded 59 children admitted within the CTF program. Reports stated that the follow up of the A-TFC children in the field was difficult and that finally the decision was taken to place the A-TFC children within the SFC settings. Those requiring medical care were referred to the TFC in Marial Lou. Reflecting the higher seasonal burden on Malaria in 2005, most of the children may have been affected and referred to the TFC.

The **transfer rate** is not defined through a reference value but does indicate referral possibilities for severe pathologies. Some years a higher transfer rate was recorded where it is unclear where those children were referred too (e.g. 12.5 % in 2005s TFC).

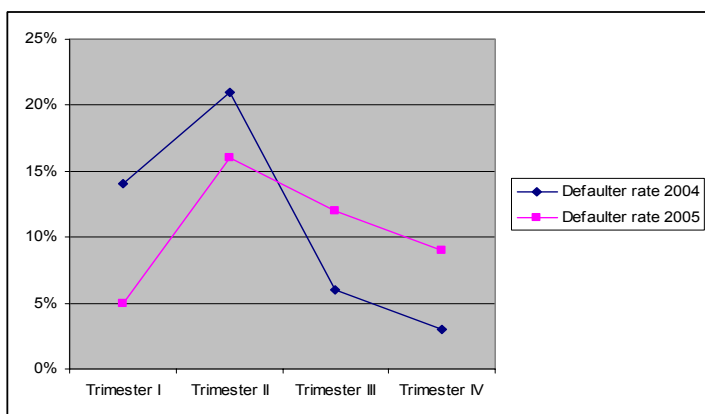
The **recovery rate** is slightly below the reference value in most of the years, except 2006. Especially 2005, the rate is mainly influenced by the high defaulter rate. The information available suggests that quality of care was good, especially in a TFC setting with its medical- and feeding follow up. A quality problem was indicated in the 2003 report, where concerns about the management of severely malnourished children were raised. The nutrition ward was separated from the hospital compound and during the nights difficulties in protocol follow up appeared. Finally, the decision was taken to set up the nutrition ward within the hospital compound.

The statistic in 2006 divided the children between recovered (weight for height greater than 85.0 % for 2 consecutive weights: discharged home, as no decentralised centre was accessible) and those referred to an ambulatory centre (weight for height greater than 80.0 % for 2 consecutive weights, absence of oedema, absence of heavy pathology, etc) and categorised under “movement”. The children can also be considered as recovered within the individual nutrition service. (Criteria in annex 7)

The **defaulter rate** was during all the nutrition interventions above the reference value. The change in strategy had no significant influence. The highest figure (52.2 %) can be seen in the SFC 2005, which has its main reasons in the low involvement of community members and authorities (according to the interviews and available reports) and in the running intervention mothers were not sure if the distribution will take place (e.g. team stuck in the mud).

In the hospital nutrition ward (TFC during the nutrition interventions) the defaulter rates increased in the 2nd trimester (April – June) and were lowest in the 1st and 4th trimester (figures were not available for 2003 and 2006).

Graphic 3: Defaulter rates per trimester of the nutrition ward in Marial Lou rural hospital, Tonj County 2004 and 2005.



Source: Anita Sackl, June 2007

The defaulter rate throughout the programs depended on the “seasonal” activities: cultivation- and harvest periods, months of celebrations and ceremonies (see annex 6). The mothers in the nutritional ward (April) stated clear that they will go home in some days for the field preparation before the rainy season will start.

Influencing factors for non-attendance and finally defaulting in the SFC or A-TFC can be multiple. The security- (e.g. clan clashes), road condition (e.g. difficult to move with children in the mud) and the daily workload of women (e.g. cultivation period, taking care of further children and/or other family members) created difficulties. Further, the delay of the nutrition team on the spot of distribution, because of the travelling time in the rainy season and getting stuck in the mud) did not ensure the mothers their entitled ration. In 2005, the teams did run out of food supplies and mothers had to go home without a ration. A year later, 2006, also when shortages appeared on the Plumpy Nut ration (e.g. Plumpy Nut sachets divided) and the sugar for the Premix, mothers did receive some supply, which might have had its influence in the mothers’ decision to stay.

Sometimes mother arrived too late at the distribution site, because they miscalculated the distance and travel time they need with their children or miscalculated the day of distribution (according to the interview mothers count the day from the Sunday) or did not receive the information when the distribution day was changed to another day within the week.

The **tracing of defaulters** is a necessary task, as it gives feedback to the causes of defaulting (e.g. death or sickness of an admitted child, child brought to the cattle camp, organizational or personal problems at the distribution site and/or other reasons). A tracing system was implemented in 2005 and 2006. However, it is difficult to measure the motivation of the employed nutrition assistances in the past interventions. Their strong statement reflected the need of gum boots and raincoats for their jobs. They were also clear that they did not move when it was raining.

A high **mortality rate**, as in 2003 and 2004, can reflect the late stage of admission in the TFC. In those years no SFCs were set up to prevent severe acute malnutrition (2003: the set up had to be closed because of security constrains). Taking the distance and workload of women into account, it can be that they arrived too late in the centre. The mortality rate can also give feedback on the quality of care, which is difficult to assess in past interventions. However, with a decentralised approach like an A-TFC the mortality rate can be misinterpreted, as all deaths occurred at home might not be registered and children are recorded within the defaulter rate.

Another possible cause for mortality could be TB- and HIV/AIDS in relation with malnutrition, but the evaluation did not look into those factors.

In overall, the **average weight gain** and **average length of stay** were acceptable in all interventions and show a good quality of care. The average weight gain within the I-TFC did even increase and the average length of stay could be shortened (e.g. I-TFC 2006: 14.8 g/kg/day within 14.6 days). The main influence can be seen in the quality (introduction of Plumpy Nut¹⁶ and F75 in 2005) and quantity of food provided and the children's morbidity.

Naturally a decentralised approach shows a lower weight gain (5.8 g/kg/day) than a TFC. A feeding observation of the children can be much better done in the TFC setting. Nevertheless all nutritional outcome indicators were within the reference value of MSFs guideline¹⁷.

A discrepancy occurs in the weight gain of the SFC figures 2005 (10.0 g/kg/day) and its length of stay (85 days). No details on reasons could be identified. (It is assumed that the SFC data include the CTF (A-TFC) data but still how far 59 children can influence those.)

The most difficult calculation is the **program coverage**, as the estimation of beneficiaries is limited due to unreliable population figures in Tonj county. Care has to be taken between the coverage of the nutrition surveys to the coverage gained with the final set up, as due to seasonal access difficulties the set up cannot follow the same areas. The intervention radius was defined as one day on foot to each the decentralised service. Another factor is the timing, the survey took place between February and April and the intervention set up was done in May. The prevalence on the e.g. SAM can change within some months when no food is available in the homes.

In 2006, 2/3 of the children were estimated for the A-TFC and 1/3 for the I-TFC. Finally, the admitted children were nearly equal in both setting. It does show the difficulty to estimate the expected A-TFC to the I-TFC admissions, as the burden of the coming seasonal morbidity cannot be known beforehand.

2006, the SFC showed a very high coverage, which was explained by the nutrition team as a result of internal displacement due to tribal clashes. Due to displacement children were much closer to the next distribution point.

The **quality of follow up** and **daily care** does also depend on the daily workload during a distribution day. The decentralisation to an A-TFC approach did reduce the burden within the TFC. Depending on the number of A-TFC children, including the SFC admissions, the workload increases in the field. According to the interviews, the teams saw on a day up to 200 and even more children in a SFC within those were the A-TFC children.

After the MSF-CH team went through a lot of difficulties the first and only round of **BFP** took place in Marial Lou. 5,183 children (children below 110 cm) received a ration.

The **intervention in 2006** was effective and showed a **good outcome**, which can be **based on**:

- 1) Awareness for the coming intervention
- 2) Pre-positioning of food supplies at the distribution points
- 3) Mobilisation: in time and on different community levels
- 4) Complete nutrition team for the set up and training

¹⁶ Plumpy Nut = a peanut butter-like paste containing the balance of lipid, sugar and protein (macronutrients) and minerals and vitamins (micronutrients) that promotes rapid growth in severely malnourished children.

¹⁷ In addition to the beneficiaries food ration each family did receive a protection ration (family ration). Following the mothers interview responses, the received food rations of the admitted children did last for 2 – 3 days. It was enough for the malnourished child but not for the “sharing tradition”. Another important statement was that the family ration was put together with the children ration in one bag (Plumpy Nut, Premix). It was easier for the mothers to carry it home but it can be strongly assumed that the mothers could not differentiate at home anymore how much and what each child had to receive, as she might have had more children admitted within different programs.

Health education focusing on the preparation of the received food supply was given to the attendants, but the quality cannot be assessed within this evaluation.

- 5) Technical expertise (medical department and nutrition coordinator with the experience of 2005)

Reflecting the factors for the success of each intervention:

MSF-CH can influence:

- 1) Mobilization and communication: Some women stated that the message of an intervention reached them late; especially 2005. When and how the mother received the message depended to which clan and family lines she belongs to and if the leader was invited to the introduction of the program.
- 2) Young students, preferable employed by MSF-CH because of their writing skills, might not have been the most respected in the traditional hierarchy.
- 3) Technical expertise given and experience communicated to the field team
- 4) Supervision time and training for responsibility hand over through the year
- 5) Daily follow up of children within the decentralised approach

MSF-CH cannot or only partly influence:

- 6) Security: attacks and security incidences within the community followed by team evacuation and/or limited movement
- 7) Mobility of the population within an insecure environment and its access to the distribution sites
- 8) Fulfilment on agreements by partners (e.g. WFP) in time
- 9) Reliability of plane schedule, food drops, etc.
- 10) Difficulty to find enough qualified Sudanese staff: New staff for the decentralised approach had to be trained each year (nutrition survey and intervention).

Reflection on the nutritional outcomes in Niger

Before details in data comparison between Niger and Marial Lou are given an analysis was done for Niger 2005 and 2006.

The **main difference** between the two settings has not be forgotten: Marial Lou is an intervention within a regular project set up and Niger came up as pure nutrition emergency summer 2005.

Table 4: Outcome indicators of the nutrition interventions, annual report data, MSF-CH, Niger 2005-2006.

