



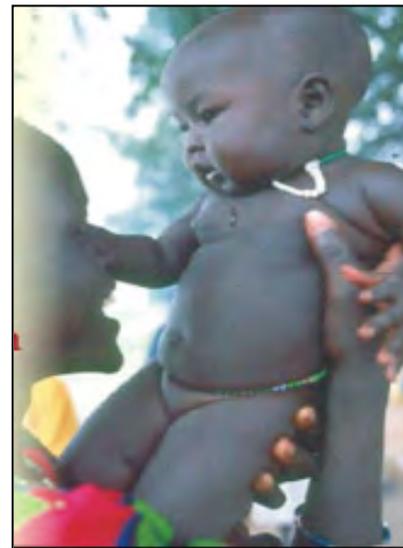
**Government of Southern Sudan  
Ministry of Health**



**Nutrition Health Policy Convention for Southern Sudan**



**April 6–9, 2009  
Juba Bridge Hotel**



**Think, Speak and Act for the Helpless and Voiceless**

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## ACRONYMS

ACSI	Accelerated Child Survival Initiative
ACF	Action contre la Faim
AFASS	Acceptable Feasible Affordable Sustainable and Safe
AM	Acute malnutrition
ANC	Antenatal care
ART	Antiretroviral therapy
BCC	Behavior change communication
BMI	Body mass index
CMAM	Community-Based Management of Acute Malnutrition
DGN	Director General of Nutrition
DN	Directorate of Nutrition
EPI	Expanded Program of Immunization
FAO	Food and Agriculture Organization of the United Nations
FSAU	Food Security Analysis Unit
FSNAU	Food Security and Nutrition Analysis Unit for Somalia
FSC	Food Security Council
GAIN	Global Alliance for Improved Nutrition
GAM	Global acute malnutrition
GOSS	Government of Southern Sudan
HAART	Highly active antiretroviral therapy
HFA	Height-for-age
HMIS	Health management information system
IPC	Integrated Phase Classification Tool
IYCF	Infant and young child feeding
LBW	Low birth weight
LQAS	Lot quality assurance sampling
MAM	Moderate acute malnutrition
MGRS	Multicentre Growth Reference Study
MOA	Ministry of Agriculture
MOH	Ministry of Health
MOU	Memorandum of understanding
MT	Metric ton
MUAC	Mid-upper arm circumference
NHP	Nutrition Health Policy
NCHS	National Center for Health Statistics
NIDS	National immunization days

NGO	Nongovernmental organization
OTP	Outpatient therapeutic program
PHC	Primary health care
PHCC	Primary health care center
PHCU	Primary health care unit
PLHIV	People living with HIV
PMTCT	Prevention of mother-to-child transmission
PSU	Program Support Unit
RUSF	Ready-to-use supplementary foods
RUTF	Ready-to-use therapeutic food
SAM	Severe acute malnutrition
SFP	Supplementary feeding program
SIFSIA	Sudan Institutional Capacity Programme: Food Security Information for Action
SMART	Standardized Monitoring and Assessment of Relief and Transitions
TFC	Therapeutic Feeding Center
U.N.	United Nations
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WASH	Water, sanitation and hygiene
WFA	Weight-for-age
WFH	Weight-for-height
WFP	World Food Programme
WHO	World Health Organization
WVI	World Vision International

## EXECUTIVE SUMMARY

The Government of Southern Sudan (GOSS) Ministry of Health (MOH) Directorate of Nutrition (DN) hosted a landmark Nutrition Health Convention, April 6–9, 2009, in Juba at the Juba Bridge Hotel. The convention served as a launch pad for the development of a Southern Sudan Nutrition Health Policy (NHP) and the integration of direct nutrition interventions into the basic package of primary health care services. The Convention helped raise awareness among health sector stakeholders about the importance of nutrition to the health and well-being of the people of Southern Sudan.

The objective of the Nutrition Health Convention was to raise awareness and to review and examine the extent, possible causes and cumulative impact of the continued failure to effectively address the high prevalence of malnutrition throughout Southern Sudan. Based on the deliberations, the forum then engaged in discussions leading to fact-based recommendations of practical inputs and processes needed to improve and increase the access of malnourished individuals to effective nutrition interventions within the health system. Recommendations will be enacted through policy reforms, including the planned Southern Sudan NHP and strategy document that the MOH/DN will be developing this year.

The Convention format consisted of technical presentations, facilitated discussions during breakout sessions, plenary sessions to report on breakout discussions, and daily wrap-up summaries by the Director General of Nutrition (DGN). International and Southern Sudanese experts gave technical presentations on different nutrition and health subjects and facilitated corresponding breakout sessions.

One hundred and thirty-four people participated in the Convention, with more than half attending the entire event. Participants included representatives from 9 of the 10 Southern Sudanese state ministries of health, the principal audience of the Convention. Also present were representatives of the state and central teaching hospitals, the United States Agency for International Development (USAID), United Nations (U.N.) agencies, numerous national and international nongovernmental organizations (NGOs) working in health and nutrition, and the media.

## I. BACKGROUND

While recognizing malnutrition in Southern Sudan is of great public health importance, the MOH also acknowledges the enormous challenges it faces in detecting and treating malnourished individuals to full recovery. To a large extent, nutrition services have never developed sufficiently to address either existing or emerging nutrition challenges in the country. Infrastructure, human skills, equipment, supplies and supervision mechanisms are inadequate or nonexistent.

The absence of credible nutrition actions in many health operations on the ground has made it harder for the MOH and the international community to recognize and focus on the need for nutrition services. The lack of a solid Southern Sudan-specific nutrition policy and coherent national nutrition program has also made it harder to justify investments in nutrition beyond discrete emergency programs operated by international NGOs.

Given the magnitude of poor nutrition indicators, in January 2008, the MOH established the DN. The MOH/DN is currently continuing efforts to improve nutrition services for malnourished individuals, as stipulated in the Interim Health Policy. The aim is to increase access to nutrition services at all levels, from the community to health facilities, and to integrate those services into the basic health care package. Additionally, the MOH, in its new health policy, has begun to require that all primary health care providers integrate direct nutrition interventions into their services. Strategies for how this is to be done will be developed over the remainder of 2009 through the reinvigorated MOH-led Nutrition Technical Working Group, following recommendations made during the Convention.

## II. CONVENTION OBJECTIVES

The GOSS MOH/DN hosted a 3-day Nutrition Health Convention, April 6–9, 2009, at the Juba Bridge Hotel. The convention served as a launch pad for the development of a Southern Sudan NHP and the integration of direct nutrition interventions into the basic package of primary health care services. The main objective of the Convention was to review and examine the extent, possible causes and cumulative impact of the continued failure to effectively address the scourge of malnutrition throughout Southern Sudan. Based on the deliberations, the forum then engaged in discussions leading to recommendations on practical inputs and processes needed to improve and increase access to effective nutrition interventions within the health system. Specifically the objectives of the Convention were to:

1. Build a renewed consensus on why nutrition matters by reviewing existing data, revisiting core nutrition concepts, such as the pathophysiology, intergenerational cycle and economic causes of malnutrition, as well as the consequences for individuals and for Southern Sudan at large.
2. Analyze the perceived underlying causes of malnutrition in Southern Sudan, including access (in terms of quality and quantity) to food, biological use and behavioral and other factors.
3. Analyze the extent and nature of limitations hindering access to health care, and full recovery of malnourished individuals seeking care in various facilities.
4. Review the minimum nutrition actions and recommend strategies for integrating nutrition services into the health system.
5. Reach a consensus on an appropriate implementation framework and systems (delivery points and functions, referral procedures, financing, human resources, infrastructure, management, monitoring and reporting) for the delivery of nutrition services at different levels of service delivery in Southern Sudan.
6. Establish a platform for advocacy and determine key actors to drive the nutrition agenda within the health sector and at all levels.

