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Situation Analysis of Nutrition in Southern Sudan: Analysis Based on June 2009 Assessment

Mija-tesse Ververs

December 2010

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Why treat people's illness without changing the conditions that made them sick in the first place?

*—Director General, Directorate of External Assistance and Coordination
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Acronyms and Abbreviations

ACF	Action contre la Faim
ACSI	Accelerated Child Survival Initiative
AIDS	acquired immune deficiency syndrome
ANLA	Annual Needs and Livelihoods Assessment
ARI	acute respiratory infection
BCC	behaviour change communication
BMI	body mass index
BPHNS	Basic Package for Health and Nutrition Services
CES	Central Equatoria State
CFSAM	Crop and Food Security Assessment Mission
CHW	community health worker
cm	centimetre(s)
CMAM	Community-Based Management of Acute Malnutrition
CPA	Comprehensive Peace Agreement
CSB	corn-soy blend
DHS	Demographic and Health Surveys
DN	Directorate of Nutrition
EBF	exclusive breastfeeding
EES	Eastern Equatoria State
EMOC	emergency obstetric care
EMONC	emergency obstetric and neonatal care
ENA	Essential Nutrition Actions
EPI	expanded programme of immunisation
ECSA	East, Central, and Southern Africa
FANTA	Food and Nutrition Technical Assistance Project
FANTA-2	Food and Nutrition Technical Assistance II Project
FAO	Food and Agriculture Organization of the United Nations
FEWS NET	Famine Early Warning Systems Network
FFW	Food for Work
g	gram(s)
GAM	global acute malnutrition
GAVI	Global Alliance for Vaccines and Immunisation
GMP	growth monitoring and promotion
GOSS	Government of Southern Sudan
HFA	height-for-age
HIV	human immunodeficiency virus
HMIS	health management information system
HNCG	Health and Nutrition Consultative Group
HR	human resource
IDP	internally displaced person
IEC	information, education, and communication
IM-SAM	integrated management of severe acute malnutrition
IMCI	integrated management of childhood illness
IMR	infant mortality rate
IPC	Integrated Food Security Phase Classification
ITN	insecticide-treated bednet
IUGR	intra-uterine growth retardation
IYCF	infant and young child feeding
KAP	Knowledge, Attitudes, and Practice
kcal	kilocalorie(s)
L	litre(s)
LAF	Livelihood Analysis Forum
LBW	low birth weight
LRA	Lord's Resistance Army (Uganda)

M&E	monitoring and evaluation
MAM	moderate acute malnutrition
MDG	Millennium Development Goal
mg	milligram(s)
MICS	Multiple Indicator Cluster Survey
MMR	maternal mortality ratio
MOAF	Ministry of Agriculture and Forestry
MOH	Ministry of Health
MSF-CH	Médecins Sans Frontières – Switzerland
MSF-F	Médecins Sans Frontières – France
MTEF	Medium Term Expenditure Framework
MUAC	mid-upper arm circumference
n.d.	no date
NBG	Northern Bahr el Ghazal
NCHS	National Centre for Health Statistics
NGO	nongovernmental organisation
NID	National Immunisation Day
NOUF	naturally occurring uncultivated food
NSCSE	New Sudan Centre for Statistics and Evaluation
NTWG	Nutrition Technical Working Group
ORS	oral rehydration solution
ORT	oral rehydration therapy
OVC	orphans and vulnerable children
PHC	primary health care
PLHIV	people living with HIV
PLW	pregnant and lactating women
PMTCT	prevention of mother-to-child transmission of HIV
RCQHC	Regional Centre for Quality of Health Care (Uganda)
ReSoMal	Rehydration Solution for Malnutrition
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SD	standard deviation
SDG	Sudanese pound (currency)
SFP	supplementary feeding programme
SHHS	Sudan Household Health Survey
SHTP	Sudan Health Transformation Project
SIFSIA	Sudan Institutional Capacity Programme: Food Security Information for Action
SSCCSE	Southern Sudan Centre for Census, Statistics, and Evaluation
SSEFCRP	Southern Sudan Emergency Food Crisis Response Project
SSRRC	Southern Sudan Relief and Rehabilitation Commission
STI	sexually transmitted infection
TB	tuberculosis
TBA	traditional birth attendant
THG	thematic group
U5MR	under-5 mortality rate
U.N.	United Nations
UNFPA	United Nations Population Fund
US\$	United States dollar
USAID	United States Agency for International Development
VAM	Vulnerability Assessment Mapping
WBG	Western Bahr el Ghazal
WES	West Equatoria State
WFH	weight-for-height
WFP	World Food Programme
WHO	World Health Organization
WVI	World Vision International

Executive Summary

Malnutrition in Southern Sudan is caused by various factors, some of which change seasonally and some of which affect different population groups. Coping mechanisms might not always be effective enough to prevent seasonal increase of malnutrition incidence rates. Food insecurity—inadequate food availability, access, and utilisation/consumption—is a problem for most communities in Southern Sudan. People affected by political and social insecurity and/or natural disasters are at a higher risk of food insecurity. For example, internally displaced persons (IDPs) and returnees depend heavily on casual labour for their livelihood, and female-headed households face uncertain livelihood conditions. In addition, a general lack of dietary diversity is a substantial contributing factor to malnutrition in Southern Sudan.

Children facing food insecurity and care practice problems in the home are at a high risk of developing acute malnutrition, are vulnerable to disease, and are at increased risk of death. In the past 5 years, the trends in prevalence of acute malnutrition among children under 5 fluctuated around 19 percent, of which about 3 percent of cases were severe. This level of acute malnutrition surpasses the World Health Organization (WHO) emergency threshold of 15 percent. The prevalence varies seasonally and across regions. There is no indication of decreased prevalence of acute malnutrition since the signing of the 2005 Comprehensive Peace Agreement (CPA).[12]¹

In 2006, chronic malnutrition or stunting was reported at 19 percent,[12] which was low relative to levels in neighbouring countries. Data on the prevalence of malnutrition among adults (including women, the elderly, and people living with HIV [PLHIV]) are not available. Though there is a lack of data on the prevalence of deficiencies in vitamins and minerals, given the rates of undernutrition and the dietary consumption patterns in Southern Sudan, micronutrient deficiencies are almost certainly widespread and severe. The high infant and maternal mortality rates are further indications that malnutrition is widespread in Southern Sudan. The high malnutrition rate is likely associated with an increased disease burden and maternal and infant mortality, impaired cognitive development and physical growth in children, and reduced wage earning and physical production capacity of the unskilled adult population in Southern Sudan. In addition, overweight and its effects on health are an increasing burden on the health system in Southern Sudan.[12]

Southern Sudan has a heavy burden of communicable diseases associated with undernutrition, such as malaria, acute respiratory infection (ARI), and diarrhoeal diseases. Comprehensive data on health and nutrition in Southern Sudan are available every 5 years (through the Sudan Household Health Survey [SHHS]). More regular health and nutrition assessments cover specific geographic areas, but cannot be extrapolated and might underestimate the extent of the health and nutrition problem. The 2006 SHHS contained the following statistics. The average prevalence of fever is estimated at 46 percent among children under 5, but only 4 percent receive treatment. Diarrhoea is a major source of illness and mortality in Southern Sudan. Only 16 percent of children are fully immunised. Childhood mortality is estimated at 135 per 1,000 live births, and the maternal mortality ratio (MMR) of 2,054 per 100,000 live births is one of the highest in the world. Health-seeking behaviour is limited, and the health system is ineffective in meeting the population's needs for primary health care.[12]

Repeated illnesses and inadequate infant and young child care and feeding also impair childhood growth and nutritional status. The majority of infants are introduced to complementary food or water (that is, in addition to breast milk) before they are 6 months of age, which, if coupled with inadequate water, sanitation, and hygiene conditions, expose young children to pathogens that affect their health and nutritional status. Poor water quality, sanitation, and hygiene practices are widespread and are major causes of morbidity. Because most children reach clinics only when diseases or malnutrition have progressed to severe stages, many children present with advanced forms of acute malnutrition.

Women's workloads, their status within the family, and traditional beliefs also play a central role in child care and feeding and health-seeking behaviour. Long separation of women from their children during the

¹ Numbers in square brackets refer to references that can be found in the **References** section.

day compromises child care practices, while traditional beliefs about food overshadow nutritionally sound diets. Strong traditional beliefs and attitudes also often determine where and when to seek health services.

Health care services reach less than a quarter of the population of Southern Sudan, and health and nongovernmental organisations provide most nutrition services, which are mainly emergency in nature. Thus, the underlying causes of malnutrition are not addressed, and treatment has a higher priority than does prevention. Moreover, most basic health care services are curative in nature; services to prevent poor health or nutrition are not yet routine.

A shortage of qualified staff and equipment and frequent stock outages in essential medicines and supplies limit the capacity to provide quality care through existing health systems. Few states have identified the resources needed to keep a nutritionist on staff payroll. Most health staff are not trained and equipped to detect and treat acute malnutrition or its life-threatening advanced levels of severity. Furthermore, the essential drug kits do not contain the key drugs and therapeutic foods to manage severe acute malnutrition (SAM).

The Government of Southern Sudan (GOSS) has demonstrated its commitment to nutrition by establishing the Directorate of Nutrition (DN) and specific positions like the Director General, directors, and technical officers in the various nutrition fields. Since the establishment of the DN, GOSS-level nutrition advocacy has been strengthened, and a separate budget line for the DN has been provided. The call to develop the Nutrition Health Policy and policy tools, such as subpackages, guidelines, protocols, training modules, and job aids, all underscore the GOSS commitment to nutrition. Nevertheless, the need remains to refine the quality of components specific to nutrition that are integrated in various policies and guidelines in the health sector, specifically the Basic Package for Health and Nutrition Services (BPHNS), which is the vehicle for high-impact interventions to populations at the community and household levels. There also is a need to harmonise key nutrition messages in the different health policies and guidelines. In addition, concerted advocacy and coordination among the different stakeholders, under the leadership of the DN, are necessary to keep nutrition on the national agenda and to avoid fragmentation of nutrition interventions.

Many nutrition and health initiatives are under way in Southern Sudan. To support and complement these initiatives, the government is establishing the structures to provide widespread quality health and nutrition services. The process will take time, and the contributions of nongovernmental organisations (NGOs) to health care provision in Southern Sudan will continue to be substantial over the next few years. Most NGOs continue to provide this support while they also strengthen the national government's capacity to gradually take over the service provision.

In line with the GOSS efforts to create health sector structures, the DN has established a number of functional working groups and forums to promote the nutrition agenda and provide coordination at the GOSS level. The discussions of the monthly nutrition coordination meetings feed into the Health NGO Forum and the Health and Nutrition Consultative Group (HNCG). The monthly coordination meetings are supported by thematic groups (THGs), lately operating on an ad hoc basis. The nutrition coordination mechanism and the THGs are not yet functioning to their full potential, and similar state-level forums might not yet function effectively in all states.

Numerous systems to collect and compile health data have been proposed in Southern Sudan. Most do not have nutrition indicators. Almost all data on nutrition are collected and compiled by NGOs. There is no central mechanism for the government to collate and share this information. Underweight is the only indicator that is included in the routine Ministry of Health (MOH) monitoring and evaluation (M&E) system. It is possible to collect data on other nutrition indicators, such as prevalence of stunting, acute malnutrition, and anaemia, but they are not included in the national M&E framework.

RECOMMENDATIONS

The following are key recommendations to tackle major nutrition challenges:

1. Health and nutrition policies and guidelines and emergency preparedness and response systems should be revised and updated to adequately cover infant and young child care and feeding practices and the problems and management of anaemia and acute malnutrition. The DN should play an instrumental role in supporting the national policy for health and nutrition promotion.
2. The MOH should provide therapeutic equipment and supplies for the management of SAM, including therapeutic foods, to health facilities with SAM services as part of the essential medicines and supplies.
3. The MOH should have a policy and provide guidance for hospitals to provide meals to mothers with hospitalised malnourished children, especially when lactation is still part of the treatment.
4. The MOH and nutrition partners should agree on a national strategy on the management of MAM and should advocate for the necessary means to do so.
5. The MOH should collect and map existing SBCC for health and nutrition promotion adapted to the Southern Sudan context, identify gaps, and develop country-specific materials based on a SBCC analysis.
6. Growth monitoring or nutrition counselling should be a priority for all pregnant and lactating women (PLW) in Southern Sudan. While monitoring children's growth until they reach 12 months of age is important, if referral services for treatment do not exist in the health facilities, nutrition counselling should be a priority for funding and efforts.
7. The Nutrition Health Policy, which is currently being developed, should be accompanied by an operational action/implementation plan. The National Policy for Health Promotion (Draft February 2009) is a major steppingstone for the nutrition community to address the prevention of malnutrition. The DN, ideally with learning sites, should provide substantial inputs to an implementation plan, since nutrition is a major component of the policy.
8. The DN should play an instrumental role in defining and supporting nutrition roles within the state ministries of health. However, the DN needs financial and technical support in the areas of governance and planning (e.g., drafting workplans and job descriptions), as well as in coordination and technical leadership. To build human resource (HR) capacity, a mapping of nutritionally competent staff should be conducted, followed by identification of nutrition staff needs for the next 5–10 years, including dietitians and food technologists. In addition, WHO/Southern Sudan would benefit from a full-time nutrition focal point.
9. Nutrition learning sites should be established to strengthen the MOH's expertise in learning lessons in, planning for, and mentoring staff on nutrition. These sites should link to academic, training, and research institutions. In addition, exchanges to well-established nutrition units (in-country or outside of the country) would contribute to improved knowledge and skills in nutrition governance, the translation of concepts into action, and data analysis.
10. The NTWG with a well-defined terms of reference and partnerships, including health promotion stakeholders and MOAF, should form the basis for coordination and improvement of quality of nutrition activities. THGs should be the technical arms of the NTWG.
11. There is a need to explore whether adult malnutrition is a problem in Southern Sudan. The DN should assert its leadership role in nutrition information systems, including a surveillance system.
12. Country-specific research on nutrition should be conducted in Southern Sudan.

13. The MOH should develop a stronger capacity to advocate for nutrition that incorporates the social and cognitive development and economic consequences that arise if malnutrition is not addressed.
14. Nutrition partners should not work in parallel health structures, but instead should work exclusively through and with the MOH and its health system, which will strengthen the health facilities' capacity to provide services.

1. Introduction

1.1 GEOGRAPHY AND DEMOGRAPHIC SITUATION

The January 2005 Comprehensive Peace Agreement (CPA) formally ended a 22-year war between the Khartoum (Sudan) government and the Sudan People's Liberation Movement. Under terms of the CPA, the south has been given a large degree of [autonomy](#). In 2011, there will be an opportunity for a referendum to vote for independence after 6 years of autonomous rule.

Southern Sudan (officially known as the autonomous Government of Southern Sudan [GOSS]) is divided into 10 states¹ and 79 counties, and borders Ethiopia to the east, Kenya and Uganda to the south, the Democratic Republic of Congo to the southwest, the Central African Republic to the west, and northern Sudan (see the map in **Annex 3**). Southern Sudan has widely contrasting terrain, with tropical and equatorial forests, wetlands, savannah, and mountains. Many rivers and streams traverse the land. Significantly, large areas of the country are swampy marshland and become flooded in the rainy season, which forms a rich ecosystem for numerous human parasites and disease vectors and constrains road networks between states. The poorly developed road networks coupled with the terrain and climatic features hinder the transport of goods, including food and drugs. These factors also discourage attendance at health facilities.

1.2 BASIC STATISTICS IN SOUTHERN SUDAN

Table 1 gives an illustration of the context in which the population of about 8.3 million Southern Sudanese live.[1]² The population is expected to increase through natural growth and returning refugees from neighbouring countries and internally displaced persons (IDPs) in northern Sudan. There are 300 ethnic groups in Southern Sudan with a wide variation in cultural beliefs and traditional practices. The predominant culture is nomadic pastoralist and agro-pastoralist, but there also are sedentary farming groups. With few exceptions, population density is low, presenting some serious constraints in the distribution of health care personnel.[2]

The population statistics are characteristic of a state emerging from a long war and/or neglect. Poverty is widespread in both rural and urban areas and illiteracy is high, especially among women. Mortality, especially among children and women of child-bearing age, is very high, and infectious diseases, such as diarrhoea and malaria, are prevalent. HIV prevalence is still low, at about 3 percent, but conditions conducive to its increase exist, including poor awareness of preventive mechanisms and low access to and use of condoms.

¹ The 10 states are Western Equatoria (WES), Central Equatoria (CES), Eastern Equatoria (EES), Northern Bahr el Ghazal (NBG), Western Bahr el Ghazal (WBG), Lakes, Warrap, Jonglei, Unity, and Upper Nile.

² Numbers in square brackets refer to references that can be found in the **References** section.

Table 1. Selected Population Statistics in Southern Sudan

Demographics	<ul style="list-style-type: none"> • Approximately 8.3 million people lived in Southern Sudan in 2008 (48% female, 52% male).[1,3] • 20% of household members are children under 5 years of age.[4,5,6,7] • 72% of the population are under 30 years of age.[3] • The average household size is estimated to be 7.4, ranging from 6 to 10.[4,6,7,8,9] • The average household size of <i>returnees</i> is smaller, 4.5.[10]
Poverty	<ul style="list-style-type: none"> • More than 90% of the population in Southern Sudan currently live on less than US\$1 per day.[16]
Food Insecurity	<ul style="list-style-type: none"> • 1.3–1.9 million people, 16%–23% of the population, have been food insecure every year since 2005.[11]
Maternal Health	<ul style="list-style-type: none"> • The maternal mortality ratio (MMR) is 2,054 per 100,000 live births.[16] • One of seven women who become pregnant in Southern Sudan will die of reproductive health complications.[16] • On average, only 10% of the women in Southern Sudan deliver their children with skilled health staff (i.e., a medical doctor, nurse, midwife, or auxiliary midwife).[12] • The case fatality rate of women delivering in health facilities is 11,062 per 100,000 live births (data from 7 hospitals).[13] • There are only 10 certified midwives in Southern Sudan.[79] • The total fertility rate in Southern Sudan is 6.7, meaning women on average give birth to more than 6 babies during their reproductive years.[14] • Less than 2% of women use modern contraception.[12,13]
Child Health	<ul style="list-style-type: none"> • The infant mortality rate (IMR) in Southern Sudan is 102 per 1,000 live births.[12] • The under-5 mortality rate (U5MR) is 135 per 1,000 live births, which means that one in seven children will die before their fifth birthday.[12,15] • Exclusive breastfeeding (EBF) is estimated at 20% of infants under 6 months.[12,13] • Timely, complementary feeding is estimated at 55% for children 6–9 months.[12]
Immunisation	<ul style="list-style-type: none"> • 17% of children are fully vaccinated; Southern Sudan has one of the lowest routine immunisation coverage rates in the world.[16] • 28% of children in Southern Sudan receive measles vaccination before their first birthday.[12] • Vaccination card retention is estimated at 25%.[80]
Malaria	<ul style="list-style-type: none"> • Malaria is considered hyper-endemic in Southern Sudan, accounting for more than 40% of all health facility visits.[16] • 2% of households in Southern Sudan have an insecticide-treated bednet (ITN).[12]
HIV	<ul style="list-style-type: none"> • In 2007, the HIV prevalence in Southern Sudan was estimated at 3.1%, but is increasing.[81] • Less than 10% of women 15–49 years know about HIV prevention.[12]
Water and Sanitation	<ul style="list-style-type: none"> • Less than 50% of the population in Southern Sudan have access to improved drinking water.[12] • 6.4% of the population use improved sanitation facilities.[12] • An estimated 40% of children under 5 had diarrhoea in the 2 weeks preceding a survey.[5,6,8,9,14,15]
Education	<ul style="list-style-type: none"> • Less than 50% of all children in Southern Sudan receive 5 years of primary school education.[12] • As of 2006, 55% of primary school-aged children were attending in school.[12] • 1.9% complete primary school education.[12] • There is one teacher for every 1,000 primary school students.[16] • 15% of adults in Southern Sudan are literate[16]
Gender	<ul style="list-style-type: none"> • 8% of women in Southern Sudan are literate.[16] • 16% of young women (15–24 years) are literate.[14] • 36% of girls 7–9 years in Southern Sudan attend primary school.[17] • A 15-year-old girl has a higher chance of dying in childbirth than completing school[12]. • 18% of women 5–49 years were first married or in a union by age 15.[12]
Displacement	<ul style="list-style-type: none"> • In 2008, 187,000 people were displaced by tribal and armed conflict in Southern Sudan.[16] • Total returns of IDPs/refugees to Southern Sudan in 2008 alone (both organised and spontaneous) was almost 410,000.[18]

1.3 RATIONALE FOR THE SITUATION ANALYSIS

Several developments created the momentum for the GOSS Ministry of Health (MOH) Directorate of Nutrition (DN) to request technical assistance from the United States Agency for International Development (USAID) for a Southern Sudan-specific nutrition policy. USAID/Southern Sudan has supported health and nutrition activities since 2004. In November 2006, the MOH and UNICEF invited the USAID-funded, FHI 360-implemented Food and Nutrition Technical Assistance Project (FHI 360/FANTA) to facilitate a 3-day National Consultative Meeting on Nutrition that brought together senior personnel in key government sectors, nongovernmental organisations (NGOs), United Nations (U.N.) agencies, and nutrition experts from the region. Key recommendations from the meeting included:

1. Quickly developing a nutrition policy
2. Defining a minimum package of nutrition actions within the Basic Package for Health and Nutrition Services (BPHNS)
3. Strengthening the capacity of health providers in basic nutrition services
4. Establishing key nutrition indicators in the health information system
5. Encouraging the MOH to take leadership in coordinating nutrition partner activities in Southern Sudan

The GOSS is keen to establish policies and programmes to address the heavy burden of malnutrition. Southern Sudan is in a transitional phase; a variety of structures and policies are being developed, and nutrition is being mainstreamed into the development and economic agenda. In 2008, the DN and USAID/Southern Sudan requested that the Food and Nutrition Technical Assistance II Project (FANTA-2) support the development of a Southern Sudan Nutrition Policy.[35]³ In April 2009, the GOSS/MOH/DN hosted a landmark Nutrition Health Convention with the support of the U.N. agencies, national and international NGOs, and USAID through FANTA-2. The convention raised awareness among health sector stakeholders about the importance of nutrition to the health and well-being of the people of Southern Sudan.

1.4 OBJECTIVES AND ORGANISATION OF THE SITUATION ANALYSIS

The objectives of this situation analysis are to:

1. Describe the current situation of childhood and adult malnutrition within the ecological, political, demographic, socioeconomic, and health system context of Southern Sudan
2. Analyse the policy and health institutional framework within which malnutrition is being addressed in Southern Sudan
3. Select specific priority issues that can be addressed in the nutrition health policy document

Through these objectives, the situation analysis will enable the development of a GOSS Nutrition Health Policy that is tailored to Southern Sudan's needs and focused on specific, high-priority policy issues for which feasible solutions can be proposed in the medium term.

The situation analysis is organised into six main sections:

1. A short description of the methods used to collect the information in this situation analysis and some of the challenges identified; nutrition information systems are also presented (**Section 2**)
2. A description of the nutrition situation in Southern Sudan (**Section 3**)
3. The perceived causes of malnutrition in Southern Sudan (**Section 4**)
4. The existing policy and institutional framework for nutrition and health (**Section 5**)
5. The nutrition and health actors and their activities and initiatives (**Section 6**)
6. An overview of challenges, conclusions, and recommendations, which will contribute significantly to the planned development of the Southern Sudan Nutrition Health Policy (**Section 7**)

³ In northern Sudan, a nutrition policy was recently established.

2. Methodology

2.1 METHODS USED TO COLLECT AND ANALYSE INFORMATION

This situation analysis includes:

- A literature desk review of almost 80 key documents and meeting presentations
- Key informant interviews with 54 stakeholders
- Site visits (ministries, health facilities, pharmacy, market)
- Information gathered during various meetings in Juba
- Input from orientation and consensus meetings on the findings of the preliminary situation analysis
- Review of the document by various stakeholders in Southern Sudan and internationally

2.2 SOURCES OF INFORMATION

The GOSS/MOH/DN supported the process, including making a list of key persons, departments (within and outside the MOH), and partners that could provide useful information and input, providing some of the documents, and arranging meetings with some of the key informants.

Various NGOs and in-country development organisations/agencies were contacted directly or through electronic means. Most documents available are from these groups and currently represent the best sources of information in Southern Sudan.

The report focuses predominantly on data from the period after the 2005 CPA. The report tries to avoid duplication of reviews and synthesises available documented information with information from various sources, including experience and knowledge from governmental and nongovernmental sources. Different sources were used to triangulate available information and identify common themes.

The nutritional condition of the general population in Southern Sudan since the CPA has not been comprehensively reported for a number of reasons, including the fact that many nutrition surveys in Southern Sudan only include specific geographical areas.

2.3 CHALLENGES AND GAPS IN INFORMATION COLLECTION

Due to the enormous cultural diversity of people in Southern Sudan, their habits, livelihood profiles, and the geographical and climatic differences, it would be impossible to describe every detail of all of the problems, risks, and challenges for each of the livelihood profiles, ethnic groups, and states in this situation analysis. The situation analysis tries to generalise, where possible, nutrition-related problems throughout Southern Sudan while still recognising the variations in geographical areas and livelihood groups.

While many nutrition surveys have been conducted, the majority are done by NGOs and refer to only a few geographical zones, which makes it difficult to draw any conclusions for the whole country. This is also true for information collected on other areas, such as water and sanitation and food security.

Surveys are normally done in the process of implementing a programme or as a requirement of the implementation process, as a baseline survey, monitoring data, or sometimes as surveillance data. Data are not collected and compiled at a central point, and there is weak coordination and no harmonisation among survey protocols. With the release of the 2006 World Health Organization (WHO) Child Growth Standards, most actors report prevalence data using both those standards and National Centre for Health Statistics (NCHS) references, but some still refer only to NCHS reference.[19,20]

While compiling this situation analysis, UNICEF and the MOH were also completing a Knowledge, Attitudes, and Practices (KAP) Survey on water, sanitation, hygiene, and nutrition in seven states.[21] The results will be important and complementary to this analysis.

3. Nutrition Situation in Southern Sudan

In Southern Sudan, there are various forms of malnutrition, including acute, chronic, and micronutrient. These nutrition conditions affect mainly children under 5 and pregnant and lactating women (PLW). The elderly and IDPs also are vulnerable groups. Most anthropometric data are based on small surveys done by NGOs, and little information on micronutrient deficiencies exists in Southern Sudan.

3.1 ACUTE MALNUTRITION IN CHILDREN UNDER 5

Table 2 and **Figure 1** provide annual averages of global acute malnutrition (GAM) and severe acute malnutrition (SAM) prevalence rates from surveys conducted in the 2005–2008 period in areas large enough to represent most of Southern Sudan in each of the years since the 2005 CPA.

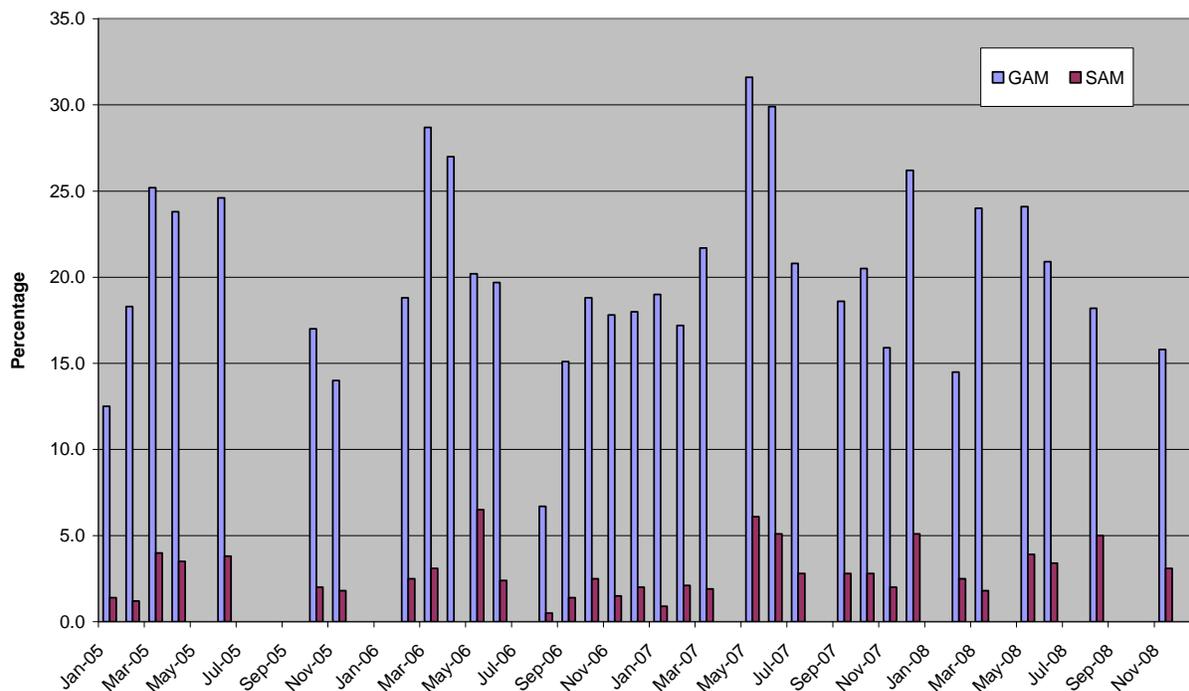
Table 2. Annual Averages of GAM and SAM prevalence rates

Year of survey	GAM % (SAM %)*		
	Annual	April	December
2005[22,23]	20.7 (2.7–3.0)	—	—
2005[2,25]	18.7 (2.4)	20 (3.4)	14 (1.8)
2006[24,25]	19.5 (2.3)	20 (3.7)	15 (3.2)
2007[24,25]	19.4 (2.1)	24 (3.4)	19 (3.5)
2008[25,8]		16 (1.7)	15 (4.6)

* GAM and SAM are defined by weight-for-height (WFH) < -2 and < -3 z-scores by NCHS reference, respectively, and/or presence of bilateral pitting oedema.

Details of how data from **Figure 1** were aggregated are presented in **Annex 8**. The data used to construct this figure did not weigh the survey findings by numbers of children measured in each survey; each survey has been given the same weight in computing the average.

Figure 1. Reported Average GAM and SAM Rates for Children under 5 from 89 Surveys Conducted in the 2005–2008 Period



While this information may have the limitations discussed in **Section 2.3**, it is obvious that the levels of acute malnutrition among children under 5 years in Southern Sudan are high. The following findings can be deduced from the table.

1. The average annual GAM rates are estimated at 19 percent, which is above the emergency threshold of 15 percent (according to WHO standards), implying a continuing emergency situation in Southern Sudan. About 3 percent of children have SAM.
2. There is a large pool of moderately acutely malnourished children who easily become severely acutely malnourished when they get sick or experience food stresses. From these data, an estimated 315,400 children under 5 suffer from acute malnutrition, of whom 48,140 would have SAM.⁴

3.1.1 Important Characteristics of Acute Malnutrition among Children in Southern Sudan

- Very few children present with bilateral pitting oedema, indicating mostly incidence of marasmus rather than kwashiorkor.[4,5,6,7,8,9,26]
- As in most countries, the majority of children who suffer acute malnutrition are under 29 months old[4,5,7,12,26] and most are 6–12 months,⁵ indicating increased vulnerability associated with infant and young child feeding (IYCF) and child care practices. On average, children under 29 months are 1.3–2.0 times more likely to suffer from acute malnutrition than are children 30–59 months.[9,26,27]
- Overall, the prevalence of moderate acute malnutrition (MAM) identified with weight-for-height (WFH) by the WHO standards is 5–10 times higher than the prevalence identified with mid-upper arm circumference (MUAC) (MUAC < 125 mm).[4,5,6,7,28,29] For SAM, the prevalence rates have a much greater disparity: Prevalence of SAM in children identified with WFH and/or bilateral pitting oedema was 3–13 times higher than the prevalence identified with MUAC

⁴ Twenty percent (1.66 million) of Southern Sudan's population (8.3 million) are children under 5, of whom 19.0 percent (315,400) suffer from moderate acute malnutrition (MAM) and 2.9 percent (48,140) from SAM.

⁵ Data from Médecins Sans Frontières – France (MSF-F) from January to May 2009 showed 70 percent of children with SAM were under 12 months.