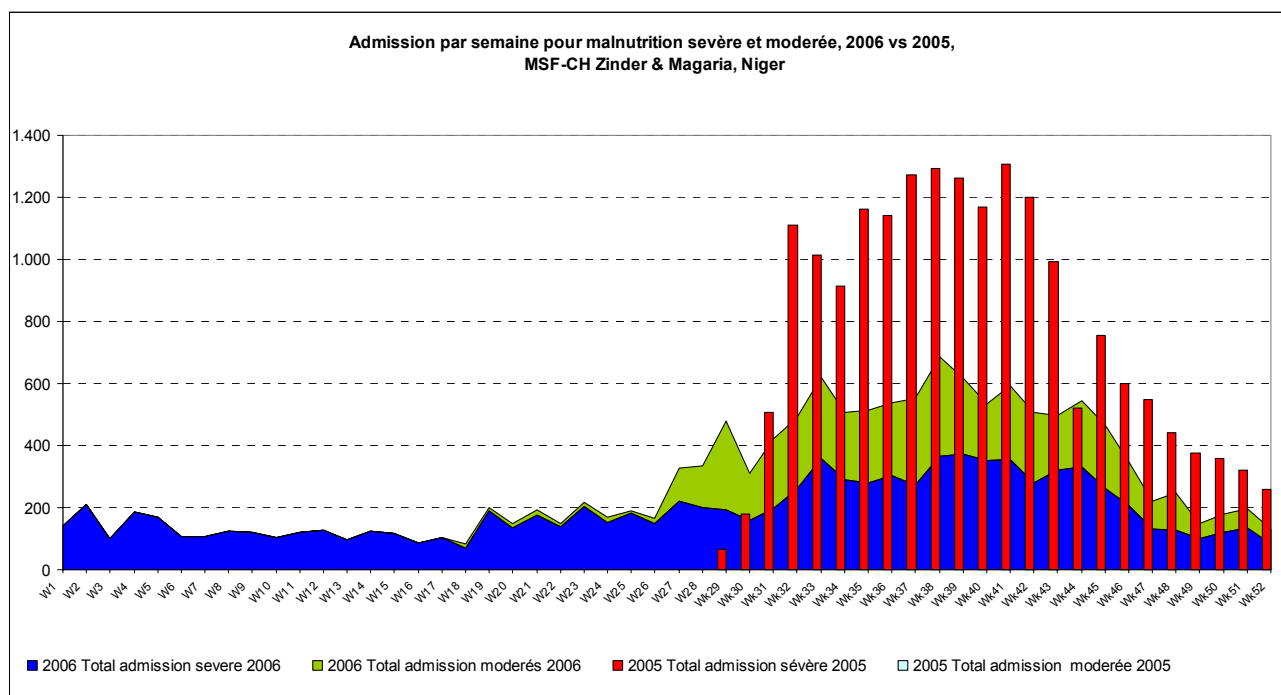
CRENI:			Decentralised approach:			
Outcome indicators	2005 (July 11 th – December 31 st)	2006 (January 1 st – December 31 st)	Outcome indicators	2005 (July 11 th – December 31 st)	2006 (January 1 st – December 31 st)	2006 (January 1 st – December 31 st)
Implemented intervention	CRENI (I-TFC) Annual report	CRENI (I-TFC) Annual report	Implemented intervention	CRENA (A-TFC) Annual report	CRENA (A-TFC) Annual report	CRENAM (SFC) Annual report
Expected beneficiaries	Not recorded!	Combined with CRENA	Expected beneficiaries	Not recorded!	11,000	9,000
Admission (total)	4,656	4,496	Admission (total)	13,955	6,689	5,134
Readmission (< 5.0 %)	4 (0.08)	28 (0.6)	Readmission (< 5.0 %)	33 (0.2)	247 (3.7)	183 (3.6)
Admissions from CRENA	449	Not recorded!	Admission from CRENI	1,767	Not recorded!	Not recorded!
Total exit	4,256	5,928	Total exit	12,122	9,629	4,635
Recovery rate (> 80.0 %)	2,038 (47.9)	3,148 (53.1)	Recovery rate (> 75.0 %)	9,125 (75.3)	7,795 (81.0)	4,154 (89.6)
Movement to CRENA or other movements	1,625 (38.2)	1,893 (31.9)	Movement to CRENI or other movements	630 (5.2)	1,318 (13.7)	400 (8.6)
Defaulter rate (< 10.0 %)	282 (6.6)	227 (3.8)	Defaulter rate (< 15.0 %)	1,208 (10.0)	212 (2.2)	38 (0.8)
Transfer rate (not defined)	28 (0.7)	131 (2.2)	Transfer rate (not defined)	817 (6.7)	41 (0.4)	0 (0.0)
Mortality rate (< 5.0 %)	283 (6.6)	529 (8.9)	Mortality rate (< 2.0 %)	342 (2.8)	263 (2.7)	43 (0.9)
Average weight gain (> 10.0 g/kg/day)	Comment in annual report	14.7 g/kg/day	Average weight gain (A-TFC > 5.0 & SFC > 3.0 g/kg/day)	Comment in annual report	5.75 g/kg/day	Not recorded!
Average length of stay for cured (< 30 days)	Comment in annual report	13 days	Average length of stay for cured (A-TFC < 45 & SFC < 60 days)	Comment in annual report	48 days	Not recorded!
Coverage (> 50.0 % for rural area TFC inpatient)	Not recorded!	Combined with CRENA	Coverage (A-TFC and SFC > 70.0 % for rural area)	Not recorded!	101.7*	57.0

* Revised by the evaluator, August 2007

MSF-CH intervened first through CRENI and CRENA set ups and added in 2006 three CRENAM for moderately malnourished children. 2005, the supplementary approach was led by other actors in the field and even in 2006 a close referral collaboration with “Goal”, “World Vision”, “Red Cross” etc. was given.

In 2006, 17.5 % (1,519 children) of the admitted children came from Nigeria. Even 2005, MSF-CH treated children of Nigeria. It took time until the teams recognised the situation, as it is the same ethnic tribe.

Graphic 4: Summary on the admission of malnourished children on a weekly base, MSF-CH, Niger 2005-2006.



Source: MSF-CH, 2007

2005, the nutritional crisis is reflected in the admission numbers. A year later the admission numbers do increase again (starting in July) and did last until end of October (rainy season). A preventive option was given with the set up of CRENAM; as it prevented moderate malnourished children do become severely malnourished. The fact can be related to the seasonal morbidity (rainy season) and a kind of “hunger gap” until the next harvest arrived.

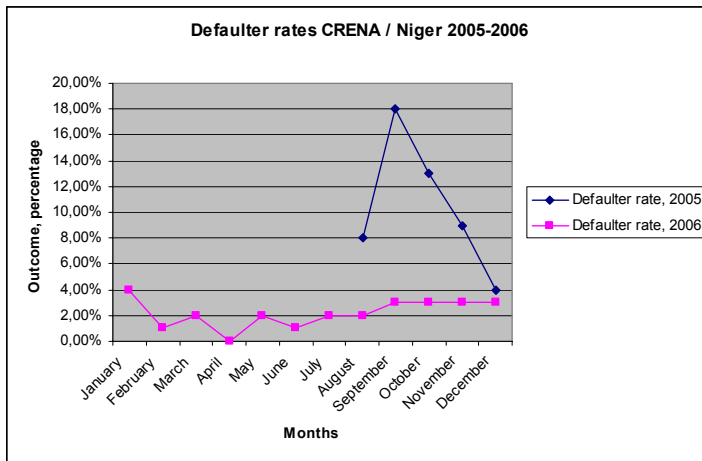
In general, the agricultural activities in Niger depend highly on the rainy season and even according to that the food security situation can change within 4 km. In that case the MSF teams kept the opening of the CRENA within the intervention radius (Zinder and Magaria) flexible.

The percentage on **children readmitted** did stay in all programs within the reference value. In 2006, the readmissions within the decentralised approach did increase slightly (CRENA: 3.7 % and CRENAM: 3.6 %) with a peak in February 2006. The reasons are not known.

In the year 2005 the statistical data defined the number of children admitted from the other nutritional program, which was not followed in 2006.

The reference value for the CRENI **recovery rate** has to be used with care, as most of the children were transferred to the CRENA for further nutritional recovery. The percentage on movements from CRENI to CRENA was approximately one third of the total exits. Adding those figures it does reflect a good recovery rate. The final outcome from the decentralised settings met the reference line.

Graphic 5: Defaulter rates per month in the CRENAS of MSF-CH, Niger 2005-2006.



Source: Anita Sackl, August 2007

The **defaulter rate** within the annual records shows a good result. During the first weeks in 2005 the defaulter rate was high assuming due to the intervention start; the community and especially mothers had to get used to the schedule and the team.

The main reasons for a mother to default from the Niger intervention are related to the harvest period (especially for mothers coming from Nigeria), religious holidays

(e.g. Ramadan) and traditional events.

The **transfer rates** within the nutritional approaches seem to be okay (no defined reference value). An increase could be only marked in the CRENA 2005 where the rate did reach 6.7 %. The situation can be associated with the intervention start and the seasonal morbidity pattern (e.g. yearly peak on Malaria from mid-September until the end of November). The Cholera outbreak (2006) did not affect the nutritional program with its outcome.

The CRENI settings did report in both years a high **mortality rate** (2005: 6.6 % and 2006: 8.9 %). The situation can reflect the late stage of admission in the CRENI and the morbidity patterns. Septic shock, acute respiratory infections, anaemia, Malaria and dehydration were the principle causes of death next to the late arrival of the patient within the nutrition centres. 42.0 % of deaths occurred within 48 hours. MSF-CH invested in more doctors within the CRENI settings, proper treatment of dehydration (especially preventive option within the dry season months) and the presence of tools to analyze the mortality. In addition, the medical teams observed that antibiotics do not work within some infectious diseases. A multicentric study is planned.

Another burden is the use of traditional medicine, especially in the CRENI close to Nigeria. The headquarter does assume that some children died of poisoning. Investments are done in health education and staff awareness (e.g. watchmen). The mothers trust the traditional medicine a lot. The mortality rate was better within the CRENAM 2006.

The **average weight gain** and **average length of stay**, as only reported for the CRENI and CRENA 2006, which shows a good result. In 2005, the outcome indicator analyzes cannot be used because a divergence in the calculation method did appear (according to annual report 2005).

In the year 2006, the team felt the importance of having a good coverage. In that case the decision was taken to open the CRENA for more days per week depending on the need (increase of 150 – 200 children seen per day in a structure). The system did also serve the quality of care when in average 100 children per day was followed.