## III. CONVENTION OVERVIEW

### Convention Participants

One hundred and thirty-four people participated in the Convention, with more than half attending the entire event. Participants included senior representatives from 9 of the 10 Southern Sudanese state ministries of health, the principal audience of the Convention; only Central Equatoria State

did not send representatives. In addition to the MOH/DN, which hosted the Convention, other GOSS MOH Directorates and other line ministries, such as the Ministry of Agriculture (MOA), attended. Also present were representatives of the state and central teaching hospitals, USAID, U.N. agencies (UNICEF, the Food and Agriculture Organization of the United Nations [FAO], the United Nations Population Fund [UNFPA]), the World Health Organization (WHO), the World Food Programme (WFP), numerous national and international NGOs working in health and nutrition, the media and other development organization and donors.

## Convention Organizers

The GOSS MOH/DN, Director General Victoria Eluzai and her staff, Catherine Jurua, Rebecca William, Bibian Alex, and Jacqueline Aquilino, hosted the Convention. Three FANTA-2 staff provided organizational and technical support during the planning phase, while the MOH’s Hilary Hakim, WFP’s Robert Akua and WHO Dr. Robert Lobor facilitated logistical arrangements, including flight and hotel bookings for participants and speakers, organizing transportation and reserving the Convention venues. Other agencies (e.g., UNICEF, WHO, NGOs) participated in working group planning meetings that were periodically called by MOH/DN.

## Techniques Used during the Convention and Facilitators

The Convention incorporated a combination of techniques to achieve the objectives. Methods included technical presentations, facilitated discussions during breakout sessions, plenary sessions to report on breakout discussions and daily wrap-up summaries by the DGN. International and Southern Sudanese experts gave technical presentations on different subjects and facilitated corresponding breakout sessions. The Convention agenda is attached in Annex 1.

**Table 1. Speakers and Presentations**

Organization	Speaker/facilitator	Topic
<b>MOH</b>		
MOH	Acting Minister of Health Mary Kiden	Opening remarks
MOH	Dr. Majok Yak Majok, Undersecretary of Health	Opening remarks
MOH/DN	Victoria Eluzai, Director General	Facilitated and summarized proceedings. Presented Nutrition Situation in Southern Sudan /Programs in GOSS, Vision of GOSS MOH, and the Intergenerational Cycle of Malnutrition,.
MOH	Yergalem Beraki	SIFSIA
<b>United Nations</b>		
FAO	Grainne Moloney	Nutrition Information Systems Nutrition Surveillance, and Food Security
UNICEF	Dr. G. Mukasa	Infant and Young Child Feeding Guidance and Issues for Policy Consideration

Organization	Speaker/facilitator	Topic
<b>WHO</b>		
WHO	Monika Bloessner	WHO 2006 Child Growth Standards
<b>World Bank</b>		
World Bank	Menno Mulder-Sibanda	Investing in Nutrition
<b>NGOs</b>		
Action Against Hunger	Kelly Delaney	Nutrition Surveillance
Global Alliance to Improve Nutrition	Louise Sserunjogi	Micronutrients
Médecins Sans Frontières	Dr. Susan Shepherd	Management of Acute Malnutrition
Tear Fund	Senewa Montet-Timayio	Food Security and Micronutrients
World Vision	Dr. Severin Kabakama	NGO Perspectives
<b>Other</b>		
FANTA-2	Hedwig Deconinck	Management of Acute Malnutrition
FANTA-2	Robert Mwadime	Nutrition and HIV

## IV. MAIN ISSUES COVERED DURING THE CONVENTION

- Although the levels have declined, the global acute malnutrition (GAM) rate is still high throughout most of Southern Sudan. The number of children with moderate acute malnutrition (MAM) is high and most are likely to become severely acutely malnourished should they face disease or food stress at home. The causes of malnutrition in Southern Sudan are multifaceted, including, for example, infectious diseases, food insecurity, poor sanitation and hygiene, and disasters such as floods and droughts. Because the causes are complex the solutions have to be multidisciplinary and could include:
  - Employing programs that are closer to communities and include active case-finding for children with severe acute malnutrition (SAM).
  - Educating families on appropriate feeding using locally available foods and resources, and on disease prevention and control.
  - Involving the GOSS Food Security Council (FSC), which also includes the MOH, in coordination and advocacy for increased awareness of the impact of nutrition on survival, disease, educability and development.
- Access to health facilities for the majority of the population is a major challenge in Southern Sudan. Health facilities face challenges in obtaining supplies and in carrying out supervision throughout the year. Innovative approaches need to be improvised and used to identify children with SAM, and to mobilize communities for preventive services.
- Most nutrition services in Southern Sudan are provided by NGOs.
- Southern Sudan must move from an emergency model for managing malnutrition to a development model that also addresses underlying causes. To achieve this, a transition strategy is needed.

- Nutrition must be integrated within the basic package of health services. The MOH must define the exact definition of integration, and at which level and in which services it must be integrated.
- Most participants who spoke during the convention stressed the need to develop a NHP. NGOs and states health officials offered to support the process.
- Human capacity remains a challenge. Currently, too few staff are available to support nutrition activities at both policy/planning and service delivery levels. Participants viewed this as a major constraint to implementing nutrition services in Southern Sudan.
- Unfortunately little pre- or in-service training staff training was taking place. NGOs continue to provide most training, first to their staff and then to staff in partnering health units.
- Developing relevant guidelines and treatment protocols is urgently needed.
- Clear nutrition structures at the GOSS and state levels must be established. State ministries of health were encouraged to devote resources to nutrition, including hiring nutritionists and funding nutrition activities.
- Coordination of nutrition services between state ministries of health and NGOs is happening in most states. However, there is little coordination between the state ministries of health and the GOSS MOH. Likewise, little reporting and supervision between state ministries of health and the GOSS MOH takes place. State ministries of health felt that the GOSS needed to visit the states more often and needed to allocate resources for joint supervision activities.

## V. FOLLOW-UP ISSUES FROM THE CONVENTION

The Convention participants agreed that the following items required immediate action:

- The MOH/DN should immediately reconvene the thematic group on acute malnutrition (AM) and take the lead in developing interim and final guidelines for the management of AM.
- In collaboration with nutrition partners, the MOH/DN should accelerate the development of guidelines and protocols for the integration of infant and young child feeding (IYCF) into the basic package of health services targeting health care providers at the facility and community levels.
- In collaboration with nutrition partners, the MOH/DN should develop a strategy to prevent and control micronutrient deficiencies, including legislation, fortification, supplementation and treatment of micronutrient deficiencies.
- The MOH/DN should take the lead in mobilizing various partners (including NGOs) in developing the Southern Sudan NHP.
- The MOH/DN should urgently guide the states on the nutrition structure to be adopted to implement integration of direct nutrition interventions within the framework of the basic package of health services, as stipulated in the newly adopted Southern Sudan Health Policy. Guidance should include the number of nutritionists needed at the state level, definitions of their roles and job descriptions, and guidance on the portion of state health budgets to be allocated to nutrition services.
- The convention report and all materials should be sent to all participants.