(MUAC < 110 mm).⁶ One NGO mentioned that 41 percent of children with a WFH z-score < -3 by the WHO standards had MUAC readings of over 12.0 cm.[82] This difference in prevalence rates is unusual and needs to be studied.

- Case fatality among acutely malnourished children has been low in Southern Sudan and does not indicate an emergency. This is probably attributed to the therapeutic feeding programmes implemented by most of the agencies reporting these data. Data on under-5 mortality rates (U5MRs) were available from 38 of the 89 surveys listed in **Annex 8**.⁷ The U5MR in these 38 surveys ranged from 0.12 to 3.50 deaths per 10,000 children per day, surpassing the critical level for an emergency of more than 2.0 deaths per 10,000 children per day only three times.

3.2 CHRONIC MALNUTRITION IN CHILDREN UNDER 5

The prevalence of chronic malnutrition, or stunting measured as height-for-age (HFA) < -2 z-score, measured in the 1995–2001 period was high: 45 percent for both moderate and severe malnutrition.[14] Few national surveys conducted in Southern Sudan during 2005–2008 reported on stunting. **Table 3** shows stunting prevalence rates of two national surveys, one conducted in 2006 and one in 2008.

Table 3. Prevalence of Stunting (Percentage of Children under 5) by State

State	Prevalence of stunting (in % HFA < -2 z-score of the NCHS references)	
	2006[12]	2008[8]
Jonglei	32.5	16.8
Upper Nile	31.1	23.0
Unity	38.6	18.0
Warrap	28.9	12.6
Northern Bahr el Ghazal	37.8	18.7
Western Bahr el Ghazal	41.3	24.2
Lakes	29.8	10.6
West Equatoria	38.0	-
Central Equatoria	32.8	-
Eastern Equatoria	33.6	29.4

- Although state differences existed, stunting was more widespread in the earlier surveys.
- On average, the prevalence of stunting was about 19.2 percent in 2008 for the eight states with information.[8]
- Unlike acute malnutrition, stunting rates are less affected by season and represent a child's chronically impaired nutritional status. The "war vs. post-war" data are not comparable because of different methodologies.
- Stunting levels reported in the 2008 surveys were lower than national figures reported in the neighbouring countries of Uganda, Ethiopia, and Kenya.[36]

3.3 MICRONUTRIENT DEFICIENCIES

Deficiencies of vitamin A, iodine, and iron are thought to be widespread, but information on these deficiencies in Southern Sudan is rare and fragmented. Limited dietary diversity and high incidence of infectious diseases are predisposing factors to micronutrient deficiencies.

⁶ The surveys did not yet use newly established 11.5 cm for MUAC as a cutoff point for SAM.

⁷ Retrospective mortality surveys are usually concurrently done along nutrition surveys and estimate the number of deaths between the total and the population children under 5 from the preceding 3 months. Caution must be used when interpreting mortality data derived from nutrition surveys as the nutrition survey method is not validated for assessing mortality and is usually subject to a high level of imprecision.

3.3.1 Vitamin A Deficiency

- It is estimated that subclinical vitamin A deficiency affects one in seven children.[30]
- The proportion of children who received high-dose vitamin A supplementation among children in Southern Sudan in the past 6 months has increased to 41 percent, as reported in 2006.[12]
- Vitamin A supplementation is almost exclusively provided during mass vaccination campaigns and rarely provided routinely. Currently, the MOH, U.N. agencies, and NGOs contribute to mass polio eradication campaigns where vitamin A is provided twice a year.
- Postpartum vitamin A supplementation (within 8 weeks of delivery) coverage was estimated at 18 percent (varying between 11 to 33 percent over different states) of women 15–49 years with a live birth in the 2 years preceding the 2006 survey.

3.3.2 Iodine Deficiency

- NGOs have reported cases of goitre, but the extent is unknown.[21]
- A large portion of the table salt used in Southern Sudan is imported from East African countries, such as Kenya and Uganda, and probably is iodised.[83] (Household salt is said to be iodised if it contains 15 parts per million of iodine.)
- Earlier data reported the overall level of consumption of iodised salt in Southern Sudan as 37–40 percent of households.[14,15] About one-third of the population did not use salt at all.[14] However, in the 2006 household survey, 20 percent of households in Southern Sudan consumed iodised salt, ranging from 3 percent (in Jonglei State) to 79 percent (in Central Equatoria State). The average in Southern Sudan is 14 percent if CES is excluded.

3.3.3 Iron Deficiency

- It is likely that anaemia, caused by poor diet, malaria, and helminthic infections, is widespread in Southern Sudan. But data on iron deficiency or anaemia prevalence were unavailable for this analysis. Some NGO or hospital-based data may exist.
- The availability of iron supplements is erratic in health units, and few pharmacies sell them.

3.3.4 Other

- Scurvy cases have been reported in Southern Sudan[21] and are seasonal.
- Zinc deficiency is likely a public health problem given that childhood diarrhoea is prevalent in Southern Sudan, and diets are low in animal sources. Zinc supplementation is provided only through some facilities supported by NGOs and rarely in government-managed health facilities.

3.4 MATERNAL HEALTH AND NUTRITION

Maternal undernutrition is likely to contribute to Southern Sudan's maternal mortality ratio (MMR). Data on maternal nutrition are scarce. Few NGOs regularly screened pregnant or lactating women. One NGO reported a prevalence of MUAC < 210 mm of 35–40 percent, a possible indicator of acute malnutrition among this group.

A proxy indicator of maternal undernutrition is the proportion of children born with low birth weight (LBW).¹² In 2008, the Sudan Health Transformation Project (SHTP) assessment reported a LBW rate of 30–40 percent.[30] There are no studies on this issue. LBW incidence is normally associated with intra-uterine growth retardation (IUGR). The most probable causes of IUGR in Southern Sudan are inadequate caloric intake/gestational nutrition (in case of malnutrition), gestational weight gain, pre-pregnancy weight and height, anaemia, and malaria infections.

¹² LBW is defined as a full-term baby weighing less than 2.5 kg at birth.

Another key factor in maternal undernutrition related to maternal death is *iron deficiency anaemia*. Though no data on maternal anaemia were available for this situation analysis, there is a strong likelihood many Southern Sudanese women are anaemic because of:

- The *high likelihood of a low dietary iron intake* in terms of quantity, as well as quality: The diet in Southern Sudan is generally lacking in absorption enhancers (e.g., ascorbic acid/vitamin C).
- The *high disease burden of malaria*: Southern Sudan is a high-risk area, specifically of the type *Plasmodium falciparum* that is present during the rainy season.
- The *high incidence of parasitic infections* (e.g., hookworm, giardiasis, amebiasis)
- *Early and multiple pregnancies*: Frequent pregnancies without adequate physiological recovery between them result in a deterioration of nutrient stores, regardless of dietary intake or health status. With women in Southern Sudan on average giving birth to 6–7 babies during their reproductive years, it is unlikely that they are able to replenish their iron stores, putting them at greater risk with each subsequent pregnancy.

3.5 ADULT UNDERNUTRITION

Few health or nutrition actors collect data on adult malnutrition as such. Concerns of seasonal undernutrition (MUAC < 185 mm) among the elderly have been expressed by some NGOs. Other vulnerable groups are returnees and IDPs. Concerns remain whether body mass index (BMI) is a good indicator of adult malnutrition in Southern Sudan, and it is especially questionable among the Dinka and Nuer populations, where the standing to sitting ratio correction (Cormic index adjustment) might be useful.

3.6 NUTRITIONAL STATUS OF HIV-AFFECTED PEOPLE

HIV prevalence using antenatal clinic surveillance sites is estimated at 3.1 percent.[31] In areas bordering the Central African Republic and Democratic Republic of Congo, HIV prevalence is three times higher (about 8–10 percent among 15- to 45-year-olds).[84] Care and treatment activities are just being initiated and localised; integration of nutrition in management of people living with HIV (PLHIV) is even weaker.[31] Programmes to reach orphans and vulnerable children (OVC) or HIV-infected children are also scarce.

3.7 OVERWEIGHT

About 7 percent of children 6–59 months are overweight. **Table 4** shows overweight levels per state varying from 4.5 percent to 10.2 percent.[12] Levels of overweight are likely to be higher among adults living in urban areas and are likely to increase as the economic and social effects of peace and development trickle down to the middle class.

Table 4. Prevalence of Overweight⁸ of Children 6–59 Months

State	%
Jonglei	4.5
Upper Nile	8.4
Unity	5.6
Warrap	10.2
NBG	5.3
WBG	6.4
Lakes	9.4
West Equatoria	9.1
Central Equatoria	3.9
Eastern Equatoria	5.1
Average	6.8

⁸ Children whose WFH is more than 2 standard deviations (SDs) above the median of the reference population were classified as overweight.

3.8 CONSEQUENCES OF MALNUTRITION IN SOUTHERN SUDAN

Even without comprehensive data for Southern Sudan, the malnutrition levels clearly are high in terms of acute malnutrition and micronutrient deficiencies. The social and economic consequences of these levels of malnutrition in Southern Sudan are enormous. Though the functional consequences of stunting, including the effects on school performance and education achievements, have not been estimated for Southern Sudan, they are recognised in some documents.[32,33,34] SAM can be a direct cause of child death, or it can act as an indirect cause by significantly increasing the case fatality rate in children with common childhood illnesses, such as diarrhoea, pneumonia, and malaria.

Suboptimum breastfeeding is likely associated with childhood diarrhoea, but also with childhood mortality. The contribution of micronutrient deficiencies to the disease burden is also likely to be substantial. The consequences of maternal anaemia are borne by the mother and child: Maternal anaemia is associated with maternal mortality and morbidity, LBW, child mortality, and reduced physical productivity. Anaemic children have impaired cognition and lower intellectual scores than non-anaemic children. And lastly, if an infant loses the mother during or after birth, the infant's chance of survival is greatly reduced.

3.9 SUMMARY

- Every year since the CPA was signed in 2005, an average of 19 percent of children under 5 have suffered from acute malnutrition (GAM rate), of which almost 3 percent were severe (SAM rate). These levels surpass the WHO 15 percent emergency threshold level for acute malnutrition. The prevalence of acute malnutrition varies with season and across states. There is no indication that the average prevalence of acute malnutrition has decreased since the CPA was signed.
- The many children suffering from MAM are at high risk of SAM as a result of illness, food stress, and non-optimal care and feeding practices. This group includes mainly the younger children (under 30 months of age), among whom morbidity and mortality is highest.
- On average, 19 percent of children under 5 in Southern Sudan suffer from chronic malnutrition or stunting.
- Data on the prevalence of malnutrition among women, the elderly, and other vulnerable groups, like PLHIV, are not available.
- There are very few data on the prevalence of vitamin and mineral deficiencies, but given the dire situation with general malnutrition, such deficiencies are almost certainly widespread and severe.
- Overweight and its effects on health are increasingly going to be a burden on the health system in Southern Sudan.
- The potential consequences of the high levels of malnutrition on morbidity, mortality, physical productivity, and cognitive growth in children are significant. The gains in the quality of life, in maternal and infant mortality, and in the Southern Sudanese economy are potentially huge if malnutrition rates are reduced.

4. Causes of Undernutrition in Southern Sudan

This section of the assessment discusses the plausible causes of undernutrition in Southern Sudan. Qualitative and quantitative information, including experiences of MOH, U.N., and NGO staff, are used to try to explain these causes. Most documentation refers to causes of acute malnutrition, but the same factors might also cause chronic malnutrition and micronutrient deficiencies. However, the concurrent presence of certain factors and malnutrition does not necessarily mean that the former causes the latter. This lack of a direct cause-and-effect relationship between the plausible causes of undernutrition and malnutrition itself is reinforced by the fact that data do not show a consistent overlap of wasting and stunting.

This discussion is divided into six subsections. **Section 4.1** describes the seasonality of malnutrition. **Section 4.2** describes a conceptual framework for malnutrition with a specific focus on the *direct* causes, some of which are seasonal (related to dry/wet seasons) and others of which are more permanent and embedded in cultural beliefs and traditions. **Sections 4.3–4.6** detail the *underlying* causes related to water and sanitation, health and health care, care practice, and household food security.

4.1 SEASONAL CALENDAR

Every year in Southern Sudan, the rate of acute malnutrition peaks between April and June. The acute malnutrition peak roughly coincides with the dry season and diminishes with the coming of the rains. Acute malnutrition coincides especially with *high diarrhoeal disease incidence* and to *some degree* with livestock and population movements.

Table 5. Seasonal Calendar for All States (except Greenbelt, Hills, and Mountains Areas of West Equatoria, Central Equatoria, West of Eastern Equatoria)

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rain[37,38]	Dry Season					Wet Season					Dry Season	
Recurrent Floods[37]							Early flooding	Late flooding			_____	_____
Planting[38]				+	+	+						
Cropping[37]						+	+	+	+	+	+	
Harvest[37]									+	++	++	++
Lean Period[24,37,38] ⁹			+	+	++	++	++	++				
Wild Food Consumption (Nutritious Variety)[86]	+	+	+	+	+							+
Livestock Movement[37]	+	+	+	+	+	+						
Recurrent Insecurity[40]	+	+	+	+	_____	_____					+	+
Labour Opportunities (Depending on Area)[38]	+	+	+	+	+	+	+	+	+	+	+	+
Acute Malnutrition Incidence[4,6,24,28,39]		+	+	++	++	++	+					
Fever Incidence[39]						+	++	++	++	+	+	
Malaria Incidence[39]							++	++	++			
Diarrhoea Incidence[39]	+	++	++	++	++	+	+	+	+	+	+	+
Cholera Incidence[39,85]	+	+	+	+	+	_____				+	+	+
Acute Respiratory Infection Incidence[39]	+	+	+	+	+	+	+	+	+	+	+	+
Measles Incidence[87]	Unrelated to season (related to crowding and vaccination coverage)											

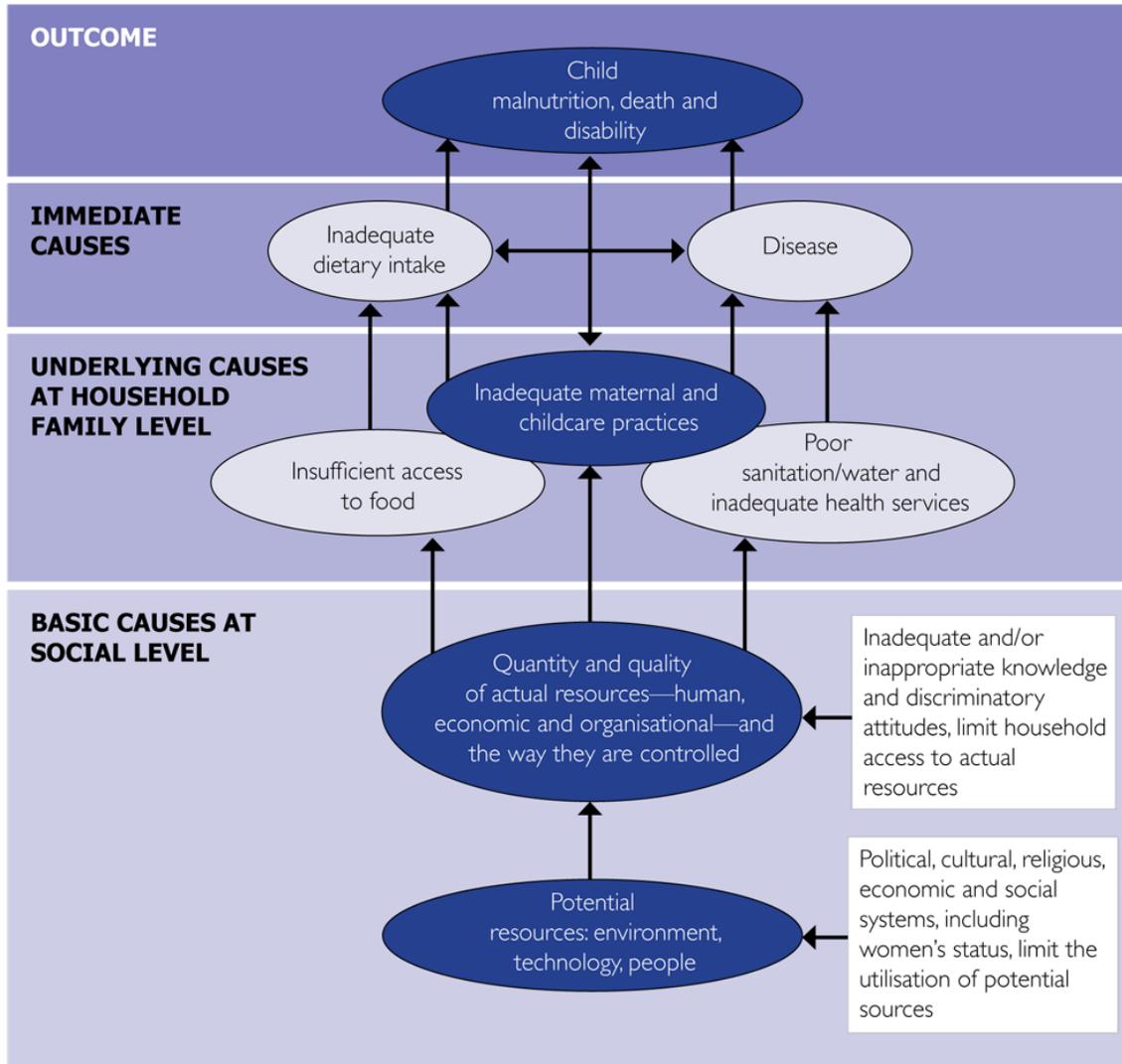
Note: _____ is low, + is median, and ++ is high activity or incidence.

⁹ The lean period starts as early as March or April if there were droughts the previous year.

4.2 THE CAUSAL FRAMEWORK OF MALNUTRITION

In this section, some major *direct* determinants of malnutrition are presented, complemented by a more detailed causal framework analysis. As a foundation for the discussion in the section, an adaptation of UNICEF’s Causal Framework of Malnutrition is presented in **Figure 2**.

Figure 2. The Causal Framework of Malnutrition



Adapted from UNICEF 1990

4.2.1 High Disease Burden for Children

The *high burden of diseases for children* and its relationship to undernutrition are evident. Diseases cause loss of appetite, reduced food intake, malabsorption, increased nutrient needs, and increased use of the nutrients in the body. At the same time, there is shedding of some micronutrients. Children’s health status in the 2 weeks before various surveys is significantly correlated with acute malnutrition, indicating that illness is a major contributor to malnutrition. In particular, diarrhoeal diseases, malaria, and acute respiratory infections (ARIs) are common childhood diseases in Southern Sudan.[4,5,6,8,9,12,23,41] The incidence of the illnesses varies seasonally and geographically. Overall, diarrhoeal diseases seem to be the most prominent cause of malnutrition in most of Southern Sudan. Nearly 53 percent of malnourished children had diarrhoea in the 30 days before the survey,[42] and there was a significant relationship

between acute malnutrition and diarrhoea.[5,6] ARIs had been reported in the 2 weeks before the survey, although their relationship with malnutrition was not always significant.[6] Other datasets illustrate the strong relation between illness and malnutrition, but they are not always statistically significant.[8,9] However, the cumulative effect of repeated illness has negative effects on child growth and nutrition. The high disease burden for children under 5 reported in Southern Sudan is likely to contribute to acute malnutrition and micronutrient deficiencies.

4.2.2 Child Food Intake

Food intake (frequency and therefore *quantity*) for children is generally low. Young children need at least four meals per day. However, all surveys examining this issue reported that fewer than 10 percent of the children actually consumed four or more meals per day (see **Table 6**). This low frequency of meals offered to children does not contain sufficient quantity (even if food quality or density per feeding is high), and this is probably a major cause of malnutrition. Frequency of food intake is subject to seasonal changes, as it depends largely on the mother's/caregiver's presence during the day and, to some extent, food availability in the household. Food *quality* (i.e., nutrient density, variety of foods, and food safety to avoid infection) is also key in determining nutritional status.

Table 6. Overview of Introduction Age of Food or Water of Surveyed Children

Age of Introduction of Food	Percentage of Children Given Food
< 2 months	9%–17%[9]
< 4 months	50%[4]
4-6 months	80%–82%[4]
< 6 months	17%, 18%, 60%[5,6,9]
Age of Introduction of Water	Percentage of Children Given Water
< 1 month	20%[6]
< 6 months	96%[5]

On average, only 27 percent of infants 6–9 months receive timely complementary feeding.¹⁰[12] This means that most infants do not get enough in quantity and receive insufficient nutrients. On average, 18 percent of infants 0–11 months have a minimal acceptable diet in Southern Sudan.[12] The foods introduced early to children vary from place to place, but include mostly cow's and goat's milk; sorghum products (porridge, balls, pancakes); and rarely fruit, vegetables, biscuits, and fish/meat.[4,7,9] A lack of fruit and vegetables is of particular concern, since they are the main sources of specific micronutrients. Most children under 5 are separated from cattle during livestock movements and do not have access to cow's milk during these times.

4.3 UNDERLYING CAUSES RELATED TO WATER, SANITATION, AND HYGIENE

Other than adequacy in dietary intake, diarrhoea is a major factor in acute malnutrition. Major causes of the diarrhoea burden of children under 5 are use of unsafe water, poor sanitation conditions, and consumption of contaminated foods.

Overall, only 1.4–5.8 percent of households in Southern Sudan use improved sources of drinking water¹¹ and sanitary means of excreta disposal, implying that the vast majority are constantly at high risk of faeco-oral contamination.[12] Less than half (48 percent) of the population has access to improved sources of drinking water.[12,21] In most states, 30–60 percent of the households use water from boreholes, with great variation between states.[5,8,12,29] National data on the use of unprotected wells are inconclusive, nationally varying from 12 percent to 40 percent of households.[8,12] Greater than 20

¹⁰ Timely complementary feeding is defined as receiving breast milk and complementary food at least twice in the prior 24 hours.

¹¹ Improved sources of drinking water include piped water, a public tap, a borehole/pump, a protected well, a protected spring, and rainwater.

percent were reported to use rivers/ponds as their source of water.[8] Even if borehole water is safe, contamination at the point of use is extensive. This implies that regardless of the source, most water is no longer safe when consumed.

The sources and quality of drinking water vary according to season, location, and community. In the wet season, there are more water sources closer to the homestead.[9] In the dry season, water sources are significantly depleted, and water points get congested and contaminated. At the same time, there is an insufficient quantity of water to ensure hygiene, and outbreaks of diarrhoeal disease are likely.

Between 85 percent[8] and 98 percent[4,5,9,12,29] of the population in Southern Sudan use open air defecation in undesignated areas. Direct contact with faeces and indirect contact via flies and tools are prevalent. Small children crawling around the house are a particularly high-risk group for faeco-oral contamination. Open-air defecation by children was also observed on hospital grounds.¹² Open-air defecation is less frequent (but still high) in urban areas, varying from 52 percent to 67 percent.[6] People who had lived in camps were more sensitised to the use of latrines.[88] Numerous beliefs and taboos on defecation interfere with good hygiene practice, including:

- “Latrines look like my house; how can I defecate there?”
- “We cannot defecate at the same place as our father-in-law.”
- “Open defecation (around the house) is a way of showing we have many children.”
- Open defecation is used to show sizes/quantities of stools; having more stools shows, for example, more availability of food in the family.

Water treatment practices vary by season and location. When there is a cholera outbreak, households are more prone to using boiled water. Generally, however, only a minority of people boil their water (10–22 percent).[6,12] The perception that water is safe and a lack of firewood are two reasons why few boil their water. Some let their water stand to settle as water “treatment” (“decanting”), a method that is not effective enough to ensure safety.[7,24] A minority of people add bleach/chlorine or use water filters or solar disinfection,[7,23] but there are increasingly more programmes that promote these approaches to make water safer.

Water treatment in urban areas has different challenges in Southern Sudan. Water is taken from the river and treated with aluminium sulphate and chlorine before it is delivered to households using donkey/drum carts or water tankers. However, the treated water from these sources does not always have a good bacteriological quality, meaning high faecal concentration has been found. An ever-increasing demand for water and lack of water-treatment products are common constraints. The heavy demand also results in reduced treatment time, which means decontamination efforts are less effective. There also is the challenge of treating water in containers used to transport it from the source to the homes, as chlorine reacts with the barrels used and corrodes them. Thus, treated water may be re-contaminated before delivery.

The average water consumption in Southern Sudan has been estimated at about 6–8 L per capita per day, far below the minimum standard of the 20 L recommended by WHO or 15 L recommended by Sphere Minimum Standards in Disaster Response.[4,12,21] The low quantity of water at the household level has direct implications for personal hygiene. Reasons for low quantities are:

- Limited number of functional boreholes, which increases queuing time at water points[4,24,54]
- Reduced water output from water pumps[24]
- Increasing time spent to fetch water:[5,24] In the Southern Sudan national survey, households said the mean time they take to fetch water was 30–40 minutes in Warrap State, Western Bar el Ghazal (WBG) State, and Eastern Equatoria State (EES); 40–50 minutes in Upper Nile State, Unity State, and Northern Bar el Ghazal (NBG) State; and 50–60 minutes in Jonglei State, Lakes State, West Equatoria State (WES), and Central Equatoria State (CES).

¹² Observations at teaching hospital sites in Juba.

The presence or absence of a convenient source of water and soap influences hand washing.[4] Available information indicates that hand washing is not done optimally. Between 56 and 92 percent, 12–22 percent, and 11 percent wash their hands before cooking and eating, after defecation, and before feeding children, respectively.[4,9] Most people do not wash their hands five times a day, the number of times needed to prevent diseases.[5,6] Use of soap, which is predominantly for washing clothes and utensils, is highly dependent on purchasing power.[7,41] The majority of people did not seem to link hand washing with diarrhoea, and a mere 15 percent cited it as a good measure for diarrhoea prevention in one survey.[6]

4.4 UNDERLYING CAUSES RELATED TO HEALTH AND HEALTH CARE

There are strong reasons why *inadequate health practices* underlie malnutrition in Southern Sudan.[4,6,23,24] The following health care situations, independently or combined, affect malnutrition:

- High incidences of vector-borne and hygiene-related diseases throughout the country
- Long distances to health facilities
- Harmful health-related practices/beliefs
- Understaffed health facilities
- Insufficiently trained staff in health facilities
- Inadequate and irregular drug supplies
- Fees for consultations and/or drugs (these vary throughout the country)

The use of traditional healers is widespread in Southern Sudan, which, in many cases, is the first line of health care sought.[4,9,24] Presentation in health facilities is normally delayed as households try these other options first and appear only when diseases have progressed to severe stages. Combined with the fact that malnutrition is not seen as a condition that requires serious attention, most children are seen when the nutritional status has deteriorated. (To quote a study: “Southern Sudan has Sudan’s highest disease prevalence and lowest proportion of individuals seeking medical treatment and taking prescribed medicines.”[43]) **Box 1** shows data from one comprehensive survey on health-seeking behaviour that reflects the aforementioned context.

Box 1. Health-Seeking Behaviour Illustrated (Data from Twic County Survey)[9]

Many mothers/caretakers said they would take their child to the clinic if he or she had diarrhoea (74 percent) or a respiratory infection (59 percent). However, a large number said they would first try traditional medicine. In practice, 56 percent of children with diarrhoea and 58 percent with ARI in the 2 weeks before the survey were taken to the clinic. Fifteen percent of mothers/caretakers spent a total of 2 hours seeking consultation at the nearest clinic, including walking and waiting time, 37 percent spent 2–4 hours, and 48 percent spent between half a day and a full day. Mothers/caretakers did not report that the distance to the clinic influenced health-seeking behaviour, probably because there was a considerable waiting time at the clinic.

Cholera outbreaks are seasonal and some areas are more prone to outbreaks than others. Outbreaks of measles, which aggravates malnutrition in children under 5, are less seasonal and more related to low vaccination coverage and crowding. From 11 surveys reporting measles vaccination coverage, 10 reported rates of less than 80 percent, the limit needed to prevent an outbreak of measles. The average coverage was 51 percent, varying from 28 to 80 percent.[4,5,6,7,9,28] The MOH, UNICEF, and NGOs work hard on mass measles control campaigns for children 6–59 months, though without vitamin A provision.¹³ Vitamin A is only provided during the mass polio eradication campaigns.

Malaria is endemic in Southern Sudan, and outbreaks are caused by massive flooding, environmental factors, population movements (IDPs with little immunity moving into areas with high rates of transmission), and lack of access to antimalarial treatment. It causes a high disease burden in children

¹³ The campaigns are held every 18 months for all children 6–59 months. In addition, in mid-2009, an initiative was launched to have schoolchildren mobilise their siblings and neighbouring children to come for vaccinations, providing them with a free vaccination slip.

under 5 and women, affecting the nutritional status of both, including the foetus in pregnant women.[44] The proportion of children who sleep under insecticide-treated bednets (ITNs) is unknown but probably low, as only 11 percent of households surveyed knew that mosquitoes cause the disease, and 22 percent gave incorrect answers, such as hunger (the most common answer), heat, dirty water, and eating bad food, as causes for the disease.¹⁴ Knowledge of diarrhoea and its treatment was better, but some mothers were not aware of oral rehydration therapy (ORT) and deprive children of food during diarrhoeal episodes.[9,12]

4.5 UNDERLYING CAUSES RELATED TO CARE PRACTICES AND BELIEFS

The main factors in child care practices in Southern Sudan relate to the workloads of women and traditional beliefs. Women have *high workloads* in activities that frequently separate them from their children (see **Box 2**).[4,5,7,24] As explained in **Section 4.2**, this high workload and separation from their children is one possible cause of the low number of meals given to young children in most communities.

Box 2. Activities Related to Women's Absence from the Home

- Fetching firewood
- Collecting water
- Collecting grass (for thatched roofs)
- Visiting people (friends, relatives, traditional healers, health care workers)
- Market visits (selling, buying)
- Collection of wild foods
- Alcohol or wine brewing*
- Agriculture, income-generating activities
- Attending social activities, such as burials and weddings

* Sometimes done at home

In addition, women are *physically* active at home, grinding sorghum, cutting firewood, and cooking. This is likely to occur in the context of illness (e.g., malaria or hookworm infestation) and inadequate food intakes, a combination that threatens women's health and child care.

Although not all tribes subscribe to the same beliefs or taboos, the following traditional practices compromise the health of women and children:

- Not beginning to breastfeed until the second day after birth, instead giving sugar water or cow's milk for the first day[5,55,56]
- Discarding colostrum[31]
- Depriving children of food while they have diarrhoea[6,9]
- Avoiding egg consumption among (small) children and pregnant women (for fear that children will not be able to speak later)¹⁵
- Avoiding poultry consumption by children and pregnant women
- Avoiding certain vegetables (e.g., carrots, eggplant), depending on a person's age or gender

Acceptance of these food proscriptions undermines nutritionally sound diets, especially for children and women in Southern Sudan.

Low levels of education and overall lack of knowledge of child feeding among mothers contribute to poor care practices.[12,26,45] In general, primary school enrolment and completion are low in Southern Sudan, with completion varying from 0.4 percent to 5.0 percent.[12] Current low enrolment rates of girls (the future mothers) will impair the nutrition and health of children in the future, as women's education is

¹⁴ Most data are not comparable, as a distinction is not always made between insecticide-treated and "standard" mosquito nets during surveys.[8,9,12]

¹⁵ This belief is widespread and reported by almost all stakeholders in nutrition.

strongly associated with the well-being of their children. This is compounded among poorer households, as they have worse school attendance records, especially those with girls.[11,12]

4.6 UNDERLYING CAUSES RELATED TO HOUSEHOLD FOOD SECURITY

About 50 percent of Southern Sudan's land surface is prime agricultural land.[46] The main staple is sorghum, and other staples are finger millet, maize, groundnuts, cassava, and rice. Cash crops, such as cotton, coffee, sugar cane, tea, palm oil, shea nut, balanite, and mango, are widely grown.[46] Honey, spices, medicinal plants, wild fruits and nuts, flowers, and grass species also grow. The potential of food self-sufficiency is high, but to date, the yields of food crops still are considerably below their agronomic potential.[47] An estimated 1.3–1.9 million people are constantly food insecure in Southern Sudan.[11]

Traditional coping mechanisms (especially the use of indigenous/wild foods and household sharing of food resources) are still functional to the extent that informants doubt that household food insecurity is one major cause of acute malnutrition in Southern Sudan.[8,45] Also, problems related to food *utilisation/consumption* and disease are systemic in Southern Sudan. The following sections present information on the association between household food insecurity and malnutrition; the causes of food insecurity, including issues of seasonality; and the role of wild foods and milk on the food security paradigm in Southern Sudan.

