



EVALUATION OF THE
NUTRITIONAL SURVEILLANCE ACTIVITIES OF ACF-USA
AND
ANALYSIS OF THE NUTRITIONAL SITUATION
IN
SOUTH SUDAN
2004

ACKNOWLEDGEMENTS

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LIST OF ACRONYMS

ANA	Annual Needs' Assessment - World Food Programme
ACF-USA	Action Against Hunger USA
EPI	Expanded Programme of Immunisation
FAO	Food and Agriculture Organisation
FEWSNET	Famine Early Warning System Network
GAM	Global Acute Malnutrition
IDP	Internally Displaced Person
INGO	International Non-Governmental Organisation
IRIN	Integrated Regional Information Networks
MoH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
NFI	Non Food Item
NSCSE	New Sudan Centre for Statistics and Evaluation
OLS	Operation Lifeline Sudan
OLS EP&R	Operation Lifeline Sudan Emergency Preparedness and Response
PHCC	Primary Health Care Centre
PHCU	Primary Health Care Unit
SAM	Severe Acute Malnutrition
SFC/P	Supplemental Feeding Centre/ Program
SINGO	Sudanese Indigenous Non-Governmental Organisation
SPLM/A	Sudanese People Liberation Movement/Army
SRRC	Sudan Relief and Rehabilitation Commission
TFC/P	Therapeutic Feeding Centre/ Program
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UNICEF WES	UNICEF Water, Environmental and Sanitation
UNOCHA	United Nations Office of the Coordination for Humanitarian Affairs
WFP	World Food Programme
WFP/TSU	World Food Programme/ Technical Support Unit
WHO	World Health Organization

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EXECUTIVE SUMMARY

After more than 20 years of civil war, on 9th January 2005, the warring parties of the South and the North signed the Comprehensive Peace Agreement (CPA) that constitutes the foundation for administrative, political and economical development of South Sudan within the next 6 years. In 2004, this imminent scenario, together with several peace conferences among the different ethnic tribes, had started the healing process both between the Southerners and Northerners and among different peoples within the South. In practical terms, this has triggered the return of thousands of formerly displaced people and/or refugees returning to their places of origin to rebuild their lives. Most of these people have reached the places across the South, which already face enormous needs in terms of nutrition, health and food security. At the same time, violence and insecurity still marred many parts of southern Sudan during the year, on several instances having caused disruption of lives and livelihood and further compromised access to food and basic services for the population.

Maintaining its strong position on nutritional surveillance in South Sudan, ACF-USA once again embarks on an evaluation of the outcome and impact of its activities in 2004:

- ▶ On nutritional surveys/rapid assessments and consequently on the focused advocacy toward obtaining prompt and appropriate response to the nutritional situation and/or emergencies detected; and
- ▶ On developing the capacity of the local government and other humanitarian partners to implement and increase coverage of nutritional surveillance.

Nutritional surveys provide estimates of the prevalence of malnutrition within a population and an analysis of its causes is concomitantly undertaken on every survey. In 2004, ACF-USA carried out 7 nutritional surveys, and like previous years, reports of its results were disseminated to a wide range of partners in order to create awareness on the areas of concern. During the year, advocacies for multi-sectoral response on the detected nutritional situations were undertaken - prompt nutritional treatment programmes to prevent or reduce mortalities among the severely malnourished and for moderately malnourished from further deterioration of their nutritional status, emergency distribution of food rations especially to the most vulnerable population, food security support, strengthening of the health services, and improvement of the water and sanitation conditions.

54% of the advocacy initiatives engaged by ACF-USA with other organizations for the targeted responses were achieved. Undeniably, the impact potential from a holistic response to malnutrition remained to be limited in 2004. This needs to be recognized and addressed altogether by the local government and all humanitarian national and international agencies, including donors, in the coming years.

Training and advocacy activities also continued to advance in 2004 where more agencies were trained and an increase in the number of nutrition surveys carried out by participating international NGOs was seen during the year. There was also an 80% increase in the attendance of national NGOs in 2004; however, none of the latter had the capacity to subsequently carry out nutritional surveillance activities.

ACF-USA would continue to provide training and retains its position in enjoining international organizations to maintain and further increase their capacity and coverage for nutritional surveillance. Meanwhile, enhanced and collaborated support to National NGOs and local government bodies to secure resources (manpower, funds and tools) for the implementation of nutrition surveillance activities should be heightened and sustained in 2005 and beyond.

The nutrition surveillance activities of ACF-USA and other health/nutrition agencies in southern Sudan also allowed for the analysis of the nutritional situation in 2004 as well as comparison of malnutrition trends across the different regions. Nutritional surveys were carried out in 29 different locations throughout 2004, including the Nuba Mountain. The combined results from 27¹ surveys

¹ The reports from the 2 surveys done by CEAS in Eastern Equatoria were not provided by the agency and are not included in the present analysis. The result from Nuba Mountains is also excluded.

analyzed in this report estimate the average prevalence of Global Acute Malnutrition at 19% (Standard Deviation²: 4.6) and Severe Acute Malnutrition at 2.7% (Standard Deviation: 1.3), both expressed in Z-Score. Similar analysis of nutrition surveys implemented in 2003 showed average rates of Global and Severe Acute Malnutrition of 20.8% (Std Deviation: 6.6) and 3.6% (Std Deviation: 1.9) respectively, indicating persistence of a critical nutritional state among the population of South Sudan over the period.

The analysis shows that combined effects of inadequate availability and/or access to food and basic services like health care or water, among others, together with the lack of sustainable means and resources of the returnees and host communities to tackle structural causes like poverty and political instability, result in very high levels of malnutrition. Most of the nutritional data are alarming and more nutritional emergencies are anticipated in 2005. It is fair to underline however that the peace is a motivating factor for emerging government, donors and humanitarian/development actors to find solutions that will allow durable and sustainable difference to the situation of the communities in South Sudan. ACF-USA anticipates and hopes that the new situation in 2005 will allow its nutritional surveillance programmes to focus not only on dealing with the problem itself, but help local partners, organisation and communities to build their capacities, so that the nutritional emergencies will become less frequent and be more promptly and appropriately responded to in the future.

² The standard deviation gives an indication of the dispersion of the average rate among the different surveys analyzed. Added or subtracted to the average value, it provides a range in which most of the data are concentrated.

INTRODUCTION

As a lead agency in nutrition surveillance in South Sudan, ACF-USA has since 2001 been active in the following fields:

- Rapid nutrition assessments, which offers a rough indication of the nutritional situation of a population;
- Nutrition surveys, which estimate the rate of global and severe acute malnutrition among a certain population within a given period.
- Advocacy, following a plan outlining recommendations formulated after a nutritional survey, in order to obtain adequate and appropriate responses on the areas of concern identified - these could be on sectors of emergency nutrition treatment programs, food aid, primary health care, food security, water and sanitation, and basic living conditions.
- Training, to promote standardized methodologies and increase the technical capacity of other agencies to implement nutritional surveys and consequently increase coverage of nutritional surveillance in South Sudan.

Similar to the same undertaking in the previous years, this document aims to review and evaluate the impact of the nutritional surveillance activities of ACF-USA in 2004. This is in terms of:

- ☞ Response by the humanitarian actors in South Sudan to the nutritional emergencies detected and to advocacy initiatives from nutritional surveys and assessments carried out (Section I); and,
- ☞ Outcome of the development of capacity for more national and international organizations to implement nutrition surveys (Section II).

Section III presents the nutritional situation in southern Sudan in 2004, and in locations where surveillance is maintained, to compare trends in the nutritional status over the last 2 years. The analysis is drawn from all nutrition surveys carried out by ACF-USA and other agencies.

On each section, recommendations are put forward to enhance nutritional surveillance endeavours in southern Sudan for 2005 and onward.

I. HUMANITARIAN RESPONSE TO NUTRITIONAL EMERGENCIES IN 2004

1. Indicators for Acute Malnutrition in South Sudan

Malnutrition is a state resulting from nutritional inadequacy in which an individual's physiological and physical functions are impaired. The condition may stem from a series of causes ranging from basic or structural factors to the immediate which is the individual's/population's insufficient intake of food. The latter is directly related to inadequate access to or availability of food or from loss of appetite or inability to absorb nutrients as a consequence of disease. The duration of exposure to these factors could either be chronic leading to growth failure or stunting in an individual (i.e., low weight or height in respect to age), an acute state manifested as wasting or thinness (i.e. low weight in respect to height), or both. Acute malnutrition carries with it a higher risk of mortality, the risk increasing with the severity.

The degree of acute malnutrition could either be moderate (weight for height index between 80% and 70% of the median³; or -3 and -2 Z-scores⁴) or severe (weight for height index below 70% of the median; or -3 Z-scores; and /or oedema). Global acute malnutrition (GAM) includes both moderately and severely malnourished cases within the population, i.e., all that are below 80% of the median or -2 Z-scores, or oedema. Per default, all rates are expressed in 95% confidence interval, meaning the true value falling within that range at 5% error risk.

Nutritional surveys estimate the rate of global and severe acute malnutrition among a certain population within a given period. As newborns and younger children are most vulnerable to and would immediately manifest the effect of a change in the nutritional status of a population, anthropometrics surveys are performed among children under-five. The methodology to be used and the sample of children to be measured are determined according to the total population size and dispersion. In addition to the anthropometric measurements (age, sex, weight, height, oedema, MUAC⁵), nutrition surveys gather information on health, food security, and water and sanitation. A retrospective mortality survey is normally concurrently done with a nutrition survey, i.e. estimating the number of deaths among the total and the under-five population from the preceding 3 months and identifying the presumed cause.