## VI. CONVENTION PRESENTATIONS DETAILS

### Day One (April 6, 2009)

#### Opening Remarks (Undersecretary of Health)

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The Undersecretary of Health, Dr. Majok Yak Majok, gave an introduction to the Convention participants. He began by describing the challenges those working in nutrition in Southern Sudan face. He explained that after 25 years of war and neglect, the country's infrastructure is destroyed. In such a vast country, this leads to serious problems with access, making it difficult to detect and treat people suffering from malnutrition. Compounding this is the low capacity within the MOH: the lack of instruction, training, supplies and supervision capacity. Dr. Majok highlighted the poor nutrition indicators in Southern Sudan, which lead to high child morbidity and mortality, as well as obstetric complications and maternal mortality, and, thus, the intergenerational cycle of malnutrition. Malnutrition in Southern Sudan has many underlying causes, and Dr. Majok highlighted some of the most important factors: food insecurity, illness, droughts, floods and other disasters.

#### Acting Minister of Health (Guest of Honor for the Convention)

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The Acting Minister of Health opened the Convention by stating that nutrition is the new priority for the GOSS MOH. The GOSS MOH did not launch a nutrition policy sooner only because there has been too much on its plate with the development of new government structures. During this time, the GOSS MOH has been establishing basic primary health interventions, such as the Expanded Program of Immunization (EPI), and malaria and other programs. She declared that it is now time to focus on nutrition. She explained that it is hard to cure a sick child who is malnourished and that disease prevention is also easier in the absence of malnutrition.

The Acting Minister of Health listed several primary causes of malnutrition. Lack of knowledge on the part of the caregiver is one important factor. She pointed out that nutrition has traditionally been the department of women; they care for children and prepare food for the family, so they need to be aware of nutrition. Illiteracy, especially on the part of the caregiver, is another contributing factor. In Southern Sudan, illiteracy remains very high among women; perhaps 98 percent of women cannot read. Furthermore, cultural issues are also at play, leading to proscriptions against healthy, locally available foods for pregnant women and children. Food security is another important factor, and lack of access to not only adequate quantity but also quality of food also leads to malnutrition.

Because there are so many different contributing factors to malnutrition, the Acting Minister of Health told Convention participants that the solution must be interdisciplinary. She explained that all members of the GOSS FSC, which includes the MOH, must be part of the solution. The solution must include measures to sensitize people to the need to grow nutritious food and to consume more animal products. Work must be done to unravel proscriptions against food that deprive women and young children of valuable sources of protein and minerals. The Acting Minister of Health concluded by again stressing the importance of knowledge and improved food security.

## Mainstreaming Nutrition and the Development of a GOSS NHP (DGN)

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Victoria Eluzai, DGN, presented MOH nutrition priorities and summarized the general context to be presented by the states, which the future Southern Sudan NHP will address. She also gave an overview of Southern Sudan's poor nutrition indicators.

The DGN presented the GOSS MOH goal to integrate direct nutrition interventions into primary health care and to integrate nutrition into the health system. However, numerous capacity building challenges currently stand in the way, all underscored by an inadequate health sector budget. Infrastructure issues include poor communications, inadequate workspace, and lack of equipment and supplies. To improve the situation, human resources capacity requires defining staff roles and strengthening nutrition-related skills development. Within the health system, nutrition-oriented staff still have very little influence over policy and resource allocation. It is also not yet clear where nutrition even fits within the health system.

The DGN worried that capacity building is not currently happening. As evidence for this, she pointed out that most NGOs still implement nutrition interventions following an emergency model. Nevertheless, in spite of these challenges, the DGN remains hopeful and she reminded the convention participants that Southern Sudan is facing issues of existing capacity versus *potential* capacity. She quoted Bhar Al Gazal's representative, "if it is made possible, the potential is there."

To make improvements in the nutrition status of Southern Sudan possible, priorities for the MOH are to develop a nutrition policy, protocols and guidelines. Protocols and guidelines must include formally defined mechanisms, determining how health service provider motivation will be developed and applied, and establishing clear chains of reporting and supervision. They must clearly outline what constitutes a community-based service, and establish mobilization and referral systems. Nutrition policy and strategy must capture the actual context. Doing so means considering contextual outcomes, which are influenced by the local environment, culture, economy, etc.

Coordination between the GOSS MOH and state MOHs remains weak. A memorandum of understanding (MOU) would clarify roles of the state MOHs, the NGOs implementing nutrition interventions and the GOSS MOH. Generally speaking, the GOSS MOH gives guidance and makes policy, while the state MOHs implement policy, mainly through NGOs. It is important for the GOSS MOH to know what states MOHs and the NGOs are doing, and for this, reporting and coordination must improve.

The DGN also touched upon what the MOH feels should be among state level priorities, and she explained the budget process. Each state MOH receives its own budget to be allocated locally at its own discretion. At the GOSS level, budgets are developed based on a work plan, which in turn is based on a needs assessment. The DGN encouraged the state MOHs to devote portions of their budgets to nutrition. She emphasized the need for establishing nutrition departments, and explained that this is the responsibility of the state MOHs with guidance from the GOSS MOH.

Nutrition is a cross-cutting issue, so the process for developing and implementing a nutrition policy must include other relevant sectors. However, since malnutrition is a particular burden on

the health sector, the DGN explained that the health sector must take the lead. The NHP development process over the remainder of 2009 will consist of the following steps:

1. Technical consultations (at the Convention)
2. A situation analysis
3. Stakeholder consultations
4. Stakeholder validation of the policy document

### State Presentations

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Representatives from the state ministries of health gave presentations on their own contexts. When all nine had finished, several themes appeared, which echoed the presentations earlier in the day. First, all suffered from a high prevalence of malnutrition. All had serious capacity challenges, including lack of office space, equipment and supplies. Human resources needed improved staffing levels and skills. The states requested guidelines, protocols and tools. They explained how they would benefit from better coordination and communication, as well as from clearer roles, perhaps through MOUs, between the GOSS MOH, the state ministries of health and NGOs. They recommended establishing reporting guidelines. All states expressed concerns over budget constraints and requested advocacy and technical assistance from the GOSS MOH/DN, especially for establishing or expanding newly established nutrition departments. They also pointed out that NGOs continue to implement emergency nutrition programs rather than addressing developmental causes of malnutrition. They agreed that for this situation to change, the state ministries of health must show stronger leadership. The table below summarizes the state presentations.