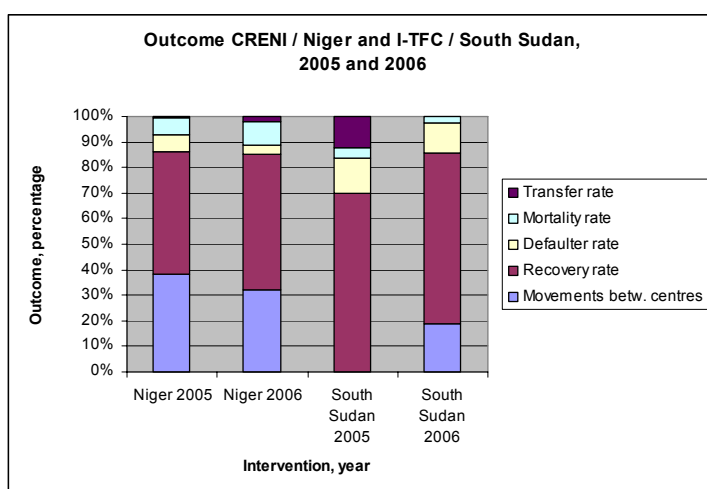
Comparison: South Sudan (Marial Lou) and Niger

The nutritional approach for acute- and chronic malnourished children was served in both contexts in a similar way. However, the same approach did use different terms:

I-TFC	=	CENI
A-TFC	=	CRENA
SFC	=	CRENAM

For the comparison purpose the mission data had to be reworked with the help of the annual- and statistical data collection.

Graphic 6: Comparison between the CRENI / Niger and I-TFC / South Sudan, annual report data, MSF-CH 2005-2006.



Source: Anita Sackl, August 2007

The **recovery rate** in the Niger 2005 and 2006 settings is based on a lower scale (47.9 – 53.1 % of the total exit) because it does only consider the children recovered and send home where those who do have a CRENA close to their home were transferred to the setting (between 30.0% and 40.0 % of the total exists) and did recover finally in the CRENA. If the two percentages are calculated together the recovery rate **within the CRENI is above the 80.0 % of reference value**, except

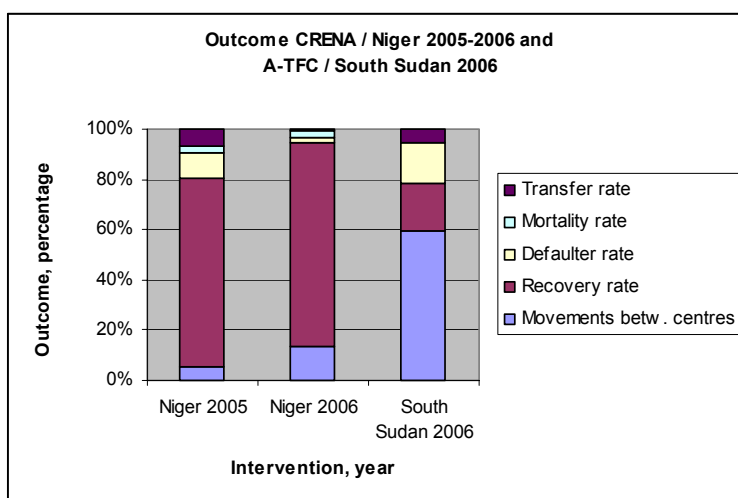
South Sudan 2005. This system was not coherently taken over for South Sudan. In 2005 the **transfer rate** of 12.5 % did not define the possible different movements and in 2006 the transfer rate was not recorded but did state a movement rate of 18.8 %. It can be assumed that those children were transferred to the decentralized program.

The nutritional statistics of Niger defined clearly the movement- and transfer categories.

The **defaulter rate** of the Niger CRENI settings was in both years below the reference value (2005: 6.6 % and 2006: 3.8 %). The Marial Lou data showed in 2005: 13.3 % and in 2006: 11.6 % on defaulter rate. The reasons can be assumed within different mothers' perceptions, in traditional differences and priority setting (e.g. harvest). The mothers in Niger preferred the decentralized approach. However, it seems that access was made easier for them than for mothers in Marial Lou.

A complete opposite picture is seen in the **mortality rate**. The mortality rate in Marial Lou was in both years below the reference value (5.0 %) where the mortality in the CRENI in Niger varied between 6.6 % and 8.9 % due to already stated factors (see page 25).

Graphic 7: Comparison between the CRENA / Niger 2005-2006 and A-TFC / Marial Lou 2006, annual report data, MSF-CH 2005-2006.



Source: Anita Sackl, August 2007

The **recovery rates** of Niger 2005 and 2006 shows a good result. In 2006, 13.7 % of children were “**moved**” to the CRENAM. Following the same approach for South Sudan, Marial Lou would have a recovery rate of 19.3 % because 59.2 % of the children were recorded as “**movement**” from the A-TFC to the SFC for their final recovery. If those figures are calculated together, it does show a recovery rate of 78.5 %.

The presence of a CRENAM / SFC close to the beneficiary’s home might have had an influence in the discharge criteria and in the length of stay.

The **transfer rate** between the two years shows a huge difference. In 2005, 6.7 % of the CRENA children were referred to the CRENI where in 2006 only 0.4 % of the children. The difference can be explained due to the different seasonal morbidity pattern and through the emergency period in 2005.

The **mortality rate** in South Sudan did not reach the reference value of < 2.0 % was even far below 1.0 %, where in the Niger CRENA it was in both years slightly above (2.7 % – 2.8 %). In general, the mortality rate is influenced by the seasonal morbidity, the arrival time in the centers and the tracing system in place to be able to detect the defaulting reasons (e.g. deaths) within the community. When the system is doubtful like in Marial Lou, it might be that not all deaths were recorded. A child rarely dies during a distribution day.

Niger intervention, the **defaulter rates** decreased in overall after the first months of set up. It seems that with the time the community got used to the system and on all levels a kind of “routine” arrived. A fact is also the close coverage of CRENA within the intervention area.

In Marial Lou the defaulter rates stayed above the reference value (16.3 %) and had the highest records in 2005 (A-TFC and SFC) because of the already stated reasons (see page 21).

The main differences in term of access between Niger and South Sudan:

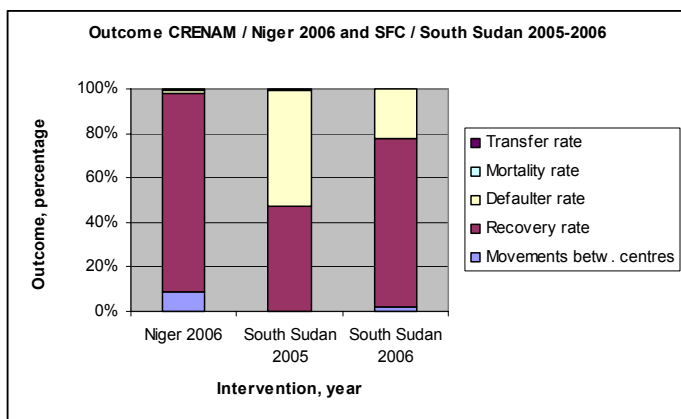
1) Access to the nutritional services:

- Number on implemented CRENA / A-TFC: In Marial Lou a mother was expected to walk one day to the service, where in Niger most of the beneficiaries could reach a CRENA within two hours on foot.
- Road conditions

2) Importance of the harvest period:

- Niger: Community does depend on agriculture.
- Marial Lou: The main resource is still the cattle.

Graphic 8: Comparison between the CRENAM / Niger 2006 and SFC / Marial Lou 2005-2006, annual report data, MSF-CH 2005-2006.



Source: Anita Sackl, August 2007

The **recovery rate** in Niger (excellent) and South Sudan 2006 were good. The rate was extremely low in South Sudan 2005 (47.4 %) with its main impact of the high defaulter rate. In overall, it does seem that a **defaulter rate** between 15.0 and 20.0 % in a decentralized approach can be accepted due to the access difficulties in the rainy season. The rate might be different when more CRENA would be set up. In Niger, the

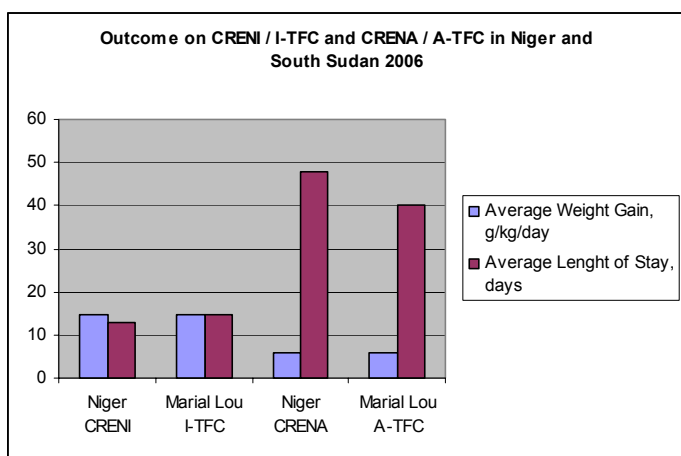
defaulter rates were in overall far below the reference value.

The **movements and transfers** between the nutritional programs were well defined in Niger where it was not recorded for Marial Lou 2005.

All CRENAM / SFC show a low **mortality rate** (0.1 % - 0.9 %). It can be assumed that the referral system worked well.

The outcome on the **average length of stay** and the **average weight gain** between the two contexts do not show major differences and are within the reference value.

Graphic 9: Outcome on CRENI / I-TFC and CRENA / A-TFC in Niger and South Sudan, annual report data, MSF-CH 2006.



Source: Anita Sackl, August 2007

No significant difference between the nutritional outcome (average length of stay and average weight gain) within the CRENI and CRENA setting can be seen. The figures on South Sudan and Niger prove the positive impact of Plumpy Nut in a shorter duration of hospitalisation and a good weight gain.

The data cannot be compared with the year 2005, as not all figures are reported. The same situation is given for the data on the CRENAM in Niger 2006.