A global acute malnutrition rate above 15% and/or a rate of severe acute malnutrition above 4%⁶ are considered as the emergency and critical threshold for South Sudan.

2. Nutrition Surveys and Advocacy Activities of ACF-USA in 2004

Seven nutritional surveys were carried out during the year and emergency situations were detected in 4 areas.

An adequate and relevant response to malnutrition involves a multi-sectoral and holistic approach, and ACF-USA considers these in its recommendations: prompt nutritional treatment programmes to prevent or reduce mortalities among the severely malnourished and for moderately malnourished from further deterioration of their nutritional status, emergency distribution of food rations especially to the most vulnerable population, food security support, strengthening of the health services, and improvement of the water and sanitation conditions.

³ The expression of malnutrition in percentage of the median takes in account the median weight of the reference population (NCHS).

⁴ The expression of malnutrition in Z-scores takes in account the median weight as well as the standard deviation from this median weight.

⁵ MUAC: Mid-Upper Arm Circumference; this is a relevant indicator of the risk of mortality among children aged 1 to 5 years: MUAC is more significant for children aged 1 year and plus (≥ 75 cm in height) since MUAC does not change a lot from 6 months up to 1 year.

⁶ World Health Organization, 1995. *Classification of wasting prevalence in under five's*.

Table 1: Nutrition surveys, ACF-USA, South Sudan 2004.

	LOCATION	REGION	MONTH	GAM	SAM
1	Kapoeta Payam, Kapoeta County	EEQ	January	19.1% [15.2%-23.5%]	3.5% [2.0%-6.1%]
3	Old Fangak Payam, Old Fangak County, Jonglei State	UN	March	14.0% [10.6%-18.1%]	1.7% [0.7%-3.8%]
4	Paguir Payam and Manejang Payams in Old Fangak County, Jonglei State	UN	April	11.6%*	1.0%*
4	Duk Payuel, North Bor County, Jonglei State	UN	July	22.7% [18.9%-27.0%]	4.1% [2.5%-6.5 %]
5	Mayiandit Payam in Leer County, Untiy State	UN	August	20.4%*	2.6%*
6	Nyadin and Toch Payams in Old Fangak County, Jonglei State	UN	October	20.6 % [16.9%-24.9%]	4.5% [2.7%-7.0%]
7	Nuba Mountains	NUBA	November	9.4%*	1.5%

ACF-USA survey reports are disseminated to a wide range of partners in order to create awareness on the locations of concern. The targeted partners include:

- ☞ SPLM Health Secretariat (SOH)
- ☞ SRRC, both at Lokichoggio level and in the area where the surveys are implemented
- ☞ The communities where the surveys are carried out
- ☞ All UN agencies operating in the South (UNICEF, WHO, FAO, WFP, UNDP, UNOCHA)
- ☞ All NGOs working in the areas where the surveys are carried out
- ☞ All nutrition agencies
- ☞ Existing surveillance bodies (United Nation System Standing Committee on Nutrition (SCN), FEWSNET, IRIN, UNICEF Resource Centre, and WFP Resource Centre).
- ☞ CRED and the Complex Emergency Database

Beyond this dissemination and as it is not necessarily in a position to cover all the needed interventions, ACF-USA develops an advocacy plan for each nutrition survey which aims at appealing to targeted agencies and designing interventions in the areas of concern with them. The organisations are targeted according to their mandate, their usual locations of intervention and their operational strategy. During the 2 months following the release of the results, ACF-USA maintains a close relation with the targeted agency/ies, determining if the recommended activities can be implemented while seeking other agencies if the former is unable. The appeal is done through individual meetings as well as announcements in coordination meetings. After 2 months, if needs are still not met, the OLS EP&R takes on the advocacy for the most urgent needs.

3. Response to Survey Recommendations and Advocacy Initiatives

In 2004, out of 50 recommendations that ACF-USA formulated in its nutrition surveys reports, 54% were implemented by the targeted agencies. The table below shows the number of recommendations per location and the corresponding responses during the year and from the 2 previous years.

Table 2: Recommendations per location and response, ACF-USA nutrition surveys in South Sudan, 2004

Locations surveyed	No of recommendations	Taken up	Not taken up
Kapoeta	7	2	5
Old Fangak	7	3	4
Keew	8	7	1
Duk	9	5	4
Mayiandit	7	4	3
Nyandin/ Toch	8	2	6
Nuba	4	4	0
TOTAL	50	27 (54%)	23(46%)

Table 3: Recommendations per location and response, ACF-USA nutrition surveys in southern Sudan, 2003.

Locations surveyed	No of recommendations	Taken up	Not taken up
Pandomit/Chuei	10	5	5
Old Fangak	11	9	2
Pagak	11	3	8
Lekuangle	11	8	3
Bugaya, Maaban	6	5	1
Gumriak	8	3	5
Nyadin/Toch	8	5	3
Khorfoulos (Atar)	6	4	2
TOTAL	71	42 (59%)	29 (41%)

Table 4: Recommendations per location and response, ACF-USA nutrition surveys in southern Sudan, 2002.

Locations Surveyed	No of recommendations	Taken up	Not taken up
Old Fangak	10	7	3
Jiech	9	4	5
Keew	8	2	6
Lankien	8	5	3
Nyal	6	4	2
Padak	8	4	4
Mareang	8	5	3
Khorfoulos (Atar)	8	2	6
TOTAL	65	33 (50%)	32 (50%)

The proportion of recommendations taken up remained above 50% through the years. Similarly, the main sectors of interventions cited in the recommendations of 2004 have referred to emergency nutrition programmes, food security (including food aid), health, water and sanitation, and relief items.

The recommendations that have been mostly taken up in 2004 were food aid delivery, health promotion, maintain or increase health services, distribution of seeds, tools, fishing equipment, veterinary services and food security. This is almost the same with 2003 although response to provide EPI services was higher in 2003 than 2004, while food security monitoring was taken up more in 2004 than 2003.

The response rate to recommendations made on emergency feeding programs and provision of water systems (drilling boreholes) were lower as the previous years. Only two feeding programs were opened among the locations where nutritional crises were identified by ACF-USA and only one location where boreholes were drilled. The low response can be associated with the high cost of running these programs; most agencies do not have contingency funds to fulfil these recommendations once the need was identified, especially experienced during the latter half of the year.

Table 5: Recommendations per sector of intervention, ACF-USA nutrition surveys in SSD, 2004.

Sectors of intervention	Frequency of recommendation	Frequency of response
<u>FOOD AID:</u> Food distribution	4	4
<u>NUTRITION:</u> - Emergency feeding programs - Nutrition surveillance activities	7 0	2 0
<u>HEALTH:</u> - EPI services (measles) - Health promotion - Maintain or increase of health services	5 4 6	1 3 4
<u>FOOD SECURITY:</u> - Seeds and tools distribution - Fishing equipment distribution - Veterinary services - Food security monitoring	3 1 2 4	2 1 2 3
<u>WATER and SANITATION:</u> - Drilling boreholes/ digging wells	4	1

The main reasons given by the targeted agencies, including ACF-USA, regarding the difficulties in taking up the formulated recommendations were:

1. Lack of budget allocations for extra activities (contingency funds);
2. Lack of flexibility for interventions in non-core project areas;
3. Lack of skilled personnel;
4. Lack of, or late response to, project proposals submitted to donors following recommendations;
5. Lack of resources such as cold chain for EPI campaign.

ACF-USA hopes that the awareness on the constraints that the agencies met in the implementation of recommendations will help in increasing their flexibility (in terms of funds and areas of interventions) and their capacity to react to situations of emergency.

Though a lot of recommendations were not taken up due to various reasons advanced by agencies, ACF-USA has created awareness of most of the underlying and basic causes of malnutrition. The awareness created from the advocacies is aimed at making health agencies to focus on these causes of malnutrition in the aim of alleviating prevalent malnutrition in South Sudan.

Recommendations to Enhance Humanitarian Response to Nutritional Emergencies

- ↳ Adequate and appropriate capacity for nutritional response should be prioritized by the local government structures, the UN, other humanitarian agencies (international and national), and donor bodies in their program/strategy planning and implementation for 2005 and succeeding years.
- ↳ Recognition of and the corresponding advocacy for rapid and coordinated interventions from targeted agencies should be continued and further improved by ACF-USA. Eventually, a structured mechanism for prompt and coordinated multi-sectoral response to nutritional emergencies should be established and sustained by the Nutrition Department of the Ministry of Health.

II. DEVELOPMENT OF THE CAPACITY TO IMPLEMENT NUTRITION SURVEYS

For the last 3 years, ACF-USA has been undertaking training on nutrition surveys and rapid assessments in order to share its technical expertise in the field and to encourage other organisations to detect malnutrition in their areas of intervention, ultimately to enhance and sustain the monitoring of the nutritional situation in South Sudan.

A series of multi-sectoral rapid assessment training, organized by the OLS EP&R, was carried out in South Sudan in 2004, ACF-USA having facilitated the training on nutrition and health sectors. This training was geared at equipping especially the local government (and the SRRC) with the capacity to be prepared for, identify and obtain prompt response to any impending or existing humanitarian emergencies in their localities.