**Table 2. Summary of State Presentations**

State	Unity State	Northern Bhar El Gazal State, Aweil	Western Bhar El Gazal State	Greater Upper Nile	Lakes State	Jonglei	Warrap	Eastern Equatoria State	Western Equatoria State
Basic data	GAM: 20% No recent nut. surveys Pop: 1.5mil Capital: Bentui 9 counties Nutrition Department in place	Pop: 1.5mil (50% are refugee/returnee) 5 counties Nut survey in '98 No Nutrition Department	Pop: 1.4mil Recent WFP survey Have 2 nutritionists in place	Pop: 1.5mil (313,288 <5) 12 counties ACF did survey in 2007 – SMOH does not have results. Nutrition Department in place, officers in some counties	Pop: 1.25mil 8 counties No nutrition survey data	Pop: 1.7mil 11 counties 2 recent nut. surveys, data not out yet	Pop: 1.8mil 6 counties Recent ACF survey, no data yet	Pop: 978K 8 counties Nut survey in 2008, results not out	10 counties DRC refugees High rates of malnutrition and mortality as a result
NGOs working in nutrition	MSF-H ACF (many have evacuated recently)	MSF Concern Tear Fund		ACF VSF	Mission CMM DOR	IMA MSF-B Tearfund MSF-H COSV-PHCC	Goal, ADRA Diocese of Rumbek Elobied NCA, ACF WVI AAA CCM	Merlin CRS AVSI	
Existing nutrition interventions	Bentui Hospital dealing with MAM MSF-H dealing with SAM	Emergency interventions	TFC in hospital	TFC OTP	8 health facilities manage SAM – using RUTF, F100, F75	TFCs SFP		TFC OTP SFP Vit A	
Challenges	Coordination with NGOs State capacity to plan, organize coordinate and supervise	Lack of food Poverty Large number of refugees Lack of coordination Lack of transportation Lack of funding Lack of communication	Poor access Counties not participant in health activities No funds to improve infrastructure No supervision No GOSS TA	Lack of communications and reporting – not defined Infrastructure – roads, transport Coordination – NGOs, Counties, GOSS Lack of equipment Storage	Coordination Lack of trained staff Lack of GOSS supervision Lack of nutrition awareness in counties	Coordination Inadequate HR	Coordination Capacity	Staffing capacity Logistics Lack of equipment Nonfunctional facilities (PHCUs) Coordination – NGOs, GOSS	Lack of exclusive breast feeding Insecurity Shortage of food production Lack of knowledge Many returnees Lack of transport for supervision
Priorities	Construction of nutrition wards Training more staff Creating greater awareness of nutrition	Establishing a nutrition department Train nut. Staff Implement nut. in hospital	Improve facilities Education Growth monitoring Transport	Training Staff/HR development Getting budget allocated from GOSS	Capacity building GOSS trained nut. focal point in place State-trained CHWs 2 in each county 3 NGOs running nut. programs	Training nut. officers Encouraging locally grown food	Establishment of Nut department and recruitment of appropriate staff. Integrate Nut activities into PHC Training of Nut staff. Fund for Nut program	Establishment of county health department Recruiting an d training of more nutrition staff Capacity	Train CHWs Supplementation Nut. awareness Advocacy Nut. education
Way forward	Allocation of proper budget for Nutrition Department	GOSS to provide funding to states GOSS to provide equipment for nut. dept. GOSS to train nut. staff to implement surveys and assessments GOSS to develop nut. policies and guidelines				Recruitment of state officers		Assessment of health facilities Renovate/equip health facilities Establish county health departments Transport for supervision Support Nut. Dept. to disseminate BPHNS Budget for nutrition	Growth monitoring tools Transportation Office equipment and stationary Training of a nutrition assistant

## NGO Presentation (Dr Severin Kabakama, World Vision)

On behalf of NGOs implementing nutrition in Southern Sudan, Dr. Severin Kabakama, Health & Nutrition Program Manager for World Vision, presented on NGO programs, and the NGO analysis of the nutrition context and recommendations.

The objectives of this presentation were to:

- Summarize individual nutrition projects including model, services provided and geographic locations.
- Present challenges to implementation and ways the NGOs have overcome them.
- Present main nutrition concerns based on their own experience, i.e., underlying causes and obstacles to resolution.
- Present recommendations for addressing nutrition problems in the nutrition policy for the short, medium, and long term.

Although Southern Sudan has no mapping on where nutrition-oriented NGOs work, the NGOs who participated in producing Dr. Kabakama’s presentation provided information on geographic coverage, as well as on the implementation model of their nutrition interventions. This is best summarized by the table below.

**Table 3. NGO Program Information**

NGO	State	County	Total < 5 Beneficiaries	Approach
AVSI	Eastern Equatoria	Ikwotos	22,000	Integrated Approach to PHC
MSF - French	NBEG	Aweil	21,000	Management of AM (TFC, OTP, SFP)
GOAL	Warrap, UN	Twic, Kurmuk, Sobat area	117,579	Integrated to PHC
WVI	Warrap	Tonj South	58,000	Management of AM (SC, OTP, SFP) and FS
ACF	NBEG, Warrap, UN	Aweil East GW, Twic	100,000	Management of AM (TFP, OTP)
CONCERN	NBEG	Aweil West Aweil North	13,000	Management of AM
MEDAIR	10 States	Multiple	ERT	Nutrition Assessment & Rehabilitation – in emergencies
MSF - CH		Abyei, Agok	10,000	IPD-TFP, Mobile Services
Tearfund	NBEG, UN	Aweil South Aweil East Wuror	15,000	Management of AM, FS

In spite of the many challenges highlighted throughout Day One of the Convention, the NGOs highlighted achievements such as reductions in malnutrition rates in their program catchment areas. Emergency interventions have also successfully responded to rapid onset disasters such as floods. NGOs have gained a better understanding of the nutrition context. Through experience, NGOs have observed that SAM increases as a result of a high prevalence of MAM, which in turn fluctuates with a seasonal variation in food security. The NGOs also explained that linkages to

other sectors are important. For example, nutrition interventions need to link with food security programs. Beneficiaries also need access to health facilities and water and sanitation services.

Coordination was an issue for the NGOs. They felt the lack of nutrition services mapping was hindering the ability to make improvements because this is so fundamental to coordination. Nutrition coordination efforts currently include “nutrition NGOs” but not NGOs working in related sectors. These efforts must also extend to NGOs that include nutrition in their primary health care and water, sanitation and hygiene (WASH) programs. Nutrition surveys are not always well coordinated either.

The nutrition supply chain has many constraints. Constraints involve inadequate pre-positioning of supplies to prevent shortages, as well as difficulties in delivering supplies that are in stock. Given the frequency of rapid onset disasters and climate conditions that negatively affect harvests, this becomes all the more important. The NGOs echoed the challenges the MOH highlighted surrounding human resource capacity. NGOs felt this was an issue faced by both health and nutrition services at all levels from the national level all the way down to the county (district) and *payam* (sub-district) levels.

As with the DGN, the NGOs worry that emergency nutrition interventions get more attention than non-emergency programs. Like the MOH, the NGOs stressed that nutrition is cross-cutting and any solution will have aspects of food security, WASH, economic development, and education. The NGOs felt that the lack of final guidelines for the management of AM was hindering efforts to address the emergency-level GAM. They also felt that the MOH still had not clearly defined what it means by “integration” of nutrition into the health system. Until they have a clear understanding of what integration means in practical terms, they will have a hard time implementing this objective.

NGOs would like to see a clear transitional strategy to move from emergency-oriented to developmental nutrition with a focus on prevention. To do this, guidelines for micronutrient supplementation and for the management of AM are necessary. The Nutrition Technical Working Group should resume meeting monthly and should strive to be action and results-oriented. Nutrition surveys should be well coordinated, and the MOH/DN should issue guidelines for nutrition survey methods and program coverage. Finally, the NGOs expressed hope for the finalization of the NHP. They believe the policy should promote a dedicated staff to focus on nutrition activities within the basic package of primary health and nutrition services.

On behalf of the NGOs, Dr. Kabakama closed by thanking the MOH for establishing the DN and especially the DGN for her commitment to ensuring that nutrition remains at the forefront of health policy. He emphasized the NGO commitment to assisting in the capacity development of staff working in health and nutrition in the states and counties, as well as their willingness to contribute to the development of policy and guidelines.