4.6.1 Association between Food Insecurity and Acute Malnutrition

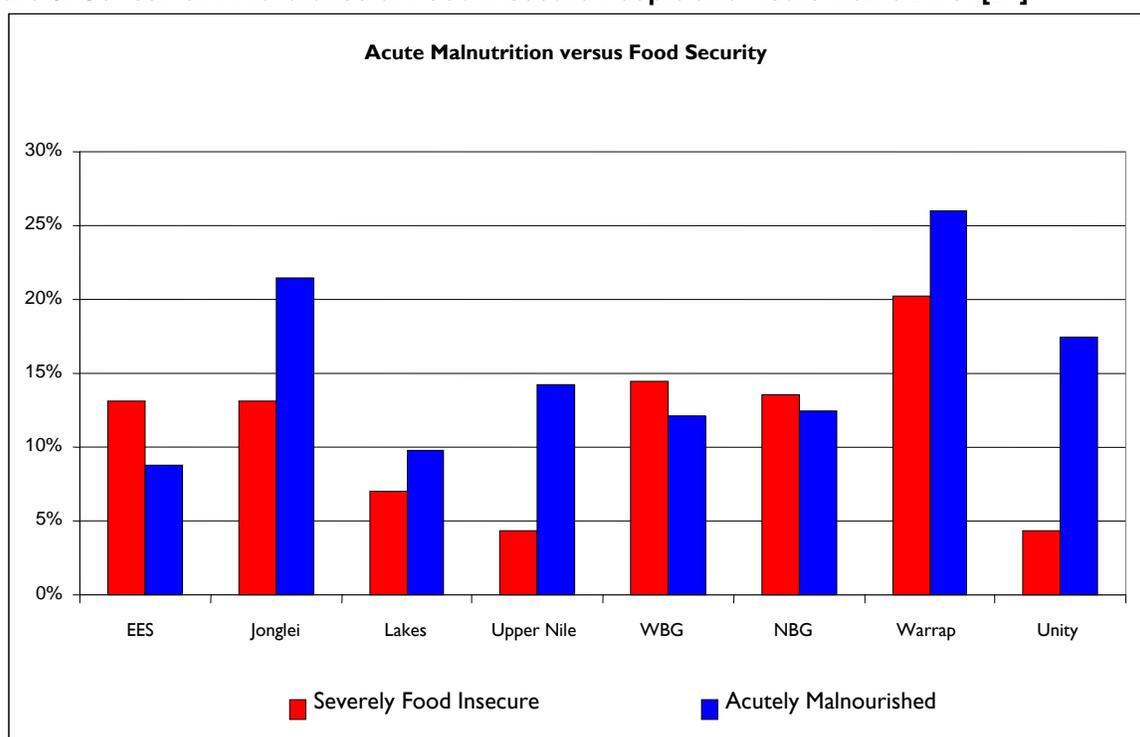
The association between food insecurity and acute malnutrition is not entirely clear in Southern Sudan. Underscoring the complexity of malnutrition and its causes in different population groups, the Annual Needs and Livelihoods Assessment (ANLA) 2008/09 findings presented by UNICEF and the World Food Programme (WFP) indicate strong associations among household food insecurity; wasting, stunting, and underweight; and diarrhoeal diseases, poor water and sanitation, and poor IYCF/care practices (see **Table 7**). Somewhat in contrast to the ANLA, WFP's Vulnerability Assessment Mapping (VAM) shows that, while many households are categorised as food insecure in Southern Sudan, most malnutrition may be unrelated to food availability or access. High rates of malnutrition have been found in what are considered food-secure areas. While food insecurity is important, disease and care are also key underlying factors in malnutrition and may often be more important. **Figure 3** illustrates how levels of food security and acute malnutrition do not necessarily correspond.

Table 7. Summary of Annual Needs and Livelihoods Assessment 2008–2009 (excluding WES and CES)[8,45]

State	Food Security Status	Type of Malnutrition Prevalent	Important Associations/Issues
EES	13% severely food insecure	Underweight and stunting	Poor infant and young child care and feeding practices Inadequate household food security
Jonglei	13% severely food insecure	Wasting, underweight, and stunting	Acute watery diarrhoea Poor water, hygiene, and sanitation Poor infant and young child care and feeding practices Inadequate household food security
Lakes	7% severely food insecure	Underweight	Poor infant and young child care and feeding practices
NBG	14% severely food insecure	Wasting and underweight	Acute watery diarrhoea Poor water, hygiene, and sanitation Poor infant and young child care and feeding practices Inadequate household food security

State	Food Security Status	Type of Malnutrition Prevalent	Important Associations/Issues
Unity	4% severely food insecure	Wasting and stunting	Acute watery diarrhoea Poor water, hygiene, and sanitation Poor infant and young child care and feeding practices Poor diet (micronutrient deficiencies)
Upper Nile	4% severely food insecure	Underweight	Poor infant and young child care and feeding practices
Warrap	20% severely food insecure	Wasting and underweight	Acute watery diarrhoea Poor water, hygiene, and sanitation Poor infant and young child care and feeding practices Inadequate household food security
WBG	14% severely food insecure	Underweight and stunting	Poor infant and young child care and feeding practices Inadequate household food security

Figure 3. Concurrent Prevalence of Food-Insecure People and Acute Malnutrition[27]



Annex 11 provides a more detailed overview of food insecurity (indicators) by state. From all aggregated data, EES, Jonglei, NBG, WBG, and Warrap reflect particularly high food insecurity, taking into account access, availability, and utilization/consumption of adequate food, coping strategies, and wealth.

4.6.2 Main Determinants of Food Insecurity in Southern Sudan

The determinants of food insecurity as a potentially important cause of malnutrition in Southern Sudan can be classified into issues related to production, poor infrastructure, physical security and natural disasters, residential status, livelihood groups, and female-headed households, and poor households.[4,6,8,29]

Low Production

Box 3 provides an overview of the many weaknesses and constraints that currently influence cultivation and implementation of Southern Sudan's agricultural policy.

Box 3. Main Weaknesses and Constraints to Agricultural Progress in Southern Sudan[46]

- Insecurity (periodic outbreaks of violence)
- Unclear land tenure: conflicts over land among households and ethnic groups, between pastoralists and agriculturalists, between commercial planters and small-scale farmers
- Weak institutional and manpower capacity
- Inadequate rural infrastructure: lack of rural feeder roads, markets, storage facilities, irrigation systems, farmer training schools, and all-purpose research/extension facilities
- Lack of inputs and input supply channels: acute need for improved varieties of, e.g., seeds/seedlings, pesticides, herbicides
- Increased needs with continuous stream of returnees
- Lack of processing technology and facilities
- Lack of agricultural data and information flow

NGOs implement many initiatives to try to tackle some of these problems. Though the initiatives are innovative, most are on a small scale and lessons learnt through their implementation are rarely shared. Some livelihood initiatives include seed production, rice farming, fishing projects (equipment, drying, marketing), small-scale income-generation activities (tea shops, hair dressing, five-table restaurants, grind mills projects), goat and poultry keeping, home gardening, beekeeping, community animal health, community gardening with individual plots, and hybrid goat projects that provide meat and milk. Successful programmes seem to be those that target women who remained in control and maintained ownership.[89] Some programmes benefit both mothers and the nutritional status of children. These are mainly in dairy processing, home gardening, and female-run fodder nurseries for small ruminants (which provide milk to mothers and children when the rest of the family migrates to the cattle camps).[43]

Poor Infrastructure: Dismal Road Infrastructure and Weak Marketing System

Over the past few years, Southern Sudan has had good harvests, but a poor road infrastructure and marketing system constrain movement from cereal surplus to deficit areas. Though some trade takes place, lack of established trading networks and physical infrastructure prevents large-scale transfers, resulting in high prices of staples in some areas during deficit periods.[45,48,49,50,51] Most states in the marginal areas are not well connected to the Greenbelt, which has considerable food surpluses during harvest.[47]

Physical Insecurity and Natural Disasters

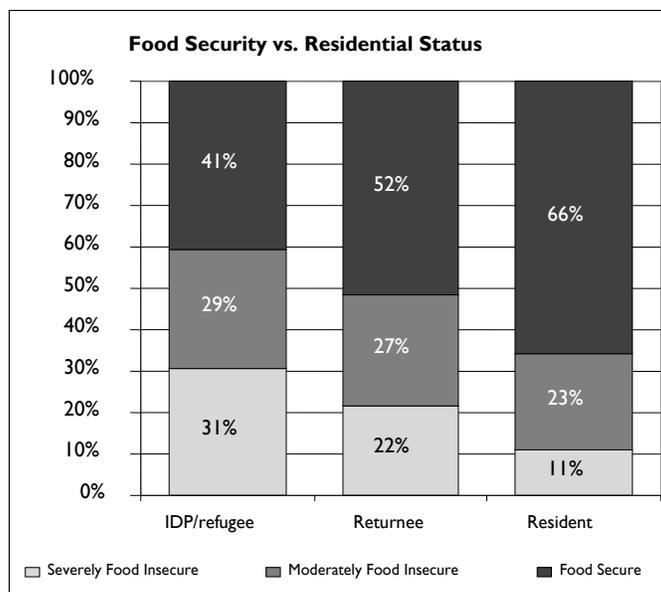
Physical insecurity and natural disasters, such as floods and drought, cause food insecurity through displacement, the inability to cultivate/harvest, loss of cattle, destruction of food in the farms or stores, and sometimes loss of productive assets. Children from households displaced by floods or destruction were 2.6 times more at risk of malnutrition than children in returnee families.[6] Physical insecurity flares continuously throughout Southern Sudan and is often caused by surges in attacks by Uganda's Lord's Resistance Army (LRA) and cattle raids[4,29] associated with competition for water and grazing lands, traditional cattle raiding for marriage purposes, and changes in normal annual migration patterns.[4,29]

Compounded by conflict-related displacements and arrivals of new returnees, the dismal road infrastructure and weak marketing system continue to place physical and financial constraints on access to food and make large numbers of vulnerable people dependent on food assistance, despite the good harvests over the last few years.

Residential Status

Residential status and, in particular, displacement are related to food insecurity and malnutrition. IDPs and returnees cannot produce adequate food as they may lack land, production inputs, and skills for cultivation, or may have lost coping abilities. They are frequently reported to be at higher risk of food insecurity than (settled) residents (see **Figure 4**).^[8] After 23 years of war, some people have lost the skills necessary for cultivation and timely harvesting. One NGO reported that people seem to have lost knowledge on how and when to harvest on the flood plains to prevent harvests from being flooded.

Figure 4. Level of Food Insecurity Related to Residential Status^[8]



IDPs/refugees¹⁶ normally have no land (thus low-farmed surface areas) and rely largely on food assistance, which may not be enough for food and/or all their other needs. They bear the risk of chronic food insufficiency, mainly because they cannot cultivate.^[8,43] When they remain in camps for long, they not only lose some traditional skills, such as cultivation, but also coping mechanisms. See **Annex 11** for more details on food insecurity and residential status.

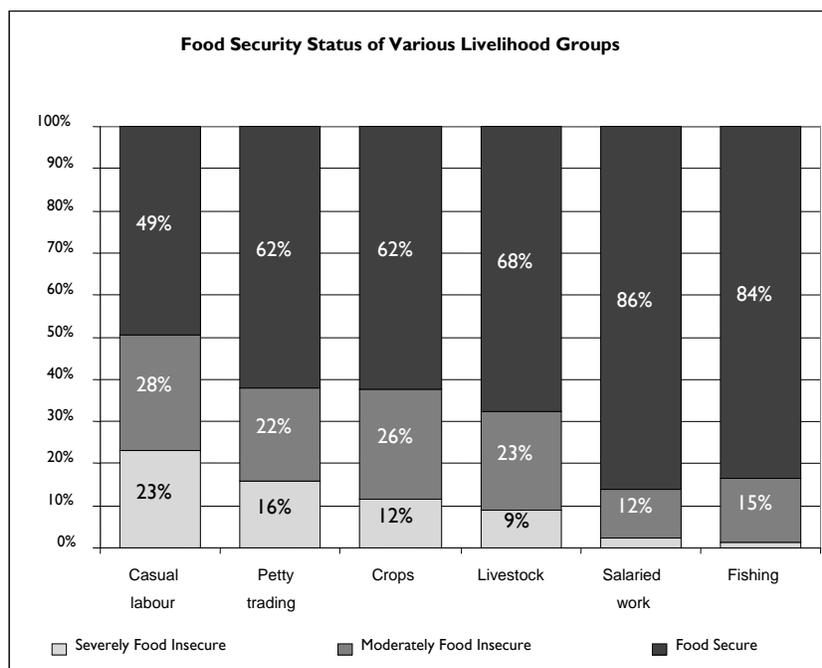
On the other hand, returnees are food insecure for an average of 2 years, depending on whether they could cultivate during the first year after their return. Returnees receiving U.N. assistance are often supported for 3–12 months. If they did not manage to access land, cultivate, or harvest, they are food insecure into the second year after return. The majority of returns are spontaneous, so these returnees do not receive U.N. assistance.^[18] In many cases, the children of these unassisted returnee families are malnourished.^[90]

Livelihood Groups

People who depend heavily on casual labour and petty trade for their income are found to be particularly food insecure. According to a WFP survey, 51 percent and 38 percent of households engaged in casual labour or petty trading, respectively, were food insecure (**Figure 5**).^[8] The amount and instability of income are likely causes. Mainly IDPs and returnees resort to casual labour and petty trade.^[8]

¹⁶ IDPs/refugees were displaced by: 1) the war between the government in Khartoum and the Sudan People's Liberation Movement, 2) numerous conflicts, and 3) attacks by the LRA in the south of Southern Sudan.

Figure 5. Food Insecurity Related to Livelihood Activities[8]



Female-Headed Households

Female-headed households normally lack assets, such as land, labour, and access to social support. Overall, 6–19 percent of households are headed by women.[8] Data from two surveys show that female-headed households are more food insecure because the women have limited means to provide for themselves and their children.[8,12]

Poor Households

In addition to the previously mentioned factors, poor households, which make up 50–65 percent of all households in Southern Sudan, have a likelihood of food insecurity and therefore malnutrition.[8,12]

4.6.3 Seasonality of Causes Related to Food Insecurity

The different components of food security—availability, access, and utilisation/consumption—are affected in varying degrees depending on the time of the year.

Food Availability

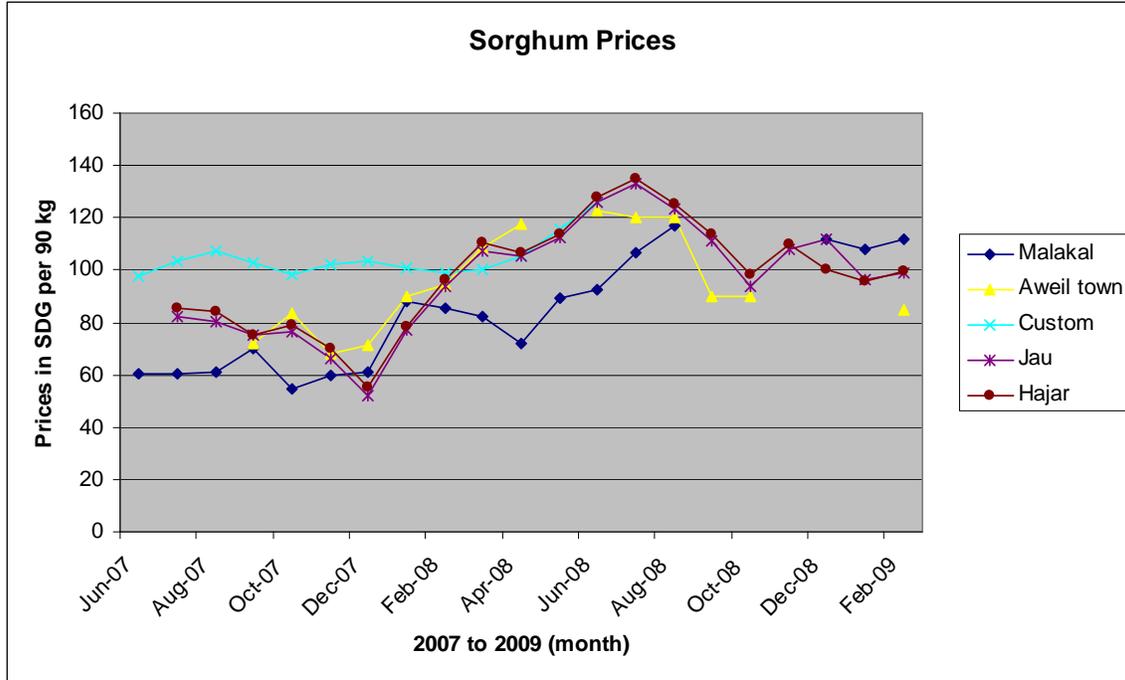
Most parts of Southern Sudan experience the lowest availability of food staples from May to August. The severity and duration of food deficits can increase in the event of drought or flooding during the preceding year.

Food Access

Households have food access challenges from May to August due to increased food prices related to shortages before harvesting. This can occur earlier, if there were limited harvests in the previous year, or later (July to October), if there was reduced physical access resulting from floods. If there is serious tribal fighting during periods of animal movements in search for pasture, high food prices and limited access can occur from January to April.

Food access is heavily affected by food prices, especially of the main staples. Food prices in Southern Sudan have increased constantly since 2006, with the exception of a slight reduction mid-August 2008, and generally remain high.[8] **Figure 6** shows the price trend for sorghum, Southern Sudan’s main staple.

Figure 6. Sorghum Prices 2007–2009[8]



The causes of high food prices are associated with relatively high transaction costs, which are caused by poor market systems and underdeveloped infrastructure, the global food crisis, and the increased demand as people return to Southern Sudan.[52] No data were available on the impact of the high food prices on food consumption patterns or malnutrition rates. It is likely that large and erratic shifts in food prices aggravate food access, intake, and, thus, the nutrition situation for those already at risk.

Food Utilisation/Consumption

The main limitation to food utilisation/consumption in Southern Sudan might be related to disease due to diarrhoeal outbreaks, mainly from February to May, and to malaria and diarrhoea, mainly from July to September.

4.6.4 Coping Mechanisms

Households develop coping mechanisms for food shortages, but these may not always be effective to prevent the development of malnutrition. Common coping mechanisms used in Southern Sudan are eating immature crops, reducing the size and number of meals,¹⁷ consuming less-preferred foods, increasing collection and consumption of wild foods,[9] hunting and fishing, and gathering insects and reptiles.[6,7,8,9,28,53] Households also procure food to complement home-grown farm foods. Households that are severely food insecure spend as much as 70 percent of their income on food,[8] leaving little money to spend on other essential household expenditures, such as health, sanitation, and

¹⁷ As previously discussed, the number of meals for children under 5 is often too few, mostly caused by the absence of the mother during the day and/or lack of knowledge. However, to a lesser extent, the numbers of meals can also be reduced for reasons of food insecurity, which often has implications for the whole family.

education. The basic coping mechanisms might vary depending on geographical area, such as urban versus rural zones.

4.6.5 Dietary Diversity

The diversity of Southern Sudanese diets has been reported widely and seems to have regional differences mostly along livelihood profiles (**Annex 9**). In one survey, WFP calculated the Food Consumption Score based on the frequency of consumption, dietary diversity, and nutrition value of various food items.[8] Using the score, households were classified as having poor, borderline, or acceptable consumption. Overall, 17 percent of the households had poor food consumption scores, 22 percent borderline consumption, and more than 60 percent had “acceptable consumption.”[8] Households consume sorghum about 6 times per week, complemented by maize and other cereals. Vegetables and dairy products (mostly milk) are eaten about 3 times per week, followed by sugar (2.6 times), oil (2.1 times), fish (1.4 times), and pulses (1.4 times).[8] Though geographical differences exist, generally the consumption of fruit, eggs, vegetables, legumes, pulses, and poultry is low in Southern Sudan.[5,6,7,41,54] Relatively food-insecure households consume the smallest quantities of dairy, pulses, sugar, and oil.[8,42] The foods can also be low in energy and micronutrient density. Risks for vitamin C and A deficiencies are also identified where fruit and vegetable intake is low.[57]

With a few exceptions, such as the proscription of eggs during pregnancy, diets of PLW do not differ substantially from those of other household members, though they have greater nutritional needs.[4,24] One survey reported low intake of total energy, protein, and fat by PLW.[42] Women are also at the end of the household “food chain” and eat after their husbands and children, which sometimes has major implications for the quantity and quality of their food intake.

4.6.6 Importance of Wild Foods

Wild foods play a strong dietary role in Southern Sudan, and, especially in times of food stress, their contribution to the total food intake can be substantial.[28,29] Most wild foods are readily available and are easy to collect and prepare. Children are involved in gathering wild foods and other foods near the home, and even more so when other sources of food have decreased.[40] **Table 8** provides an overview of many types of wild foods in Southern Sudan.

Table 8. Sample of Types of Wild Foods Collected in Parts of Southern Sudan¹⁸

Local Name (Dinka/Arabic/English/Nuer)	Description and/or Scientific Name	Community Perception in the Year of Collection	Kcal per 100 g ¹⁹ of Collected Products	Period of Collection	Special Features
Seeds/Kernels					
Akuedha/ - /wild rice/ -	Mixed grass seed	Normal	391	August–September	
Amijuong/ - / - / -	Mixed grass seed	Distress	370	February–April	
Gor/ - /water lily/tual, yil, kei, guet	<i>Nymphaea sp.</i>	Distress	380	March–April	
Akondok/mokheit/shepherd's tree/ -	<i>Boscia senegalensis</i>	Normal	150	April	24 g protein per 100 g
Cuei/ardeib/tamarind/koat	<i>Tamarindus indica</i>	Distress	380	February–April	Rich in vitamin C
Thou/higlig, lalob/desert date or soapberry tree/thoa, thoi	<i>Balanites aegyptiaca</i>	Normal	515–567	December–February	26 g protein per 100 g; rich in vitamin A; potential cash crop; when dried, 7 mg iron/100 g
Ajuet/ - / - / -	<i>Caparis sp.</i>	Distress	581	April–May	
Akon/um rashad, mudus/locust bean tree/ -	<i>Parkia biglobosa</i>	Distress	517–618	March–April	Fermented: 26 and 47 g protein per 100 g
Tubers/Roots					
Ngaana/ - /wild yam/ -	<i>Discorea sp.</i>	Distress	300	July–August	10 g protein per 100 g
Touk/deleib, dileb, deleb, delaib/fan palm/akot, nor, donnor, ciyy, agep	<i>Borassus aethiopicum</i>	Normal	213	April–July	Rich in vitamin A
Fruit/Berry					
Dhio/angatu/ - /dhio, miaar (fresh)	<i>Nauclea latifolia</i>	Normal	59	November–December	
Dhio/angatu/ - /dhio, miaar (cake)	<i>Nauclea latifolia</i>	Normal	303	November–December	
Cum/abu sebela lolumbe, abu sebala/jackal berry, African ebony, monkey guava/cum (fresh)	<i>Diospyros mespiliform</i>	Normal	125	November–January	Rich in vitamin A; potential cash crop
Cuei/ardeib/tamarind/koat (dry)	<i>Tamarindus indica</i>	Normal	250	February–April	Rich in vitamin C; 6.2 mg iron per 100 g
Lang/nabak/nabbak el fil, nabbag/buffalo thorn, “wait a bit,” Indian plum, Christ's thorn/bwoa (dry)	<i>Ziziphus sp.</i>	Normal	300	November–January	Rich in vitamin C: 1,000 mg per 100 g; potential cash crop

¹⁸ This table was compiled and included in this situation analysis at the request of the Ministry of Agriculture and Forestry (MOAF), which expressed the need for making this information more readily available; adapted from References 38 and 53.

¹⁹ Information originates from independent research under the auspices of Save the Children and WFP.

Local Name (Dinka/Arabic/English/Nuer)	Description and/or Scientific Name	Community Perception in the Year of Collection	Kcal per 100 g ¹⁹ of Collected Products	Period of Collection	Special Features
Ngap/ - / - /ngop	<i>Ficus sycamorous</i>	Distress	56	July	
Oil					
Raak/ - /lulu/lulu, enguru/shear butter nut (tree)/riek	<i>Butyrospermum paradoxum</i>	Normal	895	May–June	

Many of the wild foods are available in the dry season and increase the micronutrient intake of the diet. Some are as good as their “domesticated varieties” and/or could be exploited as cash crops.[40]

4.6.7 “Milk Security”

About two-thirds (60–65 percent) of the population in Southern Sudan are pastoralist and agro-pastoralist.[91] Milk is a major dietary component and source of protein. Pastoralists are attached to cattle camps, which affects children’s nutrition in two ways.

On one hand, children of pastoralists who move with their cattle 4–5 months per year have access to cow’s milk during a large part of the dry season, though the amount declines toward the end of dry season. They might not always have sufficient access to plant foods. In addition, meeting energy requirements with a milk diet is difficult and requires the addition of carbohydrate-based foods or fats and oils. Iron deficiency anaemia is the most common micronutrient deficiency disease described in the pastoralist literature. Whether this is due to infection or low levels of iron in milk is not clear. Risks for vitamin C and A deficiencies are also identified where fruit and vegetable intake is low.[57]

On the other hand, younger siblings who stay at home with their mothers have access to predominantly staple food and less milk (mostly goat’s milk).[91] But when food (cereals and milk) stocks diminish in the dry season and their mothers are absent most of the day collecting wild foods and water (over longer distances in that season), quality of care is compromised. Malnutrition among children is then a result of food deficits as well as lack of care.

Both contexts might not allow sufficient nutrient consumption. The first group’s diet is likely to be higher in protein but lower in calories, while the second group is likely to have more carbohydrates and less protein.[57] Both scenarios contribute to higher malnutrition rates at the end of the dry season.

4.7 SUMMARY

- Malnutrition in Southern Sudan is caused by different factors that change seasonally for different population groups. Though there are coping mechanisms, these might not always be effective in preventing seasonal malnutrition.
- Food insecurity in terms of lack of food access and availability is a problem for certain groups in Southern Sudan. People affected by physical insecurity and/or natural disasters are at high risk of food insecurity. IDPs, returnees, groups that depend heavily on casual labour, and female-headed households also experience conditions that expose them to food insecurity. However, general lack of diet diversity is a substantial contributing factor to reduced food utilisation/consumption in Southern Sudan. The frequency of meals offered to small children is often not sufficient, so the quantity of food they consume is inadequate.
- Food insecurity is only one of many factors causing malnutrition and is often not even the main cause. Repeated illnesses and inadequate child care also impair child growth and nutritional status. Most infants are introduced to food or water before the age of 6 months, which, if coupled with inadequate water, sanitation, and hygiene conditions, exposes young children to pathogens

that compromise their health and nutritional status. Since most children reach clinics only when diseases have become severe, many present with advanced forms of acute malnutrition.

- One major underlying cause of the disease burden of children under 5 is related to water and sanitation. The quality and quantity of water used in Southern Sudan are below WHO and SPHERE standards. Open-air defecation and poor hand-washing practices increase risks of faeco-oral contamination.
- Workloads of women and traditional beliefs play a major role in child care and health-seeking behaviours. Long separations of mothers from their children during the day compromise child care practices. Traditional beliefs about food undermine a nutritionally sound diet, and beliefs about health negatively influence what children and women are fed during illnesses and when or where health services are sought.

5. Policy and Institutional Framework for Nutrition and Health

Many initiatives have been undertaken to improve the health and nutrition context in Southern Sudan. Some major breakthroughs in nutrition include the establishment of the DN, the drafting of the BPHNS, the initiation of an early warning system concerning food security, and the drafting of numerous guidelines. **Sections 5.1, 5.2, and 5.3** describe the nutrition and health system, including the BPHNS as currently present in Southern Sudan, comparing what is formally planned and expected to the actual reality on the ground. **Section 5.4** provides an extensive overview on all guidelines and policies that relate directly or indirectly to nutrition and identifies possible gaps. Health- and nutrition-related information systems are described in **Section 5.5**. This situation analysis distinguishes between the *systems* in place (mostly described in this section) and the *actors* involved in those systems (mostly described in **Section 6**).

5.1 HEALTH SYSTEM IN GENERAL

Many hospitals and health centres are run-down and lack basic infrastructure and equipment. During the rainy season from July to September, roads are impassable and transport is severely hindered, which has major consequences for positioning food and medical supplies and for transporting health care providers and clients to health facilities.

5.1.1 Budget and Finance

- Southern Sudan is dependent mainly on income from oil sales. The allocation of the Sudanese oil income for the south was reduced, and so was the budget for health care. The MOH budget is more or less frozen, prioritising mostly staff salaries. Moratoria were introduced for recruitment, fuel for government cars, and other expenditures. Health staff salaries are paid, but with delays of a few months. Availability of medical supplies is irregular. This situation is further aggravated by a reduction in donor funds due to the global economic recession. This also has affected the DN's budget, functioning, and mobility.
- The Public Health Care Bill provides free primary health care (PHC) and emergency services for all citizens (see **Section 5.4**). However, the GOSS issued a letter to all state PHC facilities, allowing them to charge up to 1 Sudanese pound (SDG) per consultation starting in November 2007 and to increase the fee to 2 SDG starting in August 2008. Some health facilities even charge for care for children under 5 and pregnant women. This income is supposed to be used to fuel generators providing electricity, procure soap and water, and pay for other essential functions.
- Where NGOs support MOH facilities, a mix of financial schemes are found. Some NGOs pay incentives to MOH staff. Some staff get full salaries from NGOs, and some receive both incentives and salaries. A challenge for NGOs is to hold MOH staff accountable in cases where NGOs provide incentives to some staff and not others. Some NGOs have signed agreements with the MOH defining which staff would be seconded to the NGO, the length of the secondment, and how much they will be paid by the NGO. This has helped ensure the presence and performance of some staff in the MOH facilities.

5.1.2 Equipment and Supplies

- Few PHC facilities have functioning weighing scales, and there is no LBW registration.
- Supply problems for essential drugs and supplies are endemic. Even the most advanced hospitals often face problems obtaining basic supplies, such as X-ray films.
- According to the GOSS/MOH Director of Monitoring and Evaluation, most facilities cannot report morbidity or mortality data as there is no complete record keeping. This leads to irrational ordering of medical supplies, with many facilities often getting too much or too little of certain drugs. For example, the staff at one PHC centre visited during the analysis indicated they had no malaria treatment (though it was the high season for malaria), but had a surplus of diuretics (while the hospital had a shortage).

- There has been no quality control for drugs so far, and many fake drugs enter the market.
- NGOs fly medical and nutrition supplies into Southern Sudan from Uganda or Kenya, as transport from Khartoum is said to be more expensive.

5.1.3 Health Services and Health Promotion

- Public health is still not a priority for many health workers. Their current emphasis is curative medicine. The society also tends to value hospitals above PHC facilities and public health initiatives. Few preventive services are routinely provided.
- The expanded programme of immunisation (EPI) is acknowledged to be a priority, but MOH facilities have only 30 percent of the capacity needed to provide EPI coverage in Southern Sudan.[80]
- Community-based health hardly exists and is not well understood. The Directorate of Primary Health Care focuses mainly on EPI. There also is no adopted definition of community-based health care.[92] The GOSS is planning to have coverage of community health staff for health and nutrition promotion at the PHC unit level.
- A National Policy for Health Promotion was drafted in February 2009, but priorities for immediate implementation are yet to be agreed upon.[93]
- There is very little health promotion done in outpatient departments or in paediatric or malnutrition wards.
- Among health staff, culture and traditions strongly intermingle with health science. Those who have been educated according to health sciences still often practise according to the cultural and traditional beliefs that they have themselves or that their patients and caregivers have. For example, in some hospitals, traditional but unhygienic practices, such as putting plants or dung on umbilical cords, still occur in the presence of trained midwives. Some clinical officers do not vaccinate their own children for measles as they do not believe in its importance.[79,94]
- The vast majority of health care staff work without job descriptions or clearly defined roles. Their roles also are not harmonised among the states.