The regular training sessions also continued in 2004, provided in three levels:

- ♦ Introductory training: overview of nutrition/malnutrition, nutrition anthropometric surveys indicators, sampling methodology, among others. The objective of this section is to give trainees a standard understanding of nutritional surveillance and its methodologies with particular emphasis on the implementation of the surveys.
- ♦ Advanced training: training on data processing and analysis with EPI 5/EPI NUT software program. The objective of this section is to provide increased skills and knowledge on interpretation of data and report presentation.
- ♦ Nutrition managers' workshop: The workshop targets programmes managers or decision-makers of nutrition agencies. The objective of this workshop is to discuss malnutrition and nutritional surveillance information - type, limitations and use.

All in all, 19 agencies (local government structures, international and national NGOs) sent representatives to attend the different trainings.

Table 6. Training carried out by ACF-USA in 2004

Location	Type of training	No of training sessions	No of Agencies	Agencies
Lokichoggio	Introductory	1	12	ACF-USA, CEAS, COSV, CRS, DOT, HARD, MEDAIR, MSF-CH, NPA, PRDA, PCOS & SMC
Lokichoggio	Advanced	1	3	HARD, TEARFUND AND MEDAIR
Lokichoggio	Rapid nutrition assessment	1	6	MEDAIR, HARD, SC-UK, SRRC, ACF-USA, CARE
Nairobi	Managers' workshop	1	8	JIWYA, ACHA, MSF-CH, NHDF, CRS, MERLIN, ACF-USA, TEAFUND,

Most of the trained personnel from the International Agencies had been able to directly implement nutritional surveys thereafter, and this is seen in the increase in the number of surveys done by the respective agencies in 2004. On the other hand, although 2004 saw an increase in National NGO participation - with 11 this year compared to 9 in 2003 and 6 in 2002 - no survey was actually carried out independently by any. UNICEF continued to facilitate transport and accommodation of Sudanese personnel during the training, however, the lack of human resources and basic materials and tools limited their capacity to implement full surveys thereafter.

Recommendations to Increase the Impact of Nutrition Surveillance Capacity Development:

- ↳ Technical support and training on nutritional surveillance should be continued by ACF-USA (from methodology, data collection, analysis and reporting), while ensuring increased and coordinated coverage of nutritional surveys by local government bodies, and national and international agencies in the succeeding years.
- ↳ Enhanced and collaborated support to National NGOs to secure resources (manpower, funds and tools) for the implementation of nutrition surveillance activities from the Ministry of Health and other official structures of the Sudan Government, UNICEF, funding institutions, as well as international NGOs should be heightened and sustained in 2005 and beyond.

1. Framework for Analysis

1.1. Survey Methodology

There are two survey methodologies employed in the nutrition surveys included in this analysis, mainly depending on the size of the population:

- The exhaustive survey where all children aged 6 to 59 months of the target area are measured; as it includes the whole of the target population, the exhaustive survey gives the exact prevalence of malnutrition in that population.
- The sampling surveys where only a representative sample of children aged 6 to 59 months of the target area is measured. The results provide an estimated prevalence of malnutrition among that population, the true value for malnutrition being contained within the confidence interval.

Thus, the analysis of the anthropometric data of 2004 includes results from:

- ☞ *Exhaustive surveys* - in 3 locations where the under-5 population was inferior to 1,000 individuals.
- ☞ *Two-stage cluster sampling methodology* for the other surveys: with the two-stage cluster sampling, the *sample* is randomly selected among the target population on the basis of 30 *clusters*, ideally including 30 children in each cluster. However, the number of children in the clusters can be reduced according to the population figures. The *first stage* consists of the random selection of villages and the *second stage* of the random selection of families in the villages. All the children aged 6 to 59 months of the selected families are included in the survey. In all data that is presented, the prevalence of malnutrition is estimated with a 95% confidence interval (this value of the Confidence Interval is taken per default).

1.2. Estimated Average of Malnutrition in southern Sudan

The report gives estimated averages of the rates of acute malnutrition in southern Sudan, broken down for Upper Nile and Bahr El Ghazal; however it has to be noted that these are not a statistical representation of the nutritional situation throughout the South, but rather give an indication of the general situation.

Also significant is the number of nutrition surveys that detected nutritional emergencies, i.e. surveys for which the detected average rate stood above 15% of global acute malnutrition. This information will be used in the following analysis as a key indicator of the gravity of the nutrition situation in the assessed areas.

1.3. Geographical Coverage

The report also gives an estimated representation of the geographical coverage of the nutrition surveillance activities in 2004. For practical reasons, the reference unit used is the county.

Again, the maps do not give a statistical representation of the coverage but rather an indication of the number of counties covered and the estimated average of the rates of malnutrition detected there.

1.4. Seasonal Variations

While the results of the nutrition surveys could suggest seasonal variations - higher rates of malnutrition detected during the hunger period (March to September) - the limited number of surveys per months and locations prevents a detailed analysis of seasonal trends over the year.

2. Nutritional Surveillance Coverage and Malnutrition Situation in southern Sudan in 2004

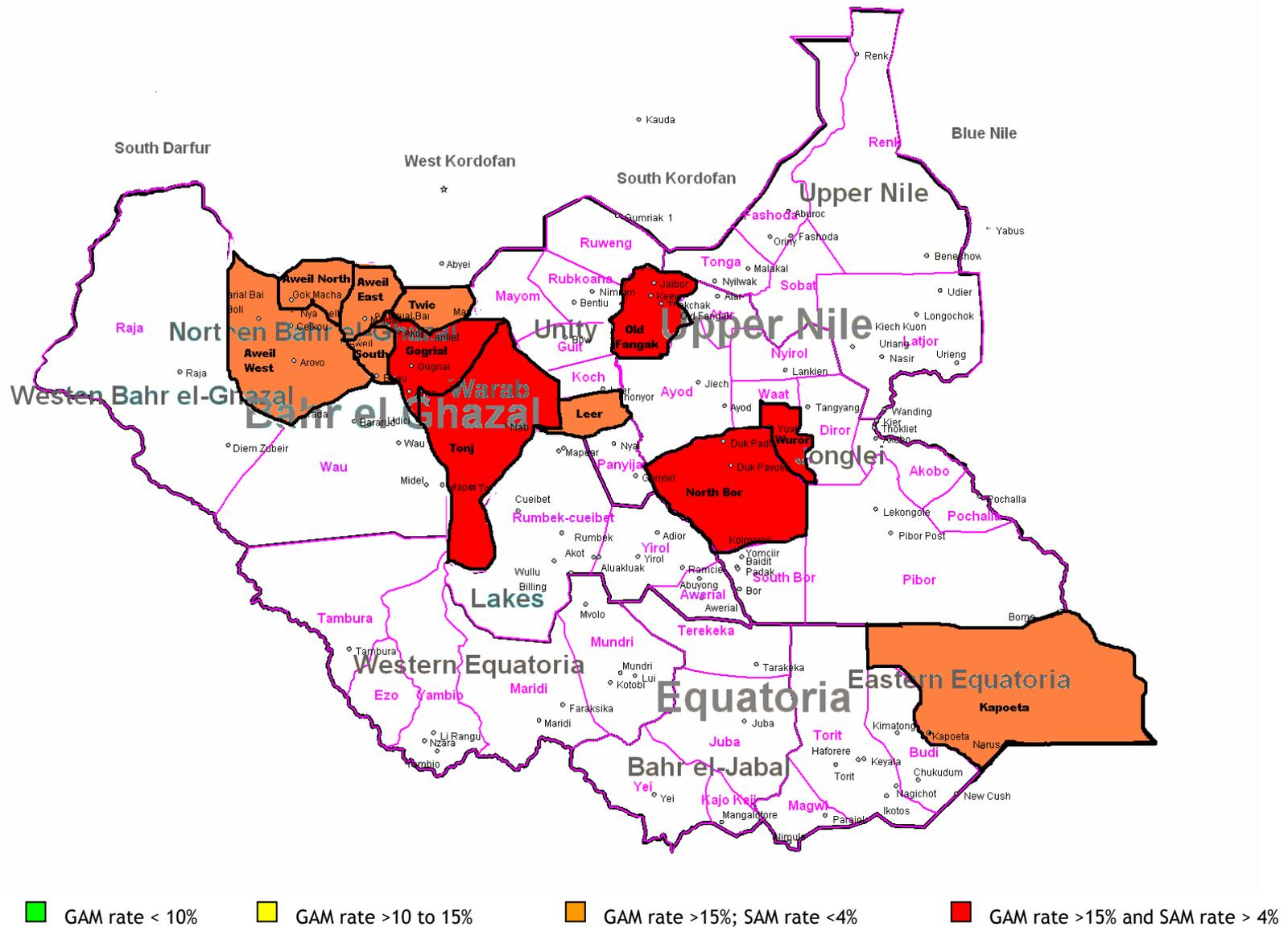
The selection of locations surveyed by the different agencies considers any or all of the following criteria:

- ☞ Recommendations formulated after rapid assessments to confirm the presence of a nutritional crisis in a particular area and estimate the rate of acute malnutrition;
- ☞ Monitoring of the nutrition situation of specific locations on a regular basis;
- ☞ Lack of baseline information on nutrition with a particular concern in the area;
- ☞ Evaluation of the effectiveness of agencies' intervention.