## **Day Two (April 7, 2009)**

Day Two began with plenary presentations and two breakout sessions. The morning plenary was on Nutrition Information Systems, which consisted of two parts: Overview of the new WHO Growth Standards, by Monika Bloessner of WHO, and Nutrition Information/Surveillance

Systems, by Grainne Moloney of FAO. During the nutrition information systems breakout session, Kelly Delaney of Action contre la Faim (ACF) presented on Nutrition Anthropometric Surveys and Sentinel Sites in Southern Sudan, and Yergalem T. Beraki presented on the SIFSIA Project. Group discussions followed, which identified challenges, opportunities and recommendations for Southern Sudan as it begins to develop its nutrition policy and structures. During the morning plenary, Dr. G Mukasa also presented on IYCF.

The afternoon plenary was on the Management of Acute Malnutrition, which Susan Shepherd presented, and on Food Security and its link to nutrition. Senewa Montet-Timayio presented on Food Security and Nutrition, and Grainne Moloney presented on Food Security and Nutrition Analysis. Break out discussions followed.

## Plenary Session 1. Nutrition Information Systems

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### *An Overview of the WHO 2006 Growth Standards (Monika Bloessner, WHO)*

Until 2006, the United States-based National Center for Health Statistics (NCHS) reference was widely used. However, even though it had been internationally used for many decades, the NCHS reference was inappropriate because it was based on bottle-fed reference populations living in the United States. It was not necessarily generalizable to other populations and did not represent results of optimal IYCF. Furthermore, because the reference population infants were bottle fed, they were heavier than breastfed infants. Using the anthropometric measures of infants in the NCHS population as a reference therefore interfered with sound nutrition management of breastfed infants, with mothers being told to feed their babies more than was appropriate to meet the NCHS reference. This interference in optimal feeding increased the risk of morbidity and mortality among infants. Other problems also existed. The NCHS reference provided inaccurate estimates of under-nutrition and overweight. The NCHS reference was frequently used as standards, which was not their intended purpose. These issues finally led the World Health Assembly to decide in 1994 to construct a true standard based on an international sample of optimally fed infants and young children.

From 1997 to 2003, researchers followed a multinational sample of optimally fed and cared-for children, 400 of each sex in six study centers, in the Multicentre Growth Reference Study (MGRS). Sample populations were from the United States, Brazil, Ghana, Oman, Norway and India. The samples were selected based on strict criteria and the study was done under close supervision and tight control, using standard equipment and techniques. The study was longitudinal for ages 0–24 months and cross-sectional from ages 18–71 months. At the end of the study, data, which were centrally managed, all tacked almost exactly on the same line. This demonstrated that properly fed and cared-for children grow more or less at the same rate all over the world. Based on the MGRS, WHO child growth standards (WHO standards) were developed and released in 2006.

There are important differences between references and standards. References are descriptive and are based on representative samples of healthy groups. On the other hand, standards are prescriptive and define growth on the basis of health and feeding practices known to promote optimal growth. The sample used to set a standard is thus selected according to the requirements for optimal growth. This means the sample population must receive optimal nutrition and care,

including receiving exclusive breastfeeding and appropriate complimentary feeding, and immunizations and routine pediatric checkups. The child must also be raised in a hygienic, smoke free environment.

The use of z-scores, which are summary statistics, also has advantages over the use of references. Z-scores enable easier monitoring of malnourished children. The same cutoffs are used for all indicators with z-scores. Finally, the standard deviation of the mean z-score acts as a data quality check.

When comparing the data, differences exist between the NCHS reference and WHO standards. The differences in data vary by age group, sex, growth indicator, specific percentile or z-score, and nutritional status of index populations. These differences are more significant during infancy as a result of feeding practices and study design issues surrounding measurement intervals. WHO used a prescriptive approach and updated analytical methods, which yielded tighter variability. Differences are also apparent in the shapes of the weight-based curves in early infancy, making interpretation of growth performance vary depending on which age-sex comparison group is used. Interpretation of the indicators will have to be different when using WHO standards as compared to the NCHS reference as a result.

While WHO standards will show an increase in the number of wasted infants, this must not be interpreted automatically as a crisis during the transition from the NCHS growth reference to the WHO standards. Similarly, the transition from the NCHS reference to the WHO standards also will have important programmatic implications as caseloads could increase. Using the WHO standards will increase the prevalence of underweight among infants while decreasing it among older age groups. Stunting rates will increase for all ages. Wasting and severe wasting will increase for infants and severe wasting will increase for all age groups. On the other end of the spectrum, overweight for all age groups will also increase. Since the GOSS MOH will adopt the WHO standards in its NHP, in the near future, nutrition partners will have to account for these changes in prevalence and caseload when planning nutrition interventions.

#### ***Nutrition Information/Surveillance Systems (Grainne Moloney, FAO)***

Nutrition surveillance refers to the collection, analysis, interpretation and reporting on information about the nutritional status of populations. Surveillance is used to inform appropriate response strategies. Indicators are used to measure nutritional status, and the resulting data and information should cover both the nutritional status of the target population, and the underlying causes of malnutrition. An example of a strong surveillance system is the “Triple-A Cycle Model,” which starts with an assessment to define the nutrition problem, followed by an analysis to determine the cause of the problem, and then action to address the problem and causes, based on the analysis and available resources.

Good anthropometric and micronutrient deficiency indicators should define the nutrition problem by answering questions such as who is suffering from which type of malnutrition, as well as when and where the malnutrition occurs. Indicators on food security and health and care practices answer questions about what causes malnutrition. Both indicators should also provide answers on which interventions are most appropriate.

Different considerations such as age, context, cost and training, affect which indicators are the most appropriate. The most common anthropometric indicators to measure undernutrition among children under 5 are weight-for-height (WFH) and mid-upper arm circumference (MUAC), which measures wasting or AM; height-for-age (HFA), which measures stunting; weight-for-age (WFA), which measures underweight; and low birth weight (LBW). Body mass index (BMI) measures the nutritional status of adolescents and adults. Each indicator is also best suited to different contexts. WFH and MUAC are most commonly used in emergency settings, while LBW, WFA and HFA are most often relevant to non-emergency contexts. BMI is used in both contexts. As well as the context, other important considerations are cost and training, necessary equipment and time to collect the data, as well as the condition of the national infrastructure and remoteness and sparseness of the populations in question.

For these reasons, indicators should be simple and succinct. They should be limited to those that address key areas of interest and are truly critical to answering questions that are framed to obtain contextual data. Contextual data should pertain to causes of the nutrition problem such as disease patterns, seasonal factors, caring practices and so forth. Finally, only indicators that are really going to be analyzed should be collected. To answer questions about causes, sometimes combining indicators can help. For example, data on wasting or LBW and BMI of the mother can be collected together to understand the relationship between maternal and child nutritional status. Wasting and mortality are also often measured together. Other considerations are the appropriate unit of sampling (i.e., village, district, province) and frequency (i.e., monthly, annually). The target audience (i.e., MOH, NGOs, donors) whose decisions are important to taking action will determine how data get disseminated.