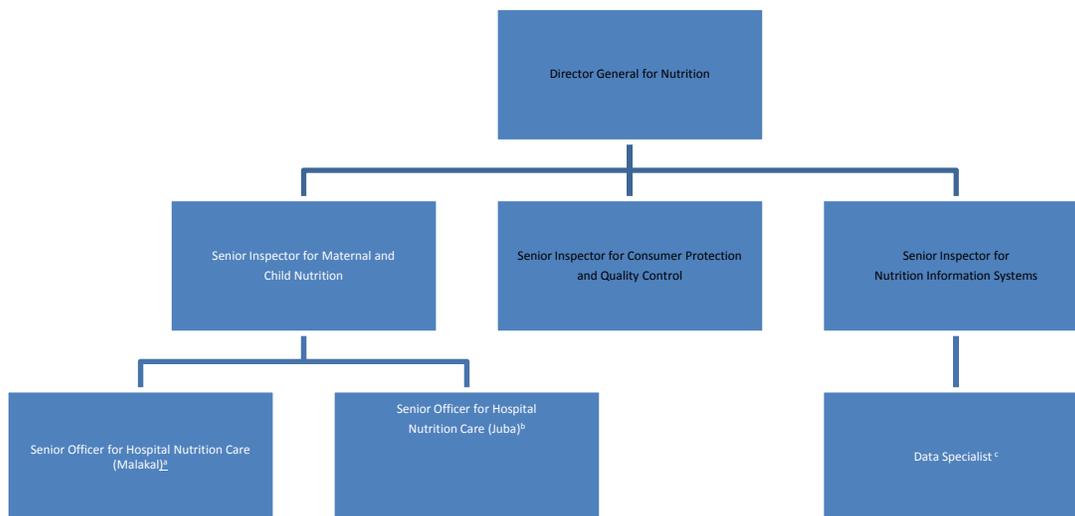
5.2 NUTRITION WITHIN THE HEALTH SYSTEM

5.2.1 The Government of Southern Sudan Ministry of Health Directorate of Nutrition

The GOSS/MOH has 12 *directorates*, one of which is the DN, which was established in January 2008. At the state MOH level, there are *eight* departments, and nutrition falls under the Department of Primary Health Care. Other potentially relevant departments for nutrition activities are the Departments of Curative Medicine and Preventive Medicine.

The GOSS nutrition portfolio was under the MOH Directorate of Primary Health Care until early 2008, when an independent DN was established. The DN became operational in mid-2008. The 2008 and 2009 budgets were about US\$210,000 and US\$170,000, respectively. A large part of the budget was used for salaries. The DN has five full-time staff members (see **Figure 7**).

Figure 7. Proposed Organogramme of the GOSS/MOH Directorate of Nutrition (July 2009)



^a Currently this nutritionist is a senior field officer in charge of assessments; he often joins assessments done jointly with the U.N. and/or NGOs.

^b Currently this nutritionist is seconded to the minister's office as a secretarial assistant. However, her salary is still paid from the DN budget.

^c Vacant

The current physical working conditions at the DN are challenging, with three offices spread over two buildings. Two of the offices are in prefabricated structures with infrequent electricity and Internet access, creating a difficult work environment and leaving the staff to crowd together in the third office in the main MOH building.

Since the DN was established, there have been some notable achievements.

- The establishment of the DN has brought nutrition to a more prominent level within the MOH and has increased visibility and political support for nutrition within the GOSS generally.
- The DN has been given its own budget and some direct support from the Food and Agriculture Organization of the United Nations (FAO)/Sudan Institutional Capacity Programme: Food Security Information for Action (SIFSIA) (about US\$59,000).
- DN staff members have attended trainings on nutrition programming, the code for marketing breast milk substitutes, the Essential Nutrition Actions (ENA), and other subjects, which have strengthened professional skills within the team.
- The DN organised and hosted the Nutrition Health Convention in April 2009.[58]
- The DN is facilitating drafting the guidelines for integrated management of severe acute malnutrition (IM-SAM).

Urgent additional tasks include developing annual workplans, job descriptions, and terms of reference for the staff. The DN plans to expand and provide a budget for 10 staff members (see **Annex 5** for the organogramme of a future DN), including (deputy) directors to strengthen the senior management within the DN.[95] However, with the current moratorium on staff recruitment, this expansion is unlikely any time soon.

The DN has requested technical assistance in managing and monitoring the rollout of activities, especially in the absence of additional senior staff. UNICEF seconded a planning and management consultant to the DN for 1 year from mid-2009 onward. This consultant provided support to the institutional

performance portfolio of planning and management. The consultant reported to the Director General of the DN at the GOSS level, as well as to the UNICEF Chief of Health and Nutrition.[59] This support was expected to result in:

- A DN annual workplan and budget, developed in consultation with the Ministry of Finance, which reflects MOH, multi-donor trust fund, UNICEF, and other partner contributions
- Proposals for resource mobilisation and use
- Development of other annual DN work plans
- Budget utilisation reports, reflecting timely withdrawals and reporting
- Recruitment of consultants to provide technical support to the DN in areas of need
- Intervention clusters for a core set of nutrition interventions within the context of the BPHNS
- Nutrition meetings conducted and documented monthly to coordinate the field of direct nutrition action
- Quarterly updates on the country's nutrition situation and programme responses

The DN, in partnership with agencies like the U.N., FANTA-2, and other sectors, is drafting the Southern Sudan Nutrition Health Policy. The first draft of the Nutrition Health Policy was developed in December 2009 and awaits completion.

The DN is currently trying to create a database of nutrition surveys. So far, plans are not yet in place to harmonise survey analysis. Generally, as observed during the situation analysis, collaboration and coordination among the DN, U.N. agencies, and implementing NGOs have been inconsistent, resulting in divergence in nutrition activities in Southern Sudan.

5.2.2 The Provision of Nutrition Services in Southern Sudan

Stakeholders interviewed for this analysis, whether from ministries, NGOs, or the U.N., agree that, except in the teaching hospitals (in Juba, Wau, and Malakal), malnutrition generally is not seen as a condition of ill health that should be actively diagnosed and treated. In most of the (paediatric) outpatient departments, clinical officers rarely look for malnutrition. Weight and oedema are not routinely monitored or recorded in a systematic way unless it is for the purpose of calculating the drug dosage, in which case weight is taken.

After 23 years of war and 5 years of subsequent peace, NGOs still provide a substantial part of Southern Sudan's health services, both in parallel with the MOH and through MOH structures: An estimated 85 percent of health services at the PHC level are provided by NGOs.[96] Diagnosis and treatment of acute malnutrition in state MOH health facilities are limited; most are provided by NGOs or MOH facilities supported by NGOs. Nutrition care and support is not provided at the PHC level and is not yet integrated within PHC. At PHC centres, a child with *SAM with medical complications* is referred to a hospital. The hospital will admit the child because the child has a disease (e.g., ARI, malaria), not because he or she has SAM. And medical staff will discharge a child with SAM based on whether his or her disease is cured, not based on whether or not the SAM has been resolved. Many caretakers default as soon their children look fine or are cured from an infectious disease. Others default because they cannot leave siblings alone at home. The teaching hospitals in Southern Sudan provide inpatient or day-care management of SAM. Services in these hospitals are supported directly by UNICEF in terms of staff training and provision of therapeutic nutrition supplies.

NGOs in Southern Sudan use different terms for the treatment of SAM, such as community-based therapeutic care, community-based therapeutic treatment, therapeutic feeding programmes, outpatient therapeutic programmes, stabilisation centre care, and ambulatory care versus inpatient care. The lack of uniformity in terminology only adds to the confusion about who does what and where and to the difficulty in coordinating and setting standards for the management of acute malnutrition.

Prevention of malnutrition and management of MAM are not done in any MOH health facility. Growth monitoring is weak. The Road to Health cards are predominantly used as vaccination records, and the

age of the child is often not recorded. The current system has no community case-finding component. The health system is facility-focused, and states do not have outreach capacity.

The vast majority (90 percent) of women in Southern Sudan deliver their children without skilled health staff (i.e., medical doctor, nurse, midwife, auxiliary midwife).[12] Most are assisted by traditional birth attendants (TBAs) with varying levels of knowledge and skill. Most TBAs do not provide support for the health of mother and child.[12] Information on breastfeeding and IYCF and care practices comes mostly from relatives, friends, and TBAs, and there is little chance a mother will get advice from a professional before or after giving birth. Furthermore, sometimes the messages that are provided or practices recommended by health professionals to caregivers are contrary to international recommendations. For instance, some paediatricians in the Juba Teaching Hospital malnutrition ward (see **Box 4**) advise exclusive breastfeeding (EBF) for 4 months and then recommend introducing porridge in addition to continued breastfeeding. The reason is that many women stop lactation after about 6 months, so this gives infants time to adjust to more solid foods while being lactated. The Prevention and Treatment Guidelines for PHC Centres and Hospitals (2006) offers the same advice.[60] Some paediatricians recommend or provide 50 percent glucose solutions to infants when mothers stop breastfeeding them.[79]

Box 4. Juba Teaching Hospital

The Juba Teaching Hospital Paediatric Malnutrition Ward is the only malnutrition ward in Southern Sudan that is not managed or supported by an NGO. Here, children receive therapeutic food products (Plumpy'nut[®]) supplied by UNICEF. Mothers/caregivers are not provided food or the means to prepare it. As in all health facilities in Southern Sudan, patients and their caretakers provide food for themselves. If the mothers/caregivers do not have relatives in Juba or the money to buy food, most self-discharge their children and return home before the treatment is complete. There are reports of siblings being sent to collect F-75/F-100 from the hospital to take home in plastic water bottles.

Emergency Nutrition Interventions

For the past 5 years, nutrition interventions in Southern Sudan have remained in “emergency mode,” and most areas in the territory have been classified generally as in food crisis and in need of humanitarian aid.[51] In certain areas, emergency response has remained necessary due to physical insecurity and continuous displacement.

In 2009, USAID provided more than 45,000 metric tons of food to Southern Sudan,[97] and WFP provided more than 80,000 metric tons of food aid.[98] WFP has approximately 80 implementing partners in all states in Southern Sudan providing food aid through various mechanisms, ranging from general food distributions to various conditional programmes, such as food for training/recovery/education and supplementary and institutional feeding programmes. While food aid still gets significant attention in Southern Sudan, this might not address the majority of nutrition problems.[68] Food assistance may help to facilitate food access in households, but it might not prevent malnutrition, taking into account the many other non-food-related causal factors. In addition, inadequate food aid monitoring raised questions about its impact.[43]

Of the approximately 125 NGOs working with the health and agricultural sectors in Southern Sudan, few engage in nutrition-related activities, and even fewer work in the management of acute malnutrition, either in parallel with or through MOH structures. NGOs are often stretched in their capacities to respond to a sudden increase in GAM. Many areas in Southern Sudan do not have NGO or MOH facilities that can deal with acute malnutrition. Although some NGOs try to integrate their nutrition activities into MOH structures, some still operate parallel activities. The GOSS also does not yet have adequate capacity to have an impact on nutrition in emergencies. There are a few nutrition surveillance sentinel sites set up, and many NGOs rely on periodic surveys/assessments to design a response.

Existing nutrition activities are designed to respond to acute malnutrition without addressing the underlying developmental issues. Any programme impact on nutritional status, whether public health-, water-, food-, or nutrition-related, is difficult to measure. As the causes of malnutrition are multifaceted in Southern Sudan, gains through certain (vertical) programmes on one hand could be diluted by unaddressed causes on the other.

There is general consensus that MAM (and not SAM) is the largest nutrition problem in Southern Sudan, but it is not sufficiently addressed by MOH facilities or NGOs. The capacity of NGOs to deal with SAM is already stretched, and NGOs have little resources and capacity to address MAM, which affects almost seven times more children than adults. Among the few NGOs addressing MAM, different approaches are used. Some provide corn-soy blend (CSB) through supplementary feeding programmes (SFPs), whether targeted or blanket, while others use Plumpy'nut[®], high-energy biscuits, CSB with dry skim milk, or Plumpy'doz[®]. Some SFPs do not work well because children on CSB have low cure rates, and the distances some people need to travel to collect CSB are too long, causing a high level of defaults. Emergency SFPs have little impact on reducing the prevalence of MAM and in preventing SAM and the associated mortality.[69] Southern Sudan is in dire need of comprehensive programmes to address the large pool of MAM and to prevent development of MAM and SAM.

5.2.3 Human Resources in Nutrition

A minority of state ministries of health have a nutritionist. The number of nutritionists who are supposed to work at state ministries of health and county hospitals has not yet been defined or regulated. This situation analysis could not identify the exact number of nutritionists or nutrition inspectors currently working in state MOH health facilities: There were nine nutritionists in the state MOH in CES, two in the state MOH in EES, two in WBG State, and one in Upper Nile State. One respondent explained that he understood that each state MOH was supposed to have one nutritionist and one nutrition assistant,[99] though this has not been formalised across states. Where states have a nutrition focal person, often they lack the means to visit the counties, and their functions are not clearly defined or harmonised. NGOs and the MOH also use different job titles. Examples of current job titles in Southern Sudan are nutritionist, nutrition inspector, nutrition assistant, nutrition officer, nutrition educator, nutrition focal person, and nutritional supervisor. Some of these titles also have "senior" versions. There are no dieticians working in health facilities in Southern Sudan. This has major implications for those diagnosed with specific ailments, such as diabetes mellitus and renal diseases.

In county hospitals, malnutrition is currently treated by clinical staff. Most clinical staff are not trained in nutrition, public health, or health promotion. Many health workers are not able to accurately assess and classify malnutrition and know neither the admission nor discharge criteria for malnutrition therapeutic treatment. Nutrition problems are equated with "food" and so are seen as a typical female-related problem that should be dealt with in the female "arena." Even in the medical field, most male clinical staff tend to refer the issues to female health staff.

There is no consensus on the number of qualified nutritionists needed in Southern Sudan, and there is no training plan. Some GOSS/MOH and U.N. staff members believe Southern Sudan has enough well-qualified nutritionists, but they are not operational in the health system or are not in the right positions. Other stakeholders doubt whether the number of nutritionists in Southern Sudan is adequate. Most nutritionists working in Southern Sudan are well educated. They were usually trained in Khartoum and come from the Ahfad University for Women, or they graduated in Kenya or Uganda.

Current opportunities to strengthen nutrition knowledge among health care staff remain limited: Medical schools are still based only in Khartoum, with none currently operating in Southern Sudan. Human and financial resources to conduct in-service training are still scarce. Many state ministries of health have no specific nutrition budget. Finance for nutrition comes from the general budget. At the moment, in-service training is done mostly by NGOs and is focused on training in treatment and diagnosis of acute malnutrition and health/nutrition promotion. There also have been trainings on nutrition surveys or surveillance.[24] These training courses are advertised in the NGO Health Forum. However, nationally, there is no formal coordination for training.

Other initiatives to provide nutrition trainings exist, but implementation has been weak. A potentially important national training in October 2008, funded by UNICEF and initiated by the DN, was cancelled because of miscommunication within the MOH. This was meant to harmonise some promising practice messages among nutrition supervisors, nurses, paediatricians, and community health workers (CHWs) in Southern Sudan. There are no new dates for this training scheduled. WHO and the DN plan to train health workers on the ENA. In 2005, the GOSS initiated a new CHW training curriculum lasting 9 months. It includes a 3-week unit on maternal and child health and nutrition.[61] Nutrition competes with six other learning objectives. The course covers availability of food in the community; use of proteins, carbohydrates, fats, minerals, and vitamins; recognition of malnutrition and factors associated with it; community taboos and habits that affect children; preparation and storage of food for children; advice for mothers on providing nutritious food to children; and growing and use of a variety of locally available food for mothers and children. This situation analysis was unable to verify whether CHWs indeed gain this knowledge and apply it.

5.2.4 Supplies and Equipment

Most MOH facilities experience irregular or total lack of supplies of iron, folate, and vitamin A, unless they have NGO support. The GOSS/MOH supplies growth monitoring charts and vaccination cards. The MOH facilities often lack oral rehydration solution (ORS) and zinc. The MOH does not use Rehydration Solution for Malnutrition (ReSoMal) despite its inclusion in the treatment guidelines for the PHC centres. The MOH does not provide F-75, F-100, or ready-to-use therapeutic food (RUTF) (e.g., Plumpy'nut®); as in most countries in the region, UNICEF provides these supplies and then only to a few of the state health facilities. During the GOSS/MOH executive board meeting on pharmaceuticals in June 2009, it was agreed that the GOSS would not provide nutrition products to PHC centres (though PHC guidelines mention the products and treatment as PHC-based[60] and the GOSS would, for the time being, continue to rely on donors for these supplies). Different actors use nutrition/health promotion materials, but there is need for a collaborative system to share the materials, make them available to others, and share lessons on the use of different materials.

5.3 NUTRITION IN THE BASIC PACKAGE OF HEALTH AND NUTRITION SERVICES

The BPHNS is the PHC component of health services that is part of a comprehensive package along a care continuum in Southern Sudan. The GOSS/MOH has engaged in drafting the BPHNS since 2005. The financial and technical assistance was provided by the International Bank for Reconstruction and Development/World Bank. It was developed as the medium-term strategy to operationalise the GOSS/MOH Health Policy, which is founded on PHC. The BPHNS provides guidelines that help health care providers implement the PHC components of health services. It comprises a selection of cost-effective elements of PHC to be delivered in an integrated way at four levels of facilities/services:[2]

1. Community-based health activities (community level)
2. PHC unit
3. PHC centre
4. County Health Department

County hospitals are not taking part in the BPHNS. Instead, the BPHNS falls under the responsibility of the County Health Department, and, as such, under the state ministries of health.[15,62]

The latest version of the BPHNS was published in January 2009.[2] Some of the stakeholders have yet to get the latest version and are using the older 2008 version. The 2009 version will deliver four service components addressing urgent health priorities (i.e., those preventing large numbers of deaths and disability): Integrated Reproductive Health Care; Community-Based Health and Nutrition Care; Health Education and Promotion; and Management, Oversight, and Monitoring and Evaluation. The *nutrition component* in BPHNS has evolved through the different versions. In **Table 9**, the nutrition components in the current version are marked in bold and include maternal nutrition (which is not well defined), the essential child nutrition actions, school health and nutrition, and community-based nutrition and food security.

Table 9. Basic Package of Health and Nutrition Services at-a-Glance[2]

Component	Subcomponents	Service Norms*
Integrated Reproductive Health Services	Essential Obstetric Care	<ul style="list-style-type: none"> Quality-focused antenatal, safe hygienic delivery, and postnatal care emphasising early recognition of complications, life-saving interventions appropriate to each level and expedient rational referral, prevention of mother-to-child transmission of HIV (PMTCT), and prevention and management of sexually transmitted infection (STI) in pregnancy Maternal and newborn nutrition The PHC centre provides the basic emergency obstetric and neonatal care (EMONC) services
	Protective Sexual and Reproductive Health for Women	<ul style="list-style-type: none"> Temporary, emergency, and permanent contraception; management of obstetric fistula; infertility; prevention and management of STIs and HIV/AIDS; screening for and early treatment of cervical and breast cancer; empowerment for gender equitable reproductive practices; and childhood female reproductive (physical) anomalies.
	Adolescent Sexual and Reproductive Health	<ul style="list-style-type: none"> Empowerment of young people and service provision that enable them to make reproductive and sexual decisions that will ensure their health now and in the future by preventing adolescent pregnancies, STIs, HIV, and secondary infertility; gender-equitable roles in the training and promotion of abstinence ; being faithful to one's partner; and use of condoms.
	Men's Sexual and Reproductive Health	<ul style="list-style-type: none"> Counselling on gender-equitable sexual roles, shared responsibilities regarding male involvement to know about and act to improve women's health and participate in contraception, recognition and management of men's reproductive health problems, physical and physiological anomalies, adolescence delayed or disturbed puberty and adult sexual dysfunction, infertility, prevention and management of STIs and HIV/AIDS, and gender-based violence
Community-Based Health Care	Integrated Essential Child Health Care	<ul style="list-style-type: none"> EPI: Achieve and maintain coverage with all the vaccines currently available for preventable childhood illnesses, according to the Global Alliance for Vaccines and Immunisation (GAVI) guidelines Essential Child Nutrition Actions: <ul style="list-style-type: none"> Promotion of EBF for 6 months starting with initiation of breastfeeding within 30 minutes to 1 hour of birth Starting complementary feeding from the seventh month and continuing breastfeeding for 24 months Growth monitoring and promotion (GMP) Micronutrient supplementation and community-based nutrition rehabilitation Referral of unexplained failure to thrive and severe malnutrition Information, education, and communication (IEC); an integrated approach to managing common childhood illnesses, e.g., malaria, diarrhoea, ARIs, pneumonia, anaemia, malnutrition, intestinal parasites, and common epidemics and outbreaks; this combines the Community-Based Child Survival Programme, integrated management of childhood illnesses (IMCI), and care of special children or those with anomalies and developmental impairment
	Management of Local Endemic Diseases	<ul style="list-style-type: none"> Preventive services and IEC on malaria, diarrhoea, ARI and pneumonia, tuberculosis (TB), STIs and HIV, meningitis, and enteric infections Case management: provision of treatment for common endemic illness as close to the population as possible

Component	Subcomponents	Service Norms*
	Community-Based Prevention, Care for Common Injuries, and Rehabilitation	<ul style="list-style-type: none"> Empowerment of communities to prevent and provide appropriate immediate care for injuries, including rational referral and identification of and caring for people with various physical and functional impairment and chronic debilitating conditions, integrating them into as near normal community life as possible
	Visual Health, Oral Health, and Mental Health	<ul style="list-style-type: none"> Visual health: school-based eye care programmes, face-washing sessions for younger children, health education and training of teachers on visual acuity testing, and simple remedial measures for retinol equivalent mass topical antibiotic treatment as and when necessary Oral health: school-based programmes, training of teachers on sessions for brushing teeth and inspection for cavities for young children, and oral health education and checkups at PHC units and centres Mental health: psychosocial programmes for stressful conditions, awareness raising, community-based counselling and community programmes for gender-based violence, substance and alcohol abuse, and behavioural counselling and referral for serious psychiatric conditions
	Disease Surveillance and Emergency Preparedness	<ul style="list-style-type: none"> Community-based identification and reporting of known disease outbreaks: meningitis, cholera, trachoma, staphylococcal conjunctivitis; recognition of unusual outbreaks; and community disaster preparedness and response
Health Promotion	Awareness Sensitisation and Behaviour Change Communication (BCC) on Priority Health Problems	<ul style="list-style-type: none"> Maternal care, IEC, common endemic infective diseases, community-based environmental safety, injury prevention and first aid, safe water use and sanitary practices, and reproductive practices and sexual behaviour
	School Health and Nutrition	<ul style="list-style-type: none"> Skill-based training on physical injury, drowning, accident, and snake-bite prevention and management as entry point to intersectoral integrated development promotion; education and BCC for health and food security; community-based nutrition and food security programmes on food production, preservation, and preparation; and dietary practices and hunger prevention Gender perspectives of health and development: skills-based adolescent reproductive health
	Community-Based Nutrition and Food Security	<ul style="list-style-type: none"> Empowerment of communities to develop a range of environmentally friendly and sustainable, collective community actions for production, exchange, preservation, and storage, for a range of food that ensures prevention of hunger and promotion of optimal nutritional status
	Community Actions for Safe Environment, Water, and Sanitation	<ul style="list-style-type: none"> Development of community capacities to gain sustained access to improved water supply and sanitation services and promotion of safe hygienic practices (including education about use of latrines, hand-washing with soap and water, and clean water sources)
Monitoring and Evaluation (M&E) and Operations Research	Routine Health Management Information System, Periodic Surveys, and Special Studies	<ul style="list-style-type: none"> Ensuring shared responsibility for collection and interpretation of health-related information, data, statistics, or experiential studies; and extending the routine health data/statistics collection from the state to the community level to inform planning and evaluation of programmes

* **Bold** entries are the nutrition components in the current version of the BPHNS.

The BPHNS also identifies which activities are to be undertaken at the different levels. **Table 10** shows the childhood nutrition activities being proposed to be undertaken at different levels of the national health care system. All nutrition activities at lower levels, such as PHC units and the community, will be done by village workers, CHWs, and mother and child health workers. The aim is to place nutritionists and nutrition

assistants at the PHC centre level and up. The BPHNS also will help define the capabilities, knowledge, and skills that health providers at different levels will need to provide these priority services.[2]

Table 10. Nutrition-Related Services within the Basic Package of Health and Nutrition Services (Integrated Essential Child Health Care) at the Different Levels: Community, Primary Health Care Unit, and Primary Health Care Centre²⁰

Community	PHC Unit	PHC Centre
Services		
1. Baby-friendly initiatives: E.g., counselling on prevention of pre-lacteal feeding, EBF for first 6 months, timely introduction of complementary foods, and continued breastfeeding for 24 months 2. Community-based GMP: Counselling and training/demonstrations in diets rich in protein, minerals and vitamins, and calories; including selection and enrichment of local complementary foods 3. MUAC screening for children under 5, referral of SAM and MAM cases, and referral for management of SAM and MAM 4. Mass deworming and vitamin A supplementation on National Immunisation Days (NIDs)	1. Baby-friendly initiatives: E.g., Counselling on prevention of pre-lacteal feeding, EBF for first 6 months, timely introduction of complementary foods, and continued breastfeeding for 24 months 2. Community-based GMP: Counselling and training/demonstrations in diets rich in protein and calories by selection and enrichment of local complementary foods 3. GMP, malnutrition screening for children in families of at-risk children, referral of SAM to therapeutic feeding centre 4. Mass deworming and micronutrient supplementation on NIDs, community-based nutrition and food security	1. Baby-friendly initiatives: E.g., Counselling on prevention of pre-lacteal feeding, EBF for first 6 months, timely introduction of complementary foods, and continued breastfeeding for 24 months 2. Nutrition rehabilitation protocol for the mild to moderately acutely malnourished children, IMCI 3. Treatment of SAM at designated therapeutic feeding centres 4. GMP: counselling and training/demonstrations in diets rich in protein and calories by selection and enrichment of local complementary foods
Service Providers		
Community-based health activities <ul style="list-style-type: none"> • Home health promoters • Health committee²¹ • TBAs 	<ul style="list-style-type: none"> • Two CHWs (1 for facility-based curative activities, 1 for community-based promotion activities) • Two mother and child health workers 	Basic EMONC: <ul style="list-style-type: none"> • Two nutritionists²² Comprehensive EMONC: <ul style="list-style-type: none"> • Two nutritionists²³ • Three field staff (nurse, public health technician, and nutrition assistant)

One nutrition officer will be positioned at the County Health Department level to support the above activities within the PHC system in the county.

In addition to the nutrition activities in **Tables 9** and **10**, other high-impact services will be provided that will have a significant impact on the nutritional status of women and children. Implementation of the BPHNS by NGOs and the MOH began in 2009 in four focal states: Jonglei State, Upper Nile State, CES, and EES. Stakeholders involved in nutrition still need to be informed when the implementation will start and to be provided with the BPHNS 2009 version.

²⁰ Adapted from Reference 2.

²¹ A health committee is a committee of a minimum of six people headed by a village elder. Members should be representative of the different local groups, e.g., women, youth, CHWs, water, and livestock representatives. (Note: The secretary must be a CHW.)

²² One nutritionist is needed for screening and growth monitoring and one for SAM/MAM management, personal communication with GOSS/MOH/DN Senior Nutrition Inspector.

²³ Ibid.

There are expected challenges in implementing the BPHNS, including:

- *Human Resources*
 - “Over-concentration” of health personnel in urban areas
 - Inadequate number of (qualified) staff; large number of qualified health personnel in the diaspora outside Southern Sudan
 - Unfavourable terms and conditions to retain/attract qualified health workers in Southern Sudan’s health system
- *Facilities*
 - Low coverage of health services
 - Few functional health facilities and most in poor condition
 - Unequally distributed health facilities[15]

The BPHNS is without a doubt the way to move forward in Southern Sudan. However, before the impact of a well-functioning and fully operational BPHNS on the nutritional status of women and children can be measured, concerted efforts and significant investments will have to be made. Meanwhile short-term, high-impact interventions might reduce the high burden of malnutrition in Southern Sudan.

5.4 POLICIES AND GUIDELINES RELATED TO NUTRITION

A number of policies, guidelines, and operational frameworks or strategies developed by various ministries with agencies and organisations are being used. Many more are imminent, some near completion. **Box 5** provides an overview of relevant governmental nutrition documents in Southern Sudan.

Box 5. Examples of Policies, Guidelines, and Operational Frameworks or Strategies Developed and/or Adopted by the Government of Southern Sudan

- Health Policy 2007–2011 (GOSS/MOH)
- Prevention and Treatment Guidelines for PHC Units (June 2005, GOSS/MOH)
- Monitoring and Evaluation Framework and Operational Plan (2008, GOSS/MOH)
- Prevention and Treatment Guidelines for PHC Centres and Hospitals (2006, GOSS/MOH)
- National Policy for Health Promotion (Draft February 2009, GOSS/MOH)
- Basic Package of Health and Nutrition Services (2009, GOSS/MOH)
- Essential Medicine List (2007, GOSS/MOH)
- Interim Integrated Management of SAM (Draft December 2009) (GOSS/MOH)
- Maternal, Neonatal, and Reproductive Health Strategy 2009–2012 (Draft, GOSS/MOH)
- Food and Agriculture Policy Framework (2006, GOSS/Ministry of Agriculture and Forestry [MOAF])
- Southern Sudan Integrated Disease Surveillance and Response Assessment Report (2007, GOSS/MOH)
- Child Act (2009, GOSS)

Although there are no MOH policies or guidelines on food and nutrition, nutrition has been integrated in a number of related policies and guidelines. Some of these documents serve as an entry point for improving nutrition in Southern Sudan. In the following sections, a brief outline is provided on the relationship of the cited policy, framework, or guideline with nutrition. Some of the strengths and weaknesses of the policies also are highlighted.

5.4.1 Health Policy

The Health Policy 2007-2011 includes 30 specific statements on health. One specifically addresses nutrition, stating that “the [MOH] shall enhance nutritional programmes, particularly at the community level, and improve the nutritional status of the people by increasing access to nutrition through an integrated health programme.”[15] Components to be included are breastfeeding, complementary feeding

practices, nutritional education and counselling, management of MAM, and inpatient feeding and dietary therapy. The BPHNS is supposed to define the nutrition activities to be provided at all levels from the community to the County Health Department.

5.4.2 Prevention and Treatment Guidelines for Primary Health Care Units

These guidelines provide recommendations for how to provide services at the community level. They instruct PHC unit staff on the fundamentals of PHC, including nutrition.[63] They are comprehensive and contain advice on supplements, such as vitamin A, iron, and folate. Antenatal care advice includes, for example, discouraging girls from getting pregnant before 18 years of age and increasing birth spacing. Anaemia is included, but no diagnostics are provided. The chapter on nutrition mainly refers to breastfeeding and complementary feeding. There is a specific chapter on SAM, but guidance on diagnosing is inadequate, as is the treatment proposed; this part needs thorough revision.

5.4.3 Monitoring and Evaluation Framework and Operational Plan

The Directorate for Monitoring and Evaluation has formed a monitoring and evaluation (M&E) plan for the GOSS/MOH, the state ministries of health, the County Health Departments, PHC centres, and PHC units, as well as the community.[64] The plan identifies 110 indicators. The MOH plans to collect these data in various ways in the coming years, some during five yearly household surveys and others through routine data collection/surveillance and specific assessments.

Table 11 lists the indicators that are particularly relevant for the nutrition situation analysis:

- Indicators that reflect a condition potentially directly caused or aggravated by malnutrition
- Indicators that reflect a condition directly causing or aggravating malnutrition

When data on these indicators become available, they will give an indication of the nutritional risks for the population in Southern Sudan. Other important indicators on nutrition include the monitoring of the prevalence of anaemia and acute malnutrition (MUAC, WFH, and/or oedema), since these are potentially life-threatening conditions for women and children. These indicators are currently missing in the National Monitoring and Evaluation Framework.