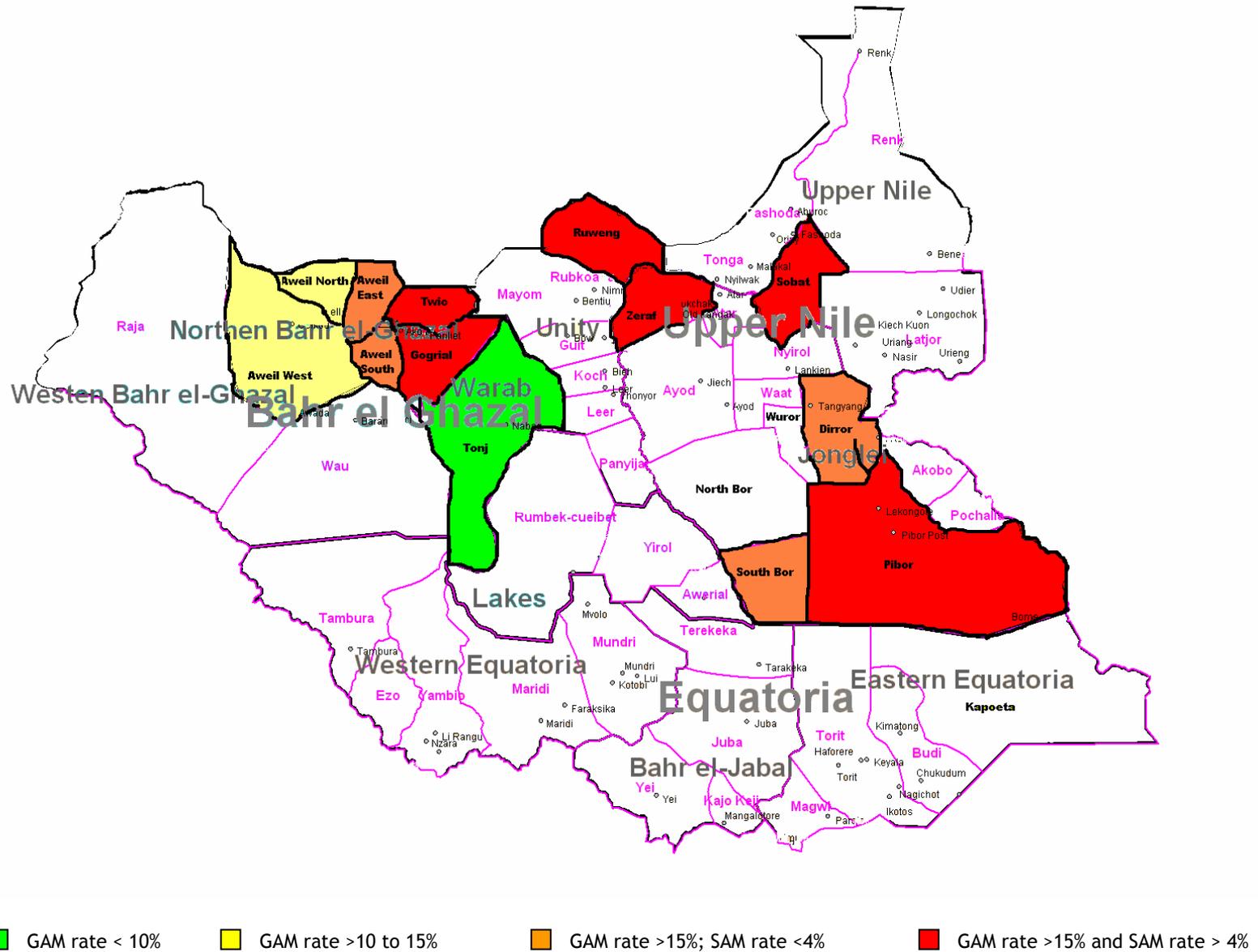
29 nutrition surveys were conducted in southern Sudan in 2004, covering 5 counties in Upper Nile, 7 in Bahr-el Ghazal, and 1 in Equatoria. In comparison, 15 counties - 8 in Upper Nile, 6 in Bahr El Ghazal and 1 in Equatoria, were covered in the nutritional surveillance in 2003 while in 2002, 9 counties were covered in Upper Nile, 5 in Bahr El Ghazal and 1 in Equatoria.

The geographical coverage and nutritional situation by county in 2004 and 2003 are shown in separate maps in the succeeding pages.

Map 1: geographical coverage of the nutrition surveys in 2004.



Map 2: geographical coverage of the nutrition surveys in 2003.



The combined results from 27⁷ surveys analyzed in this report estimate the average prevalence of Global Acute Malnutrition at 19% (Standard Deviation⁸: 4.6) and Severe Acute Malnutrition at 2.7% (Standard Deviation: 1.3), both expressed in Z-Score. Similar analysis of nutrition surveys implemented in 2003 showed average rates of Global and Severe Acute Malnutrition of 20.8% (Std Deviation: 6.6) and 3.6% (Std Deviation: 1.9) respectively, indicating persistence of a critical nutritional state among the population of South Sudan over the period.

Table 7: Results of all nutrition surveys implemented in Southern Sudan in 2004, expressed in Z-Score.

	LOCATION	REGION	AGENCY	MONTH	GAM	SAM
1	Kapoeta Payam, Kapoeta County	EEQ	ACF-USA	January	19.1% [15.2%-23.5%]	3.5% [2.0%-6.1%]
2	Pieri Payam, Wuror County, Jonglei State	UN	TEARFUND	February	22.2% [18.5%-26.4%]	4.9% [3.2%-7.4%]
3	Old Fangak Payam, Old Fangak County, Jonglei State	UN	ACF-USA	March	14.0% [10.6%-18.1%]	1.7% [0.7%-3.8%]
4	Paguir Payam and Manejang Payams in Old Fangak County, Jonglei State	UN	ACF-USA CMA	April	11.6%*	1.0%*
5	Mangok, Yargot, Wunlang, Mangar tong Payams in Aweil East County, Northern BEG State	BEG	MSF-F	January	13.0%	1.4%
6	Akoc, Panyok, Wunrok, Turalei, Aweng Payams in Twic County, Warab State	BEG	GOAL	January	21.0% [18.7%-24.2%]	3.6% [2.4%-5.0%]
7	Aweil North, Aweil West Counties, Northern BEG State	BEG	CONCERN	February	19.6% [17.0%-22.3%]	4.0% [2.9%-5.6%]
8	Baac, Malualbai, Madhol Payams in Aweil East County, and Malual East Payam in Aweil North County, Northern BEG State	BEG	TEARFUND	February	13.6% [10.6%-17.2%]	1.3% [0.5%-3.0%]
9	Mangargier, Gakrol, Wathmok Payams, Aweil South County, Northern BEG State	BEG	TEARFUND	February	13.2% [10.3%-16.7%]	1.8% [0.8%-3.5%]
10	Tonj County, Warab State	BEG	MSF-Swiss	April	21.5% [19.0%-24.4%]	2.4% [1.5%-3.7%]
11	Mangok, Yargot, Wunlang, Mangar tong Payams, Aweil East County, Northern BEG State	BEG	MSF-F	June	23.3% [19.4%-27.6%]	2.7% [1.4%-4.8%]
12	Aweil North, Aweil West Counties, Northern BEG State	BEG	CONCERN	July	23.8% [21.1%- 26.8%]	2.9% [1.9%- 4.2%]
13	Duk Payuel, North Bor County, Jonglei State	UN	ACF-USA	July	22.7% [18.9%-27.0%]	4.1% [2.5%-6.5 %]
14	Baac, Malualbai, and Madhol Payams in Aweil East County and Malual East Payam in Aweil North County, Northern BEG State	BEG	TEARFUND	July	14.5% [11.4%- 18.2%]	1.4% [0.6%- 3.1%]
15	Ayai, Wathmok, Gakrol, Panthou and Tieraliet Payams in Aweil South County, Northern BEG State	BEG	TEARFUND	July	18.4% [14.9%-22.2%]	2.7% [1.4% -4.6%]
16	Pieri, Pathai, Pulchol, and Motot Payams in Wuror County, Jonglei State	UN	TEARFUND	August	26.6% [22.6%-31.0%]	5.3% [3.4%-7.8%]
17	Mayiandit Payam in Leer County, Untiy State	UN	ACF-USA	August	20.4%*	2.6%*
18	Aweil West County, Northern BEG State	BEG	CONCERN	September	21.2% [18.7%-24.0]	1.9% [1.3%-2.8%]

⁷ The reports from the 2 surveys done by CEAS in Eastern Equatoria were not provided by the agency and are not included in the present analysis. The result from Nuba Mountains is also excluded.

⁸ The standard deviation gives an indication of the dispersion of the average rate among the different surveys analyzed. Added or subtracted to the average value, it provides a range in which most of the data are concentrated.