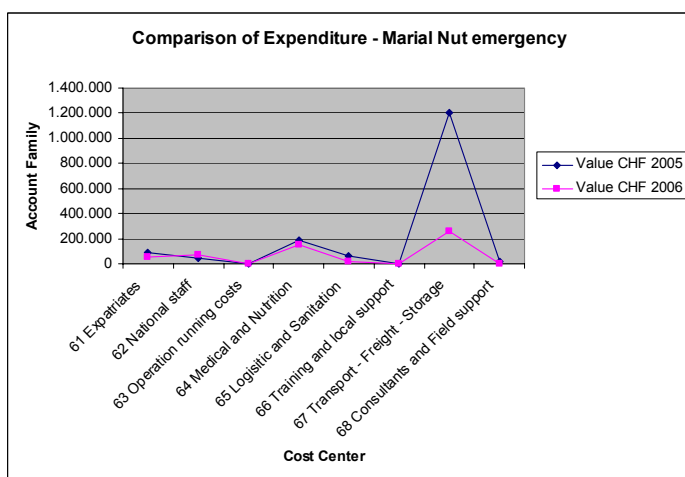
Efficiency

The evaluation objective on efficiency defined should analyse the in- and output of the different interventions. The differences of the costs are immense, and varied between 100.00 CHF per beneficiary in Marial Lou in 2004 and 950.00 CHF per beneficiary in 2005.

The main factor for high costs in 2005 was the transport of food supplies by air, including the nutrition team for supervision from Marial Lou to the areas without car access, to the field during months with the most difficult access. The timing played an important role in terms of cost. The intervention starting within the rainy season created a huge logistical burden (2005).

South Sudan is recognised between all humanitarian actors, as a difficult and expensive country to operate. Due to the access to the location of intervention high costs do appear and did appear in transportation of food supplies and medicine.

Graphic 10: Comparison of expenditures of the nutrition interventions, MSF-CH, Tonj County 2005-2006.

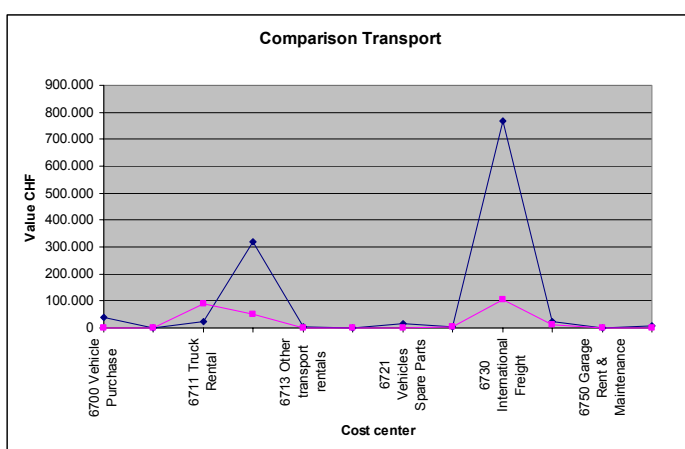


Source: Alnaaze Nathoo, Financial Controller, June 2007

The main costs appeared on transport-freight-storage, as most of the supplies had to be purchased in Europe and transported through Kenya. In 2005, was 75.0 % and in 2006, 47.0 % of the total nutrition intervention costs spent on transport-freight-storage. The difference is immense and does show it within the international freight. 2005, MSF-CH had to order the main food supplies from Europe and did spend 64.0 % of the total costs on it. In comparison to 2006 were only 41.0% spent. The costs on

the purchased food from Bordeaux did not differ.

Graphic 11: Comparison of detailed transport expenditures of the nutrition interventions, MSF-CH, Tonj County 2005-2006.



Source: Alnaaze Nathoo, Financial Controller, June 2007

A further huge difference can be seen related to the inaccessibility of Tonj county by road. Most of the supplies had to be transported by air in 2005. MSF-CH did spend 27.0 % of the total transport-freight-storage costs on plane- and only 2.0 % on truck rental. A year later, 34.0 % were spent on truck and 20.0 % on plane rental.

The second main cost factor was naturally spent on medical and nutritional supplies, which were equal between the both years. Further costs did not show huge difference.

The fact of an early preparation of an intervention can have a main influence in the expenditures. The pre-positioning of food did decrease the transport costs in 2006, as the trucks could be used and

a tractor, purchased 2005, was available. The food stores, MSF-CH invested in at the distribution points could be used a year later again.

The costs on trainings were in both years almost zero (2005: 21.00 CHF and 2006: 00.00 CHF). Even when the national staff must be trained again, it seems that costs in term of material etc. are minimal.

The local transports costs of MSF staff doubled in 2006 with the mobile approach, which did increase the access to the service for the beneficiaries in need.

The total costs can be calculated per beneficiary, but it is due to administrative processes not possible to separate the costs of the different nutritional approach:

Table 5: “Crude” calculation on costs per beneficiary, nutrition interventions MSF-CH, Tonj County 2003-2006 and Niger 2005-2006.

Costs	Marial Lou				Niger	
	2003 (January 1 st – December 31 st)	2004 (January 1 st – December 31 st)	2005 (April 25 th – September 31 st)	2006 (March 24 th – September 31 st)	2005 (July 11 th – December 31 st)	2006 (January 1 st – December 31 st)
Implemented intervention	TFC SFC activities halted	MSF-CH: food pre-positioned, TFC extension was not done	TFC: 1 CTF: 4 SFC: 5 BFP: one round	I-TFC: 1 A-TFC: 5 SFC: 5	CRENI: 2 CRENA: ac. to the need between 8 to 14 centres	CRENI: 2 CRENA: ac. to the need between 8 to 14 centres CRENAM: 3 (included in the above CRENA)
Total costs per intervention (SD122) (by financial department, Geneva)	92,789.00 CHF	20,256.00 CHF	1,612,522.00 CHF	551,833.00 CHF	9,346,772.00 CHF	7,162,284.00 CHF
Total documented number of children admitted (annual report)* Costs per admitted beneficiary (total costs / total beneficiaries)	619 149.90 CHF	292 69.37 CHF	2,503 644.24 CHF **	3,898 141.57 CHF	18,611 502.22 CHF	16,319 438.89 CHF
Subtracting from the total the estimated BFP costs: Total documented number of children recovered	X 481	X 201	1,285,918.80 CHF 1,073,522.00 CHF 1,133	X 2,641	X 11,163	X 15,097
Curative costs per recovered beneficiary: TFC, A-TFC, SFC (total costs / recovered beneficiaries)	192.91 CHF	100.78 CHF	1,134.97 CHF 947.50 CHF	208.95 CHF	837.29 CHF	474.41 CHF
Total documented number of BFP beneficiaries	X	X	5,183	X	X	X
Estimated costs for the BFP***	X	X	326,603.20 CHF 539,000.00 CHF	X	X	X
Preventive costs per recovered beneficiary: BFP (total costs / recovered beneficiaries)	X	X	63.01 CHF 103.99 CHF	X	X	X

* The calculation of costs / admitted beneficiaries does consider all children; not caring about the outcome.¹⁸

** The costs do include the BFP expenditures for 5,183 beneficiaries.

*** The costs for the number of beneficiaries covered with the documented 37,114 kg and 5,302 litre of oil ac. to the **final intervention report**. Following the 70 tonnes reported in the **final logistical report**, which was recorded to have served the BFP. Leftovers were used in Marial Lou and further tones donated to other NGOs and MSF missions.

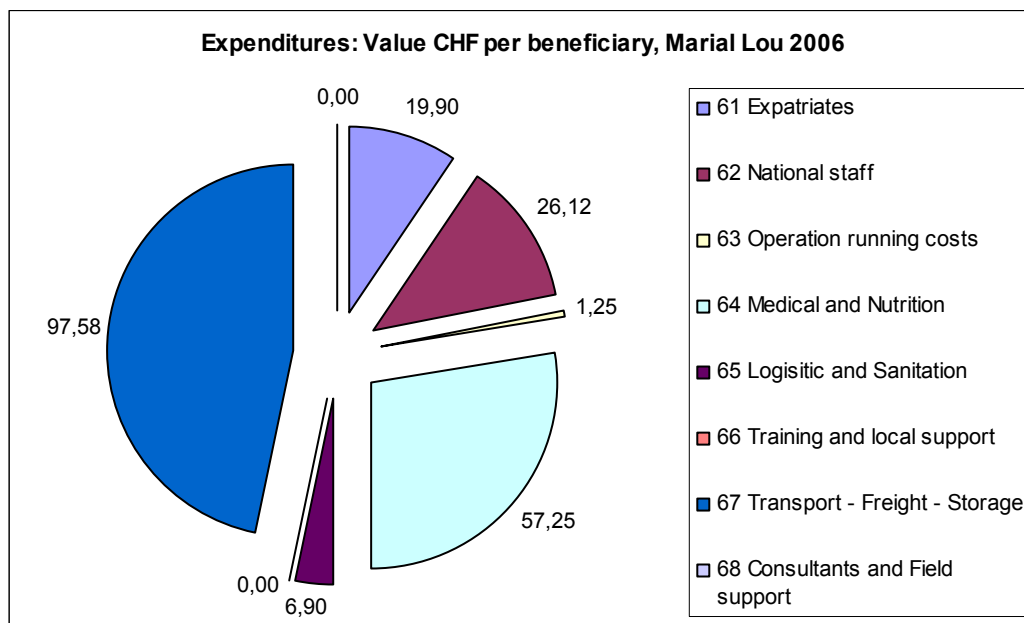
¹⁸ A better source to calculate when the program is still running and children actually admitted in a program.

The cost calculation on costs per recovered beneficiary does give a better understanding on the impact of the nutrition intervention.

The costs of the BFP that took place once in Marial Lou in 2005 are calculated in table 5 as a “crude” estimation. The costs can be estimated with 83.50 CHF per beneficiary in Marial Lou. The costs on the first round within Marial Lou give an idea of possible further costs.

Looking into the costs per beneficiary, e.g. 208.95 CHF in 2006, the total intervention costs can be divided into the same proportions.

Graphic 12: Expenditures per beneficiary, MSF-CH, Tonj County 2006.



Source: Anita Sackl, October 2007

Additional cost details between the different nutritional approaches cannot be calculated for this evaluation, as it is difficult to subtract the costs between the settings.

Nevertheless, it is assumed that a decentralised approach is total cheaper than a TFC due its capacity and needed resources¹⁹. A **decentralised approach** has no admission limits; only the distribution days or teams have to be increased when all beneficiaries are within an accessible and defined geographical area.²⁰ The main costs appear in the set up of the intervention. In a scattered area with a low SAM prevalence, low number of children treated, limited infrastructure and access to the program and the maturity of the emergency intervention, the costs rise due to the number of A-TFCs and it resources needed (e.g. human resources, transport).