Table 11. Indicators Related to Nutrition in the Monitoring and Evaluation Framework and Operational Plan

Indicator	What It Measures or Indicates	How Often It Will Be Measured Nationally
Indicators reflecting a condition potentially <i>directly caused or aggravated by malnutrition</i>		
Infant Mortality	Caused or aggravated by poor nutrition of the pregnant mother or of the infant	Annually
Under 5 Mortality	Caused or aggravated by poor nutrition of the (pregnant) mother or of the child	Annually
Maternal Mortality	Caused or aggravated by poor nutrition of the (pregnant) mother	Every 5 years
Under 5 Underweight (-2 standard deviations [SDs])	Caused by a combination of acute and chronic malnutrition	Annually
Under 2 Underweight (-2 SDs)	Caused by a combination of acute and chronic malnutrition	Biannually
Proportion of Children Born with LBW	Caused by IUGR; the most important determinants are caloric intake/gestational nutrition (in case of malnutrition), gestational weight gain, pre-pregnancy weight and height, and infection	Monthly

Indicator	What It Measures or Indicates	How Often It Will Be Measured Nationally
Indicator reflecting a condition directly leading to or aggravating nutritional status		
Maternal Mortality	Causing or aggravating the poor nutritional status of the child	Every 5 years
Percentage of Infants Born to HIV-Infected Mothers Who Are Infected with HIV	Those children (HIV-positive or negative) who have a high likelihood of becoming malnourished	Biannually
Percentage of Women 15–24 Years Who Are HIV-Infected	Those women who have a high likelihood of becoming malnourished, as well as their children	Annually
Total Fertility Rate	If high, this is an indication of potential malnutrition (especially dietary-induced anaemia among women, but also childhood malnutrition)	Every 5 years
Percentage of Children with Breastfeeding Initiation < 1 Hour after Birth	Important relationship with reduction of post-partum haemorrhage and success to EBF	Biannually
Exclusive Breastfeeding	If low, the chance of childhood malnutrition is high	Biannually
Vitamin A Supplementation Coverage (percentage of children 6–23 months who received a vitamin A dose in the past 6 months)	Low coverage means many children are probably vitamin A deficient	Biannually

5.4.4 Prevention and Treatment Guidelines for Primary Health Care Centres and Hospitals

The guidelines for PHC centres and hospitals provide a solid base for preventing and treating various illnesses in the BPHNS, including malnutrition conditions.[60] Guidance is provided for:

- Maternal nutrition during pregnancy and lactation
- Breastfeeding
- Introduction of complementary foods
- Growth monitoring
- Vitamin A supplementation
- Nutrition and illness
- Overweight and obesity
- Anaemia
- Nutrition and HIV
- Dietary advice during sickness, e.g., concerning use of “non-conventional medicines,” such as use of *Moringa* tree leaves
- Detection of acute malnutrition

In addition, the guidelines provide recommendations on other areas related to potential causes of under-5 malnutrition, such as water and sanitation, and treatment/prevention of malaria, diarrhoea, and ARIs. However, there are messages and terms that are not consistent with WHO/UNICEF recommendations. For instance, one EBF message is to introduce weaning food to children after 4–6 months of age.[60] The document guides the health professional to detect acute malnutrition using MUAC or WFH. Inpatient care is suggested for SAM with medical complications. Products such as ReSoMal, F-75/F-100, and Plumpy’nut® are recommended for the treatment of SAM without medical complications.

5.4.5 National Policy for Health Promotion

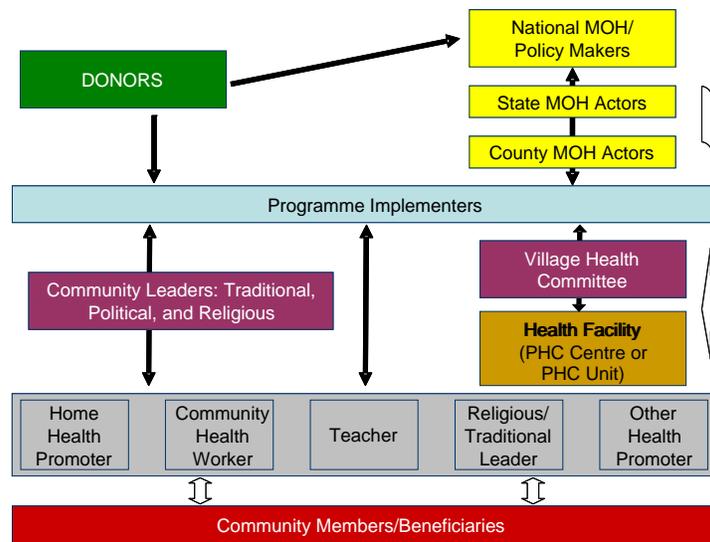
The Health Education and Promotion Sub-Directorate of the MOH has created a National Policy to guide health promotion activities across all health technical areas in Southern Sudan.[65] The intended audience for this policy is broad, as health promotion cuts across all health components and layers of

programming, from national policy makers to community-based home health promoters, as well as multiple public sectors, such as education, agriculture, and information. The health promotion activities ideally are linked to a health facility. However, in places where there is no facility, implementers can work directly with communities.

The policy:

- Establishes leadership for health promotion in Southern Sudan through the Health Education and Promotion Sub-Directorate of the MOH
- Sets out guiding principles for health promotion in Southern Sudan
- Provides a template for developing and implementing health promotion components of a programme
- Establishes a mechanism and procedures for monitoring of health promotion activities
- Defines roles and responsibilities of all actors at all levels (see **Figure 8**)

Figure 8. Overview of the Various Health Promotion Actors[65]



The DN was involved in drafting the policy. It will serve as an excellent base for improving the nutritional status of mothers and children for the DN and the departments responsible for nutrition in the state ministries of health. It provides direction on increasing rates of immunisations, promoting family planning, using ORT, decreasing rates of malaria and increasing treatment in children under 5, increasing appropriate diagnosis of ARIs, promoting proper hand-washing practices, increasing rates of safe water utilisation and disposal of faeces, increasing proper hygiene and sanitation practices and anti-helminthic treatment, improving nutrition practices among PLHIV and their caretakers, and improving infant feeding practices (by health workers and caretakers) in an HIV context.

With regard to direct nutrition interventions, the policy details how to improve maternal nutrition and rates of EBF to 6 months. It also offers guidance on increasing rates of appropriate complementary feeding, diagnosis, and treatment of SAM, as well as providing children vitamin A supplementation. **Annex 4** provides detailed and comprehensive guidance on behavioural analysis, communication objectives, and messages, and offers concrete activities as well as indicators directly related to nutrition activities. Once implemented, this policy—particularly the guidance as provided in **Annex 4**—could be of enormous potential for improving the health and nutrition environment of children in Southern Sudan.

5.4.6 Essential Medicines List

The Essential Medicines List defines all medicines the GOSS/MOH accepts as essential and that the GOSS uses its resources to procure for and supply to public health facilities. Vitamin A and iron/folate have been included in this list.

Although the BPHNS and the GOSS/MOH treatment guidelines include treatment of SAM/MAM at the PHC centre and hospital levels, the Essential Medicines List does not include F-75, F-100, ReSoMal, or RUTF.[66]²⁴ Excluding these four implies that PHC centres do not have these commodities, yet they are the first-line sites where SAM is supposed to be treated. SAM can only be treated with these specialised products, so not including them in the list leaves the treatment of acute malnutrition formally in limbo. WHO defines malnutrition, along with most micronutrient deficiencies, as a disease. Taking into account the scale of malnutrition in Southern Sudan, the Essential Medicines List ideally should include essential nutrition products needed to manage acute malnutrition.

5.4.7 Maternal, Neonatal, and Reproductive Health Strategy

The Maternal, Neonatal, and Reproductive Health Strategy 2009–2012 aims to reduce the MMR from 2,054 to less than 1,300 per 100,000 live births by 2012.[13] It also envisages reducing infant mortality. It stresses the importance of women's access to essential services that promote safe pregnancies and healthy children.

The strategy contains one specific objective that is explicitly related to nutrition (its implementation is foreseen to start in 2010). The objective is to improve maternal and childhood nutrition by:

- Establishing guidelines for maternal and child nutrition for use at all antenatal clinics, family planning and health clinics, village health volunteers, and women's and girl's groups
- Promoting EBF
- Initiating and rolling out food and micronutrient supplements for pregnant women and vulnerable women and girls
- Adopting the ENA as part of the BPHNS

The strategy is very strong on bolstering quality and quantity of staff working in health facilities. The DN could largely contribute by designing inputs for refresher courses and curricula on nutrition education. This strategy is of particular importance as it focuses on the group (both providers and recipients) where the maximum gains in improving childhood and maternal nutrition can be achieved.

5.4.8 Food and Agriculture Policy Framework

The Food and Agriculture Policy was one of the first GOSS policies.[46] A key strategic goal in the policy is food self-sufficiency and self-reliance by 2011. To reach this, the policy emphasises establishing extension services, creating market linkages, and strengthening human capacity. One of the projects mentioned in this policy, SIFSIA, has already started (see **Section 5.5.3**). The policy is comprehensive and addresses the main weaknesses and constraints in the country, ranging from improving rural infrastructure to land reforms and increasing agricultural inputs and extension services. The policy lists successful projects, mostly implemented by NGOs, for some nutritional crops. The Ministry of Agriculture and Forestry (MOAF) is drafting an operational plan, but it was not available for this analysis.[91] The policy mentions the establishment of a Department of Food and Nutrition, but at this stage it is still unclear what the role and mandate of this department will be vis-à-vis the GOSS/MOH/DN.

²⁴ The WHO Model Lists of Essential Medicines 2007 does not include RUTF or ReSoMal-like products either. The list is currently under revision.

5.4.9 Child Act

The Child Act, inaugurated in April 2009, defines a child as any person under the age of 18 years and requires the government to recognise, respect, and ensure the rights of children as enshrined in the U.N. Convention on the Rights of the Child.[91] This act has created a legal framework for a protective environment in which children can enjoy, among others, their rights to health, education, and other basic services. The act will eventually have positive nutrition implications for girls and children. Many malnourished infants are firstborns of adolescent girls, especially 15- and 16-year-olds, who are particularly at risk of having malnourished children. It is important to note that 18 percent of women in Southern Sudan 15–49 years of age were first married by age 15 and therefore are at high “risk” of having an infant at about that age. If the Child Act succeeds in delaying girls’ age at marriage, teenage pregnancies could decline, delaying the age of first pregnancy, and hence the associated LBW and childhood malnutrition.

5.4.10 Integrated Management of Severe Acute Malnutrition

In 2008, in collaboration with all nutrition stakeholders, the DN began developing national guidelines for the treatment of SAM. The final draft of the interim guidelines were completed in December 2009.

5.4.11 Other Relevant Laws

An Interim Constitution was drafted for Southern Sudan in 2005, with two relevant Bills of Rights. The Rights of Women states that “all levels of government in Southern Sudan shall promote women’s participation in public life and their representation in the legislative and executive organs by at least 25 [percent] as an affirmative action to redress imbalances created by history, customs, and traditions.” This might be instrumental for putting issues related to women and their children on the political agenda.

The Public Health Care Bill states that government health institutions will provide free PHC and emergency services for all citizens. However, in reality, free health services are not yet provided everywhere.

A bill on food and drugs is being drafted at the initiative of the Director General of Pharmaceutical Services, but exact details were unavailable.

Though primary school education is obligatory in Southern Sudan, no legal action is taken if children do not attend school.

5.5 INFORMATION SYSTEMS

Various information systems are in place or are being put in place in Southern Sudan. Some provide or could provide information on nutrition. The main systems are:

- Nutrition Information and Surveillance System
- Health Information and Surveillance System
- Information Systems for Early Warning on Food Insecurity, including SIFSIA, the Livelihood Analysis Forum (LAF), and the Famine Early Warning Systems Network (FEWS NET)
- Regular surveys and assessments, including the Sudan Household Health Survey (SHHS), ANLA, and Crop and Food Security Assessment Mission (CFSAM)

5.5.1 Nutrition Information and Surveillance Systems

The DN has one functioning senior nutrition inspector who collects survey and surveillance reports from NGOs and the U.N. However, no systematic analysis or reporting is done by the MOH/DN. A thematic group (THG) on Assessments/Surveys/Surveillance of malnutrition was established within the DN/Nutrition Technical Working Group (NTWG), but the members do not meet. Nutrition information mostly comes from NGO reports (e.g., incidental or regular surveys, Action contre la Faim’s [ACF]

surveillance system) and large, multi-stakeholder national surveys. Once in a while, NGOs or donors describe the nutrition situation based on these surveys.[9,22,24,26,55] Overall, these are high-quality analyses in their areas.

5.5.2 Health Information and Surveillance Systems

In 2007, a Southern Sudan Integrated Disease Surveillance and Response Assessment system was established. This is a monitoring system on 10 important communicable diseases, including cholera, diarrhoea in children under 5, malaria, measles, and meningitis. Information on avian influenza is shared in the same meetings, and FAO, the MOH, and the MOAF monitor changes in bird deaths. Weekly meetings and reporting are held at the GOSS/MOH level. The capacity to collect the information at the state or federal MOH levels is often limited, and most information is reported by NGOs. New cases of acute malnutrition are not reported, even though GAM is a major health problem in Southern Sudan.

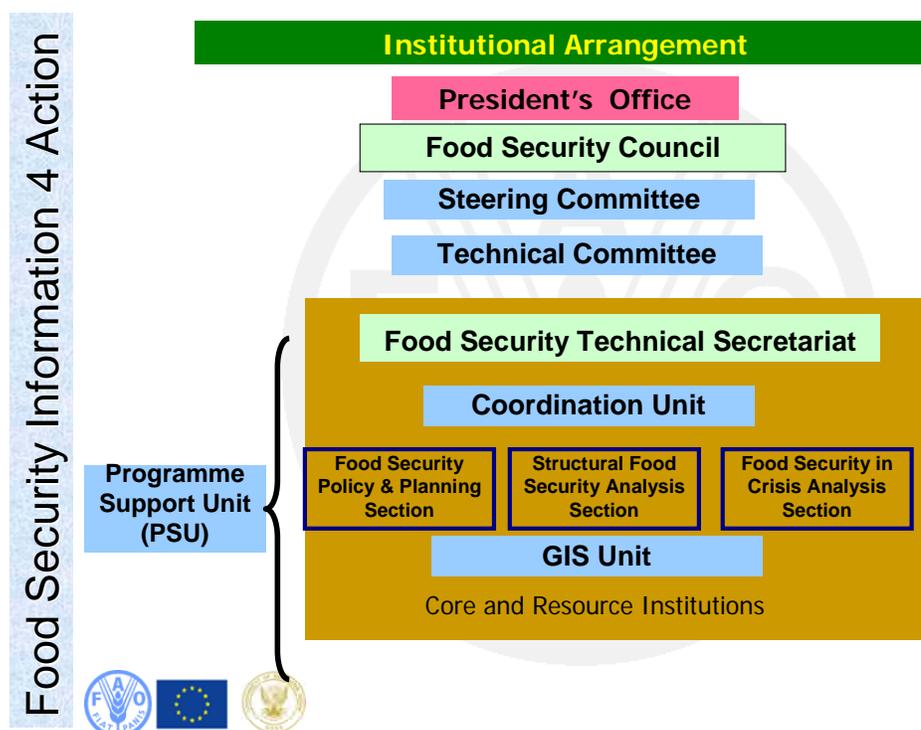
5.5.3 Information Systems for Early Warning on Food Insecurity

Several systems are available to provide information on changes in food security. These include SIFSIA, LAF, and FEWS NET.

Sudan Institutional Capacity Programme: Food Security Information for Action

SIFSIA started in 2007. It is a 4-year, 2-phased programme funded by the European Commission and implemented by FAO with a budget of 10.3 million Euro.[67] The objective is to strengthen the human, physical, and organisational capacities of the GOSS in the generation and utilisation of information for the analysis, design, and M&E of food security-related policies and programmes. **Figure 9** shows the institutional setup.

Figure 9. The Institutional Setup of the Sudan Institutional Capacity Programme: Food Security Information for Action[67]



The Food Security Council is the highest decision-making body on food security policy in Southern Sudan, aligning and harmonising food security initiatives and guiding national food security policy and programmes. The Technical Committee consists of officially appointed technical personnel from GOSS institutions with a food security mandate (e.g., MOAF; the Ministry of Animal Resources and Fisheries; the Southern Sudan Centre for Census, Statistics, and Evaluation [SSCCSE]; the Southern Sudan Relief and Rehabilitation Commission [SSRRC]; the MOH; and the Ministry of Trade) and the SIFSIA Programme Support Unit (Secretariat).

The programme activities are divided into three broad components:[67,70]

1. *Food Security Policy and Planning Systems*: This component covers, for example, vulnerability analysis, livelihood analysis, and nutritional status of vulnerable groups.
2. *Baselines and Information Systems*: To support existing and future food security-related information systems, the following systems have been or will be established:
 - The Food Security and Community Survey (covering, e.g., levels of child malnutrition and access to basic services)
 - Agricultural and Livestock Market Information System (providing regular information on market prices of basic agricultural and livestock products)
 - Crop Production Monitoring and Forecast Systems (strengthening capacities in agricultural production monitoring within the MOAF, use of meteorological data and rainfall for early warning)
 - Natural Resources Monitoring and Mapping
 - Livelihoods and Vulnerability Analysis Monitoring System (coordinating the collection and analysis of food security data)
 - Nutrition Information System (supporting a system for collecting and analysing nutrition information from various sources)
3. *Decentralised Food Security and Research Fund*: This is a fund for supporting food security research and capacity strengthening initiatives at the local level and will be demand-driven for public institutions and NGOs in the most food insecure states.

In 2009–2010, two pilot studies related to early warning systems were planned:[90,100]

- Food security monitoring in NBG and Warrap States (and possibly EES in the future): A monitoring system through 10 sentinel sites per state, recording, for example, expenditure patterns, coping mechanisms, meal frequency and sources, food prices, and purchasing power
- Integrated Food Security Phase Classification (IPC), an innovative tool for improving food security analysis and decision making, in Jonglei and Warrap States

To provide inputs in the Nutrition Information System, SIFSIA has provided the DN with material support (e.g., computers, printers, scanners, vehicles) and funds to contract a data specialist. In return for the SIFSIA-supplied data, the DN supported SIFSIA with work on collecting and analysing assessment and survey reports. Continued funding (e.g., release of fund instalments) is tied to the delivery of agreed outputs.

The Livelihoods Analysis Forum

The LAF is a multiagency forum whose members include key government line ministries, the U.N., and NGOs. LAF works under the authority and coordination of the SSCCSE. This forum provides support to government institutions and partners on capacity strengthening in food security data collection and analysis and helps train new participants in the use of the IPC tool to classify the current and emergent situation in Southern Sudan.[72]

The LAF started the IPC initiation process in 2007. The IPC is a standardised scale that integrates food security, nutrition, and livelihood information into a clear statement about the nature and severity of a crisis and the implications for strategic response.[71] The IPC provides a food security situation analysis quarterly. It can possibly be used as a baseline in the future. **Annex 6** shows an example of the most recent IPC.[72] The current challenges to the IPC concern coordination between the state and GOSS levels and the limited resources for mobility of the focal points that collect key information and their high

turnover. Ideally, the forum's work should now be rolled out to the states through a process that could be started through the state-level food security coordination meetings.

Famine Early Warning Systems Network

This USAID-funded surveillance system collaborates with international, regional, and national partners to provide timely and rigorous early warning and vulnerability information on emerging and evolving food security issues. FEWS NET monitors and analyses relevant data and information in terms of its impacts on livelihoods and markets to identify potential threats to food security. FEWS NET also focuses its efforts on strengthening early warning and food security networks. For Southern Sudan, FEWS NET produces quarterly reports on the country's food security situation. It uses information from various government and NGO sources. Like LAF, the major constraint for FEWS NET is the large turnover of NGO staff (focal points for key information), which makes it difficult to maintain a constant flow of reliable information from trained "informants."^[101]

5.5.4 Regular Surveys and Assessments

The following three regular surveys collect data on food security:

1. Sudan Household Health Survey
2. Annual Needs and Livelihoods Assessment
3. Crop and Food Security Assessment Mission

Sudan Household Health Survey

The SHHS was carried out in Southern Sudan for the first time in 2006 by the MOH and the SSCCSE. The survey assessed the situation of children and women and established a baseline for monitoring progress toward selected Millennium Development Goal (MDG) indicators. Survey tools were based on the UNICEF Multiple Indicator Cluster Survey (MICS)²⁵ and the Pan Arab Project for Family Health.²⁶

The plan calls for repeating the SHHS every 5 years (like the Demographic and Health Surveys [DHS] carried out in most countries in the region); the next is due in 2011. The SHHS is a unique and comprehensive household-level survey that covers a vast number of indicators on health, nutrition, care practices, and child protection and education. In contrast to the ANLA, which covered 8 states in 2009, the SHHS covers all 10 Southern Sudan states.

Annual Needs and Livelihoods Assessment

The ANLA, which has been carried out for 10 years, is conducted by the U.N. and the GOSS and reported by WFP VAM Unit.²⁷ It forecasts the food security and nutrition scenario for each following year. The ANLA estimates the:

- Number of people who are food insecure in each state
- Number of people who require external assistance
- Characteristics of the severely food insecure to help agencies target the right beneficiaries
- Malnutrition rates in selected states to complement food security information
- Contribution of food insecurity as an underlying cause of malnutrition
- Needs/priorities of identified communities

²⁵ MICS was developed by UNICEF to assist countries in filling data gaps for monitoring the situation of children and women through statistically sound and internationally comparable estimates using socioeconomic and health indicators.

²⁶ The major purpose of the Pan Arab Project for Family Health is to enable the ministries of health in the Arab region to obtain a timely and integrated flow of reliable information suitable for formulating, implementing, monitoring, and evaluating the family and reproductive health policies and programmes.

²⁷ The WFP VAM Unit includes the MOAF, WFP, UNICEF, FAO, the SSCCSE, and SSRRC.

The ANLA provides the responses needed to address current and forecasted risk to lives and livelihoods.[68]

The particular value of the ANLA is that it looks at acute and chronic malnutrition and identifies high-risk groups for food insecurity, according to socioeconomic and residential status of the population surveyed. The ANLA is used, among other things, to identify annual food aid needs in Southern Sudan.

Crop and Food Security Assessment Mission

This assessment is carried out annually by FAO and WFP. It includes members from the GOSS, MOAF, SSRRC, the European Union's Joint Research Centre, and FEWS NET. The purpose of the assessment is to estimate cereal production and the overall food supply in Southern Sudan. CFSAM provides detailed information on quantities and qualities of harvests; pest and disease outbreaks; surpluses and net food needs; food prices; marketing, road, pasture, and livestock conditions; as well as food needs calculations, taking into consideration the estimated number of returnees/IDPs leaving or entering Southern Sudan.

5.6 SUMMARY

- Health care services reach less than a quarter of the population of Southern Sudan, and most of the health and nutrition services are provided by NGOs. The capacity of existing health services to provide quality care is limited by lack of qualified staff and equipment and by stock outages in essential medicines. Most basic health care is curative (with the aim to prevent death), and preventive services have yet to become routine. For the time being, NGOs play an important role in the provision of health care, but in particular of nutrition care, as neither the implementation of the SHTP and BPHNS can sufficiently address nutrition in the near future.
- Though acute malnutrition is prevalent in Southern Sudan, it is not considered a life-threatening health condition by most health workers. Few have the knowledge and skills to diagnose acute malnutrition and to care for the life-threatening forms of malnutrition.
- The GOSS has shown its commitment to nutrition by establishing the DN with its specific positions. The GOSS has created a separate budget line for the DN, integrated nutrition activities in various health sector policies and guidelines, actively supported GOSS-level nutrition advocacy meetings, and involved DN in numerous GOSS-level agendas. The GOSS has also called for the development of the nutrition policies and various guidelines.
- A few states have a nutritionist, but the job descriptions have not been defined nor have most states identified the resources to facilitate hiring and maintaining a nutritionist.
- Though there are no policies or guidelines that are specific to nutrition, components of nutrition are integrated in various policies and guidelines in the health sector. Specifically, the BPHNS clearly defines the nutrition components that need implementation at various levels for high impact on the health of Southern Sudanese. The operational plan of the components of nutrition in the BPHNS were developed and shared with key partners. However, key nutrition messages in the different health guidelines need to be harmonised. More concerted efforts among different stakeholders, ideally under DN leadership, are needed to keep nutrition on the national agenda and to avoid fragmentation of its implementation.
- There are numerous systems to collect and compile health data in Southern Sudan. Most do not have nutrition indicators. Almost all data on nutrition are collected and compiled by NGOs, yet there is no central mechanism for the government to collect and share this information. Underweight is the only indicator that will be included in the routine MOH M&E system. Other nutrition indicators, such as prevalence of GAM (e.g., using MUAC, WFH, and oedema) and anaemia, are simple, cheap, and easy to collect and should be included in the national M&E framework.
- The treatment of MAM/SAM is highly dependent on services and resources of NGOs and UNICEF. Given the high levels of SAM in Southern Sudan, the Essential Medicines List should, in the short run, consider including RUTF, F-75/F-100, and ReSoMal, at least for PHC centres and hospitals. This will enable at least hospitals to reduce mortality associated with acute malnutrition in Southern Sudan.

6. Nutrition and Health Actors and Their Activities/Initiatives

6.1 INTRODUCTION

There are numerous actors in Southern Sudan working on public health (including water and sanitation), nutrition, and food security. New projects are being established, and forums where nutrition is being discussed in the broader sense are also being put in place. **Table 12** gives an overview of some key actors, projects, forums, and other initiatives active since 2006.²⁸

Table 12. Agencies, Projects, Forums, and Other Initiatives Related to Health, Nutrition, and Food Security Active in Southern Sudan since 2006

Example	Functions
Actors	
Government <ul style="list-style-type: none"> • Ministry of Health • Ministry of Agriculture and Forestry • Ministry of Animal Resources and Fisheries • Ministry of Water Resources and Irrigation 	The GOSS ministries work closely with NGOs, the U.N., and state ministries in drafting and/or implementing policies and strategies, raising resources for activity implementation, coordinating activities, ensuring harmonisation, and overseeing quality control. This work is still in its infancy, but much has been achieved in the years since the CPA.
NGOs and Red Cross/Red Crescent Organisations	Some 115–135 international and national NGOs and Red Cross Organisations work in Southern Sudan on health and nutrition. Most work in only one or a few states. Some work through state ministries, while others have parallel structures.
United Nations	The mandates of UNICEF, WHO, FAO, WFP, and the United Nations Population Fund (UNFPA) are to provide government support and to implement activities through local and international NGOs.
Donors	Southern Sudan hosts a mix of humanitarian and developmental donors as well as bilateral donors. The European Union and USAID are the largest donors. This area was not analysed in detail for this situation analysis.
Private Sector	The private sector in Southern Sudan is still in its infancy and was not analysed in detail for this situation analysis.
Projects	
Sudan Health Transformation Project, funded by USAID	The SHTP is a large PHC programme in Southern Sudan (2004–2011) that is gradually scaling up from 6 to 12 counties in multiple states, strengthening the capacity of health facilities and local NGOs to provide high-impact health services (mainly the components of BPHNS).
Sudan Institutional Capacity Programme: Food Security Information for Action	SIFSIA is a programme based on multi-stakeholder and multifaceted information systems related to food security, led mainly by the GOSS and FAO.
Basic Package of Health Services	The BPHNS is a large programme to disseminate the long-term MOH health policy with a medium-term strategy founded on PHC.
Accelerated Child Survival Initiative (ACSI), supported by UNICEF	This child survival programme attempts to scale up existing programmes in Southern Sudan. UNICEF, as lead agency for the water, child health, nutrition, and education sectors, has the overall management of the initiative.

²⁸ A comprehensive list of the more than 190 NGOs working in or having a component of work in health and nutrition in Southern Sudan, along with information about their programmes, is available at http://fantaproject.org/downloads/excels/SoSu_Health_Nutrition_NGO_matrix_Aug2010.xls.

Example	Functions
Essential Nutrition Actions	The WHO and MOH/DN have planned an initiative to integrate the ENA into the health system (but it is not yet sufficiently funded). The ENA lay out effective nutrition interventions delivered at health facilities and in communities to improve the growth and micronutrient status of women and children.
Food and Nutrition Technical Assistance II Project , funded by USAID	FANTA-2 aims mainly to provide technical assistance to the MOH/DN in developing a nutritional policy, coordinating nutrition activities, developing guidelines, and training service providers. FANTA-2 is also providing technical assistance to the MOH/DN to strengthen capacities for the management of acute malnutrition.
Southern Sudan Emergency Food Crisis Response Project (SSEFCRP), World Bank	SSEFCRP is a World Bank project (2008–2010) led by the MOAF and supporting agricultural productivity and strengthening community safety nets.
Forums	
Nutrition Technical Working Group Meetings	Since 2006, these meetings have been a platform to improve the coordination of planning, implementation, and M&E of nutrition-related activities in Southern Sudan.
NGO Health Forum	This is a well-organised forum on health activities by NGOs that aim to facilitate their work with the MOH and other partners.
Health and Nutrition Consultative Group Meetings	These meetings are led by the MOH and attended by representatives from donors, U.N. agencies, the World Bank, NGOs, state ministries of health, and others aiming to increase the effectiveness and efficiency of the health and nutrition sectors in supporting the attainment of Southern Sudan's health policy goals.
Nutrition Coordination Meetings	These quarterly nutrition coordination meetings are chaired by the MOH/DN and UNICEF, but are not currently operational.
Human Resource Technical Working Group	This is a stakeholders' forum on all human resource (HR)-related issues in the health sector in Southern Sudan. It is particularly important for capacity strengthening and staffing issues.
Emergency Preparedness and Response Meetings	These meetings, which are aimed at all health actors and chaired by the MOH, feed into the surveillance system on outbreaks of predominantly communicable diseases.
National Health Assembly	This annual assembly defines the roles and responsibilities at the central, state, and county levels of the health care systems of the MOH, including the roles of all other health stakeholders.
Livelihoods Analysis Forum	See Section 5.5.3 .
Other Initiatives	
Nutrition Health Convention, April 2009	This convention was a milestone event during which nutrition stakeholders in Southern Sudan came together. It resulted in a collective declaration on nutrition and its future in Southern Sudan.
Knowledge, Attitudes, and Practices Survey on Water, Sanitation, Hygiene, and Nutrition	The KAP Survey is an important national survey currently taking place in all states except Lakes State and WES. The objective is to obtain information that will guide the development of a BCC strategy on water and sanitation, nutrition, and health-seeking behaviour. It will serve as baseline information for measuring interventional impacts in coming years.

The U.N., NGOs, and Red Cross/Red Crescent Organisations planned to spend a total of US\$618 million in Southern Sudan in 2009. Of this amount, 23 percent was to be allocated to food security/livelihoods, 16 percent to health and nutrition, 10 percent to water and sanitation, and 51 percent to humanitarian activities.[73]

The following sections describe each of the actors, projects, forums, and initiatives listed in **Table 13**, except for those for which no analysis was conducted as of part of this assessment. This report does not provide an in-depth analysis of donors or their priorities.

6.2 ACTORS RELATED TO NUTRITION

6.2.1 Government

As discussed in **Section 5**, most GOSS ministries have drafted or completed the development of sectoral policies and guidelines. Strategic frameworks or operational plans also are being prepared. The MOH/DN started developing priority policies, guidelines, and operational systems. However, the MOH is still setting up the necessary structures to provide quality health and nutrition services; meanwhile, NGOs provide a large proportion of the services. States experience serious human capacity challenges in addition to communication and coordination problems. They have budget constraints to provide quality nutrition services, especially for establishing or expanding nutrition departments.[58] States need to build strong leadership, especially for coordination and implementation of the BPHNS.

6.2.2 Nongovernmental Organisations and Red Cross/Red Crescent Organisations

Mapping of who works where is done regularly, but it is quickly outdated, as funding sources change and actors leave. **Table 13** gives an overview of the current NGOs and their broad health programmes.²⁹ Most of these programmes indirectly affect nutrition.