19	Nyadin and Toch Payams in Old Fangak County, Jonglei State	UN	ACF-USA	October	20.6 % [16.9%-24.9%]	4.5% [2.7%-7.0%]
20	Nuba Mountains	NUBA	ACF-USA	November	9.4%*	1.5%
21	Ayat, Gomjuer Payams in Aweil West County, and Malual West, Malual Centre, Malual North, Ariath Payams in Aweil North County, Northern BEG	BEG	CONCERN	November	20.3% [17.0%-24.0%]	1.7% [1.0 – 3.1%]
22	Baac, Malualbai, Madhol Payams in Aweil East County, and Malual East Payams in Aweil North County, Northern BEG State	BEG	TEARFUND	November	14.8% (11.7%- 18.6%)	1.1% [0.4%- 2.7%]
23	Ayai, Wathmok, Gakrol, Panthou and Tieraliet Payams in Aweil South County, Northern BEG State	BEG	TEARFUND	November	15.2% (12.0%-18.9%)	1.0% [0.3% -2.5%]
24	Nimule, Eastern Equatoria	EEQ	CRS	--	15.9%**	2.2%**
25	Labone, Eastern Equatoria	EEQ	CRS	--	14.1%**	0.8%**
26	Aweil Centre, Northern BEG State	BEG	WV	December	12.9% (10.8%-15.4%).	2.5% [1.6%-3.8%].
27	Gogrial East Payams, Gogrial County, Warab State	BEG	WV	December	20.5% (17.9%-23.4%)	4.3% (3.1%-5.9%)
28	Gogrial West Payams, Gogrial County, Warab State	BEG	WV	December	25.2% [22.4%-28.2%]	3.8 % [2.7%-5.4%]
29	Tonj County, Warab State	BEG	WV	December	22.8% [19.9%-26.0%]	4.2% [2.9%-5.9%]
Average					19% (std d:4.6)	2.7% (std d: 1.3)

UN: Upper Nile - BEG: Bahr El Ghazal - EEQ: Eastern Equatoria

* Exhaustive survey - no confidence interval.

** Nutrition report not provided by agency.

3. Nutritional Situation and Malnutrition Trends in Upper Nile

The Upper Nile region is administratively bounded by 3 states⁹. On the eastern side is Upper Nile State that covers Mabaan and Sobat counties; Tonga and Fashoda counties [Upper Nile/Shilluk], and; Ulang, Baliyet, Longuchok, Maiwut, Lokongole, and Luakpiny counties [Upper Nile/Latjor]. On the western side is Unity State that covers Ruweng, Rubkuona, and Mayom counties; and, Koch, Panyijar, Leer, and Guit counties [Upper Nile/Leech]. Central is Jonglei State that covers North Bor, South Bor, Pibor, and Pochalla counties; Old Fangak, Atar, and Ayod counties [Upper Nile/Phou]; and, Akobo, Waat, Nyirol, Wuror, and Diror counties [Upper Nile/Bieh].

The population is widely agro-pastoralists, with its food economy depending mainly on crop production, livestock, fishing and hunting. The main sources of food include sorghum, maize, cassava, fish and animal products. The Nile and numerous rivers pass through the region and provide important sources of food and income as well as transport routes to many areas of southern Sudan. Topographically, as the region lies along the flood plains and with so many rivers, seasonal flooding is widespread.

In 2004, 7 nutrition surveys were carried out in Upper Nile: 3 in Old Fangak County, 2 in Wuror County, 1 in North Bor County, and 1 in Leer County.

⁹ For consistency, reference to the 2005 South Sudan Administrative Listing is employed for the boundaries of regions, states and counties which are also reflected in the UNICEF/OLS Map used in this document.

Table 8: Results of the nutrition surveys implemented in Upper Nile, 2004.

LOCATION	MONTH	GAM	SAM
Pieri Payam, Wuror County, Jonglei State	February	22.2% [18.5%-26.4%]	4.9% [3.2%-7.4%]
Old Fangak Payam, Old Fangak County, Jonglei State	March	14.0% [10.6%-18.1%]	1.7% [0.7%-3.8%]
Paguir and Manejang Payams in Old Fangak County, Jonglei State	April	11.6%*	1.0%*
Duk Payuel, North Bor County, Jonglei State	July	22.7% [18.9%-27.0%]	4.1% [2.5%-6.5 %]
Mayiandit Payam, Leer County, Unity State	August	20.4%*	2.6%*
Pieri, Pathai, Pulchuol, Motot Payams, Wuror County, Jonglei State	August	26.6% [22.6%-31.0%]	5.3% [3.4%-7.8%]
Nyadin and Toch Payams, Old Fangak County, Jonglei State	October	20.6 % [16.9%-24.9%]	4.5% [2.7%-7.0%]
Average		19.7% (std d: 5.2)	3.4% (std d: 1.7)

* Exhaustive survey - no confidence interval.

Three surveys provided nutritional data where none existed before:

- ☞ In Pieri Payam, Wuror County in February 2004 by TEARFUND
- ☞ In Duk Payuel, North Bor County in July 2004 by ACF-USA
- ☞ In Mayiandit Payam, Leer County in August 2004 by ACF-USA

While 4 other nutrition surveys provided nutritional monitoring data to compare rates and analyze trends from preceding periods:

- ☞ In Old Fangak Payam, Old Fangak County in March 2004 by ACF-USA
- ☞ In Paguir and Juaibor Payams, Old Fangak County in April 2004 by ACF-USA and CMA
- ☞ In Pieri, Pathai, Pulchuol, and Motot Payams in Wuror County in August 2004 by TEARFUND
- ☞ In Nyadin and Toch Payams , Old Fangak County, in October 2004 by ACF-USA

The coverage of the surveys conducted in Upper Nile in 2004 remain to be limited, and basing on these available surveys, the approximated average prevalence of global acute malnutrition in the region is 19.7% (std d: 5.2) and severe acute malnutrition is 3.4% (std d: 1.7). In 2003, the average rates were 21.3% (std d: 7.4) for GAM and 4.4% (std d: 2.2) for SAM; while in 2002, the average rates were 28.2% for GAM and 6.2% for SAM. The standard deviation of the mean rates over the years does not suggest a significant change in the nutritional situation between 2003 and 2004.

In its 2003 Annual Needs Assessment, WFP reported that despite the expected overall improvement in the food security situation, the chronically food insecure areas will still incur substantial food deficits during the coming year. The flood affected areas, insecure areas and those with sizeable IDP and returnee population will face food deficits of varying severity in 2004.

The severe flooding that occurred in the latter half of 2003 affected nearly 25% of the flood plains of Upper Nile and Jonglei and had caused destruction to property and crops, and displacement of people and animals.

In 2004, erratic and unevenly distributed rainfall was experienced throughout the region, and the prolonged dry season exacerbated the food deficits and hampered food production even more. This compromised as well the source of clean water for most families, and on top of an already precarious environmental sanitation, hygiene practices, and poor access to safe water systems

throughout most of Upper Nile, associated water-related diseases were expected. The early migration of cattle away from the homestead in to the cattle camps in search for water and pasture deprived households especially children of livestock products such as milk and meat. Large number of IDPs and returnees also increased during the dry season of 2004. Moreover, the region still suffered from localized conflicts between armed factions throughout the year that had hindered the food security and livelihood opportunities in many areas.

The effect of these was reflected in the nutritional surveys in Upper Nile in 2004, where 4 of the 6 surveys done in the Jonglei area and the survey in Leer State showed global acute malnutrition rates far above the emergency threshold of 15%. In 80% of these surveys, the severe acute malnutrition rate was also above 4%:

In Pieri Payam, Wuror County, the nutrition survey conducted at the start of 2004 revealed a prevalence of global acute malnutrition of 22.2 % (18.5-26.4%) and severe acute malnutrition of 4.9 % (3.2-7.4%). When analyzed by age it was found that the younger children were more malnourished than the older ones (6 to 29 months (GAM 26% and SAM 6.7%) and 30 to 59 months (GAM 18.4% and SAM 3.1%)).

WFP reported in its 2003/04 ANA that Wuror County is one of the most food-deficient in the region. Local key informants reported that 2003 was a poor cropping year caused by a long dry spell that took longer than expected; the late rains started in June up to October 2003 and were erratic. Crops were also attacked by army worms and the surviving ones were swept away by floods which came in July and August. The little sorghum that managed to mature was attacked by birds from September to October resulting to very poor harvest. Apart from the crop failure, fish and milk production were also underscored. The ponds dried as early as December affecting fish production and pasture for the milk producing animals. This forced the movement of cattle too early to the *toic*¹⁰ in search of grass and thus denied the household particularly the under-fives of their major rich source of protein i.e. milk & fish. At the time of the survey, most of the animals had moved to the 'toic' and only a little sorghum was available and was being consumed without milk or vegetables due to the drought and cattle movement.

In Duk Payuel Payam, North Bor County, the nutritional survey carried out in July after a confirmed high influx of returnees into the area, showed a Global Acute Malnutrition Rate of 22.7% (Z-Score, 18.9%-27.0% CI) and 4.1% Severe Acute Malnutrition (Z-Score, 2.5%-6.5 % CI). The survey revealed that due to flood and locusts, the crops of 2003 were partly destroyed; in three bomas (Jalong, Duk and Pabek), crops were reported to have completely failed. In addition, the small food stock of the residents was exhausted by the presence of returnees, the number of which was estimated from 7,000 to 10,000. Persistent cattle raiding between Murle and Nuer communities have also contributed to the reduced number of cattle per household, with some households not having any; cattle diseases have also affected the milk production.

In Mayiandit Payam, Leer County, the survey done in August 2004 showed a global and severe acute malnutrition rates of 20.4% and 2.6%, respectively. The 2003/2004 Annual Needs Assessment conducted by WFP indicated crop failure in Leer County due to floods and locust invasion. The location was classified as severely food insecure and WFP dropped food in January and April 2004. In the course of the same year, the food security situation has deteriorated even further: the area has experienced late and heavy rains that have affected the cultivation and destroyed most of the crops planted, forcing the community to heavily rely on cow milk, fish and sorghum bought in the neighbouring county. In addition, unstable peace and security situation in the area halted the food distributions by July.