The presentation also included a Somalia Nutrition Information System case study. Prior to the conflict in 1991, coordination of nutrition information was managed under the MOH. Following the famine of 1992/93, there was an identified need for a food security and nutrition information system, especially given the repeated shocks and high levels of humanitarian need. Therefore the Food Security Analysis Unit (FSAU) was established in 1995, initially under WFP and later under FAO, to identify food gaps. The Nutrition Unit was introduced in 2000. It also later moved to FAO for technical management, and was combined with the FSAU, which was renamed the Food Security and Nutrition Analysis Unit for Somalia (FSNAU) in March 2009. Working in conjunction with the FSNAU are the Integrated Phase Classification Tool (IPC), which was developed in 2005, and is available both regionally and globally, and which is continuously under review, and the Nutrition Situation Framework tool, which was developed in 2007. The FSNAU is the main source of data for response analysis and the U.N. Combined Appeal Process in Somalia.

The goal of the FSNAU is to ensure that Somali food, nutrition and livelihood security, at the household level, is strengthened, thereby ensuring greater resilience to future shocks such as conflict, drought, flood, disease and inflation. The FSNAU strives to do this by providing access for a broad range of stakeholders to appropriate food, nutrition and livelihood security information for improved emergency response and development planning. This ensures that communities, agencies and authorities in Somalia, as well as the international aid community are empowered to respond. The information gathered increases the understanding of opportunities to reduce chronic food, livelihood and nutrition insecurity through sector analysis and applied

research on underlying causes. Baselines for livelihoods information and analysis are generated to inform the design of early response and longer-term interventions aimed at improving livelihood security. Information is further organized, developed and incorporated into an integrated database system and made accessible through managed information systems. Through the FSNAU, technical capacity of Somali institutions and partners is strengthened in food security, livelihoods and nutrition monitoring, assessment and analysis. Surveillance is done in a variety of ways. Nutrition surveys are conducted at the livelihood level in vulnerable areas twice a year. Other methods used include lot quality assurance sampling (LQAS), the collection of health information system data and feeding center statistics, and rapid assessments using MUAC. Using anthropometry and biomedical reference indicators, the nutrition situation is determined to be acceptable, on alert, serious, critical or very critical. Other related information is also gathered on disease outbreaks, dietary diversity, vaccination status, public health environment, food security meal frequency, civil insecurity, etc.

### Breakout Session: Nutrition Surveillance & Nutrition Management Information Systems

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#### *Nutrition Anthropometric Surveys and Sentinel Sites in Southern Sudan (Kelly Delaney, ACF)*

In January 2009, health and nutrition partners were asked to provide any nutrition anthropometric surveys to ACF for a national analysis of trends. A total of 13 surveys were submitted, 11 of which used Standardized Monitoring and Assessment of Relief and Transitions (SMART) methodology. The SMART methodology targets children aged 6–59 months. Assessments consist of a two-stage randomized survey. Unlike the 30 x 30 cluster methodology, the sample size is calculated per location utilizing Emergency Nutrition Assessment for SMART Software based on the following data:

- Total accessible population
- Estimated prevalence
- Desired precision (95% confidence interval)

Despite a dire situation, ACF found the number of surveys implemented to be steadily decreasing. ACF anthropometric trend analysis and mapping demonstrate that the GAM rate remains well above the 15 percent threshold for a nutrition crisis in all states but two, which have rates above the 10 percent threshold for a serious situation. According to the trends analysis, throughout Southern Sudan, the GAM rate has held steady at just under 20 percent since 2006, while SAM hovers near two percent.

Nutrition surveys have the benefit of offering the certainty of 95 percent confidence intervals and a good snapshot of the nutrition situation at a given point in time. Yet many constraints may be leading to the decline in the numbers of surveys. Surveys come with high associated costs due to logistics and personnel requirements. They require significant skill in computers and data analysis and significant time requirements. The remote nature of much of Southern Sudan's terrain also leads to access limitations for all clusters.

As a more cost effective, sustainable alternative, ACF initiated, in collaboration with the MOH, nutrition surveillance at sentinel sites in Upper Nile. Following a stakeholder meeting in 2007, ACF began piloting a Nutrition Surveillance Sentinel Site System in Malakal, Upper Nile State.

This is a community-based system adopted against a clinic system. The objectives of the sentinel site surveillance are:

- Establishing/operating an early warning system
- Monitoring of nutritional status
- Monitoring of root causes of AM
- Decision taking

During another meeting held in March 2008, stakeholders reviewed and validated data collection tools, frequency of data collection and the proposition to use LQAS methodology. LQAS is currently being tried in Upper Nile State through quarterly rounds of data collection. It is also conducted by the community with support from ACF-USA. Under LQAS, a 33\*6 cluster sampling (198 children 6–59 months) and 198 households are used to gather data for indicators that are relevant to nutrition, including food security (such as number of meals per day), WASH, and child care practices, such as health-seeking behavior).

The sentinel site surveillance has already provided valuable information with policy implications. The results of the recent rounds of surveillance using LQAS show that malnutrition starts to pick up in September with the highest prevalence rates peaking between November and March. The LQAS decision rule estimated the GAM at  $\geq 20$  percent. This compares positively with nutrition survey results from November 2008. Findings also provide information on root causes of malnutrition. Root causes include low incomes and a high cost of living, which limit household access to food. Only limited interventions exist for the provision of safe drinking water and use of household latrines. No significant changes have occurred in maternal and care practices.

The sentinel site surveillance system has a number of benefits. Only small sample sizes are needed (198 children, 33\*6), making it more cost effective than regular nutrition surveys. Even with the small sample sizes, the data are scientifically representative of the population. The system is multisectoral and integrated with WASH, food security and livelihoods for surveillance of the root causes of malnutrition. As such, it tracks market prices, food stocks, livelihoods, and quality of diet. It monitors hygiene practices, and access to water & sanitation. Furthermore, equipment demands are low as there is no need of computer and data entry for calculation of threshold nutrition rates ( $> 10\%$ ,  $> 15\%$ ,  $> 20\%$ ,  $> 25\%$ ). This surveillance system is thus more sustainable and representative, allowing for a reduction in number of nutrition surveys. Nevertheless, challenges remain regarding access to more remote locations for implementation of data collection sites. Communities also risk burning out on implementation.

As the Nutrition Surveillance Sentinel Site System scales up, next steps include improving data analysis at a larger level, improving dissemination and advocacy, and working with the MOH on rollout to additional states.

#### ***SIFSIA (Yergalem Beraki, MOH/SIFSIA)***

SIFSIA is a 4-year program, with funding from the European Commission and FAO in two 2-year phases, covering both Sudan and Southern Sudan. The objectives of SIFSIA are to strengthen the human, physical and organizational capacities of the GOSS in the generation and

utilization of information for the analysis, design, monitoring and evaluation of food security-related policies and programs.

SIFSIA program activities are divided into three broad components:

- A Food Security Policy and Planning Making Systems Component established the Food Security Technical Secretariat. This component performs food security information analysis and food security policy planning and programming.
- A Baselines and Information Systems Component conducts food security monitoring surveys to establish baselines. It maintains an Agricultural and Livestock Market Information System to provide regular information on market prices of basic agricultural and livestock products. This component implements a Crop Production Monitoring and Forecast Systems to strengthen capacities in agricultural production monitoring for early warning. It performs natural resources monitoring and mapping, which is relevant to livelihoods: pastures, water for livestock, forests and land uses in smallholder farming. It also runs a Livelihoods and Vulnerability Analysis Monitoring System to support livelihood monitoring activities. Finally, it is in charge of the Nutrition Information System.
- The Decentralized Food Security Research Fund is an un-earmarked fund for supporting food security research and capacity building initiatives at the local level. It is a demand driven fund for public institutions and NGOs in the most food insecure states.