The hypothesis: “*the more children are admitted and followed within a decentralised TFC approach the cheaper it is*” could not be confirmed with the **Niger intervention**. The operating expenses in 2005 (e.g. infrastructure, nutrition items, medicine, construction and logistical material, human resources) required massive investments in the first emergency months.

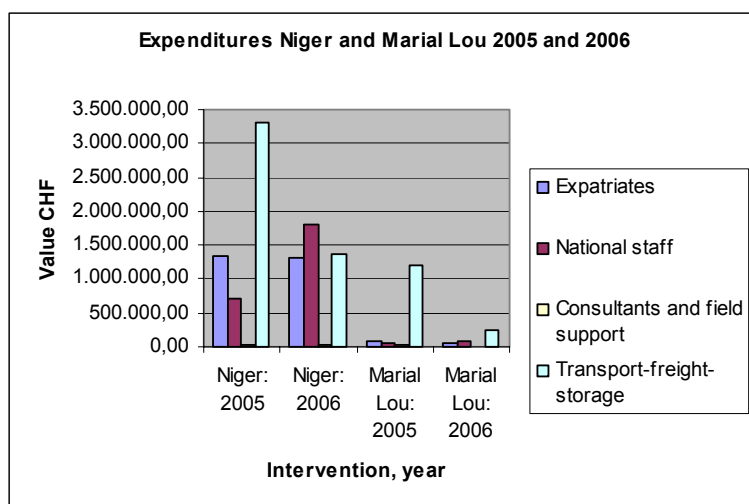
¹⁹ 2004 “ECHO” did report that the costs on a TFC can vary from 115.00 – 150.00 Euros per beneficiary per month up to 350.00 Euro per beneficiary per month treated.

²⁰ “Valid international” confirms that the running costs are stable. The organisation does calculate costs of a CTCs (Community-based Therapeutic Care: equals the A-TFC approach) in Ethiopia with 60.00 Euro / beneficiary (approximately 98.70 CHF) and in South Sudan with 114.00 Euro / beneficiary (approximately 187.50 CHF).

The **human resources management** faced a high rotation within the field- and coordination team during the first mission months. E.g. in 6 months the mission had 5 financial controllers. Each person coming in produced additional costs in plane tickets and visa. MSF-CH answered the urgency but had to call personnel (e.g. with a maximum of 65 personnel presence at the beginning of October) due to the difficulty to recruit national staff at the emergency stage.

The huge need on human resources in 2005 (total of 66 expatriates and 610 local staff) decreased in 2006 to one third on expatriates (total of 20) and two third on local staff (total of 440). After the emergency phase trainings were contacted and the relocated- and national staff are today trained and even upgraded to supervisors. The difference can be seen in the different expenditures on expatriate- and national staff.

Graphic 13: Comparison of expenditures within the nutrition interventions, MSF-CH, Niger and Tonj County 2005-2006.



Source: Anita Sackl, October 2007

The expenditures on expatriates in 2005 and 2006 differ 30,216.00 CHF (2005: 1,340,354.00 CHF and 2006: 1,310,138.00 CHF) where the national staff costs increases to more than a half of the 2005 costs (2005: 703,983.00 CHF and 2006: 1,809,270.00 CHF).

In overall were in 2005 21.9 % of the total intervention costs spent on human resources where in 2006 those were 43.6 %. Attention to the figures has to be taken as the costs cover 2006 a

complete year where 2005 the months from July to December 2005.

According to the number on international- and relocated staff in Niger also the working places and living compounds were needed. MSF-CH did rent six houses in Zinder and one office-house in Niamey plus a house and office in Magaria.

The costs on human resources in Marial Lou varied from 8.7 % (2005: 139,923.00 CHF) to 22.0 % (2006: 121,334.00 CHF) of the total expenditures. In the Marial Lou interventions the recruited staff from Europe or Kenya used the living- and office compound of the regular project.

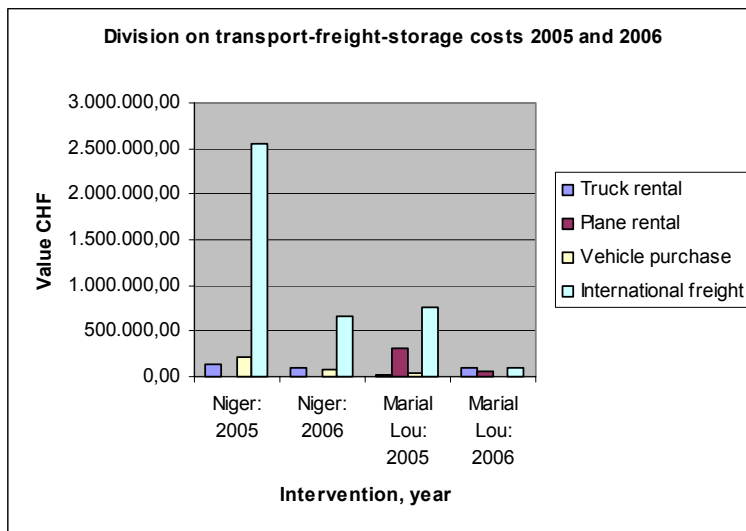
Finally, it has to be mentioned that in 2005 were 39,187.00 CHF (0.4 %) of the total intervention costs and 2006 14,746.00 CHF (0.2 %) spent on **field support** from headquarters staff. The annual report 2005 states a total of 14 people from headquarter who visited the field.

In Marial Lou 2005 the costs were minimal and even zero in 2006.

The **main part of the intervention costs** were in both contexts spent on **transport-freight-storage**. In Marial Lou 2005 74.0 % of the total intervention costs were spent on where 2006, due to reasons already stated, those could be reduced to 47.0 %. In Niger the costs spent on in 2005 were approximately two third higher than in 2006 (2005: 3,299,095.00 CHF (35.3 %) and 2006: 1,378,740.00 CHF (19.3 %).

The details on the transport-freight-storage costs are graphically distributed as such:

Graphic 14: Division on the expenditures of the transport-freight-storage costs, MSF-CH, Niger and Tonj County 2005-2006.



Source: Anita Sackl, October 2007

The **international freight** costs in Niger 2005 were 77.3 % of the total transport-freight-storage costs (2,548,967.00 CHF) and 2006 48.5 % (668,194.00 CHF). Within the Marial Lou experience the costs could be decreased through pre-positioning and preparation (2005: 768,817.00 CHF (64.0 %) and 2006: 105,118.00 CHF (41.0 %)). In Niger the figure shows clearly the costs spent on an emergency in a context MSF-CH was not present

before. A year later the costs could be decreased to more than 50.0 %.

The annual report 2005 reports in average 29.4 cars per month rented from August to December in addition to the 9.8 trucks per month for the supply transport (no food rupture was reported within the Niger interventions).

In November 2005, MSF-CH bought 8 vehicles. 204,564.00 CHF were spent on **vehicle purchase** in 2005 where in 2006 the costs could be reduced to 83,498.00 CHF (40.8 % of 2005s cost). The amount on CRENA settings does have an impact in the transport and fuel costs of a mission. In Marial Lou were 2005 4.8 % (3.0 % on vehicle purchase: 39,498.00 CHF) and 2006 1.2 % (no vehicle purchase costs) of the total transport costs spent on vehicle costs, which includes car rentals, maintenance costs and spare parts.

The **truck rental** costs between both intervention years in Niger did not differ a lot (2005: 133,871.00 CHF and 2006: 104,600.00 CHF). In South Sudan the costs differed highly between truck- and plane rental. MSF-CH spent 27.0 % (2005: 320,753.00 CHF) and 20.0 % (2006: 51,009.00 CHF) of the total transport-freight-storage costs on **plane rental** in that opposite the costs on truck rental increased in 2006. In overall were the transport costs (truck- and plan rental) in 2006 only 40.7 % of the 2005s costs.

According to the financial department no plane had to be rented for Niger.

The **therapeutic food** used in Niger was on an equal proportion (2005: 2,450,619.00 CHF (85.2 %) and 2006: 1,749,092.00 CHF (84.5 %) of the total intervention costs. In addition MSF-CH received 2005 12.2 % of their total food distributed from UNICEF (3,000 recipients) according to the annual report. The same can be seen on **medicine** costs (2005: 409,880.00 CHF (14.2 %) and 2006: 269,593.00 CHF (13.0 %)).

Niger was placed as a vertical nutritional set up and when a child was referred to the local health care system, MSF-CH had to pay for the treatment. Since July 2007 the treatment for all children less than 5 years is for free. Additionally were in the third quarter of 2006 mosquito nets distributed (1,120 piece and 6,280 did stay in the store).

In Marial Lou some costs on e.g. training and medicine were on the regular budget and some resources (e.g. cars, training material, and referral of sick children to the paediatric ward) could be

used from the regular project too. The costs spent on food and medicine in both years does not vary a lot (2006 31,684.00 CHF less than 2005).

The quality of engagement with the **target communities** is a vital determinant for the success of a community based program. The specific costs on it spent in the two contexts are difficult to calculate or even estimate.

Only a good community mobilization is effective for the case detection and the quality of the decentralised approach.

Conclusion

The main interest in this evaluation has been the comparison of traditional with new ambulatory approaches in nutrition programs. A significant difference in the nutritional outcomes, since the introduction of RUTF, can be seen in I-TFC settings (increase of the average weight gain and decrease of the average length of stay). As decentralised approaches were set up with the time of RUTF introduction, a comparison cannot be drawn in these contexts.

The main advantage of the ambulatory approach is the easier access for mothers with their malnourished children. An improved defaulter rate, which is an indicator for the acceptance of and the access to the program, could only be demonstrated in Niger 2006.

The intervention criteria, as described in the MSF nutrition guideline each year's version, have been applied in the local BeG context of Tonj county. Except 2004, the survey reported outcomes beyond the threshold and the team invested in outreach and supply pre-positioning for a possible intervention. However, it seemed an extended intervention in term of outreach was at time not considered as necessary by the team.

The **added value of regular nutritional surveys was not proven**, especially for the autumn surveys, which took place two months after the intervention closed and at a time, when the harvest just arrived in the households. MSF-CH decided to focus on the survey done approximately around March each year, but the comparison from year to year is limited as surveys were not done at the same time.

Food security indicators that were specifically developed for the South Sudan context by a nutritionist in 2003 **were not used** in the following years; the indicators could have supported the prediction for the coming hunger gap next to the performed survey.

The fact that **high under five mortality data** (retrospective 3.0 %) in an Epicentre survey 2005 did not trigger any further MSF investigation or response raises some questions on the utility of such studies.