In Pieri, Pathai, Pulchuol, and Motot Payams, Wuror County, the follow-up survey in August revealed a prevalence of global acute malnutrition of 26.6% (22.6-31.0), 5.3% (3.4-7.8) of which is severe. The statistical comparative analysis of this survey with the February survey indicates no significant change in the malnutrition levels as the confidence intervals (CI) of

¹⁰ Toic is the local term used for low lying swampy areas that are rich in fish and wild foods and provide grazing for cattle in the dry season.

the two surveys overlap. Although WFP covered the county in its food distribution throughout the hunger gap period of March to August, it could not reverse the food deficit of the county estimated by the WFP ANA at 35%-40%, or a total of 55%-65% food insecure population. Moreover, the targeted feeding program started by TEARFUND in the area has had constant interruptions from insecurity incidents.

In Nyadin/Toch, Old Fangak County, the survey done in December showed that 20.6% [16.9%-24.9%] of the children measured were acutely malnourished and among them, 4.5% [2.7%-7.0%] were severely malnourished. These results did not suggest a change in the rates of acute malnutrition compared to the preceding years: 17.8% [14.4%-21.8%] in 2003 and 18.2% [14.5%-22.5%] in 2002, during the same period of the year.

ACF-USA has been monitoring the food security situation in Nyadin and Toch for several years and has been intervening through conducts of training and distributions of seeds, tools and fishing equipment. While these interventions have contributed to improve the self-reliance of these communities, the massive floods again experienced during the year's rainy season significantly destroyed the crops in both Nyadin and Toch, resulting in the reduction of the maize production harvested in August and again in the last quarter of the year. In addition, the flooding has affected the pasture by reducing considerably the available grazing areas, and has also contributed to an increased prevalence of livestock diseases. The area has also been hosting many displaced families fleeing conflicts of the surrounding regions, and had put further burden on the existing resources, including crops, milk and fish.

In all cases, the rate of acute malnutrition is congruent with the access to and delivery of primary health care services (including immunization) for the population:

In Wuror and Bor counties, the retrospective mortality surveys recorded the under-five mortality at rates above the alert level of 2 deaths/10,000 persons/day while crude mortality above 1/10,000 persons/day. The health situation in Wuror was exacerbated by the closure of some primary health care units due to insecurity and lack of water. In Duk, the lack of drugs and services at the health units were reported; more than 80% of the mortalities in the months preceding the survey were children below age five. In all the surveys conducted in Upper Nile, the leading causes of mortality are acute lower respiratory infections, watery diarrhoea and malnutrition.

In Paguir and Manejang Payams, Old Fangak County, the nutrition survey conducted in April revealed a low GAM rate of 11.6% and SAM rate of 1.0%. The nutritional survey carried out in Keew, also by ACF-USA in July 2002 showed GAM rate of 19.7% [15.7% - 24.4%] and SAM rate of 3.9% [2.2% - 6.7%], reflecting an improved nutritional situation. The crude mortality rate, 0.74/10,000/day, is also below the alert level of 1/10,000/day. Accessibility to and quality of the primary health services, as well as treatment for infectious diseases (Kala-azar, TB and leprosy) provided in the area were reported to be satisfactory; measles coverage is 60% which is fairly higher compared to other areas of Upper Nile from surveys conducted through the years.

In Old Fangak Payam in Old Fangak County, which has been a core area of intervention for ACF-USA since 2001, the different anthropometric surveys implemented yearly had displayed consistently high rates of acute malnutrition among the under-five population. After implementing targeted feeding programs (among others) twice over 2 years, the nutrition survey in 2003 showed a GAM rate of 35.9% [31.2%-40.9%], which was similarly seen with the results from surveys conducted over the same period from 2002 to 2001, that is, 30.3% [26.0%-34.9%] and 20.4%, respectively. Primary health care services in the county have been limited through the years, and records and all surveys revealed infectious and water-borne diseases as leading causes of mortality in the area.

Between December 2003 and January 2004, ACF-USA carried out a Nutritional Causal Analysis which displayed that there was no significant difference in the practices and food security between families with and without acutely malnourished children, but that acute malnutrition (especially severe) was associated with high prevalence of disease. The health services delivery was consequently enhanced with increased diagnostic capacity within the PHCC, additional resources, enhanced primary health care coverage, and specialized clinics

for infectious diseases. The health education and food security programs (by ACF-USA and other agencies) were also heightened.

The nutrition survey conducted in 2004 showed global acute malnutrition rate of 14.0% (10.6%-18.1%) GAM and 1.7 % (0.7%-3.8%) SAM. These rates are markedly reduced compared to previous years and below the WHO emergency level.

Statistically, most of the surveys show significant difference between malnutrition rates in Z-scores for the 6-29 months and 30-59 months old children; the 6-29 months have ~2 times more risk of being malnourished than the 30-59 months. The Nutritional Causal Analysis done in Old Fangak identifies inappropriate childcare practices as another major underlying cause of malnutrition in the area, especially among infants and children in their first 2 years of life. As also seen from all the surveys, this could be construed to be similar in most parts of Upper Nile. While mothers are used to breastfeed their children up to the age of 2 years, the frequency of the breastfeeding is questioned because of the lack of availability of the mothers, linked to their heavy workload. Also, exclusive breastfeeding is stopped earlier than 4 months while solid food is introduced late (after one year). When children begin to eat, they receive food only twice a day, as the rest of the family, and all children eat from a common plate. Needless to say, the meals provided consist of imbalanced diet and younger children are prone to receiving even less.

Erratic rainfall and prolonged dry spells experienced in most areas of Upper Nile in 2004 affected many cultivation areas and resulted to a major decrease in people's production of and access to food. Similarly, conflict or insecurity-induced population movements have contributed to an increased demand. Within these same conditions reflected in the areas surveyed, it could be held that acute malnutrition remains a major concern in the entire region and many areas are still undetected.

4. Nutritional Situation and Malnutrition Trends in Bahr El Ghazal

The Bahr El Ghazal region is comprised of 4 major states: Northern Bahr El Ghazal (consisting of Aweil East, Aweil West and Aweil South Counties), Western Bahr El Ghazal (consisting of Wau and Raja Counties), Warab (consisting of Gogrial, Twic and Tonj Counties) and the Lakes (consisting of Rumbek, Cueibet, Yirol and Awerial Counties).

The main sources of livelihood for majority of the population are agriculture and livestock production, while the rest depend on fishing and trade. The climate is characterised by a dry season from March to April, and the wet season from April until September with flooding experienced from October to February of the succeeding year. Cultivation starts when the rain begins in April or May and the hunger gap takes place from April to July, the period when the household reserve of grains is consumed. During the pre-harvest period, a large proportion of the population remain solely dependent on food aid by WFP, kinship donations and gathering wild foods. Water and sanitation systems are very poor and access to health care is limited as well.

In 2003, the WFP ANA reported that the food security situation has improved because of several factors: relative peace and stability during the year, improved rainfall in quantity and distribution, moderate crop disease and pest infestation, availability of labour during the farming season, and distribution of farm inputs and fishing equipment. Consequently, farmers increased their cultivated area and diversified their crops. The stability also enabled planting of farmlands in the highlands that had been abandoned in previous years due to insecurity.

During the same year however, floods, dry spells and attacks of pests and disease have affected nearly 20% of the region and reduced yields by 30-40%¹¹. Gogrial and Aweil West are the most food deficit counties owing to the combined effects of insecurity and cattle raids in previous years, dry spells and pests in 2002-2003, and floods and influx of returnees in 2003. Due to lack of seeds and tools, recent returnees did not cultivate crops while the poorest residents planted on a small scale. In Aweil West, the number of people in need of food assistance is expected to be higher in 2004 due to the cumulative effects of returnee populations and localized cattle raids and floods as well as dry spells in some areas.

¹¹ WFP ANA Report 2004.

The average global acute malnutrition rate reported in 2003 was 21% (std d: 6.3) and severe acute malnutrition was 3.2% (std d: 1.6), which reflect deterioration from 2002 when the rates were 18.9% and 2.2%, respectively. Indeed in 2004, the conditions for food production and access did not improve. The rainfall in Northern BEG and Warab areas was below average and poorly distributed. The prolonged dry spell between June and July, in addition to the abrupt cessation of the rains, affected the short-maturing sorghum during the critical stages of growth even more. In Western BEG, although the area received moderate rainfall, the distribution was uneven and sporadic, impeding robust cereal production. In Aweil which is the backbone of the food economy for the area, the reduced seasonal flooding led to a complete failure of the rice crop.

The relative peace and stability in the region throughout 2004 have also encouraged IDPs and refugees to return to their places of origin. Nearly 50,000 people have reportedly returned to the BEG region, primarily to the southern areas of Aweil East and West, Twic and Gogrial, exerting additional pressure on an already fragile food security for the host communities.

Eighteen (18) nutrition surveys were conducted in Bahr El Ghazal throughout 2004; the period of implementation and its results are shown in the table below:

Table 9: Results of the nutrition surveys implemented in Bahr El Ghazal, in 2004.