SIFSIA supports the MOH/DN by providing data storage capacity, and compilation and analysis of data. SIFISA also offers financial, human resource, equipment and technical support to the MOH/DN. According to a signed letter of agreement, it releases funds to support the DN. Currently SIFSIA is recruiting a data base specialist. SIFSIA also provides additional physical capacity to the DN in the form of a vehicle and computers. Capacity building support includes technical backstopping and short-term trainings on nutrition information systems and monitoring activities, as well as planned collaboration on policy development.

Institutionally, SIFSIA rests directly under the GOSS Presidency. The President of Southern Sudan established a multisectoral FSC, which is the highest decision making body for food security policy in Southern Sudan. Its mandate is to align and harmonize food security initiatives and to guide national food security policy and programming.

Just under the FSC, the Steering Committee, composed of ministers and commission chairpersons, is the highest decision making body for SIFSIA. The Steering Committee guides program activities and ensures its relevance to the Southern Sudanese Context. It provides final approval of SIFSIA work plans and reports. Also under the FSC is the SIFSIA Southern Technical Committee, with a membership of officially appointed technical personnel from GOSS institutions with a food security mandate. It provides technical guidance and coordination for program planning and implementation, and reviews work plans and reports before submission to the Steering Committee.

Supporting the FSC in the execution of its mandate, right below the two committees, the Program Support Unit (PSU) consists of a Food Security Technical Secretariat with a coordination unit and a GIS unit, which collects and analyzes information for analysis, policy and planning. The PSU is cross-sectoral, comprised of GOSS seconded and SIFSIA recruited

personnel. It has a Coordination Unit, which consists of a Food Security Policy & Planning Section, Structural Food Security Analysis Section, and Food Security in Crisis Analysis Section. The PSU is responsible for overall program implementation, monitoring of program performance, and management of European Commission funds. It provides technical assistance and backstopping, and prepares work plans and progress reports. It recruits staff jointly with the GOSS, and trains personnel at the GOSS, state and lower levels. It also initiates procurement and fund disbursement.

***Breakout Session Discussion: Nutrition Surveillance & nutrition management information system***

The group recognized importance of the NGOs working in nutrition and the key roles they could play during future nutrition policy implementation. The NGOs are in a position to provide training to GOSS staff on nutrition information systems. They could also have GOSS staff seconded to their programs or second their own staff to the GOSS to perform capacity development. The NGOs already carry out nutrition surveys through their programs. They will need to share this information more regularly with the GOSS and collaborate more closely with the MOH as the policy development unfolds. This collaboration should start with a situation analysis and mapping of existing information. An information base on nutrition already exists and would serve as a good platform to supplement with more information.

At the national level, the MOH/DN would benefit from capacity strengthening in nutrition surveillance and information management. Working conditions for nutrition staff at all levels must improve. At the state, county, and *payam* levels, regular meetings should take place to foster cooperation and information sharing. NGOs and state MOHs need to not only cooperate with each other, but also with the communities they serve, tapping into civil society to share information. NGOs and stakeholders need to make good use of state level surveillance units and state nutrition officials, where they exist. MOH focal points should exist at the county level. Staff at the *boma* and *payam* levels should be integrated into the nutrition information and surveillance system, as well.

Within the MOH nutrition structures, equipment and training are necessary for managing information. Data collection instruments should be more widely available and staff should be trained in their use. At the central level, the MOH/DN should be responsible for collecting information and ensuring that the information system captures all the major components of nutrition. A human resources strategy is also necessary, starting with a mapping of existing staff, and identifying gaps and recruitment needs at all levels. A staff retention strategy is also important.

To fund a Southern Sudan-wide nutrition information and surveillance system, the MOH/DN should take the lead on advocacy at the GOSS level and spearhead drafting a proposal to submit to the donor community. The ACF initiative presented earlier could be a good model to adopt for national rollout and lessons could be drawn from other countries.

**Plenary Session 2. Infant and Young Child Feeding (Dr. G. Mukasa, UNICEF)**

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Malnutrition is the direct or indirect cause of 60 percent of mortality among children under 5 or 10.9 million preventable deaths a year globally. Many of the causes of malnutrition are related to inappropriate IYCF and care practices.

Optimal IYCF is essential for the survival, health and nutrition, growth and development of children. Optimal IYCF includes exclusive breastfeeding from birth to six months, unless medically contra-indicated, followed by complementary feeding from 6 months, with continued breastfeeding up to 2 years or beyond.

National governments' obligation to promote optimal IYCF stems from the Convention on the Rights of the Child of 1979, as well as the need to respect, protect and ensure the fulfillment of other human rights principles. Government actions should be guided by the Global Strategy for IYCF adopted by the Fifty-Fifth World Health Assembly on 18th May 2002.

The GOSS MOH is committed to the promotion of this gold standard and needs to put in place several measures geared toward establishing optimal IYCF. Among them are major elements of the global IYCF strategy, which builds on past and continuing efforts through an integrated and comprehensive approach:

- Adopting a national policy on IYCF, including a plan of action and identified resources.
- The Baby Friendly Hospital Initiative, which institutionalizes practices supportive of IYCF and involves training, standard monitoring, assessment and re-assessment.
- Implementation and monitoring of the International Code of Marketing of breast milk substitutes, which needs to become an enforced law.
- Maternity protection, which consists of national policy and legislation on paid maternity leave, and ratification of International Labor Organization MP Convention No. 183, as well as support for maternity protection in the informal sector.
- Health and nutrition care systems, including health care provider schools, pre- and in-service training, and guidelines for mother-friendly childbirth practice.
- Community outreach and support, which means establishing service and systems through which all women can access IYCF counseling and support during pregnancy and after delivery.
- Information support to ensure information, education and communication reaches the grassroots level.
- Services to address IYCF in relation to HIV, including an ongoing monitoring of the effects of interventions, IYCF practices and health outcomes for mothers and infants within the HIV context.
- IYCF during emergencies, including training of relevant personnel and guidelines for IYCF for children in difficult circumstances.

Adopting the Global Strategy for IYCF has important strategic implications for Southern Sudan. Implementing the strategy will require an implementation framework involving capacity building and behavior change communication. IYCF will need to be mainstreamed into other areas of policy such as human rights and gender perspectives, including sexual and reproductive health rights. Implementing the strategy also requires adequate infrastructure, and logistical and supplies support. Programs need monitoring and evaluation. Given the multisectoral implications, collaboration and coordination are also crucial, so national governments must identify and appoint a national IYCF focal person. Additionally, optimal IYCF involves adequate

feeding practices based on sound evidence; therefore, further research will continue to be necessary.

Additionally, to increase IYCF service coverage for women and children, the Essential Nutrition Actions will need to be integrated into health service delivery at all six identified key contact points:

- **Antenatal contact:** control of maternal iron deficiency anemia, counseling on maternal nutrition improvement, preparation for exclusive breastfeeding, infant feeding options for HIV-positive women
- **At delivery:** initiation of breastfeeding. Breastfeeding must be early and exclusive. Measures must be available for replacement feeding for mothers who opt not to breast feed. Control of maternal/infant vitamin and mineral deficiencies is also important
- **Postnatal contact:** exclusive breastfeeding, replacement feeding for HIV-positive mothers who opt not to breastfeeding, maternal nutrition including iron deficiency anemia control, and infant vitamin and mineral deficiency control
- **Well baby contact:** Provisions must be in place for the promotion of exclusive breastfeeding from 0–6 months with appropriate complementary feeding from 6–23 months, or adequate replacement feeding, as well as maternal nutrition, screening and referral for malnutrition, and vitamin and mineral deficiency control
- **Sick child contact:** Provisions must be in place for the promotion of exclusive breastfeeding from 0–6 months with appropriate complementary feeding from 6–23 months, or adequate replacement feeding, as well as maternal nutrition, screening and referral for malnutrition, and vitamin and mineral deficiency control.
- **Family planning contact:** Counseling on lactational amenorrhea and on maternal nutrition including iron deficiency anemia control.