Table 13. Examples of Nongovernmental Organisations and Red Cross/Red Crescent Organisations and Their Domain of Work in Southern Sudan

Domain of work	Approximately 125 NGOs and Red Cross/Red Crescent Organisations
HIV	AMA, American Red Cross, BMSS, Barakat, Diocese of Tambura, Diocese of Lainya, HAI, IHAA, IMC, Intrahealth, Merlin, MRDA, PSI, SEM, SUHA, Swedish Free Mission, WVI, Zoa
Reproductive health	American Red Cross, Barakat, CARE, Diocese of Tambura, Diocese of Lui, IRC, MSF-F, SUHA
Eye infections	CBM, CMA, Diocese of Tambura, IMRF
TB	AAA, CRADA, COSV, Diocese of Lui, Diocese of Tambura, Malteser International, SIM
Leprosy	AAA, Diocese of Tambura, Malteser International, MSF-H, SIM
Water and sanitation	ACF-USA, AMREF, Compass, GOAL, Merlin, Pact Sudan, SUHA
PHC (often in collaboration with the MOH: PHC units, PHC centres, hospitals), including EPI	AAA, AAR Japan, ADRA, Africa Help, AIC-CORED, American Red Cross, AMREF, ARC, BRAC, CARE, Catholic Diocese, CCM, Christian Solidarity, Concern, Compass, COSV, CRS, Diakonie, Diocese of Tambura, Dorcas Aid International, EPC, GOAL, Healthnet, IMA World Health, IMC, IMRF, IRC, MDM, Medair, Merlin, MRDA, MSF-B, MSF-H, MSF-S, MSH, NCA, NCDA, NHDF, OVCI, Real Medicare Foundation, RI, Salisbury-Sudan Medical Link, Save the Children, Servant's Heart, SIDF, SIM, SMC, SRCS, SUHA, SWIDAP, Tearfund, UNKEA, WVI, Zoa
Health education and promotion/CHW	Counterpart International, Diocese of Rumbek, Diocese of Tambura, Medair, MRDA, Plan International, SIM, Tearfund, THESO, World Relief
Hospital support	CUAMM, Diocese of Lui, Diocese of Tambura, MSF-B, MSF-CH, MSF-H, NPA, St. Mary's Juba Link, World Relief
Health staff capacity strengthening	Dorcas Aid International, GOAL, IMC, Intra Health Capacity Project, NPA, OVCI, Plan International, PSF, Right to Play, World Relief, WVI, Zoa
Health Information System	GOAL, MSH, Medair
Pharmaceuticals	MSH, PSF

²⁹ For a list of these organisations' full names, see **Annex 7**. For more information about these organisations, see http://fantaproject.org/downloads/excels/SoSu_Health_Nutrition_NGO_matrix_Aug2010.xls.

Miscellaneous	Guinea worm: Carter Foundation Kala Azar: IMRF, MSF-H, MSF-S, Malteser International Malaria: Malaria Consortium, PSI Rehabilitation: Handicap International Mental health: HealthNet
Growth monitoring	Cordaid, GOAL
Food Aid	Approximately 80 NGOs (data from June 2009)
Nutrition: Comprehensive nutrition or parts of it (prevention, detection, surveillance, treatment), surveys	ACF-F, ACF-USA, AVSI, Concern, GOAL, Medair, Merlin, MSF-CH, MSF-F, Tearfund, WVI

The majority of these organisations are involved in PHC and support antenatal care, EPI, rehabilitation of health facilities, human resource (HR) development, drug supplies, HIV, health promotion, and other sectors. **Table 14** presents the NGOs involved in the treatment of acute malnutrition in Southern Sudan, their locations, the numbers of beneficiaries (more than 360,000 children under 5 years of age) of their programmes, and the approaches that those programmes use.

Table 14. Overview of Nongovernmental Organisations Involved in the Management of Acute Malnutrition, Their Locations, and the Numbers of Beneficiaries[29]³⁰

NGO	State	County	Total Number of under-5 Beneficiaries	Approach
AVSI	EES	Ikwotos	22,000	Integrated approach to PHC
MSF-F	NBG	Aweil	21,000	Community-Based Management of Acute Malnutrition (CMAM), therapeutic feeding programme, outpatient therapeutic programme
GOAL	Warrap, Upper Nile	Twic, Kurmuk, Sobat area	117,600	Integrated with PHC
WVI	Warrap	Tonj South	58,000	CMAM, stabilisation centre, outpatient therapeutic programme, food security
ACF	NBG, Warrap, Upper Nile	Aweil East, GW, Twic	100,000	CMAM, therapeutic feeding programme, outpatient therapeutic programme
CONCERN	NBG	Aweil West, Aweil North	13,000	CMAM
Medair	10 states	multiple	Not available	Nutritional assessment and rehabilitation in emergencies
MSF-CH	NBG and Abyei	Abyei, Agok	10,000	Inpatient care: therapeutic feeding centres and mobile services
Tearfund	NBG, Upper Nile	Aweil South, Aweil East, Wuror	15,000	CMAM, food security

Most NGOs managing acute malnutrition integrate these activities into their PHC programmes, while others provide hospital-based care. Those that combine elements of food security programming, water and sanitation, health care, and other sectors seem to have an added advantage, as malnutrition is caused by so many interrelated factors. NGOs also assist in strengthening the nutrition capacity of health staff working in the states and counties and have expressed their willingness to participate in the development of a national nutrition policy and guidelines.[29]

³⁰ See **Annex 7** for the complete names of the NGOs.

Overall, NGOs have a good symbiotic relationship with the GOSS. The GOSS/MOH organises health sector budget working groups in which NGOs are strongly involved. Efforts for joint planning have increased in recent years, but there is a need to facilitate NGOs sharing their workplans with the state and national ministries of health.

6.2.3 United Nations

UNICEF

UNICEF's 2009–2012 plan of action for Southern Sudan has numerous nutrition activities that will be carried out mostly in the states (see **Annex 12**). UNICEF concentrates on capacity strengthening, nutrition coordination committees, iodised salt use, IYCF, mother and child health, and management of SAM. In addition, UNICEF supports activities in immunisation, water supply, sanitation and hygiene, basic education, HIV, child protection, communication, advocacy, social policy, planning, and M&E.³¹ UNICEF has a lead role with the MOH and WHO during vaccination campaigns/National Immunisation Days (NIDs).

UNICEF also provides nutrition supplies and equipment, financial resources, training and technical support, and logistics support to selected health facilities, NGOs, and the GOSS/MOH. At present, UNICEF support provides treatment to more than 20 percent of acutely malnourished children in Southern Sudan.[102] UNICEF also funds nutrition surveys, guidelines development (e.g., UNICEF is contributing to guidelines for the management of SAM currently being developed), and the Nutrition Health Policy development process.

World Health Organization

WHO's national officer for reproductive health in Southern Sudan allocates 10 percent of his time to nutrition. WHO's annual budget for nutrition has been small (US\$34,000 over 2 years). Its technical capacity to support the DN in its nutrition-related work is also limited. WHO contributes to the vaccination campaigns/NIDs and intends to support the DN in rolling out ENA training.

World Food Programme

WFP is active in food aid (conditional and unconditional) in Southern Sudan through general food distributions, as well as blanket SFPs for children under 5 through approximately 80 implementing partners.[98] Food aid has been mainly provided to IDPs and returnees who are unable to cultivate until they settle. WFP is also working on various conditional food aid programmes linked to work, training, education, and recovery, and is involved in institutional feeding and home-based care. WFP has expressed interest in providing food as an incentive to attend mother and child clinics for children under 2.[98] In addition, WFP is strongly involved in important assessments and survey activities in Southern Sudan.

Food and Agriculture Organisation of the United Nations

FAO's contribution in Southern Sudan is mainly at the assessment and analysis level through SIFSIA, as discussed in **Section 5**.

6.3 PROJECTS RELATED TO NUTRITION

6.3.1 Sudan Health Transformation Project

The SHTP, a US\$40 million USAID-funded project, began in 2004 in an initial phase of 5 years (Phase 1). It focused on providing PHC services through grants to international NGOs partnering with local

³¹ See Reference 74 for more details.

NGOs/community-based organisations with the aim of strengthening their capacity to provide these services on their own and strengthening state, national, and County Health Department capacity to manage the health care system. The intention behind the SHTP was to support the provision of seven high-impact interventions: immunisations, vitamin A, antenatal care, treatment of diarrhoeal disease with ORT, long-lasting ITNs, management of malaria cases, and management of ARI cases. The project covered PHC services, delivered through PHC units and centres, in nine counties and three urban areas.[30]

USAID is supporting Phase 2 of SHTP (2009–2011), which will cover 12 counties selected on the basis of the areas least covered by health services. SHTP-supported facilities will provide free health care, as it was observed that cost-sharing was a disincentive for people in seeking care. As in Phase 1, the project will focus on high-impact services, but SAM cases will be referred to NGOs for diagnosis and treatment.[103]

SHTP will also support pre-service curricula development for caregivers, including midwives, nurses, and clinical officers. Although these curricula are not very focused on nutrition, SHTP hopes that nutrition promotion eventually will be addressed. There has been no discussion of including the diagnosis and treatment of acute malnutrition in these curricula.

6.3.2 Sudan Institutional Capacity Programme: Food Security Information for Action

SIFSIA consists of multi-stakeholder and multifaceted information systems related to food security, led mainly by the GOSS and FAO. It is described in **Section 5**.

6.3.3 Basic Package of Health and Nutrition Services

The BPHNS is described in detail in **Section 5.2.5**. The MOH facilitates a coordination forum on the implementation of the BPHNS.

6.3.4 Accelerated Child Survival Initiative

The UNICEF-led Accelerated Child Survival Initiative (ACSI) consists of a three-tier approach to child survival.[75,78] Over its 2-year implementation, the campaign is expected to reach a majority of children under 2 in Southern Sudan with specific health interventions. The campaigns started in EES and Jonglei State in 2008. The interventions include providing ITNs, EPI, health education, breastfeeding information campaign, vitamin A supplementation, deworming, promoting iodised and oral rehydration salts, promoting hand-washing, health education, screening/referral and treatment of malnutrition, and growth monitoring. Through the EPI structures in selected areas, local capacity will be enhanced to provide routine health care at the community level. In areas with low health coverage, mobile teams of community health and nutrition workers, supported by capacity strengthening and skills development, will roll out regular, systematic child and maternal health services from existing health centres to the surrounding areas, complemented by the twice-yearly Child Health Days. Community development committees will be supported to ensure local management and ownership of the initiative. Since the campaign is linked to NGO and state ministries of health activities, one constraint will be effective implementation of ACSI in areas that currently are not covered by NGOs and that have weak state ministries of health.

6.3.5 Essential Nutrition Actions

The ENA is a set of seven affordable and highly effective nutrition interventions delivered in health facilities and communities to improve the growth and micronutrient status of children. As growth failure in children is concentrated in the first 2 years of life, women, particularly when pregnant or lactating, and children under 2 are the primary target groups. The ENA priority behaviours are:[104]

1. EBF for the first 6 months of life
2. Adequate complementary feeding, starting at 6 months of age, with continued breastfeeding until 2 years of age

3. Appropriate nutrition care of sick and severely malnourished children
4. Adequate intake of vitamin A for women and children
5. Adequate intake of iron for women and children
6. Adequate intake of iodine by all members of the household
7. Maternal nutrition, especially during pregnancy and lactation

In 2007 and 2008, MOH staff participated in regional ENA training in Zambia, organised by the East, Central, and Southern Africa (ECSA) Health Community; the Regional Centre for Quality of Health Care (RCQHC) in Uganda; UNICEF; and WHO. WHO and the DN intended to roll out an ENA training for health workers (clinical officers, EPI staff, nutritional staff) in Southern Sudan, but this training was constrained by WHO's limited budget for nutrition in 2008–2009.

6.3.6 Food and Nutrition Technical Assistance II Project

Following initial activities by FHI 360/A2Z, the USAID-funded Micronutrient and Child Blindness Project, the DN and USAID requested that FANTA-2 support the DN. FANTA-2's support is focused on technical assistance through and to the DN and covers the following activities.

- FANTA-2 supported the DN through the development of a Southern Sudan Nutrition Health Policy and secondment of a technical specialist to work with the DN. Leading up to the policy development, FANTA-2 supported the DN in organising the Nutrition Health Convention held in April 2009. FANTA-2 also supported this nutrition situation analysis.
- FANTA-2 is contributing to guidelines, job aids, and training materials for IM-SAM. UNICEF consultants took the lead in the initial draft, and FANTA-2 provided technical assistance for the interim and final drafts. The interim draft was released in December 2009.[32]³² MOH/DN, UNICEF, WHO, and FANTA-2 conducted a training of trainers in IM-SAM for senior clinicians from selected hospitals in March 2010.
- FANTA-2 supported USAID's Office of Food for Peace and assisted USAID in identifying priority geographical areas for new Title II non-emergency programs in Southern Sudan for 2010 and beyond.

6.3.7 Southern Sudan Emergency Food Crisis Response Project

The Southern Sudan Emergency Food Crisis Response Project (SSEFCRP) is a 3-year, US\$5 million World Bank project that started in 2008. It was originally a response to the global food price crisis, which continues to affect Southern Sudan. It focuses on cultivating selected crops and providing safety nets to food insecure households.[47] The project covers six counties, and the lead implementing agency is the MOAF.[105]

6.4 FORUMS RELATED TO NUTRITION

6.4.1 Nutrition Technical Working Group

The NTWG monthly meetings, held since 2006, are attended by at least eight core members drawn from the GOSS/MOH (three representatives), the U.N. (UNICEF, WFP: two representatives), and international NGOs (three representatives). It is normally chaired by the director general of the DN and co-chaired by UNICEF. The overall objective is to improve the coordination of conceptualisation, planning, implementation, and M&E of nutrition-related activities in Southern Sudan. The NTWG could assist the DN with developing nutrition guidelines/policy and an implementation strategy, as well as eventually monitoring the implementation of the nutrition strategy.

In 2006, the NTWG established four THGs:

³² The guidelines will be based on WHO, WFP, the United Nations Standing Committee on Nutrition, and UNICEF, 2007, *Community-Based Management of Severe Acute Malnutrition: A Joint Statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund.*

1. Malnutrition Prevention Strategies
2. Management and Treatment of Acute Malnutrition
3. Nutrition Advocacy
4. Assessments/Surveys/Surveillance of Malnutrition

The terms of reference for the NTWG are listed in **Box 6**.

Box 6. Terms of Reference for the Nutrition Technical Working Group
<ul style="list-style-type: none"> • Establish mechanisms for direction and coordination of nutrition assessments and GOSS/MOH, U.N. agency, and NGO interventions at the national and state levels, and ensure quality control of nutrition assessment through peer review • Coordinate the review and completion of the Nutrition Policy and Plan of Action for Southern Sudan • Through subcommittees that include a wider range of partners involved in nutrition in Southern Sudan, facilitate the development of a set of standards and guidelines for the implementation of nutrition activities in Southern Sudan, particularly in the areas of: <ul style="list-style-type: none"> ○ Nutrition surveillance and growth monitoring ○ Nutrition surveys ○ Therapeutic feeding, including community-based therapeutic care ○ Supplementary feeding ○ IYCF ○ Maternal nutrition ○ Macronutrient malnutrition ○ Nutrition education/IEC ○ Nutrition and HIV • Advocate for appropriate policies that address the underlying causes of nutrition problems and the needs of vulnerable groups and communities in Southern Sudan • Consolidate and disseminate technical updates/progress reports from the GOSS, U.N. agencies, and NGOs on the nutrition situation in Southern Sudan, including emergencies and the status of implementation of nutrition projects in the country • Provide assistance in mobilising technical, financial, organisational, and human resources for the implementation of priority nutrition interventions in Southern Sudan

The NTWG does not meet as frequently as originally envisioned. At best, it meets once every 2–3 months. The Management and Treatment of Acute Malnutrition THG became operational, partly because of the drafting of the IM-SAM guidelines. The infrequent meetings result from, e.g., limited MOH/DN staff resulting in a lack of organisational initiatives, high turnover among NGOs, absence of NGOs working in nutrition, a lack of U.N. staff in the capital (because they are often deployed to the field), communication problems through irregular DN access to the Internet, and meeting duration (often 1 full day, which is perceived as too long).

6.4.2 Nongovernmental Organisation Health Forum

The NGO Health Forum brings together NGOs involved in the health sector. Meetings are held monthly and chaired by Population Services International and Medair. All other health stakeholders are invited, but have observer status. The goals of the meetings are to:

- Share promising practices and thus support the GOSS/MOH in providing quality health services in Southern Sudan
- Represent health NGOs to the GOSS/MOH and donors
- Serve as a forum for health NGOs to receive accurate information on new GOSS/MOH policies and procedures, latest research, available tenders, and relevant stakeholder meetings
- Facilitate consensus on relevant issues and advocate to the GOSS/MOH and other partners on areas that are of concern to health NGOs
- Enable health NGOs to share relevant information on current activities, GOSS/MOH policies, projects, and health-specific documents

- Provide representation in the Health and Nutrition Consultative Group (HNCG) (discussed in **Section 6.4.3**) and facilitate the nomination of members (as required) to participate in various government and nongovernmental committees and technical working groups

6.4.3 Health and Nutrition Consultative Group

The HNCG is a monthly meeting chaired by the GOSS/MOH (Director General of External Relations and Coordination) and attended by representatives from donors, U.N. agencies, the World Bank, NGOs, state ministries of health, and other organisations that play a key role in the health sector. The objective is to increase the effectiveness and efficiency of attaining Southern Sudan's health policy goals and strategies. The GOSS/MOH and its development partners come together to coordinate policies and actions relevant to the development and implementation of the GOSS/MOH development budget and achieving the planned outputs of the interim health strategy. The meetings are well attended and have been instrumental to information sharing.

6.4.4 Nutrition Coordination Meetings

The quarterly Nutrition Coordination Meetings began in 2007 and were chaired by the director general of the DN and co-chaired with UNICEF with participation from the GOSS/MOH, the U.N., WFP, and NGOs. The overall objective was to ensure and improve coordination of nutrition activities. These meetings take place occasionally.

6.4.5 Human Resource Technical Working Group

The Human Resource Technical Working Group meets biweekly and is composed of stakeholders involved in HR/staffing issues within the health sector. It is chaired by the director general of the HR Directorate and aims to:

- Review existing policies and strategic plans and revise as needed
- Plan the implementation and rollout of policies and strategic plans
- Review and address major HR issues, such as training and recruitment
- Review and roll out an HR strategy

The DN could play a valuable role in this group in its work to improve the curricula and refresher trainings of health facilities staff on nutrition, as well as to augment the number of nutritionists in the PHC system.

6.4.6 Ministry of Health Emergency Preparedness and Response Meeting

The weekly Emergency Preparedness and Response Meeting, a gathering of health actors, is chaired by the MOH and feeds into the surveillance system for outbreaks of predominantly communicable diseases. A role for nutrition could be envisaged if the meeting included non-communicable diseases and if the regular increase of malnutrition prevalence above emergency thresholds was seen as an emergency to prepare for and respond to. So far the meeting focuses mainly on diarrhoeal cases and includes cholera and measles.

6.4.7 National Health Assembly

The National Health Assembly meets annually and includes all agencies engaged in health in Southern Sudan, including donors. It is facilitated by the GOSS/MOH and state ministries of health. It defines roles and responsibilities at the central, state, and county levels, including the roles of the U.N., NGOs, and the private sector. It also clarifies resource allocation and funding possibilities and aims to strengthen coordination and communication.

6.5 OTHER INITIATIVES

6.5.1 Nutrition Health Convention, Juba, April 2009

The 2009 Nutrition Health Convention served as a platform to launch the development of the Southern Sudan Nutrition Health Policy and the integration of direct nutrition interventions into PHC. It raised awareness on why nutrition matters in Southern Sudan, enabling stakeholders to gain a deeper understanding of the underlying causes and consequences of malnutrition, and different approaches to tackling the problem, as well as the cumulative impact of ineffectively addressing this problem in Southern Sudan. Discussions focussed on establishing a broad consensus for an appropriate implementation framework and systems for the delivery of nutrition services.

More than 130 people participated in the convention, the first of its kind, with more than half attending the entire event. Participants included senior representatives from 9 of the 10 state ministries of health, the principal audience of the convention. (CES did not send representatives.) The nine participating states made presentations on their current nutrition contexts, challenges, and priorities. Implementing NGOs and international speakers made presentations and facilitated breakout discussions on topics most relevant to nutrition in Southern Sudan.[58]

In their final declaration, convention participants made a series of key recommendations:

- Strengthen the political commitment and improve the positioning of nutrition at the GOSS, state, and county levels
- Strengthen, develop, and protect human capacity in nutrition and skills
- Establish a nutrition information system
- Promote and support adequate IYCF practices
- Strengthen the management of acute malnutrition
- Promote adequate micronutrient intake and strengthen the management of micronutrient deficiencies
- Strengthen food security at the household level

Other recommendations from discussions included:

- Develop a clear transition strategy to move from emergency-oriented to developmental nutrition, with a focus on prevention
- Strengthen nutrition coordination throughout the Southern Sudan health system and resume regular NTWG meetings
- Develop practical nutrition assessment tools and guidelines for home, community, health facility-based, and emergency programmes
- Scale up existing interventions for improving nutrition in the context of HIV
- Strengthen community systems to better enable the detection of malnutrition
- Incorporate nutrition indicators into health service M&E plans

The MOH/DN and the various working groups are responsible for implementing these recommendations.

6.5.2 Knowledge, Attitudes, and Practices Survey on Water, Sanitation, Hygiene, and Nutrition

The KAP Survey seeks to understand barriers to access and communication related to child nutrition, water, sanitation, and hygiene. To do so, it examines home health, household water handling, sanitation, and child-feeding practices.[21] While previous studies, such as the SHHS of 2006[12], lean toward quantitative data, this survey encompasses both qualitative and quantitative information, examining cultural and newly acquired knowledge, beliefs, and habits relevant to child survival.

Many stakeholders that aim to improve the nutrition situation of children in Southern Sudan will benefit from the KAP Survey results. The findings of the survey are used to tailor programmes on current knowledge of underlying behavioural factors that affect health and nutrition outcomes. For instance, the

information will guide the development of a behaviour change community (BCC) strategy and serve as baseline information for measuring intervention impacts in coming years.

6.6 SUMMARY

- There are many good nutrition/health initiatives in Southern Sudan, both small and large scale (e.g., BPHNS, SHTP). While the government is establishing the right structures to provide the widespread quality health and nutrition services, the process will take time, and the contribution of NGOs to health care provision in Southern Sudan will continue to be substantial for the next few years. Most NGOs are willing to continue to provide this support as they strengthen the capacity of the government to take over service provision.
- There are a number of functional working groups and forums that promote the nutrition agenda and provide coordination at the GOSS level. Similar forums might not function effectively in all states. Also, the nutrition coordination mechanism and the working groups are not functioning to their full potential. They need motivation and strengthening to accelerate progress in establishing the structures that are essential to addressing the high malnutrition in Southern Sudan. Collaboration among nutrition actors should also be strengthened.

7. Current Challenges and Recommendations

7.1 INTRODUCTION

Many reviews have been published on Southern Sudan since the 2005 CPA.³³ When findings and recommendations from those reviews are compared with the findings of this situation analysis, it is striking that the identified problems, gaps, and causes of malnutrition have not changed. Commonalities include:

- High malnutrition rates in Southern Sudan (almost 20 percent for both acute and chronic)
- Causes of malnutrition predominantly related to impaired care practices for children under 5, a high disease burden among children under 5, inadequate health care and health-seeking behaviour, unhygienic environment and practice, and, to some extent, food insecurity
- Insufficient data on micronutrient deficiencies in Southern Sudan, despite numerous reports raising this concern

This situation analysis recommends that these issues be placed high on the GOSS/MOH's health and nutrition agenda.

While progress has been made in strengthening the nutrition sector, the impact has been slow, and changes in the nutritional status of Southern Sudanese children can hardly be detected. This might be a result of the fact that the actors in the health and nutrition sectors have not adequately addressed the underlying causes of malnutrition. Causal factors are multifaceted and, if not addressed simultaneously and in a coordinated fashion, improvements might be hard to achieve.

This situation analysis supports the many excellent recommendations of the reviews of the past 5 years,³⁴ and therefore refers only to these recommendations to avoid duplication of what already has been so well documented and formulated. This situation analysis finds that much already has been written in terms of policies, reviews, and recommendations, but too little has been done to implement high-impact interventions in a concerted way, though some high-impact interventions are starting now.

7.2 CHALLENGES AND RECOMMENDATIONS

The following specific challenges and key recommendations concerning the nutrition context in Southern Sudan require particular attention.

Challenge 1. Health and nutrition policies and guidelines provide conflicting guidance on the promotion of nutrition and the management of acute malnutrition, and miss essential nutrition indicators.

- Prevention and treatment guidelines for PHC centres do not consistently promote adequate IYCF. For example, the guidelines promote the introduction of replacement (complementary) foods after 4–6 months of age.
- Prevention and treatment guidelines for PHC units have a specific chapter on SAM, but guidance on diagnosing and treating SAM is inadequate.
- Prevalence rates of anaemia and acute malnutrition are not included as indicators in the MOH's Monitoring and Evaluation Framework and Operational Plan. Both conditions are potentially life-threatening for women and children. Anaemia needs to be taken more seriously, especially because the scale of the problem is currently unknown. Acute malnutrition is not included as a standard health status indicator, which encourages the health system's continual dependency on NGO or U.N. surveys for that information and does not alert the GOSS to crises as they arise.
- The MOH emergency preparedness and response system does not include the prevalence of acute malnutrition, which is an issue of public health importance in Southern Sudan.

³³ Particularly References 22, 26, 31, 43, 45, 55, and 77.

³⁴ Ibid.

Recommendation 1. Health and nutrition policies and guidelines and emergency preparedness and response systems should be revised and updated to adequately cover infant and young child care and feeding practices and the problems and management of anaemia and acute malnutrition. The DN should play an instrumental role in supporting the national policy for health and nutrition promotion.

Challenge 2. There is a discrepancy in governmental guidance and practice on the management of malnutrition. While officially services provided by PHC centres and hospitals as part of the BPHNS include the treatment of SAM, the MOH does not provide therapeutic equipment and supplies, instead relying on UNICEF and NGO support.

Recommendation 2. The MOH should provide therapeutic equipment and supplies for the management of SAM, including therapeutic foods, to health facilities with SAM services as part of the essential medicines and supplies.

Challenge 3. Mothers of children with SAM who are hospitalised are not receiving meals during their children's treatment. This is a problem, in particular for those women who still breastfeed and have no relatives living near the hospital.

Recommendation 3. The MOH should have a policy and provide guidance for hospitals to provide meals to mothers with hospitalised malnourished children, especially when lactation is still part of the treatment.

Challenge 4. MAM rates in Southern Sudan are high and pose a real health problem for children. Yet no MOH facilities and very few NGOs address the management of MAM. SFPs likely have little impact on reducing the incidence of SAM and the prevalence of MAM in Southern Sudan. The lack of alternative approaches for the management of MAM underscores the importance of comprehensive malnutrition prevention programmes.

Recommendation 4. The MOH and nutrition partners should agree on a national strategy on the management of MAM and should advocate for the necessary means to do so.

Challenge 5. Some nutrition partners have nutrition promotion and SBCC materials, but no harmonized approach exists. Some stakeholders have expressed the need for developing a "food circle/disk"³⁵ to sensitise the Southern Sudanese people on what to eat.

Recommendation 5. The MOH should collect and map existing SBCC for health and nutrition promotion adapted to the Southern Sudan context, identify gaps, and develop country-specific materials based on a SBCC analysis.

Challenge 6. Growth monitoring is promoted throughout Southern Sudan, but quality and referral for treatment of acute malnutrition is unknown, limited, or inadequate. Short term high-impact interventions (notably for EBF, hygiene, and the management of diarrhoea) are needed at the national level to prevent malnutrition, while larger, sustainable national programmes will show impact in the longer term.

Recommendation 6. Growth monitoring or nutrition counselling should be a priority for all PLW in Southern Sudan. While monitoring growth until a child is 12 months of age is important, if referral services for treatment do not exist in health facilities, nutrition counselling should be prioritised for funding and efforts.

Challenge 7. The absence of operational plans for nutrition—which should follow the completion of the nutrition health policy and strategy—has slowed the momentum of implementing and scaling up nutrition programmes.

³⁵ This is a poster with approximately 4–6 food groups, included according to cultural habits and food availability, that combines two messages: what a person should eat daily and how much he or she should eat to ensure an adequate diet. It can target an entire population or be tailored to children only.

Recommendation 7. The Nutrition Health Policy, which is currently being developed, should be accompanied by an operational action/implementation plan. The National Policy for Health Promotion (Draft February 2009) is a major steppingstone for the nutrition community to address the prevention of malnutrition. The DN, ideally with learning sites, should provide substantial inputs to an implementation plan, since nutrition is a major component of the policy.

Challenge 8. The DN leadership remains hampered in many key areas, including staffing and defining nutrition-related roles within the health system. It lacks workplans and job descriptions and faces an inadequate budget, poor means of communication, inadequate work space, and a lack of equipment and supplies.

Recommendation 8. The DN should play an instrumental role in defining and supporting nutrition roles within the state ministries of health. However, the DN needs financial and technical support in the areas of governance and planning (e.g., drafting workplans and job descriptions), as well as in coordination and technical leadership. To build HR capacity, a mapping of nutritionally competent staff should be conducted, followed by identification of nutrition staff needs for the next 5–10 years, including dietitians and food technologists. In addition, WHO/Southern Sudan would benefit from a full-time nutrition focal point.

Challenge 9. Learning sites for promotion and implementation of IYCF services and for the management of acute malnutrition are lacking in Southern Sudan.

Recommendation 9. Nutrition learning sites should be established to strengthen the MOH's expertise in learning lessons in, planning for, and mentoring staff on nutrition. These sites should link to academic, training, and research institutions. In addition, exchanges to well-established nutrition units (in-country or outside of the country) would contribute to improved knowledge and skills in nutrition governance, the translation of concepts into action, and data analysis.

Specific recommendations include:

- Assisting in boosting nutrition knowledge and skills among midwives, nurses, clinical officers, medical assistants, maternal and child health workers, and CHWs (according to the BPHNS requirements) in the coming years
- Assisting in harmonising nutrition curricula for health professionals, which NGOs should then use as guidance for teaching
- Updating the knowledge and skills of nutritionists in Southern Sudan and conducting a training-of-trainers for some nutritionists so they can, in turn, e.g., teach health professionals or nutrition at primary/secondary school

Challenge 10. The overall coordination of nutrition partnerships and activities is weak and needs improvement. Funding might be needed to accomplish this and to revive a more conscientious working forum with increased accountability.

Recommendation 10. The NTWG, with well-defined terms of reference and partnerships, including health promotion stakeholders and the MOAF, should form the basis of coordinating and improving the quality of nutrition activities. THGs should be the technical arms of the NTWG.

Challenge 11. DN leadership faces challenges in overseeing nutrition surveillance. Data on micronutrient deficiencies are almost entirely lacking, and current data on GAM rates among children under 5 are frequently unavailable. Also, no data on adult malnutrition are available. While this situation analysis focuses on malnutrition among children under 5, malnutrition is also a problem for older children and adults, including the elderly. However, the data supporting this contention simply do not exist.

Possible reasons for this include:

- Anthropometric indicators are found to be insufficient when used with the people of Southern Sudan, who are relatively tall.
- Adult malnutrition is not seen as a priority, despite data that might substantiate it as such.

- NGOs have limited capacity to address both child and adult nutrition.

Recommendation 11. There is a need to explore whether adult malnutrition is a problem in Southern Sudan. The DN should assert its leadership role in nutrition information systems including a surveillance system.

Challenge 12. More research is needed on adequate anthropometric indicators for tall ethnic tribes, the nutritional status of children in cattle camps, the growing of food products for children/adolescents/urban households, and the food composition of food baskets (including wild foods).

Recommendation 12. Research on the following subjects should be conducted in Southern Sudan:

- Children's nutritional status in cattle camps and the main determinants
- The value of measuring by MUAC or WFH, HFA, and BMI in the Southern Sudanese population (does their height throw off classification when measuring the height component in WFH, HFA, or BMI in older children and adults, assuming that, until age 5, the physiological differences across ethnic groups are not significant?)
- Food products that have high nutritional value, that are well accepted by children, and that are easily grown around the homestead (for complementary feeding or SFP purposes)
- The composition of food baskets, including wild foods
- Best approaches to increase the food access of peri-urban and urban households
- The viability and effectiveness of school gardens and "feed yourself" initiatives for adolescents/young unemployed adults

Challenge 13. Although this is starting to change—as demonstrated by the establishment of the DN, the inclusion of nutrition in the new health policy, and the recent Nutrition Convention—few professionals within the GOSS/MOH regard nutrition as an important topic. The majority of health professionals in Southern Sudan still do not regard malnutrition as a particular condition, and the link between a reduction in malnutrition and a reduction in the disease burden for children under 5 is not yet understood. Similarly, at the community level, an awareness of the importance of nutrition does not yet exist. Nutrition is cross-cutting, and it seems to have lost a place of its own among priorities. In addition, there is a general favouritism toward curative and facility-based systems. In this context, the political will to address nutrition problems remains weak. Strong advocates and role models are needed to put nutrition more in the spotlight.

Recommendation 13. The MOH should develop a stronger capacity to advocate for nutrition that incorporates the social and cognitive development and economic consequences that arise if malnutrition is not addressed.