The strategies with an increasingly decentralised approach were an appropriate development.

Decentralised approaches did allow a broader catchment than in the past years. However, the data to confirm this by looking at places of origin were not available. In the 2003 and also 2004 set up, it can be assumed that by far not all malnourished children had access to care because of distance and access problems. The decentralised approach with A-TFC and SFC, performed 2005 and 2006, minimized the geographical barriers to access the service in Sudan and Niger.

The A-TFC approach reduces inpatient caseloads to more manageable levels. Further, it does help to decongest crowded inpatient units; it decreases the risks of nosocomial infection and increases the time available to staff to devote to the sickest children. However, when most of the severely malnourished children are sick and in need of a close medical follow up, the referral (or lack of referral options) to hospital / TFC becomes a serious problem.

The fact that mobile teams cover some times high number of children in a very limited period of time again raises concerns about the quality of care under these conditions. Looking at the experience one could estimate that one decentralised centre cannot attend more than 150 children per day.

The estimated number on beneficiaries expected to attend in an ambulatory- or internal TFC setting depends highly on pathologies and the decentralised set up implemented. The proportion estimated for Marial Lou in 2006 were one third for I-TFC and two third for the A-TFC, finally it worked out to be close to equal.

The BFP, done once in Marial Lou, was welcome by the community. The BFP was a good preventive component, although it came rather late during the hunger gap. The huge logistical investment has to be taken in consideration. Next to the BFP the SFC has also a preventive option, minimising the risk of children in need of therapeutic nutritional care.

Timeliness of interventions was not analysed in detail, but was a great concern in 2005, where first alerts had been raised already in late 2004, and poor preparedness influenced the outcome on the decentralised approaches and finally increased the intervention costs.

The **outcome indicators**, e.g. length of stay and weight gain, were within reference values in all of the nutrition settings. The average lengths of stay (~ 14 days) and the weight gain (~ 14.7 g/day) within the CRENI did not show a difference between Niger and Marial Lou. Looking at the past outcomes of a TFC setting the length of stay could be shortened and the average weight gain increased where it is assumed that the introduction of Plump Nut had its impact.

Mortality rates in the TFC used to be high in Marial Lou (6.0 % in 2003, 7.3% in 2004) and could be reduced through quality improvements to 4.1 % in 2005 and 2.5 % in 2006. In Niger, TFC mortality was also high with 6.6 % in 2005, and 8.9 % in 2006. The Niger project team does still invest in activities to minimise the high mortality rate within the CRENI, especially within the settings close to the Nigerian boarder.

The mortality data within the decentralised settings in Marial Lou seem unreliable (very low with almost 0.0 %), because of the limited tracing data available for the evaluation and the difficulty to follow up how far tracing took place during the intervention years. Mortality in the ambulatory settings in Niger on the contrary was slightly above the reference value (2.0 %).

Nutritional outcomes depend a lot on the seasonal morbidity of the under-5 year old children. E.g. the cases on Malaria and diarrhoeal diseases in Marial Lou increased within the months of the rainy season and already moderate malnourished children were on a high risk to get severely malnourished. So far no preventive measures have been provided.

The defaulter rates in Niger were far below the reference value where in Marial Lou defaulter rates were generally beyond the reference value with its highest extent in 2005 (52.2 %) in the taken decentralised approach. The main influencing factors were the limited community mobilisation, the difficult access and intervention timing and –preparation. Due to distance and acceptance, it seems a certain higher defaulter rate level has to be accepted. Referring to outcome data other nutritional actors in the BeG similar defaulter rates are found (between 15.4 and 17.3 %).

Coverage can only be estimated on the basis of nutritional survey data. However, one has to keep in mind that often the nutrition surveys covered a wider area than the consequent nutrition intervention did with its set up. In Marial Lou the distance for mothers to reach a facility was up to a day of walk, where in Niger most of the mothers could reach the service within a two hours walk. Seen the Marial Lou approach with its dispersed population living in small and poorly demarcated communities more set ups would have been necessary, where in the Niger intervention more set up were done and even kept flexible to the needs.

The main difficulty in the 2005 intervention in Marial Lou was the access to the community. The rainy season and the bad road condition did limit the program success on both sides: beneficiaries and MSF-CH. MSF-CH learned lessons and an early prepared took place for 2006. These two experiences show the importance of timing for the preparation and community mobilisation. An

intervention threshold for the BeG context could be defined with e.g. a GAM of 20.0 % Z-score but additional food security information are needed to take the intervention decision.

The **cost difference** within the two interventions in Marial Lou is huge and it confirms that an earlier preparation does not only assist in the population access and its mobilisation but reduces also the final costs dramatically.

The costs to raise in an emergency context, however, the huge costs spent in Niger 2005 should be reflected, especially in term on human resources turn over.

The costs of a decentralised approach depend highly on the environment. The resources (human resources, cars/transport and logistical input) and efforts needed to reach beneficiaries vary a lot between urban or semi-nomadic settings.

Recommendations

The complexity of the BeG context and the comparison with the Niger data provides recommendations for the support of future nutritional interventions.

Operational recommendations:

1. The **surveillance system** should always include a regular follow up of food security indicators defined for the specific context. A nutrition survey can complete the data and provides the necessary information to decide on the need for intervention.
For the use of nutrition survey in term of comparison the surveys have to be conducted within the same periods each year. Considering the preparation time for an area like Sudan / BeG in, the nutrition survey should be done in February.
2. The preparation for an intervention, (e.g. human resources, training, screening, supply order, store inventory, pre-positioning of supplies) especially in an area with difficult access, must start before emergency nutritional thresholds are reached. E.g. for the Marial Lou context, an alert threshold e.g. of a GAM on 20.0 % Z-score can be discussed and the qualitative assessment (surveillance on food security indicators) data taken into consideration.
3. The set up of a **decentralised approach**, depending on security concerns, has to be given priority in future. The main factors to consider before an A-TFC / CRENA set up are: the prevalence of SAM, the morbidity burden of SAM patients, the village distribution with its population size and the access to the service for the beneficiaries and the nutrition team (e.g. road condition, flooded field and rivers to cross).
A **good balance** has to be found between those factors and the needed resources (e.g. human-, financial- and logistic resources) for each context. The use of the local infrastructure (e.g. PHCC/U) does minimise the set up costs within the decentralised approach.
4. In a context where a high seasonal morbidity burden e.g. on Malaria can be foreseen and most of the children will be in need of a close medical follow up, the set up of additional / decentralised I-TFC has to be considered. The decision will depend on the local infrastructure and the possibility of regular access to the distribution sites. **Alternatively a reliable referral system for sick children could be considered.**
5. For any future analysis of the costs of different nutrition approaches a separate allocation of costs (e.g. to I-TFC and A-TFC) should be considered from the start.
6. To maximise the local / regional **human resource potential** (e.g. Niger 2005), appropriate training has to be conducted and responsibility handed over as soon as possible. This will help to improve program quality and save costs.
7. **The mobilisation of and communication with the beneficiaries and the local authorities is the “key” for any decentralised approach.** MSF-CH teams setting up an intervention have to be very well aware of the traditional community network.
Important sources are the **outreach staff** for active case finding, defaulter tracing and message distribution. Next to a well implemented strategy, they need proper working equipment (e.g. gum boots, rain coats, sign to be identified as MSF worker) when they are expected to move during the rainy days the same distance like the mothers. The age, gender

and status of the employed persons, especially outreach workers, has to be carefully reflected within the traditional context.

8. After an intervention the responsible coordinator should analyse and summarize the activities and outcome data to be able to **capitalise on the experience** and lessons to learn for the next interventions.
9. The **BFP** should be considered as a preventive option for vulnerable community members when a GFD is not in place. It can increase the coverage when the distributions are implemented equally within an intervention radius.
10. If reliable intervention coverage is needed a coverage survey (new methodology from “Valid International” for the estimation of program impact) should be carried out.
11. Care should be given to the daily number of children followed in a decentralised setting, as it does influence the **quality of care** provided (no more than 100 – 150 children per day). If the number on beneficiaries is higher a second distribution day or a second team must be considered. This will also reduce the waiting time for mothers and increase the acceptance.
12. Preventive measures, particularly mosquito nets distributions should be considered during nutritional crises, as this can relatively easy show an impact on childhood morbidity and mortality.

Future policy recommendation:

1. In both contexts (Niger and South Sudan) do chronic nutritional problems exist and it is challenging to imagine the long term response of MSF to these needs. MSF may want to consider to speak out about the underlying structural problems and their tremendous consequences on health and infant mortality, as e.g. improvements in term of agricultural activities for its citizen are not within the MSF mandate.
2. MSF should support the introduction of RUTF in the national primary health care strategies. As nutrition is part of the primary health care component in terms of growth monitoring and health education, a preventive- and treatment component through RUTF should be included. This process does need investment in training (e.g. local health staff) and a close collaboration with the MoH.
3. RUTF must become affordable for the families and governments. MSF (possibly together with “Valid international”, who are already active in this sector), should lobby for local RUTF productions and its improvement in quality and preservation.

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- 11) An introduction to food security and nutrition issues in Tonj County, MSF-CH nutritionist, South Sudan, July 2003
- 12) Nutrition Survey, Tonj County, Lakes Region, South Sudan, MSF-CH, November 2002
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- 23) Internal report, yearly follow up report of primary health care, MSF-CH, Tonj County, South Sudan, January-December 2003
- 24) Yearly report Marial Lou hospital, MSF-CH, Tonj County, South Sudan, January-December 2003
- 25) Primary health care program, interim progress report from June 2003 to February 2004, MSF-CH, Tonj County, South Sudan, March 2004
- 26) Evaluation research: Primary health care units and Marial Lou hospitals outpatient department, MSF-CH, Tonj County, South Sudan, February 2004
- 27) Project quarterly follow-up report, Marial Lou, South Sudan, MSF-CH, January to June 2004
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- 29) Evaluation of the nutritional surveillance activities of ACF-US and analysis of the nutritional situation in South Sudan, Action against Hunger, 2004
- 30) Emergency Nutrition Network (ENN), Community-based Therapeutic Care (CTC), compiled and edited by Tanya Khara and Steve Collins, Valid International, Special Supplement Series, No. 2, November 2004
- 31) Medico-nutritional and food security investigation between different humanitarian actors, Athoc area, South Bor County, July-August 2005
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- 40) Country policy paper, MSF-CH, Nairobi coordination, September 2005
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- 53) Documents on statistic (specific reports or annual reports), MSF-CH, 2003 – 2006
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- 55) Follow up of received communication mails and situation reports between the field, coordination and headquarter



TERMS OF REFERENCE

Evaluation on nutritional interventions

A23

Name of the person:	Huub Verhagen
Function:	Program Manager of desk 2
Country:	South Sudan
Mission:	Maria Lou, Bahr el Ghazal, South Sudan
Date of departure:	March 2007
Duration:	6 to 8 weeks (March – April 2007)
TOR elaborated by:	Huub Verhagen, Valerie Captier, Susanna Cristofani and Anita Sackl
Date:	05.03.2007

I. CONTEXT AND GENERAL OBJECTIVE OF THE EVALUATION

1997, MSF-CH established Maria Lou hospital (Bahr el Ghazal, South Sudan) with the aim to response to the consequences of war and its effects on the civilian population. The activities served the needs of displaced populations, recurrent malnutrition crises and a deterioration of the general health status. Before MSF-CH arrived, the population had insufficient health services available with no life saving surgery.