	LOCATION	MONTH	GAM	SAM
1	Mangok, Yargot, Wunlang, Mangar tong Payams in Aweil East County, Northern BEG State	January	13.0%* [%-%] N/A	1.4%* [%-%] N/A
2	Akoc, Panyok, Wunrok, Turalei, Aweng Payams in Twic County, Warab State	January	21.0% [18.7%-24.2%]	3.6% [2.4%-5.0%]
3	Aweil North, Aweil West Counties, Northern BEG State	February	19.6% [17.0%-22.3%]	4.0% [2.9%-5.6%]
4	Baac, Malualbai, Madhol Payams in Aweil East County, and Malual East Payam in Aweil North County, Northern BEG State	February	13.6% [10.6%-17.2%]	1.3% [0.5%-3.0%]
5	Mangargier, Gakrol, Wathmok Payams, in Aweil South County, Northern BEG State	February	13.2% [10.3%-16.7%]	1.8% [0.8%-3.5%]
6	Tonj County, Warab State	April	21,5% [19.0%-24.4%]	2.4% [1.5%-3.7%]
7	Mangok, Yargot, Wunlang, Mangar tong Payams in Aweil East County, Northern BEG State	June	23.3% [19.4%-27.6%]	2.7% [1.4%-4.8%]
8	Aweil North, Aweil West Counties, Northern BEG State	July	23.8% [21.1%- 26.8%]	2.9% [1.9%- 4.2%]
9	Baac, Malualbai, and Madhol Payams in Aweil East County and Malual East Payam in Aweil North County, Northern BEG State	July	14.5% [11.4%- 18.2%]	1.4% [0.6%- 3.1%]
10	Ayai, Wathmok, Gakrol, Panthou and Tieraliet Payams in Aweil South County, Northern BEG State	July	18.4% [14.9%-22.2%]	2.7% [1.4% -4.6%]
11	Aweil West County, Northern BEG State	September	21.2% [18.7%-24.0]	1.9% [1.3%-2.8%]
12	Ayat, Gomjuer Payams in Aweil West County, and Malual West, Malual Centre, Malual North, Ariath Payams in Aweil North County, Northern BEG State	November	20.3% [17.0%-24.0%]	1.7% [1.0 – 3.1%]
13	Baac, Malualbai, Madhol Payams in Aweil East County, and Malual East Payams in Aweil North County, Northern BEG State	November	14.8% (11.7%- 18.6%)	1.1% [0.4%- 2.7%]
14	Ayai, Wathmok, Gakrol, Panthou and Tieraliet Payams in Aweil South County, Northern BEG State	November	15.2% (12.0%-18.9%)	1.0% [0.3% -2.5%]

15	Aweil Centre, Northern BEG State	December	12.9% (10.8%-15.4%).	2.5% [1.6%-3.8%].
16	Gogrial East Payams, Gogrial County, Warab State	December	20.5% (17.9%-23.4%)	4.3% (3.1%-5.9%)
17	Gogrial West Payams, Gogrial County, Warab State	December	25.2% (22.4%-28.2%)	3.8 % [2.7%-5.4%]
18	Tonj County, Warab State	December	22.8% [19.9%-26.0%]	4.2% [2.9%-5.9%]
Average			18.6% (std d:4.2)	2.5% (std d:1.1)

* Exhaustive survey - no confidence interval.

From the surveys done in 2004, the current average prevalence rate of global acute malnutrition in Bahr El Ghazal is 18.6% (std d: 4.2) and severe acute malnutrition of 2.5% (std d: 1.1), showing a prevalence comparable to 2002 (GAM, 18.9% and SAM, 2.2%) and 2003 (GAM, 21% with std d: 6.2 and SAM, 3.2% with std d: 1.6). The current rate remains to be within critical level; furthermore, 72% of all the surveys had GAM rates above 15%.

The nutrition surveys carried out during the year, either for impact evaluation of existing programs (e.g. feeding programs) and/or as follow up to a previous survey that showed critical levels, allowed monitoring of the malnutrition situation in the region throughout 2004 and over the past years:

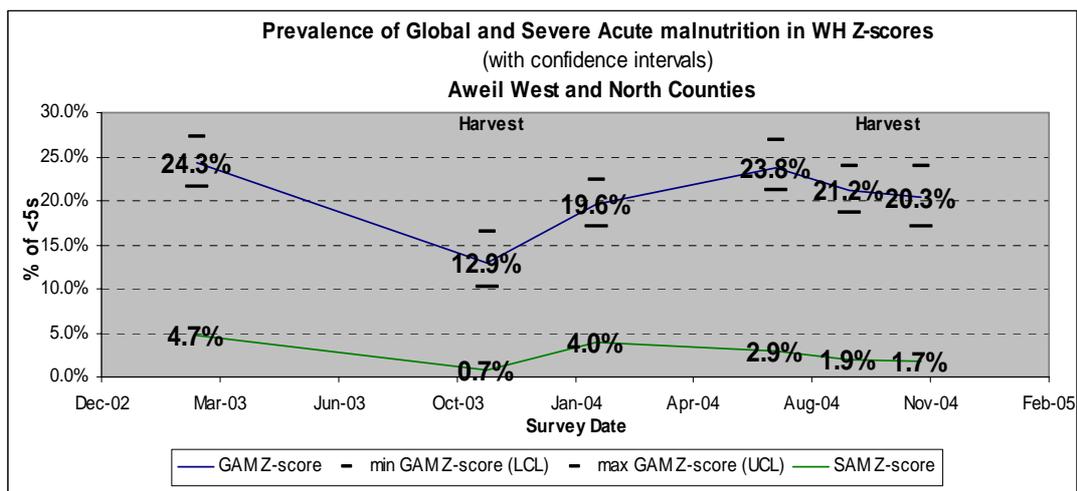
In Twic County, the prevalence of global acute malnutrition in 2003 was 33.1% with SAM rate of 5.2%, which was even higher than in 2002 (where the rates were 16.9% and 1.6%, respectively). WFP in its 2003 ANA reported that the food situation within the communities remained poor with crop yields during the year far less than optimal because of dry spells, millipedes, and crop infestation that caused wilting and staggered growth. Fish was also low due to low flooding levels. It was projected that the poorest socio-economic group including IDPs and returnees (reported to be more than 30,000 in 2003 alone) will face food deficit of 10% between January and September 2004.

The nutritional survey carried out by GOAL in Twic County in January 2004 showed a global acute malnutrition rate of 21.3% (95% CI 18.7% - 24.2%) and the prevalence of severe acute malnutrition was 3.6% (95% CI 2.4% - 5.0%), with significant number of kwashiorkor cases (i.e., positive nutritional oedema). Acute malnutrition remains highly prevalent in the county.

In Aweil West and North Counties, the nutritional survey done by CONCERN at the beginning of 2003 led to its implementation of nutritional treatment programs in the area. In November of the same year, the results of the follow-up assessment showed a decrease in the GAM rate from 23% to 12.9 % and a fair harvest; the completion of the programs were therefore taken while still monitoring the food security and nutritional situation.

In February 2004, a repeat survey showed a GAM rate of 19.6% (17-22.3%), 4 % (2.9-5.6%) of which was severe. The rates were even higher for children aged 6-29 months with 23.1% (18.9-28%) and 5.5% (3.4-8.6%), respectively. The nutritional situation has deteriorated abruptly over the period. It was reported that unlike the previous months where most households consumed two meals sourced from last harvest, most families had started having only one meal per day at the year's onset mainly composed of wild foods. There is also high morbidity incidence among children, exacerbated by unsafe drinking water, poor sanitation and poor access to health care. The prevalence of malaria, acute lower respiratory infections, and water-borne disease was high.

In July 2004, another nutrition survey showed the prevalence of GAM to be 23.8% [21.1-26.8%] and SAM of 2.9% [1.9-4.2%]. Again the nutritional survey carried out in November showed that roughly 20.3% of children 6-59 months are still suffering from global acute malnutrition, and 1.7% are severely malnourished.



Graph provided by CONCERN.

In Aweil East County, the nutritional survey carried out by TEARFUND in February 2004 showed a global acute malnutrition rate of 13.6% [10.6%-17.2%] and severe acute malnutrition rate of 1.3% [0.5%-3.0%], showing a non-critical state but having no difference with the prevalence reported in the area during the same period in 2003 (i.e. GAM and SAM rate within the same confidence intervals). Measles immunization coverage is at 7.9%, lower than the rate reported in November which was 25.6. The under-five mortality rate was 2.73/10,000 person/day, having no difference with the previous survey (i.e., 2.35/10,000 person/day). The most common cause of death was fever-related diseases, followed by respiratory infection, and diarrhoea. The follow-up nutrition survey in July 2004 showed GAM and SAM rates of 14.6% (11.6-18.2%) and 1.4% (0.5-3.0%), respectively.

In Aweil South, the first survey conducted by TEARFUND during the year showed a prevalence of global acute malnutrition rate of 13.2% [10.3-16.7%] and SAM of 1.8% [0.8-3.5%]. The GAM rates are lower than those reported in November 2003 (GAM 16.6%). The current improvement in the GAM can be attributed to the recent harvest and the provision of general food distributions by WFP at the end of 2003. During the hunger gap period at midyear, the GAM and SAM rates reported was 18.4% [14.9-22.2%] and 2.7% [1.4 -4.6%], respectively, which showed a slight increase from the point value of the GAM and SAM rates. During this period, the livestock had migrated to the lower swampy areas in search of water and pasture, leaving the community with little options to cope with the food deficit. Many of the households were surviving on wild foods Although TEARFUND has during the year re-established targeted supplementary feeding programs and outpatient therapeutic care, the targeted coverage was still low due. After the harvest by the end of the year, the GAM rate was 15.2% while the SAM was 1.0%.

The surveys done by MSF-CH and World Vision In both Tonj (in April and December) and Gogrial Counties also indicate acute malnutrition prevalence within critical levels.