Challenge 14. The disease burden among children under 5 in Southern Sudan is high, and health services for coping with this situation are stretched thin. Malnutrition is only one of the many conditions children face. It will be many years before the impact of a fully operational BPHNS on the nutritional status of women and children can be measured. In the meantime, NGOs play an important role in the provision of health care, but in particular in nutrition care, as neither the implementation of the SHTP or BPHNS will sufficiently address nutrition in the near future. The NGOs will remain crucial for delivering health and nutrition services for the next 5 years and beyond. NGO- and UNICEF-supported health facilities will be the only training facilities for the treatment of SAM, which underscores their importance.

Recommendation 14. Nutrition partners should not work in parallel health structures, but instead should work exclusively through and with the MOH and its health system, which will strengthen health facilities' capacity to provide services.

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Annex 1. Scope of Work

Food and Nutrition Technical Assistance II Project (FANTA-2)

Nutrition Situational Analysis for Southern Sudan

Consultant Scope of Work

DRAFT, March 12, 2009

Technical Managers: Robert Mwadime
Hedwig Deconinck

Period of Performance: March 2009 to October 2009

Project Number: 4001-95200/4001-95301

1. Objectives

The objectives of this consultancy are:

- To conduct an analysis of the nutrition situation, and the context for nutrition policy development and implementation in Southern Sudan. The product of this situational analysis will be used to develop the Southern Sudan National Nutrition Policy (SSNNP).
- To provide technical input on the draft SSNNP, which the Ministry of Health (MOH)/Directorate of Nutrition (DN) and FANTA-2 will develop.

2. Background

Based on the current nutrition context and on the initial activities of A2Z, the USAID Micronutrient and Child Blindness Project, the MOH/DN and USAID/Southern Sudan have requested that FANTA-2 support the development of a SSNNP. The Government of Southern Sudan (GOSS) is keen to establish policies and programs to address the heavy burden of malnutrition. Southern Sudan is in a transitional phase; a variety of structures and policies are being developed and nutrition is being mainstreamed into the development and economic agenda.

Malnutrition rates have soared as a result of the long civil war, destroyed infrastructure, poor water and sanitation conditions, and high poverty levels. This already precarious situation could worsen in 2009. According to the latest Famine Early Warning System Network (FEWS NET) forecast, the total number of food insecure persons is expected to double this year and could top 900,000 by April, due to the seasonal hunger gap; reduced crop production due to flooding in some areas and dryer than usual climate conditions in other areas; cattle raids; and inter-ethnic violence.

The 22 percent prevalence of SAM and MAM in children 6–59 months old (Sudan Household Health Survey 2006) is significantly higher than the WHO 15 percent threshold for nutrition emergencies. The prevalence of acute malnutrition is reported to have decreased since the signing of the Comprehensive Peace Agreement (CPA) in 2005, but data have not been compiled and published to substantiate this improvement. Additionally, although few data exist on the prevalence of vitamin and mineral deficiencies, such deficiencies are almost certainly widespread given the general malnutrition situation. Information gaps also exist on possible underlying factors associated with malnutrition, such as customs and beliefs related to infant and young child feeding (IYCF), use of specific foods, and health-seeking behaviours.

Several developments also created the impetus for USAID to request technical assistance for a Southern Sudan-specific nutrition policy. USAID/Southern Sudan has supported health and nutrition activities since

2004. In November 2006, FANTA facilitated a 3-day National Consultative Meeting on Nutrition that brought together senior personnel in key government sectors, nongovernmental organisations (NGOs), U.N. agencies, and nutrition experts from the region. Key recommendations from the meeting included: a) urgently developing a nutrition policy; b) defining a minimum package of nutrition actions within the Basic Health Care Package (BHCP); c) building the capacity of health providers in basic nutrition services; d) establishing key nutrition indicators in the health information system; and e) encouraging the MOH to coordinate the activities of nutrition partners. In FY2007/08, through A2Z, USAID/Southern Sudan supported mapping nutrition programs and activities in Warrap State to inform stronger MOH coordination. In October 2007, A2Z also published an assessment report, "Nutritional Status and its Determinants in Southern Sudan: A Summary of Available Data." This mapping and report will serve as a foundation for the current nutrition situational analysis.

3. Specific Responsibilities

The consultant will undertake the following specific tasks:

I. Conduct an analysis of the nutrition situation, and the context for nutrition policy development and implementation in Southern Sudan.

- 1) Develop methodology and tools for the situational analysis
 - The consultant should identify the methods and develop the tools needed to collect the information described below, and especially the information needed at the state level. Some data could be collected through desk-review and electronic contacts with MOH, U.N. agencies or the civil society in Southern Sudan.
 - The scheduling of activities should take into consideration the dates for deliverables of the draft reports given below. The methodology should include proposed travel dates to Southern Sudan, the proposed list of persons to be contacted, meetings to be arranged by the MOH/DN, and the objectives of each meeting and expected output. Because some information at the State level may be collected voluntarily, by NGOs, the proposed methodology and tools should be clear and concise to facilitate their efforts in responding to requests for documents, statistics, and other information.
 - Work with the MOH/DN, UNICEF/Juba, FANTA-2, and the Nutrition Policy Task Force (to be constituted) to define the methodology and develop the tools for conducting the situational analysis.
- 2) Establish contacts remotely by email and telephone:
 - Identify all key persons, departments—within and outside the ministry of health—and partners that could provide useful information.
- 3) Collect documents and conduct desk review and make an electronic compilation of existing information, including discussions with contact persons in Sudan:
 - Collect documents³⁶ that may have the necessary information to respond to the issues outlined in point 6 below.
 - Identify and review data and information that define the nutritional problems in Southern Sudan. The process should identify those aspects of prevention and care that are currently being addressed properly by existing policies, and those aspects that could potentially benefit from new policies. Some aspects may be non-formal/undocumented policies, e.g. agreed ways of doing things. This analysis may include relevant perceptions of stakeholders (e.g. government, care providers, consumer groups) on what needs to be

³⁶ The documents and information collected should concern key issues and have some bearing on nutrition and development in southern Sudan, including the constitution, existing (health/nutrition) legislation, policies, strategies, national development plans, endorsements of the World Health Assembly and WHO Regional Committee resolutions, socioeconomic and demographic situation, cooperative programs, management structures at different levels of the health system, health systems and human resources, ongoing nutrition-related programs and interventions, studies and evaluations of nutrition programme outcome indicators, the community and child care practices.

- included in the policy.
 - Review macro-level directions and other policies such as health, food/agriculture, land, social welfare policy, poverty reduction policy, and national development policy, that might affect coverage and effectiveness of nutritional programming and other opportunities to address malnutrition.
- 4) Meet and interview key stakeholders. Conduct the field assessments and visits in Southern Sudan:
- FANTA-2 will provide resources for the consultant to travel to Juba and visit three-to-five States identified as priorities in the desk review over a period of 14 days, with a possible extension of one week should more time be necessary. The MOH, FANTA-2 and UNICEF/Juba will also support the consultant to organise State level meetings where the consultant will travel and facilitate dialogue with local leaders and programs and collect necessary information.
 - During this visit, the consultant should meet key persons and organisations and collect national level data and information from the MOH, government departments, NGOs, donors and U.N. agencies.
- 5) Provide a write-up of the field methods used and preliminary findings
- Analyse and interpret data and information with the aim of translating it into functional consequences that policy and decision makers can understand.
- 6) Write the first draft of the situational analysis report:
- Present nutrition (acute malnutrition, micronutrient deficiencies, IYCF issues) data to show various trends that may exist in different parts of the country for key indicators³⁷.
 - Identify and discuss the causes, and short- and long-term consequences of malnutrition in the country. The A2Z mapping and report will serve as a foundation for this task. Discuss the role of the state, communities, households, markets, civil society, and donors in household food security, clean water and sanitation, the care environment, and health issues that affect nutrition. This may include roles during emergencies such as drought, floods, and conflict. Consider changes in prices, access, availability, quality, equity, etc., including emergency and non-emergency periods.
 - Discuss the local resources available to address nutritional problems in the country at different levels and within different sectors.
 - Discuss the nature of interventions and initiatives to promote good nutrition in the different sectors (government and non-governmental, the private sector), including their coverage and perceived effectiveness. Include a mapping of the geographical locations of the major nutrition interventions and initiatives.
 - Analyse and discuss the expectations of the different stakeholders on how nutrition issues should be addressed in the next 20-25 years (talk with government departments, consumer groups, civil society, U.N. agencies). For instance, address issues of coordination, intersectoral integration and collaboration, private sector and academic institutions involvement, and the role of research.
 - Identify future priorities to promote good nutrition, and to control and prevent malnutrition in Southern Sudan as perceived by different stakeholders.
 - Make recommendations on: a) the nutritional goals the country should strive towards (including promotion of healthy diets and lifestyles, IYCF, the essential nutrition actions, protection of exclusive breastfeeding, food fortification, school nutrition/feeding programs, and treatment of acute malnutrition), and goals to ensure the needs of the Southern Sudanese are met to achieve food and nutritional wellbeing; b) the roles and capacities

³⁷ For each topic, wherever possible, it is important to describe and analyse the range of differentials, such as between rural and urban areas, between geographical areas (e.g. North–South or West–East, between States), and special groups (e.g. ethnic groups nomads, displaced people, and those in difficult circumstances), economic inequalities by quintile and gender disparities, during different seasons, emergencies).

needed to meet the goals - while considering any structural and institutional changes in the systems - and how they can be built at macro-level; and c) nutrition research objectives.

- 7) Produce second draft situational analysis report:
 - Share the first draft, solicit comments from FANTA-2, the MOH at central and state levels and other nutrition partners.
 - Incorporate FANTA-2 and other stakeholder comments.
- 8) Produce final situational analysis report
 - Share the second draft, solicit comments from FANTA-2, the MOH at central and state levels and other nutrition partners.
 - Incorporate FANTA-2 and other stakeholder comments.

II. Provide technical input and review of the draft SSNNP, which the Ministry of Health (MOH)/Directorate of Nutrition (DN) and FANTA-2 will develop

- 9) Review and give comments on the draft SSNNP document
- 10) Review and give comments on the final draft of the national nutrition policy document

Activity	Dates	Estimated LOE
Develop methodology and tools to conduct nutrition situation analysis	April–May 2009	3
Collect and conduct desk review of nutrition-related documents	April–July 2009	12
Meet and interview key stakeholders. Conduct the field assessments and visits in Southern Sudan	May–June 2009	16
Provide a write-up of the field methods used and preliminary findings	July 2009	2
Produce 1 st draft of Report	July 31, 2009	10
Incorporate FANTA-2 and other stakeholder comments	August 2009	2
Produce 2 nd draft of Report	August 31, 2009	5
Incorporate FANTA-2 and other stakeholder comments	September 2009	2
Produce final Report	September 30, 2009	3
Review and give comments on the draft nutrition policy document	October 2009	5

4. Deliverables and Timeline

The consultant shall submit the following deliverables to the FANTA-2 Technical Managers per the stated timeline:

Deliverable	Date of Submission
Write-up of methodology and tools to be used in the situational analysis	April 30, 2009
Write-up of field methods used and preliminary findings of the field visit	July 15, 2009
Draft report of the situational analysis	July 31, 2009
Second draft situational analysis report	August 31, 2009
Final situational analysis report	September 30, 2009
Comments on the draft national nutrition policy	October 30, 2009

5. Special Provision

- All written deliverables produced under this work order shall be submitted as scheduled to the Technical Manager in electronic format, using MS Word, followed by hard copies.
- Changes in the scope of work shall require prior discussion and approval by FANTA-2 Director and the Technical Manager, and shall be executed through a written modification to this SOW.

6. Funding Disclaimer

All publications, videos, or other information/media products funded or partially funded under this subcontract shall prominently acknowledge USAID, and the product shall state that the views expressed by the author(s) do not necessarily reflect those of USAID. Acknowledgments should identify the sponsoring USAID Offices and Bureaus as follows:

“This study/report/audio/visual/other information/media product (specify) is made possible by the generous support of the American people through the support of USAID/Sudan/Juba, the Office of Food for Peace, Bureau for Democracy, Conflict and Humanitarian Assistance, and the Office of Health, Infectious Disease, and Nutrition, Bureau for Global Health, United States Agency for International Development (USAID), under terms of Cooperative Agreement No. GHN-A-00-08-00001-00, through the Food and Nutrition Technical Assistance II Project (FANTA-2), managed by FHI 360. The contents are the responsibility of FHI 360 and do not necessarily reflect the views of USAID or the United States Government.”

7. Branding Requirements

FANTA-2 is a cooperative agreement between USAID and FHI 360 and is classified as an assistance award. Therefore, the USAID co-branding guidelines for assistance awards will apply to all materials funded by FANTA-2. USAID's new co-branding guidelines for assistance awards mandate that the USAID logo must be placed prominently on USAID-funded materials, publications, products, and other media. The USAID logo must be of equal size to the other partner logos placed on the materials.

Annex 2. Stakeholders Contacted and Interviewed for the Situational Analysis

Visit 31 May – 14 June 2009

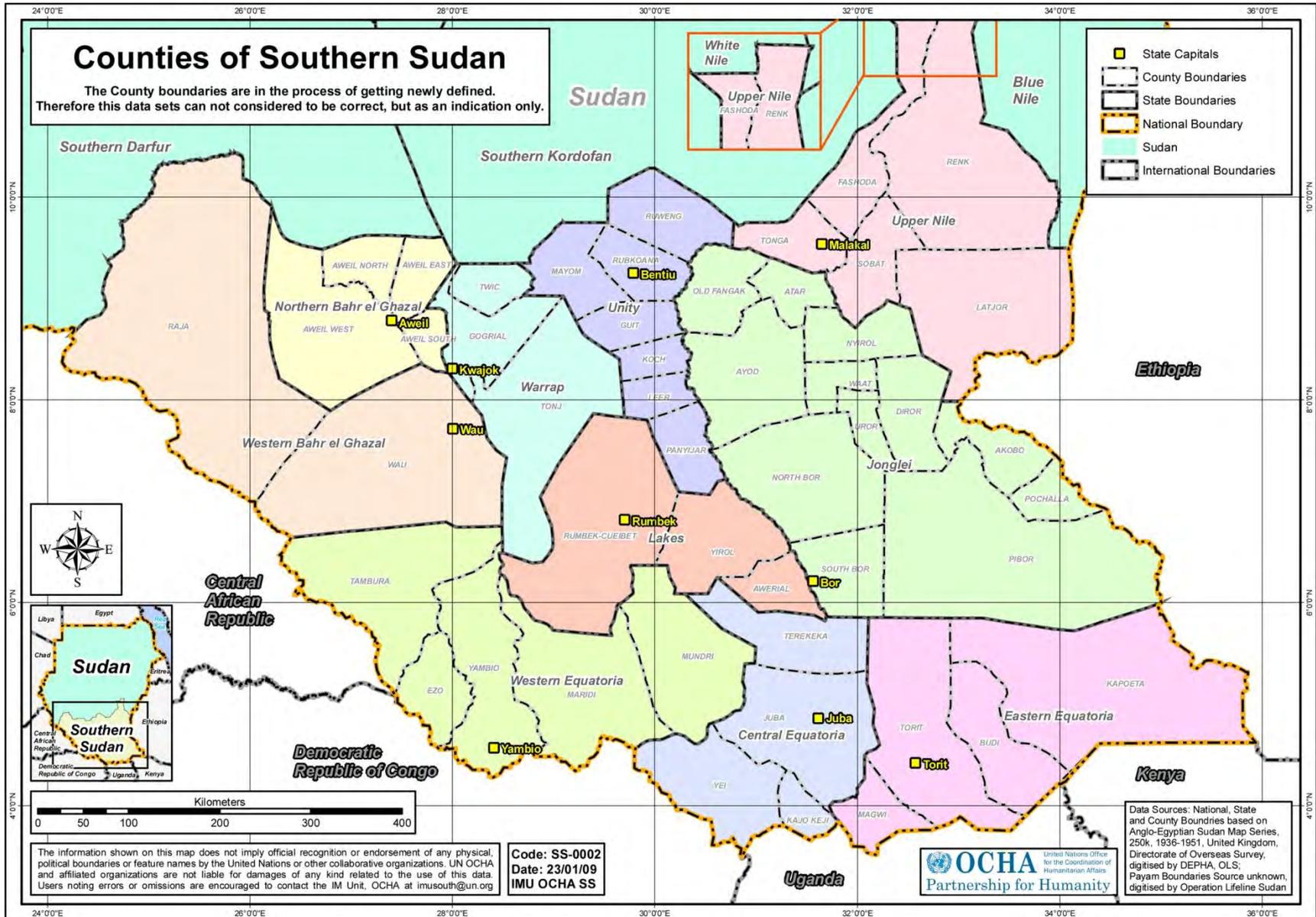
Name	Title	Organisation
Robert Akua	Formerly field monitor for Food for Health - Uganda	WFP
Micheal Mawadri	Programme Officer Nutrition	WFP
Stanley Ambajoro	Director General Directorate Human Resources and Development	MOH
Celestino Orijem	Head of PHC Centre Nyokuron	County MOH
Evans Wani	Deputy Director PHC	State MOH
Julia Adelberto	Deputy head of Nutrition	State MOH
Samson Baba	Director General Directorate of External Assistance and Coordination	MOH
Martin Aboka	Paediatrician	Teaching Hospital Juba
Magda Armaah	Programme Specialist for Reproductive Health	UNFPA
Alex Dimitri	Programme Officer for Reproductive Health	UNFPA
Kawa Tong	Programme Specialist for Health	USAID
Martin Swaka	Senior Programme Management Specialist	USAID
Emanuel Taban	Programme Assistant	USAID
Lueth Garang	Director General – deputy Directorate PHC; Director Health Education and Promotion	MOH
Antony Laku	Director Community Based Health Services and EPI	MOH
Nora Maliik	Public Health Coordinator	PACT Sudan
Elijah Mukhala	Information Systems and Capacity Building Specialist	SIFSIA/FAO
Yergalem Beraki	Food Security Analyst	SIFSIA/FAO
John Kanisio	Director General Planning, Investment and Marketing	Ministry of Animal Resources and Fisheries
Augustino Atilio	Director of Extension Services	Ministry of Animal Resources and Fisheries
Charisse Tillman	VAM officer	WFP
Everlyn Muchomba	Officer for Southern Sudan	FEWS NET
Abigail Wathome	Livelihoods coordinator	Oxfam Great Britain
Jones Itombra Okoro	Immunisation specialist	UNICEF
Margaret Itto	Chief of Party	John Snow, Inc./Sudan Health Transformation Project-1
Robert Bragi	National Officer for Reproductive Health	WHO
Florence Bayoo	Country Director	International HIV Alliance
Richard Laku	Director of Monitoring and Evaluation	MOH
Romanos Mkerenga	Chief, Health and Nutrition	UNICEF
Bertha Jackson	Nutrition Specialist	UNICEF
Gisa Kohler	Head of Mission	MSF-CH
Richard Sturge	Medical Coordinator	MSF-F
Sonja Nieuwenhuis	Medical Coordinator/NGO Health Forum Coordinator	Medair/NGO Health Forum
Priscilla Bavo	Nutrition Officer	UNICEF
Janet Michael	Director of Nursing and Midwifery	MOH
Kelly Delaney		ACF - USA
John Lagu	Director of Communicable Diseases/Surveillance and Response	MOH

Name	Title	Organisation
Bibian ALEX	Senior Nutrition Inspector	MOH
Victoria Eluzai	Director General Directorate of Nutrition	MOH
Elijah Alier	Senior Nutrition Inspector	MOH
Soledad Birnbaum	Food for Peace Officer, Washington, DC	USAID
Felix Lado	PHC adviser	MSH/Sudan Health Transformation Project-2
Peris Mwaura	Nutrition officer	Concern
Rita Demitry	Secretary to the Minister's office/nutritionist	MOH
Aida Kabugho	Nutritionist	MERLIN
Rebecca Alum	Senior Nutrition Inspector	MOH
Severin Kabakama	Health and Nutrition Programme Manager	WVI
Michael Kenyi	Director General for Planning and Programming	MOAF
Mary Loki	Director of Post-Harvest and Home Economics	MOAF
Michaja Kamundi	Director Planning and Programming	MOAF

Other stakeholders interviewed 1 April–30 September 2009

Name	Title	Organisation
Hedwig Deconinck	Senior Emergency Nutrition Advisor	FANTA-2
Diane DeBernardo	Specialist, CMAM and Emergency Nutrition	FANTA-2
Robert Mwadime	Senior Regional Nutrition Advisor	FANTA-2
Stephen McDowell	Independent consultant	Nairobi, Kenya

Annex 3. Counties of Southern Sudan



Annex 4. Excerpt of the National Policy for Health Promotion: Topics Directly Related to Nutrition¹

PROBLEM ANALYSIS/STRATEGISING		BEHAVIOURAL ANALYSIS		COMMUNICATIONS PLANNING			
Health Goal	Objectives	Target Behaviour	Behaviour Analysis (Opportunity, Ability, and Motivation to Act)	Target/Audience	Communication Objectives/Key Messages	Strategies/Activities	Indicators (Process, Impact, and Outcome)
Reduction in Maternal Mortality	1.5 Improve maternal nutrition	1.5.1 Proper maternal weight gain attained 1.5.2 Maternal iron sulphate and folic acid supplements taken	<p>Key questions: Are women eating enough (quantity and quality) and gaining weight during pregnancy? Are they taking recommended supplements</p> <p>Opportunity: Is there adequate food in the household? Is there sufficient food quality available in the household? What are the norms regarding eating practices during pregnancy? What do others do?</p> <p>Ability: Do women know what proper nutrition means? Do they understand the special needs of their bodies during pregnancy and the benefit of proper nutrition to their unborn babies? What support do they have for eating properly (including assistance in household chores to allow time for extra focus on her diet)? Does she feel that she is able to eat properly and take supplements if available?</p> <p>Motivation: What is the woman's assessment of the importance of nutrition or taking a nutritional supplement? What are her beliefs around the importance or effect of nutrition? What does she think will happen if she doesn't practice proper nutrition? Does she think she has control over the situation? Is she willing to pay for better quality/more food or a supplement if necessary?</p>	Pregnant women	<p>That women are able to identify ways to improve their nutrition during pregnancy</p> <p>That women believe in the importance of proper nutrition during pregnancy</p> <p>That communities understand ways in which they can support their pregnant women</p>	<p>Mass distribution of iron and folic acid supplement</p> <p>Distribution of supplement and counselling on nutrition during [antenatal care] visits</p> <p>Increase community support (feeding programmes or supplementation) on nutrition for pregnant women</p> <p>Discussion of nutrition at pregnancy club meetings; communal weighing sessions to monitor weight gain</p> <p>Radio programming and radio listener clubs to disseminate information about good nutrition in pregnancy</p> <p>Reminder materials about how to achieve proper nutrition</p> <p>Community cooking sessions/demonstrations with women to learn about using locally available resources to achieve proper nutrition</p>	<p># supplements distributed</p> <p># women counselled during [antenatal care]</p> <p># other activities held</p> <p># beneficiaries reached</p> <p>% change in community members aware of special nutritional needs of pregnant women</p> <p># communities with plans to support nutritional needs of pregnant women</p> <p>% women with adequate weight gain during pregnancy.</p>

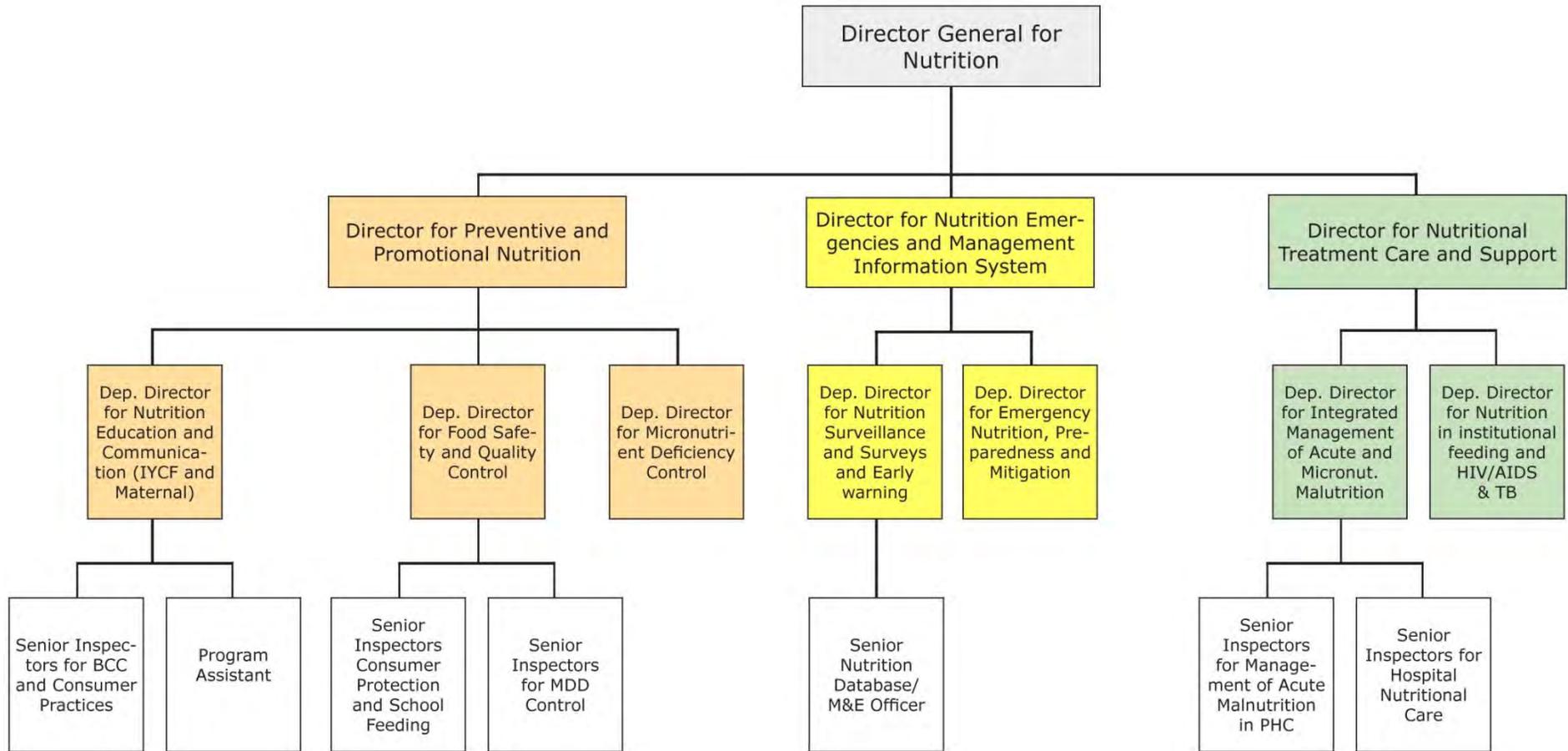
¹ The National Policy for Health Promotion was created by the GOSS MOH. The excerpts were taken from the February 2009 draft.

PROBLEM ANALYSIS/STRATEGISING			BEHAVIOURAL ANALYSIS		COMMUNICATIONS PLANNING		
Health Goal	Objectives	Target Behaviour	Behaviour Analysis (Opportunity, Ability, and Motivation to Act)	Target/Audience	Communication Objectives/Key Messages	Strategies/Activities	Indicators (Process, Impact, and Outcome)
Protect children from the six preventable childhood diseases	1.2 Increase rates of children receiving vitamin A supplementation from X% to X%	1.2.1 Mothers/ caregivers take their children to receive vitamin A twice a year	<p>Key questions: Are mothers taking their children to receive vitamin A supplementation? Why or why not?</p> <p>Opportunity: Where is vitamin A made available? When is it available? What is the process like for getting it? Do others get it? What do others say about the vitamin A supplementation?</p> <p>Ability: Do mothers understand the importance of vitamin A for their children? What kind of support do they have in their home or community for obtaining the supplement?</p> <p>Motivation: What is the mother's attitude towards supplementation? What does she believe is the purpose? What does she think will happen as a result of giving the supplement to her child or of not? Does she feel that taking a supplement will help prevent health issues including blindness or does she feel that nothing can prevent such occurrences—that it is just luck, chance or God in control? Does she intend to take her child/children to receive the supplement?</p>	<p>Mothers/ caregivers/ other decision makers in the household</p> <p>Opinion leaders</p> <p>Community members</p>	<p>That mothers/ caretakers understand that Vitamin A supplementation is essential for healthy children</p> <p>That mothers / caretakers know where and when to access vitamin A supplementation</p> <p>That community leaders understand their role in supporting vitamin A supplementation</p>	<p>Ensure availability of vitamin A at health facilities</p> <p>Training health care workers to disseminate key messages</p> <p>Discussion with opinion leaders, chiefs, sultans</p> <p>Leverage existing community groups and activities to raise awareness about importance of and access to vitamin A supplementation</p> <p>Work with mothers of women's groups or pregnancy clubs to talk about the importance of vitamin A and the reasons they might be hesitant to provide a supplement to their child</p> <p>Disseminate announcements and reminder information about supplementation through different media (folk, mass and print)</p>	<p># of activities</p> <p># beneficiaries reached</p> <p>% change in the number of caretakers convinced that vitamin A supplement is necessary for children</p> <p>% change in number of caretakers bringing children for vitamin A supplementation</p>

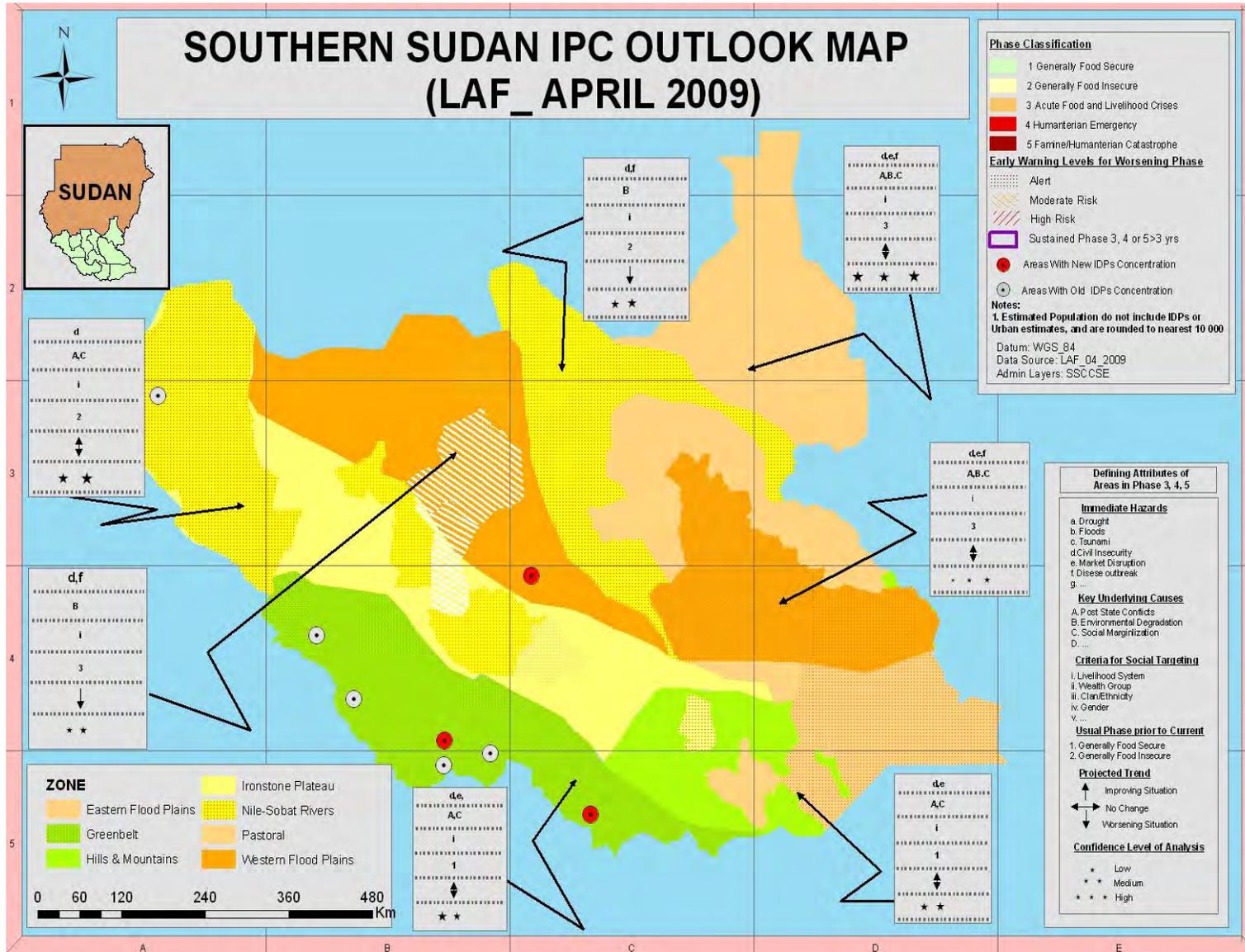
PROBLEM ANALYSIS/STRATEGISING			BEHAVIOURAL ANALYSIS		COMMUNICATIONS PLANNING		
Health Goal	Objectives	Target Behaviour	Behaviour Analysis (Opportunity, Ability, and Motivation to Act)	Target/Audience	Communication Objectives/Key Messages	Strategies/Activities	Indicators (Process, Impact, and Outcome)
<p>Reduction in the rates of chronic malnutrition in children under 5</p>	<p>1.2 Increase rates of appropriate complementary feeding</p>	<p>1.2.1 Mothers / caregivers introduce complementary feeding at 6 months</p> <p>1.2.2 Mothers /caregivers feed their young children adequate quantities of food for the age of the child</p> <p>1.2.3 Mothers / caregivers feed their young children adequate quality of food</p>	<p>Key questions: Are complementary foods being introduced at 6 months and are children from 6 months to 2 years receiving an adequate quantity and quality of food for their age? Why or why not?</p> <p>Opportunity: What is the availability of food like in the community and for a particular mother? What is the appeal of giving one kind of food versus another?</p> <p>Ability: Does a mother or caregiver know when to introduce complementary feeding and how much food her infant needs at each stage of growth? Does she know what kinds of foods should be given to the infant for proper nutrition? What support exists for these practices? Does the mother feel that she is capable of properly feeding her child?</p> <p>Motivation: What is the mother or caregiver's attitude towards feeding her child? Are there any particular beliefs held that relate to young child feeding? Does she take special precautions to ensure that a young child eats and is not competing with older siblings for food? What does she understand would happen as a result of adequate complementary feeding? Is she willing to or can she pay for an adequate quantity or variety of foods? Does she believe that her decision regarding what foods she feeds her child will have any result on her child's health or does she believe that decision is out of her hands? Does she express the intention to feed her child according to recommendations?</p>	<p>Mothers/ caregivers/ fathers/ community members</p>	<p>That mothers / caretakers understand when and how and when to introduce complementary feeding</p> <p>That mothers/ caretakers can identify appropriate quality and quantity of food for their babies at different stages of growth.</p> <p>That mothers identify a strategy for feeding her baby apart from other kids so as to ensure sufficient quantity of food</p>	<p>House-to-house visits to counsel on young child feeding</p> <p>Distribution of feeding bowls to indicate appropriate quantity of food for each age group</p> <p>Community cooking sessions to illustrate use of available foods to increase variety</p> <p>Reminder materials distributed to show mothers and family members when the baby needs additional food and how much</p> <p>Counselling during post-natal consultations and vaccination posts on complementary feeding</p>	<p># activities</p> <p># beneficiaries</p> <p>% increase in women who correctly identify appropriate complementary feeding practices</p> <p>% increase in reported cases of individualised feeding by an adult for babies and young children</p> <p>% increase in women who report actual correct complementary feeding</p>