Besides the preventive- and curative health care MSF-CH provided, the nutritional situation of the population stayed unstable throughout the years. After the famine 1998, MSF-CH responded to the recurring nutritional crisis in the county (2003, 2005 and 2006). As each year a hunger gap period appeared, regular nutritional- and food security surveys were implemented before and after the periods. The strategy allowed foreseeing and reacting according to the nutritional need.

The targeted population are mainly of the Dinka tripe (97.0 %) and pastoralists. The main source of livelihood is livestock with a very small percentage engages in farming.

General objective

The purpose and main objective of the evaluation is to analyse the different nutritional strategies¹ performed in the past years (2003-2006) in term of appropriateness, effectiveness and efficiency and to identify the recommendations for future similar contexts.

II. SPECIFIC OBJECTIVES

- To assess the **appropriateness** of the nutritional intervention in the specific context (MSF guideline)
- To analyse the specific factors of influence in the environment of the set up (e.g. problem of regular hunger gaps, dependency, coping mechanism)
- To evaluate the **effectiveness** of each intervention in term of objectives
- To perform a **efficiency** analysis of the different interventions (input- and output)
- To elaborate recommendations for future nutritional interventions

¹ According to the strategies of the MSF guideline

III. KEY QUESTIONS

- Were the implemented strategies **appropriate** towards the MSF nutrition guideline?
- How **appropriate** were the different interventions to the context and local environment? Did the interventions reach the beneficiaries (access to the intervention)?
- Did the community accept the approaches?
- Were the implemented activities **effective**?
- What were influencing factors of each intervention and where were difficulties faced with the stakeholders / authorities?
- What was the **efficiency** of the different nutritional interventions in term of input (including appropriate used resources) and output? How did the costs differ between the different interventions?
- What are recommendations for future nutritional interventions in a similar context?

IV. IMPLEMENTATION OF THE EVALUATION MISSION

1 evaluator for 6 weeks, including a conducted field visit of approximately 14 days

V. EXPECTED RESULTS

A debriefing will be done at all levels. A written evaluation report (25 pages maximum) in English should be handed in.

The results should be discussed at the medical- and operational department in Geneva.

VI. METHODOLOGY

- 1) Document review on the nutritional interventions in the years 2003 – 2006: country policy, background information, nutrition policy, nutritional surveys, intervention proposals, field visit reports, end of mission report of each intervention including the statistical data and budget, additional nutritional reports of other humanitarian actors etc.
- 2) Key interviews with
 - MSF HQ (desk managers, medical department) and -capital coordination
 - Expatriates leading the nutritional interventions (2005 and 2006)
 - Expatriates leading the nutritional intervention 2003 (limitation!)
 - Expatriates in the field during the hunger gap period 2004 (limitation!)
 - Medical staffs at all level (MSF and local health staff in Maria Lou and surrounding locations involved in the past interventions)
 - Authorities at field- and capital level (Ministry of Health)
 - World Food Program and further humanitarian actors in the field
- 3) Focus group discussion with (depending the possibility and situation faced in the field)
 - Community leaders
 - Women/mothers
 - Men
- 4) Field visit of approximately 14 days

For the interventions 2003 and 2004, the focus of the methodology will lie on the documentation and field visit.

The limitations foreseen for the methodology are:

- Difficulty to find personnel (national- and international staff (expatriate)) worked in the different nutritional interventions.
- The more in the past the intervention lays the less value has the interview, as based on the memory: recall of “extremes”.
- Most of the interview partners will be invited to the interview by phone through an introduction letter to the topic. It is up to the expatriate (e.g. international staff) to respond; nobody can be forced. The question will be based on the position the person occupied in the field.
- Availability of the reports concerning each intervention periods.

VII. BUDGET

Estimated evaluation costs: **8.391,00 EURO**

The estimation was calculated due to possible foreseen costs. It does not guarantee price changes of flights in the field and new additional administrative costs.

Costs (base of one evaluator)	Euro (estimation including currency: 20.02.2007)
Flights (Vienna-Geneva-Nairobi-Maria Lou)*	3.500,00
Visa double entry for Kenya	86,00
Hotels (estimated 3 nights in Geneva)**	255,00
Field costs (e.g. workshop, additional administrative costs)	200,00
Salary (gross) for 6 weeks and per diem (field)	3.850,00
Further unforeseen costs	500,00
TOTAL	8.391,00

* Including return and the flight Vienna-Geneva-Vienna for the result presentation

** Nairobi: expected guesthouse

VIII. VALIDATION

The desk 2 initiates the evaluation and is the owner of the evaluation with following requirements: The desk 2 in collaboration with the operational director and the nutrition specialist at the medical department will do the validation.

Further responsibilities of the desk management are the support (e.g. provision of reports to the evaluator, assistance in the contacts to interview partners, especially for phone interviews) and follow up of the evaluation process.

IX. REMARKS

X. PROFILE OF THE PERSON(S)

Qualification: Nutritional experience in different settings, including MSF- and evaluation experience

Language: English

Duration: 6 weeks, including the field visit

XI. REFERENCE DOCUMENTS

- ❑ Nutritional surveys available by MSF-CH and other humanitarian actors
- ❑ Nutritional intervention proposals (as far as available)
- ❑ End of mission report on the interventions (as far as available)
- ❑ Statistical data
- ❑ Country policy documents (South Sudan)
- ❑ Agreement documents with partners
- ❑ Report (s) of field visits by coordination, nutrition experts and medical department
- ❑ Nutritional policy of MSF

List of interviewees for key interview:

Date 2007	Code of interviews	Position	Location	Language
23.3.	ML01	MSF-CH: Medical department personnel involved 2005	Geneva	English
23.3.	ML02	MSF-CH: Logistician involved	Geneva	English
24.3.	ML03	MSF-CH: Nutrition coordinator 2005/2006	Geneva	English
26.3.	ML04	MSF-CH: Logistician 2005	Nairobi	English
26.3.	ML05	MSF-CH: Med-coordinator 2005/2006	Nairobi	English
29.3.	ML06	MSF-CH: Hospital administrator	Marial Lou	English
29.3.	ML07	MSF-CH: TFC medical assistant	Marial Lou	English
29.3.	ML08	MSF-CH: TFC nurse	Marial Lou	English
29.3.	ML09	MSF-CH: TFC nurse	Marial Lou	English
30.3.	ML10	Sub-chief and Sultan	Kacuat	English Dinka
30.3.	ML11	MSF-CH: SFC 2006	Marial Lou	English
31.3.	ML12	CCM: CHW since 2000 in the community	Ngabakok	English
31.3.	ML13	Payam administrator	Ngabakok/Wunlit	English
02.4.	ML14	Payam administrator	Langkap	English
02.4.	ML15	MSF-CH: SFC/ATFC 2006	Langkap	English
02.4.	ML16	CCM: CHW	Langkap	English
02.4.	ML17	MSF-CH: SFC/ATFC 2006	Langkap	English
02.4.	ML18	Payam administrator and his assistant	Akop	English
02.4.	ML19	CCM: CHW	Akop	English
03.4.	ML20	Payam administrator	Paliang	English
03.4.	ML21	CCM: CHW (previous NHCW)	Paliang	English
03.4.	ML22	MSF-CH: SFC/ATFC 2005 and 2006	Paliang	English
03.4.	ML23	Comboni: head of field project	Marial Lou	English
03.4.	ML24	VSF Belgium	Marial Lou	English
03.4.	ML25	MSF-CH: Midwife	Marial Lou	English
05.04.	ML26	WFP	Juba	English
10.04.	ML27	MSF-CH: Nutrition coordinator 2005	Interview by phone call	English
13.04.	ML28	MSF-CH: RP desk 2	Interview by phone call	English
16.04.	ML29	MSF-CH: nurse 2002 – 2006	Interview by phone call	English
16.04.	ML30	MSF-CH: Medical coordinator 2006	Questionnaire and communication by phone call	English
16.04.	ML31	MSF-CH: Head of mission 2006	Phone interview	English
18.04.	ML32	MSF-CH: Medical coordinator & first months assistant: 2003/2004	Phone interview	English
20.04.	ML33	MSF-CH: Nutrition nurse 2006	Questionnaire	English
21.05.	ML34	MSF-CH: National staff member in different positions from 2003 – 2005	Questionnaire and email communication	English
25.05.	ML35	MSF-CH: HoM 2005 – 2006	Interview by phone call	English
31.05.	ML36	MSF-CH: Nutritionist	Feedback conversation by phone call	English
12.06.	ML37	MSF-CH: Logistician 2002 – 2006	Interview by phone call	English

Taken as possible approach, as the phone line was not working enough for a smooth interview and clear understanding

List of group discussions participants:

Date 2007	Code	Participants	Position	Location	Languages
29.3.	MLG01	7 women	Women admitted at the TFC in Marial Lou Rural Hospital	Rualbet (4) Wuncuei (1) Paliang (1) Majak (1)	English Dinka
31.3.	MLG02	8 women	Women with children from Ngabakok and 2 surrounding villages	Ngabakok	English Dinka
31.3.	MLG03	12 women	Women from Wunlit	Wunlit	English Dinka
02.4.	MLG04	10 women	Women of different villages (Langkap, Mangol and Maral)	Langap	English Dinka
30.3.	MLG05	CCM staff	Field coordinator and staff of the CCM, Kacuat	Kacuat	English