In conclusion, the prevalence of global acute malnutrition in 5 of the 7 counties surveyed continued to be high throughout the year. The immediate factors contributing to the persistently high level of malnutrition are the poor harvest due to erratic rains during the June planting season combined with the near absence of fish in the main rivers during the usual fishing season (September to December) and the decrease in number and production of cattle. Water is scarce during the dry season in most areas, and even in the wet season for areas far from the main rivers; where water is available, it is unprotected. Much of the population suffers from repeated infections of malaria and water-borne parasitic and bacterial infections and access to curative and preventative health services is largely insufficient. Moreover, these areas were largely affected by insecurity (including fighting and cattle raiding), which led to movements of population, inability to expand cultivated land, and high stress on the limited existing resources. The influx of returnees also contributed to the rapid exhaustion of the food resources in these locations.¹²

¹² Nutritional Survey Report, CONCERN, November 2004.

The results from WFP Rapid needs assessment done in September 2004 indicates the food security was declining as a result of poor and delayed rains of 2004, which led to late planting and late harvesting, leading to an overall poor crop performance. The fish supply, pastures and long cycle sorghum will be negatively affected leading to deterioration of food security in the coming year. The general food security is likely to deteriorate considerably over the entire Bahr el Ghazal and food deficit up to 50% is projected in many parts of the region from March to September 2005.

5. Nutritional Situation in Equatoria

Three surveys were conducted in Equatoria during the year, and 1 area showed critical state of acute malnutrition situation. WFP ANA has identified Kapoeta as a potential food insecure area, and ACF-USA subsequently carried out a nutritional survey showing a GAM rate of 19.1% and SAM rate of 3.5%. The Diocese of Torit operates primary health care services in the area and has attended nutritional trainings of ACF-USA in the past. Due to programmatic and financial limitation of other agencies (including ACF-USA) to intervene in Kapoeta, discussions have been sought with DOT to integrate a nutrition treatment program within their services while ACF-USA provides the technical support and assistance.

Recommendations on the Nutritional Situation in South Sudan

- ↳ Wider coverage of nutrition surveys, especially in areas where no nutrition data has ever existed, and monitoring in core/sentinel areas should be undertaken by more humanitarian agencies in order to promptly detect and respond to an expected nutritional crises in 2005.
- ↳ Collaboration among the emerging southern structures (secretariats/ministries, NSCSE) and nutrition agencies (INGOs, SINGOs and UN) should be strengthened in order to develop a monitoring system aimed at estimating the nutritional situation in the South on a regular basis, and timely detecting any deterioration.
- ↳ The inclusion of developed standards on the methodology, implementation, monitoring and evaluation of Nutritional Surveillance in the Country Health Policy should be ensured by the Ministry of Health of Sudan.

CONCLUSION

The nutritional surveillance activities of ACF-USA in southern Sudan continued in 2004 with its 3 main thrusts: on nutritional surveys/rapid assessments followed by focused advocacy toward obtaining prompt and appropriate response to the nutritional situation and/or emergencies detected, on developing the capacity of the local government and other humanitarian partners to implement and increase coverage of nutritional surveys, and on analyzing the current nutritional situation and trends across the different regions through the years.

The main sectors of interventions recommended from the surveys undertaken in 2004 have referred to emergency nutrition programmes, food security (including food aid), health, water and sanitation, and relief items - 54% were implemented by the targeted agencies, which is similar to the past years. Indeed, the response rate and capacity to address the multi-sectoral causes of malnutrition and of the nutritional emergencies detected remain to be limited; this needs to be

recognized and improved on by the government and by all the other humanitarian actors in south Sudan including the donors.

Participation to the trainings provided by ACF-USA increased with 11 humanitarian agencies and official bodies represented in 2004; more importantly 15 personnel from Sudanese NGOs have received nutrition surveillance training. However, the local capacity to actually implement surveys was still not seen during the year accordingly from lack of required resources. With the number of surveys conducted last year still being far from adequate, there is compelling need for more capacity building endeavours in the upcoming years. The malnutrition rates are still above the emergency levels and there is need for heightened and continuous nutritional monitoring in South Sudan so that mortalities from acute malnutrition could be prevented. The sustainable impact from obtaining the strong involvement of national NGOs in nutrition surveillance activities can not be more emphasized.

The different surveys done in 2004 by ACF-USA and other international NGOs allowed for the detection and/or monitoring of the malnutrition status of populations especially in highly precarious areas in Upper Nile and Bahr El Ghazal. However, the coverage in new areas has not expanded greatly. Only 3 surveys in Upper Nile and 1 in Bahr-el Ghazal provided baseline nutritional information in the respective counties where no data existed before; apart from Kapoeta, surveillance activities do not exist in Equatoria Region.

The analysis of the trends of malnutrition in South Sudan suggests point prevalence of global acute malnutrition that is lower by 2% and of severe acute malnutrition by 1% in 2004 compared to the previous year. Separating Upper Nile and Bahr El Ghazal, the results from the surveys done over the year also indicate lower rates of global and severe malnutrition. Nonetheless, the estimated average global rate remains to be critical at 19% and in 70% of all the surveys done, the GAM rates were between 15 and 27 percent.

While the ominous malnutrition situation in 2004 is clearly associated with the holistic conditions of the population in terms of food security, health services, childcare practices, water and sanitation, peace and stability, and poverty in general, focus is given on the most glaring factors seen in all the assessments:

- ▶ Deterioration of overall food security situation: The ANA 2004/05 established that the overall food security situation throughout the country has deteriorated mainly due to the erratic and unevenly distributed rainfall experienced throughout the year. Continued inter-clan conflicts have also disrupted farming activities in several areas, especially in Upper Nile and Lakes region, and have caused population displacements and loss of assets and properties through looting and burning. The food security analysis showed that the overall food deficit for the vulnerable population groups in the coming year will average about 33% (or 4 months) in southern Sudan. It is estimated that the number of IDPs will remain constant throughout the year while the number of residents who require food assistance will gradually increase, especially during the hunger period, as they become more food insecure. Food insecurity is expected to be worse by the middle of the year (May to September), peak during the rainy season (July to August) and then improve when the harvest begins (September). On the other hand, if the security situation continues to deteriorate and/or climatic conditions are unfavourable for agricultural production, the food security situation will deteriorate further.
- ▶ Poor health conditions and limited access to health services: The provision of primary health services remain inadequate to the increasing population and needs. Especially in Upper Nile, the average under-five mortality rate is above critical level (>2deaths/10,000 persons/day) and infectious, water-borne diseases, and malnutrition continue to be the leading causes of mortality as well as morbidity. In spite of heightened promotion and implementation of immunization services by UNICEF and other health agencies, the coverage remains low.

The move from nutrition surveys to a formal nutritional monitoring system requires that official government bodies of South Sudan (such as the Ministry of Health) integrate nutrition within its structural policies. This process will require time and dedication before being fully efficient. Consequently, while building the capacity of the Sudanese it is necessary to maintain the capacity of international agencies to implement nutrition surveys to detect emergencies.

While ACF-USA is actively involved in the reflection on the way to have more regular, systematic and standardized nutritional information, as well as a better geographical coverage, ACF-USA will still recommend and ensure the implementation of nutrition surveys in order to detect nutrition emergencies. In order to reach this objective, ACF-USA will continue organising training while adapting to the constraints faced by the Sudanese agencies in attending the sessions. ACF-USA will support Sudanese organisations in accessing increased means and resources to implement nutrition surveys and rapid assessments.

Finally the Secretariat of Health, the emerging structures of the South Sudan Government and the humanitarian donors need to more strongly regard nutrition as a Public Health priority for the children of the South and to mobilise the necessary resources to tackle malnutrition in the short and long terms.

The following specific recommendations have been outlined:

- ✦ Adequate and appropriate capacity for nutritional response should be prioritized by the local government structures, the UN, other humanitarian agencies (international and national), and donor bodies in their program/strategy planning and implementation for 2005 and succeeding years.
- ✦ Recognition of and the corresponding advocacy for rapid and coordinated interventions from targeted agencies should be continued and further improved by ACF-USA. Eventually, a structured mechanism for prompt and coordinated multi-sectoral response to nutritional emergencies should be established and sustained by the Nutrition Department of the Ministry of Health.
- ✦ Technical support and training on nutritional surveillance should be continued by ACF-USA (from methodology, data collection, analysis and reporting), while ensuring increased and coordinated coverage of nutritional surveys by local government bodies, and national and international agencies in the succeeding years.
- ✦ Enhanced and collaborated support to National NGOs to secure resources (manpower, funds and tools) for the implementation of nutrition surveillance activities from the Ministry of Health and other official structures of the Sudan Government, UNICEF, funding institutions, as well as international NGOs should be heightened and sustained in 2005 and beyond.
- ✦ Wider coverage of nutrition surveys, especially in areas where no nutrition data has ever existed, and monitoring in core/sentinel areas should be undertaken by more humanitarian agencies in order to promptly detect and respond to an expected nutritional crises in 2005.
- ✦ Collaboration among the emerging southern structures (secretariats/ministries, NSCSE) and nutrition agencies (INGOs, SINGOs and UN) should be strengthened in order to develop a monitoring system aimed at estimating the nutritional situation in the South on a regular basis, and timely detecting any deterioration.
- ✦ The inclusion of developed standards on the methodology, implementation, monitoring and evaluation of Nutritional Surveillance in the Country Health Policy should be ensured by the Ministry of Health of Sudan.