PROBLEM ANALYSIS/STRATEGISING			BEHAVIOURAL ANALYSIS		COMMUNICATIONS PLANNING		
Health Goal	Objectives	Target Behaviour	Behaviour Analysis (Opportunity, Ability, and Motivation to Act)	Target/Audience	Communication Objectives/Key Messages	Strategies/Activities	Indicators (Process, Impact, and Outcome)
Reduce mortality associated with SAM	2.1 Increase rates of diagnosis and treatment of SAM	<p>2.2.1 Treatment for SAM is sought by mother/caregiver</p> <p>SAM is recognised by the health worker</p>	<p>Key questions: Is SAM being recognised and treated as early as possible?</p> <p>Opportunity Is treatment of SAM available? What are the social norms around treatment of children with SAM? What is the perception of the quality of care provided as part of the treatment process? Where does that treatment take place? How far away is that?</p> <p>Ability Do mothers and caregivers recognise SAM? Do they know that treatment exists? Do they know where? Do they have support for actively seeking treatment for the child? Do they feel they are capable to seek and obtain treatment?</p> <p>Motivation: What is the attitude towards children with SAM? Do mothers perceive a threat to their child if the child is not treated? What do mothers think will happen as a result of the treatment? Are they willing to pay if there is cost (even transport) involved? What other beliefs exist around malnutrition and seeking treatment for it or any other health problem? Does the mother think that her actions have impact on her child or that no matter what she does, God, luck, chance, etc... will dictate the outcome?</p>	<p>Mothers/caretaker</p> <p>family members</p> <p>opinion leaders</p> <p>health facility workers</p> <p>community members</p>	<p>That mothers and caretakers recognise signs and symptoms of acute malnutrition</p> <p>That mothers know where to seek treatment for acute malnutrition</p> <p>That caregivers and CHWs recognise acute malnutrition and are able to implement first-line treatment for acute malnutrition (CMAM)</p>	<p>Community group meetings to discuss signs and symptoms of SAM</p> <p>Training sessions for health workers on acute malnutrition and treatment protocols</p> <p>Reminder materials for mothers on recognising symptoms</p> <p>Intense follow-up at house-to-house visits by health worker to counsel mothers with kids who are moderately malnourished on nutrition</p>	<p># activities</p> <p># trainings</p> <p># beneficiaries</p> <p>% increase of mothers and caretakers able to recognise signs and symptoms of SAM</p> <p>% increase of mothers and caretakers seeking treatment for acute malnutrition</p> <p>% increase in health workers reporting capacity to identify and treat SAM</p>

Annex 5. Organogramme for Directorate of Nutrition (Plan)



Annex 6. Southern Sudan Integrated Food Security and Humanitarian Phase Classification Outlook Map



Annex 7. Health Nutrition Nongovernmental Organisation Matrix

Information on the more than 190 NGOs working in or having a component of work in health and nutrition in Southern Sudan can be found on the FANTA-2 website at

http://fantaproject.org/downloads/excels/SoSu_Health_Nutrition_NGO_matrix_Aug2010.xls.

Below are the organisation names found at that website and **Table 14**, alongwith their corresponding abbreviations.

<u>Abbreviation</u>	<u>Organisation Name</u>
AAA	Arkangelo Ali Association
AAR Japan	Association for Aid and Relief, Japan
ACF-F	Action contre la Faim France
ACF-USA	Action contre la Faim United States
ADRA	Adventist Development and Relief Agency
AIC-CORED	Africa Inland Church and its Community Organisation for Rehabilitation and Development (Church of the Brethren)
AMA	Assistance Mission Africa
AMREF	African Medical and Research Foundation
AVSI	Association for Volunteers International Services
BRAC	Bangladesh Rural Advancement Committee
BMSS	Baptist Mission of Southern Sudan
CBM	Christian Blind Mission
CCM	Comitato Collaborazione Medica
CMA	Christian Mission Aid
COSV	Comitato di Coordinamento delle Organizzazioni per il Servizio Volontario (Coordination Committee for Voluntary Service)
CRADA	Christian Recovery and Development Agency
CRS	Catholic Relief Services
CUAMM	Collegio Universitario Aspiranti Medici Missionari (Doctors with Africa)
EPC	Evangelical Presbyterian Church of Sudan
HAI	Health Alliance International
IHAA	International HIV/AIDS Alliance
IMC	International Medical Corps
IMRF	International Medical Relief Fund
IRC	International Rescue Committee
MDM	Médecins du Monde
MRDA	Mundri Relief and Development Association
MSF-B	Médecins Sans Frontières – Belgium
MSF-CH	Médecins Sans Frontières – Switzerland
MSF-F	Médecins Sans Frontières – France
MSF-H	Médecins Sans Frontières – Holand
MSF-S	Médecins Sans Frontières – Spain
MSH	Management Sciences for Health
NCA	Norwegian Church Aid
NCDA	Nasir Community Development Agency
NHDF	Nile Hope Development Forum
NPA	Norwegian People's Aid
OVCI	Organismo di Volontariato per la Cooperazione Internazionale (Volunteer Organisation for International Co-operation)
PSF	Pharmaciens Sans Frontières - Comité International
PSI	Population Services International
RI	Relief International
SC-UK	Save the Children United Kingdom
SC-USA	Save the Children Federation Inc. United States

SEM	Sudan Evangelical Mission
SIDF	Sudan Inland Development Foundation
SIM	Sudan Interior Mission
SMC	Sudan Medical Care
SRCS	Sudan Red Crescent Society
SUHA	Sudan Health Association
SWIDAP	<i>Sudan Women in Development and Peace</i>
THEHO	The Health Support Organisation
UNKEA	Upper Nile Kalaazar Eradication Association
WVI	World Vision International

Annex 8. Overview of Average Global Acute Malnutrition and Severe Acute Malnutrition from 89 Surveys, 2005-2008²

	Average GAM	Average SAM	Number of Surveys		Average GAM	Average SAM	Number of Surveys
Jan-05	12.5	1.4	5	Jan-07	19.0	0.9	1
Feb-05	18.3	1.2	1	Feb-07	17.2	2.1	4
Mar-05	25.2	4.0	3	Mar-07	21.7	1.9	5
Apr-05	23.8	3.5	3	Apr-07	–	–	0
May-05	–	–	0	May-07	31.6	6.1	1
Jun-05	24.6	3.8	3	Jun-07	29.9	5.1	2
Jul-05	–	–	0	Jul-07	20.8	2.8	1
Aug-05	–	–	0	Aug-07	–	–	0
Sep-05	–	–	0	Sep-07	18.6	2.8	3
Oct-05	17.0	2.0	1	Oct-07	20.5	2.8	4
Nov-05	14.0	1.8	1	Nov-07	15.9	2.0	4
Dec-05	–	–	0	Dec-07	26.2	5.1	2
Average 2005	19.3	2.5	Total 17	Average 2007	22.1	3.2	Total 27
Jan-06	–	–	0	Jan-08	–	–	0
Feb-06	18.8	2.5	6	Feb-08	14.5	2.5	2
Mar-06	28.7	3.1	1	Mar-08	24.0	1.8	3
Apr-06	27.0	–	0	Apr-08	–	–	0
May-06	20.2	6.5	12	May-08	24.1	3.9	1
Jun-06	19.7	2.4	2	Jun-08	20.9	3.4	2
Jul-06	–	–	0	Jul-08	–	–	0
Aug-06	6.7	0.5	1	Aug-08	18.2	5.0	1
Sep-06	15.1	1.4	1	Sep-08	–	–	0
Oct-06	18.8	2.5	2	Oct-08	–	–	0
Nov-06	17.8	1.5	1	Nov-08	15.8	3.1	9
Dec-06	18.0	2.0	1	Dec-08	–	–	0
Average 2006	21.2	2.5	Total 27	Average 2008	19.6	3.3	Total 18

² Averages are per month and per year (as graphically shown in **Figure 1**).

Annex 9. Characteristics of Southern Sudan Livelihoods Zones³

Name	States	Counties	People	Labour	Main Income Sources	Food Consumption	Main Crop	Other Crops	Harvest Period	Naturally Occurring Uncultivated Food	Meat/Milk	Vulnerabilities/Hazards
Western Flood Plains	Warrap, Lakes, some Unity	Aweil, Twic, Unity, Tonj, Rumbek, Yriol, Gogrial	Dinka, Nuer, pastoralists	Seasonal labour migration	Livestock, crops, petty trade, migration	Livestock, crops, wild foods, fish	Sorghum	Maize, simsim (sesame), pumpkin, beans, millet, rice groundnuts)	September – October in northern part; December – January in southern part	Shea butter nut (lulu), seeds of water lily, tamarind (cuei), desert date (thou), jackel berry (cum), red fruit (ajuet), fruit of buffalo thorn (zizpu mycronata), wild rice (akudha)	Goats provide milk for poorer groups, milk and meat for wealthier groups; fish	Flood and drought hazards, ethnic conflicts, etc.
Eastern Flood Plains	Jonglei, Upper Nile	Shilluk, Sobat, Latjor, Phou, Bieh, Bor, Pochalla	Dinka, Urduk, other	Agro-pastoralists, hunting and gathering	Livestock, fish, sorghum, charcoal, firewood	Livestock, crops, fish, wild game, wild foods	Sorghum and maize	Simsim, pumpkins, beans, millet, roots	August – October	Desert date, water lily, seeds, reeds, tamarind, gum from acacia	Major contribution for wealthier groups; ghee - milk by-product; fish	Wild game threatened; inter/intra-tribal hostilities; lack cohesive political leadership; poor access and cross-border trade with Ethiopia
Nile and Sobat Rivers	Jonglei, Upper Nile, Unity	Shilluk, Ruweng, Leech, Sobat, Bieh, Bor, Yriol	Dinka, Nuer, Shilluk, Bor	Agro-pastoralists, fishing and remittances	Fish/fish oil, remittances, tobacco, labour	Fish, livestock, wild foods	Sorghum, maize, pumpkin	Groundnuts, okra, pumpkin, beans, other legumes	First cultivation in dry season, January – March, 2nd in April – July	Water lily, desert dates most common; roots, vines, berries, fruits, leaves, barks and tubers	Poor households only fish and wild foods; cattle and crops other	Limited access to major markets; underutilisation of Nile River transport; spread of diseases along Nile basin; periodic attacks by quelea birds
Ironstone Plateau	WES, WBG, Lakes	Aweil West, Wau, Tonj, Cuibet, Rumbek, Yriol, Mundri, Terekeka, Juba	Dinka, Luo, Jurchol	Agriculture, hunting and gathering	Shea butter, honey, cassava	Mostly crops, naturally occurring uncultivated foods (NOUFs)	Sorghum and maize	Sesame, groundnuts, cowpeas, green grams, millet, okra, sweet potatoes, variety of greens	8 month variety sorghum, planted April – June, harvested December – January	Wild fruits, mushrooms, termites, honey, shea nuts, desert dates, borassus palms, wild yams, tubers	Sheep, goats, poultry, game hunting: dik-dik, bush rat, gazelle, monkey, pigs, occasionally baboons	Drought; tsetse fly - people and livestock; chronic water shortages in dry season due to low water retention capacity of ironstone; depends on exchange; low access; livelihood conflicts - crops and cattle; leprosy; river blindness

³ Based on Reference 12

Name	States	Counties	People	Labour	Main Income Sources	Food Consumption	Main Crop	Other Crops	Harvest Period	Naturally Occurring Uncultivated Food	Meat/Milk	Vulnerabilities/Hazards
Greenbelt	WES	Tanbura, Ezo, Yambio, Maridi, Mundri, Yei, Kajo Keji, Magwi	Zande, Moro,	Exclusively agriculture	Crops, petty trade	Mostly from crops	Sorghum, maize, cassava	Millet, groundnuts, rice, sweet potatoes, fruit (mangoes), sesame, tobacco, sugarcane, soya beans, coffee	2 reliable wet seasons	Honey, fruit – mangoes, oranges, pineapples, lemons, yams, palms, shea butter, termites	Cattle / milk not a major food source, more chicken than other regions, gazelle, monkeys	Rainfall not a limitation; high exchange opportunities exist; though low access & roads discourage farmers from producing what they could; LRA and other armed groups; inter-tribal conflict
Hills and Mountains	EES, CES	Pibor, Juba, Kajo Keji, Magwi, Torit, Budi	Moru, Lotuka, Acholi, Buya, Didinga	Agro-pastoralist	Crops, remittances, labour	Cattle, sheep, goats	Sorghum, cassava, not one main crop	Sweet potatoes, millet, cowpeas, groundnuts, sesame	2 wet seasons	Palm, desert dates, shea butter, yams, wild rice, grass seeds, tamarind	Sheep, goats, fish, wild game	Drought and floods; cattle conflict; LRA
Arid	Jonglei	Pibor, Kapoeta	Toposa, Murle	Mostly pastoral	Livestock, game meat	Cattle, sheep, goats	Sorghum - poor rains, usually fails	Sesame, pumpkin, beans, some maize	Short and unreliable, August - October	Desert dates, shrub, fruits, tamarind, palm fruits, yams, roots, leaves - total of 41 different NOUFs	Cattle, sheep, goats, game - hares, guinea fowl, pigeons, ant bears, warthogs, antelopes, porcupine, dik-dik, ground squirrels	Driest of all regions; failure of most crops; cattle conflict

Annex 10. Internally Displaced Persons/Refugees and Returnees and Food Insecurity

IDPs/refugees and returnees are a specific group that have proven to be particularly food insecure. IDPs and refugees come out as the highest risk group in terms of food insecurity, followed by returnees.[9]

Food security-related features of IDPs/refugees, returnees (defined here as returned within the previous 12 months), and residents are as follows.[9]

	IDPs/Refugees	Returnees	Residents
From all surveyed food insecure people[38]	60% (of whom more than half were severely food insecure)	49% (of whom almost half were severely food insecure)	34% (of whom one-third were severely food insecure)
Not cultivating*[38]	74%	53%	21%
Poor food consumption pattern**[38]	28%	23%	17%
Assets status[38]	56% are asset poor	33% are asset poor	34% are asset poor
Food assistance recipients[38]	1% of the total food resources comes from Food Aid 3% of the total food sources comes from Food for Work (FFW)	4% of the total food resources comes from Food Aid 3% of the total food sources comes from FFW	1% of the total food resources comes from Food Aid 2% of the total food sources comes from FFW
Casual labour and petty trade as main livelihood strategy[38]	53%	54%	20%

* Various reasons given (drought, floods, pests, insecurity, and human sickness), without one given more mentions than others, according to ANLA09.

** In terms of frequency, nutritional value, and dietary diversity.

Annex 11. Overview of Food Insecurity (Indicators) by State

State / Source	Food Consumption		Food Access	Coping	Food Insecure			Food Availability			Food Insecurity	Households
	Poor and Borderline Food Consumption	Poor Food Consumption Pattern (a)	Poor Food Access (c)	Use of Severe Coping Mechanisms (e)	Severe	Moderate	Sum of Severe and Moderate	Cereal Crop Projections			Estimates and Projections (x = Food Insecure)	% of Poor Households of Total Households
	SHHS 2007[34]	ANLA 2009[38]	ANLA 2009[38]	ANLA 2009[38]	ANLA 2009[38]	ANLA 2009[38]		CFSAM 2007[37]	CFSAM 2008[36]	CFSAM 2009[35]	FEWS NET 2008 and 2009	ANLA 2009[38]
Jonglei	40.2	15.0	17.0	6.0	13	18	31	small deficit	deficit	deficit	x	50-55
Upper Nile	36.6	unknown (b)	15.0 (b)	?	4 (b)	21 (b)	25 (b)	surplus	deficit	deficit	x	45-50
Unity	26.1	8.0	13.0	7.0	4	21	25	equal	deficit	deficit		50-55
Warrap	41.8	22.0	41.0	8.0	20	34	54	small deficit	small deficit	surplus	x	50-55
NBG	40.5	18.0	24.0	3.0	14	24	38	deficit	large deficit	large deficit	x	60-65
WBG	27.6	18.0	27.0 (d)	6.0	14	29	43	small deficit	surplus	equal		50-55
Lakes	31.7	24.0	3.0	4.0	7	22	29	surplus	surplus	surplus		45-50
WES	21.8							large surplus	large surplus	large surplus		
CES	15.4							small deficit	surplus	surplus		
EES	31.0	20.0	22.0	3.0	13	23	36	large deficit	deficit	deficit	x	60-65

(a) In terms of frequency, nutritional value, and dietary diversity

(b) ANLA 2009 data on Upper Nile possibly underestimated, but similar figures might be comparable to Unity as it is a similar livelihood zone

(c) Composite indicator: Poor food access means that household spends high proportion of food while depending on poor and unreliable income sources

(d) Especially in Jur River County

(e) Sale of assets, consumption of seed stocks, removal of children from school

Annex 12. UNICEF's Health and Nutrition Programme for Southern Sudan Expected Key Results by Project and Year⁴

2009	2010	2011	2012
Health and Nutrition Sector Policy and Planning			
Health and Nutrition Sector 2010–2012 Medium Term Expenditure Framework (MTEF) in place	Health and Nutrition Sector 2011–2013 MTEF in place Rollout of national and subnational advocacy to mobilise increased government funding	Health and Nutrition Sector 2012–2014 MTEF in place Legislation on fortified food enacted	Health and Nutrition Sector 2013–2015 MTEF in place Increased health/nutrition sector government fund allocation and execution during the programme cycle
National/subnational nutrition subsector coordination mechanisms functional with increased effectiveness and accountability Capacity building for 30% of health/nutrition service providers in focus states	Nutrition Coordination Committees functioning effectively at the central level and in two focus states Local health management information system (HMIS)/teams in 15 additional counties functional Capacity building for additional 10% of health/nutrition service providers in focus states	Nutrition Coordination Committees functioning effectively at the central level and in four focus states Local HMIS/teams in 15 additional counties functional Capacity building for additional 10% of health/nutrition service providers in focus states	Nutrition Coordination Committees functioning effectively at the central level and in five focus states Local HMIS/teams in 34 ACSI localities and in 15 additional counties maintained and functional Capacity building for additional 10% of health/nutrition service providers in focus states Health and nutrition policies and strategies and plans operationalised at all levels
GOSS has adequate preparedness and response plans and infrastructure to reach 75% of the population and 100% of children under 5 affected by emergencies with essential health/nutrition services	GOSS has adequate preparedness and response plans and infrastructure to reach 75% population affected by emergencies with essential health/nutrition services	GOSS has adequate preparedness and response plans and infrastructure to reach 75% of the population and 100% of children under 5 affected by emergencies with essential health/nutrition services	GOSS has adequate preparedness and response plans and infrastructure to reach 75% of the population and 100% of children under 5 affected by emergencies with essential health/nutrition services
HMIS, including birth registration system, linked to midwifery service networks established in pilot areas in five focus states	20% of health facilities reporting regularly on core maternal and child care indicators, including birth registration	Additional 20% of health facilities reporting regularly on core maternal and child care indicators, including birth registration	Additional 10% of health facilities reporting regularly on core maternal and child care indicators, including birth registration

⁴ The tables in this annex were adapted from Reference 65.

2009	2010	2011	2012
Integrated Child Health & Nutrition			
<p>Rollout of advocacy and implementation of action plan to increase use of iodised salt</p> <p>Quality control system for iodised salt (production, marketing, household) developed and in place at the central level</p> <p>45% of households using iodised salt</p>	<p>Five states have systems for monitoring marketing and consumption of iodised salt</p> <p>55% of households using iodised salt</p>	<p>Five states have system for monitoring marketing and consumption of iodised salt</p> <p>65% of households using iodised salt</p>	<p>Five states have system for monitoring marketing and consumption of iodised salt</p> <p>75% of households use iodised salt</p>
<p>80% or 1.7 million provided high-impact health/nutrition interventions</p> <p>PHC services, including IMCI and treatment of malaria, provided to 30% of children under 5 in five focus states</p> <p>Attendance of children under 3 in GMP sessions increased to 25%</p>	<p>80% or 1.7 million provided high-impact health/nutrition interventions</p> <p>PHC services, including IMCI and treatment of malaria, provided to 35% of children under 5 in five focus states</p> <p>Attendance of children under 3 in GMP sessions at 30%</p>	<p>Minimum nutrition package of services delivered reaching 35% in five focus states</p> <p>PHC services, including IMCI and treatment of malaria, provided to 45% of children under 5 in five focus states</p> <p>Attendance of children under 3 in GMP sessions at 40%</p> <p>80% or 1.7 million provided high-impact health/nutrition interventions</p>	<p>Minimum nutrition package of services delivered reaching 40% in five focus states</p> <p>PHC services, including IMCI and treatment of malaria, provided to 50% of children under 5 in five focus states</p> <p>Attendance of children under 3 in GMP sessions at 50%</p> <p>80% or 1.7 million children 9–59 months of age provided measles vaccine in addition to high-impact health/nutrition interventions</p>
<p>30% of caregivers have correct knowledge of the two signs of suspected pneumonia and can give appropriate home-based care of diarrhoea</p> <p>30% of young children taking complementary feeding and continued breast milk at 6–9 months of age</p> <p>50% of mothers have enhanced KAPs related to child health and nutrition, and EBF rates among infants increased to 25%</p>	<p>35% of caregivers have correct knowledge of the two signs of suspected pneumonia and can give appropriate home-based care of diarrhoea</p> <p>40% of young children taking complementary feeding and continued breast milk at 6–9 months of age</p> <p>60% of mothers have enhanced KAPs related to child health, and EBF rates among infants increased to 30%</p>	<p>45% of caregivers have correct knowledge of the two signs of suspected pneumonia and can give appropriate home-based care of diarrhoea</p> <p>45% of young children taking complementary feeding and continued breast milk at 6–9 months of age</p> <p>70% of mothers have enhanced KAPs related to child health, and EBF rates among infants increased to 40%</p>	<p>50% of caregivers have correct knowledge of the two signs of suspected pneumonia and can give appropriate home-based care of diarrhoea</p> <p>50% of young children taking complementary feeding and continued breast milk at 6–9 months of age</p> <p>80% of mothers have enhanced KAPS related to child health, and EBF rates among infants increased to 50%</p>

2009	2010	2011	2012
Maternal Health and Nutrition			
30% pregnant women accessing focused antenatal, prenatal, and neonatal care through 50 health facilities supported	40% pregnant women accessing focused antenatal, prenatal, and neonatal care through 65 health facilities supported Gender factors driving MMR identified and mitigation interventions incorporated into programmes	50% pregnant women accessing focussed antenatal, prenatal, and neonatal care through 85 health facilities supported	65% pregnant women accessing focussed antenatal, prenatal, and neonatal care through 100 health facilities supported
15% of pregnant women in four focus states accessing skilled attendants at birth 10% from 2008 baseline of pregnant women in five focus states accessing EMONC/emergency obstetric care (EMOC) through 15 (30%) supported health facilities	20% of pregnant women in four focus states accessing skilled attendants at birth 20% from 2008 baseline of pregnant women in five focus states accessing EMONC/EMOC through 25 (38%) supported health facilities	25 % pregnant women in four focus states accessing skilled attendants at birth 25% from 2008 baseline of pregnant women in five focus states accessing EMONC/EMOC through 34 (40%) supported health facilities	30% pregnant women in four focus states accessing skilled attendants at birth 30% from 2008 baseline of pregnant women in five focus states accessing EMONC/EMOC through 40 (40%) supported health facilities
30% of midwives and doctors trained on life-saving skills; newborn care, including early initiation of breastfeeding and EBF in the first 6 months; and 10% of maternal death in five states audited 25% of caregivers and significant others know the management of at least two danger signs in pregnancy and newborns 30% of pregnant women attending antenatal care services at facility and community levels initiate breastfeeding within first hour of delivery, and 20% practice EBF for first 6 months	50% of midwives and doctors trained on life-saving skills; newborn care, including early initiation of breastfeeding and EBF in the first 6 months; and 25% of maternal death in five focus states audited 35% of caregivers and significant others know the management of at least two danger signs in pregnancy and newborns 40% of pregnant women attending antenatal care services at facility and community levels initiate breastfeeding within first hour of delivery, and 20% practice EBF for first 6 months	65% of midwives and doctors trained on life-saving skills; newborn care, including early initiation of breastfeeding and EBF in the first 6 months; and 40% of maternal deaths in five focus states audited 40% of caregivers and significant other know the management of at least two danger signs in pregnancy and newborns 50% of pregnant women attending antenatal care services at facility and community levels initiate breastfeeding within first hour of delivery, and 20% practice EBF for first 6 months	80% of midwives and doctors trained on life-saving skills; newborn care, including early initiation of breastfeeding and EBF in first 6 months; and 50% of maternal deaths in five focus states audited 50% of caregivers and significant other know the management of at least two danger signs in pregnancy and newborns 60% of pregnant women attending antenatal care services at facility and community levels initiate breastfeeding within first hour of delivery, and 20% practice EBF for first 6 months

2009	2010	2011	2012
Management of Acute Malnutrition			
<p>20% of health and nutrition service providers in focus states have improved capacity to identify and treat children with severe malnutrition and 20% health facilities in focus states providing treatment for SAM</p> <p>20% of children with SAM treated through community-based management model as well as traditional therapeutic feeding centres</p> <p>Comprehensive Nutritional Information System functional in two states</p>	<p>30% of health and nutrition service providers in focus states have improved capacity to identify and treat children with severe malnutrition 30% health facilities in focus states providing treatment for SAM</p> <p>30% of children with SAM treated through community-based management model as well as traditional therapeutic feeding centres</p> <p>Comprehensive Nutritional Information System functional in three states</p>	<p>40% of health and nutrition service providers in focus states have improved capacity to identify and treat children with severe malnutrition and 40% health facilities in focus states providing treatment for SAM</p> <p>40% of children with SAM treated through community-based management model as well as traditional therapeutic feeding centres</p> <p>Comprehensive Nutritional Information System functional in four states</p>	<p>40% of health and nutrition service providers in focus states have improved capacity to identify and treat children with severe malnutrition and 50% health facilities in focus states providing treatment for SAM</p> <p>50% of children with SAM treated through community-based management model as well as traditional therapeutic feeding centres</p> <p>Comprehensive Nutritional Information System functional in five states</p>

Annex 13. Strengths, Weaknesses, Opportunities, and Threats Analysis on the Current Nutrition Context in Southern Sudan

This SWOT analysis was conducted during the workshop for the Guidelines on the Integrated Management of Severe Acute Malnutrition, held in June 2009, in Juba, Southern Sudan.

<p>Strengths</p> <ul style="list-style-type: none"> • National guidelines on SAM available • GOSS guidelines on PHC units and centres are strong in the area of nutrition • Establishment of nutrition as a directorate as a government commitment • NGOs are present, training, and providing treatment • Presence of PHC units and centres • Ongoing supervision, support, and training by different actors • Commitment/statement from MOH for free treatment for children under 5 and PLW • UNICEF support for training and supplies • Existing therapeutic feeding centres in Juba, Wau, and Malakal (in teaching hospitals) 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Lack of coordination of CMAM on central and state levels • Lack of funding for the management of SAM • Some governmental commitments are not implemented (such as free treatment for children under 5) • Political instability (also a threat) • Logistical problems • Lack of nutrition education awareness • Nutritionists as a profession are undervalued • Lack of trained nutritionists • Nutritionists are not working as such • Lack of nutrition policy and guidelines • Nutrition not included in training curriculum of health professionals • Lack of communication to lower levels from central and vice versa • Insufficient data and capacity to collect data • Lack of food security/livelihood to prevent malnutrition • Lack of accountability of professionals: no roles and responsibilities described • Not all states have nutrition activities • No or weak health extension systems (e.g., community health systems); health committee still weak • Malnutrition not seen as a medical condition by population or health care professionals • Insufficient resources/equipment to provide services • Referral system of SAM difficult: people need to pay for transport (no referral logistics) • Weak HR in PHC (skills and numbers of staff members) • Nutrition not seen as a profession for men • Nutrition is marginalised; underrating of nutrition profession • Absence of senior paediatricians to train health care providers on nutrition
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<p>Opportunities</p> <ul style="list-style-type: none"> • Rollout of BPHNS includes nutrition on all levels • Development of guidelines of SAM • Nutrition and agriculture to include in school curriculum (BHPNS?) • Nutrition policy in process of development • Integrating nutrition with other programmes, e.g., EPI • Sentinel sites' data function as early warning • GOSS DN working with partners to improve nutrition information system – monitor and report on CMAM activities • Plumpy'nut[®] to be included in essential "drug" list causing increased availability • Referendum for self-determination can improve services • UNICEF has minimal nutrition package • Looking for role models/political champions for advocating on nutrition • Existing training institutions for health professionals to integrate nutrition in the training curriculum • Awareness raising • Refresher training/continuing medical education: include nutrition for health care professionals • Local production of "plumpy"/national production of RUTF • Media: use for nutrition goals/messages 	<p>Threats</p> <ul style="list-style-type: none"> • CPA can fail any time • Corruption • Causes of malnutrition are cross-cutting/multifaceted • Donor shift from relief to development while nutrition problems still in emergency stage and receiving less funds • Climate change/climate factors interfering with good nutrition and service delivery/access • Departure of NGOs: phasing out; lack of government funds to run remaining programmes • HIV infection: no strong prevention and treatment programme in place • Impact of nutrition programmes difficult to prove as multifactoral causes
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