Summary outline of the nutrition interventions between 2003 and 2006, MSF-CH, Tonj County 2003-2006

ANNEX 3

Year	Intervention (location)	Duration	Total no. beneficiaries	Budget (CHF)	Main constrains
2003	TFC: 1 (Marial Lou) for 150 children SFC: 2 (at PHCUs: Akop and Langkap) before the month of hunger gap; another SFC in Marial Lou was planned to be open in June	March to October (good harvest, leaving some surplus in some payams) No detailed date found!	619	92,789.00	* Activities in the SFCs had to be stopped, as no food was delivered by WFP. Reports stated to lobby for other agencies to provide food for the SFP but it seemed did not succeed. * Security constrains did led to reductions in team movements and team numbers.
2004	TFC and pre-positioning of food in case the nutrition ward must be extended; outreach activities were set up	Outreach activities during hunger gap months.	292	20,256.00	The nutrition survey (May) with its food security parameters did not lead to an interventions. The main recommendation was to strengthen the outreach activities. The figure in the nutrition unit did remain steady (average of 20 to 30 children) until October. The survey in November did show a good result but the food security indicators and reports of humanitarian actors in BeG did state that the delayed and erratic rain did destroy most of the harvest. The field team did foresee an intervention for early 2005.
2005	TFC: 1 (Marial Lou): 6 tents for a capacity of 120 beds CTF: 4 (Ngabakok, Paliang, Akop, Marial Lou) SFC: 5 (Marial Lou, Langkap, Akop, Ngabakok and Paliang); Aliek was added in July because of clan clashes with Langkap active screening in the periphery 1 round of BFP for children (<5 years), pregnant- and lactating women WFP did some GFD via air dropping 2 SFCs: Islamic Relief (Warrap) & WVI (Thiet)	April 25 th to September 31 st Opening of TFC in April (April 18 th 106 children were admitted) 1 st SFC week 19 in Marial Lou, followed by SFCs in Langkap and Ngabakok in week 20 and in week 22 Paliang, week 23 Akop, also the CTF was introduced in the PHC programs of Marial Lou, Paliang, Ngabakok and Akop BFP during first days in August	2,503	1,612,522.00	* Food storage: tried to collaborate with the local community, who did ensure the storage by May but finally MSF-CH (meanwhile stored at PHCUs) had to do it. * Langkap: SAM referred to Marial Lou because of the bad quality of the PHCU and faced soon its limits in the transport capacity. * Difficult access to the distribution sites because of the road conditions
2006	I-TFC: 1 (Marial Lou) A-TFC: 5 (Marial Lou, Ngabakok, Paliang, Akop and Langkap) SFC: 5 (Marial Lou, Ngabakok, Paliang, Akop and Langkap)	March 24 th to September 31 st SFC start: end of May until the last session on September 17 th	3,898	551,833.00	* Road conditions and rain did interrupt the activities * Unreliable transportations in term of flights (e.g. land able airstrips due to rain) and cars (e.g. shortage of drivers, technical car problems) * Low education level of nutrition assistants (?) in Akop * Problem of statistic report form

Useful food security indicators and what they can tell us:

Indicator	What does it tell us?
Milk competition	If this competition is held (July/August) it means that the population (or local authority) feels that the nutrition situation is okay. The competition is banned when there is a nutrition problem.
MUAC data	<ul style="list-style-type: none"> Regular monitoring of MUAC data from a number of different sources such as the hospital, the PHC sites and also the EPI mobile team gives us a picture of the nutrition situation and how it changes over time. Comparison of this data gives useful information on how good or bad the situation is compared with other years. The proportion of red MUAC tells us very roughly the proportion of severe acute malnutrition in the population (underestimation). The proportions of green, yellow, orange and red in comparison to each other tells us overall whether the situation is getting better or worse.
Livestock disease outbreaks	If a large number of animals are sick or die it reduces the ability of the population to sell their assets in times of crisis.
Number of admissions in the TFC	This tells us something about how much malnutrition there is in the population. This data should be used in conjunction with the MUAC data from the community as the number of admissions in the TFC is influenced by distance, knowledge that the service exists and also acceptability of the TFC to the community.
Where are the admissions coming from?	Monitoring where the admissions in the TFC are coming from can give us valuable information about where the nutrition problems are located as not all areas are usually affected to the same degree. It is important to note that the EPI mobile team brings many admissions and therefore their movement should be taken into account when looking at the data.
Rainfall	Is the rainfall following the "usual" pattern? This affects the planting time and therefore the harvest time. Dry spells should also be noted as depending on their timing, it could seriously affect the size of the harvest.
Number of food drops and who are they for	WFP usually drop food only for the IDPs. If they drop for the general population then this should be taken as an indication that the nutrition situation is serious.
Wild food usage	Some wild foods are only eaten in times of famine. The proportion of wild food in the diet changes during the year and dependent on availability.
Monitor the harvest and see how closely it is following the calendar	The timing of planting can affect the timing and size of the harvest.
Regular nutrition surveys (April and November)	<ul style="list-style-type: none"> Comparison with previous years as well as with 'good years' (such as 2001) gives us a good indication of the nutrition situation. A severe malnutrition rate more than 3% is serious as is a global acute malnutrition rate of more than 20%. An acute rate more than 10% indicates that preparation measures should be taken. The figures obtained in April should be expected to increase as the hunger gap progresses. The figure in November should have decreased substantially compared to the April figure as the harvest is in September and food is plentiful.
Market prices and availability	The price of different food items and how it changes over time can give us valuable information about the population's access to food. Once the price goes up people may no longer be able to afford it and therefore they have no access even if it is available.

SEASONAL CALENDER - TONJ COUNTY, SOUTH SUDAN

CROP PRODUCTION	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Season	DRY	DRY	DRY	DRY	RAIN	RAIN	RAIN	RAIN	RAIN	RAIN	RAIN/ DRY	DRY
Maize					P		H	H				
Sesame					P		H	H				
Okra					P		H	H	H	H	H	
Pumpkin					P		H	H				
Sorghum					P				H	H		
Groundnuts				P	P		H	H	H	H	H	H
Tobacco	H							Nursery	N	N	N	H
Livestock Movement	CC	CC	CC	CC				HG	HG		CC	CC
Trade/ exchange	T											T
Meat	C				FFW	FFW	FFW	FFW			C	C
Fishing		DP	DP	DP						SR	SR	SR
Wild Food	WF	WF	WF	WF					WF		WF	WF

LEGEND:

P	planting	C	ceremonies
H	harvesting/ usage	FFW	food for work
WF	wild foods available	DP	drying pools
CC	cattle camps	SR	seasonal rivers
HG	higher ground	N	nursery
T	trading		

Sophia Dunn, Nutritionist, MSF-CH, July 2003 (crosschecked during the evaluation period, calendar still valid)

Summary of followed criteria during the different nutrition interventions, Tonj County, 2003, 2005 and 2006

ANNEX 6

Action	2003	2005	2006
Nutrition- and medical treatment	MSF Nutrition Guideline, revised draft May 2002	A-TFC, MSF Guideline version 1, March 2005; a further new nutritional guideline was introduced in January 2005.	Specific prepared protocol for the nutrition programs in Marial Lou: I-TFC, A-TFC and SFC, MSF-CH, March 2006
Criteria followed for TFC	<p>Admission: Children: 6 months to 10 years (65 – 130 cm)</p> <ul style="list-style-type: none"> • W/H < 70 % • Bilateral oedema • W/H < 75 % with associated severe pathologies • MUAC < 110 mm (> 1 year or > 75 cm) <p>Discharge: Children: 6 months to 10 years (65 – 130 cm)</p> <ul style="list-style-type: none"> • If no SFC, W/H > 85 % for 1 week • If SFC, W/H > 80 % for 2 consecutive measures • Absence of oedema for 1 week • * Absence of acute medical complications 	<p>Admission CTF, stabilisation centre:</p> <ul style="list-style-type: none"> • W/H < 70 % • Bilateral oedema (++, +++) • MUAC < 110 mm (> 1 year or > 75 cm) • With medical pathology <p>Discharged to CTF/ATFC!</p> <p>Discharge CTF / ATFC:</p> <ul style="list-style-type: none"> • W/H < 70 % • MUAC < 110 mm • Bilateral pitting oedema +) • * Absence of acute medical complications 	<p>Admission I-TFC: Children of 65 to 110 cm:</p> <ul style="list-style-type: none"> • W/H < 80 % with pathology • Anorexia • Bilateral oedema (Kwashiorkor) • Children < 65 cm with W/H < 80 % <p>Admission A-TFC: Children of 65 to 110 cm:</p> <ul style="list-style-type: none"> • W/H < 70 % without pathology • And/or MUAC < 110 mm (for children between 75 and 110 cm) without pathology <p>Discharge I-TFC and A-TFC:</p> <p>Refer to SFC:</p> <ul style="list-style-type: none"> • W/H > 80 % for 2 consecutive weights • 3 days consecutive in Phase II in I-TFC • 2 weeks consecutive in A-TFC and • MUAC = > 110 mm (for children between 75 and 110 cm) • Absence of oedemas since 7 days • Absence of heavy pathology requiring closer medical follow-up and/or a delicate catch up of drugs • Vaccination up to date: Measles <p>Direct discharge from I-TFC and A-TFC: No presence of A-TFC or SFC in the area: W/H > 85 % for 2 consecutive weight and when children reach the SFC exit criteria in I-TFC or A-TFC</p>
Criteria followed for SFC	<p>Admission:</p> <ul style="list-style-type: none"> • Children < 130 cm with a W/H between 70 and 80 % without oedema • Children discharged from a TFC <p>Discharge:</p> <ul style="list-style-type: none"> • W/H > 85 % for 2 consecutive weighting • Children discharged from TFC should stay 4 weeks in the SFC regardless of then they reach the criteria 	<p>Admission criteria: Children between 6 and 59 months:</p> <ul style="list-style-type: none"> • W/H between > 70 and < 80 % • Without oedema • Discharged from TFC <p>Discharge criteria:</p> <ul style="list-style-type: none"> • W/H > than 85 % for 2 consecutive measurements 	<p>Admission criteria: Children of 65 to 110 cm:</p> <ul style="list-style-type: none"> • W/H between 70 % to 80 % without pathology • Discharged from I-TFC and A-TFC <p>Discharge criteria:</p> <ul style="list-style-type: none"> • W/H > than 85 % for 2 consecutive measurements in the SFC