Several key lessons that apply to Southern Sudan at this stage come from other countries during the early stages of the IYCF strategy development process. The GOSS will need to prioritize IYCF program elements since not all of them will have equal potential for impact in the Southern Sudanese context. For example, only 19.4 percent of births take place in facilities. In this case, would the Baby Friendly Hospital Initiative have an important impact? To keep focus and momentum, a pro-active advocate as a focal point is crucial. At the same time, national pressure groups must exist to push the agenda. A starting point for Southern Sudan should be a) to appoint someone in GOSS MOH/DN to be the IYCF focal person, and b) to develop Southern Sudan policy guidelines. Finally, development partners must also commit themselves to providing technical and financial support.

#### Breakout Session: IYCF

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The IYCF breakout group opened by discussing the likely underlying causes of childhood malnutrition in Southern Sudan, which include large family size and structure and low food production capacity. Migration due to pastoralism or to make up for gaps in food needs, as well as due to conflict, can add to food insecurity. Poor health care in terms of access and quality also have an impact. Dependency on relief, with its uncertain pipelines adds further to the problem.

Lack of education, misperceptions, misinformation and resulting inappropriate dietary practices also are important factors, while maternal malnutrition plays into the cycle, as well.

Many factors contribute to poor IYCF practices, including inadequate exclusive breastfeeding and complementary feeding. The mother may face an inadequate food supply and a heavy workload, leaving her without the resources or time needed for optimal IYCF. She may also lack the necessary knowledge, experience or support. Traditions, practices and beliefs surrounding breastfeeding, weaning and child care may also pose challenges to IYCF. Mothers do not parent their children in a vacuum. As well as her own attitudes and knowledge, she also is subject to influence from other members of the family and the community, and from poorly trained, misinformed health personnel. Children with very ill mothers or whose mothers have died also are less likely to receive optimal IYCF.

Solutions to these challenges include influencing and advocating for the government to develop a food policy that promotes food production and access, and mass education of the population on improved utilization of appropriate foods, like traditional fruits and vegetables. Strategies for behavior change communication (BCC) and other IYCF programs should be developed, and they must use a bottom up approach – involving local communities and leadership as major stakeholders. Sensitization workshops could be held to mobilize community participation. Capacity needs to be built in terms of training and equipping health providers. Girls' education must become a priority to foster empowered mothers in the future, but boys should also receive education to become future supportive husbands. IYCF and nutrition education should also be integrated into school curricula.

The group made specific IYCF recommendations for the future Southern Sudan NHP. The NHP should provide for the promotion of exclusive breast feeding up to six months and early initiation of breast feeding within one hour of birth. All health facilities should promote optimal IYCF with regards to practices, attitudes, and support of health providers. The policy should promote timely introduction of appropriate, nutrient dense complementary feeding and continued breastfeeding to all children 6–24 months and beyond. Where breastfeeding is medically contradicted (i.e., HIV, maternal death), safe replacement feeding (infant formula) should be promoted. The MOH should integrate IYCF training and education in the curriculum of health personnel. The policy should include provisions for IYCF under difficult circumstances such as emergencies. The GOSS should also encourage maternity leave legislation to promote exclusive breast feeding.

The objectives of the management of AM are early detection, and development of effective strategies to treat AM in individual patients undergoing treatment and selected, vulnerable populations, as a public health measure.

AM is a multiple nutrient deficiency, including insufficient proteins, essential fatty acids, vitamins and minerals. It affects all organ systems. The entire clinical picture is a partial or complete loss of appetite, immune system dysfunction, apathy, listlessness, weight loss, and signs of specific nutrient deficiency. Stunting is present if dietary deficiencies and disease persist, and neurological and metabolic effects are an issue in the long term.

To detect AM, anthropometric measurements are used. MUAC is taken with a measuring tape and WFH is taken with a scale and measuring board. It is also diagnosed through observing clinical signs such as bilateral pitting edema and medical complications, as well as a loss of appetite.

Based on the 2006 WHO standards, MAM is defined by a child's WFH z-score of  $-2$  to  $-3$  standard deviations from the median, and SAM is defined by MUAC less than 115 mm, WFH z-score less than  $-3$  and/or presence of bilateral pitting edema. A very thin or wasted child has marasmus. A child with bilateral pitting edema has kwashiorkor, which is the most lethal form of AM. A child with kwashiorkor has a swollen appearance, dermatosis and hair changes. S/he has no appetite and little energy, and is irritable. Bilateral pitting edema is verified if, when pressing the thumbs into the tops of both feet for three seconds, a pit remains after removal of the thumbs. Children with SAM commonly suffer from underlying infections, such as bacterial bowel overgrowth, acute respiratory infections, and malaria. Often the child's appetite is impaired and medical complications develop with the progress of the disease.

At the population level, the prevalence of GAM, capturing both MAM and SAM, is the indicator used to detect a nutrition crisis. If based on the NCHS reference, GAM rates below 10 percent are generally handled as a development issue. A GAM rate of 10 percent is serious and warrants an emergency intervention such as supplementary feeding. A GAM rate of 15 percent or higher is a nutrition crisis. Southern Sudan commonly experiences a GAM rate well above 15 percent. GAM rates will increase considerably when based on the WHO standards rather than the NCHS reference. In December 2008, for example, Northern Bhar El Gazal State had a GAM rate of 16.4 percent based on the NCHS reference and 17.8 percent based on the WHO standards. The prevalence rate of MAM remained similar at 15.4 percent (NCHS) and 15.7 percent (WHO), while the increase in SAM was much more important, at 0.7 percent (NCHS) and 2.4 percent (WHO). Major increases in the prevalence rate of SAM, and hence in case load for treatment, will have to be considered when transitioning to the WHO standards.

At the individual level, evidence-based strategies exist to treat SAM. Children with SAM can be treated in inpatient care with therapeutic milks in a two phase model according to WHO standards. Children with SAM and no complications are treated in outpatient care with routine medicines and ready-to-use therapeutic food (RUTF). Their own caregiver provides RUTF each day in their home, and children are monitored on a weekly basis in the health facility. Children

6–59 months old with SAM and medical complications can be stabilized in inpatient care and then referred to outpatient care to complete their treatment. Community-Based Management of Acute Malnutrition (CMAM) is the approach recently endorsed by the U.N. as the gold standard to treat children with SAM, and is being adopted by the GOSS MOH as the integrated management of AM in Southern Sudan. The major components include:

- Community mobilization to identify children early with AM for referral for treatment
- Outpatient care for the majority of children 6–59 months old with SAM to receive routine medication and RUTF at home
- Inpatient care for the minority of children with SAM with medical complications and/or no appetite to receive treatment in health facilities with specialized expertise and 24-hour care
- Supplementary feeding programs for children with MAM to receive supplementary feeding in the community

Current admission criteria in Southern Sudan for the management of MAM are WFH 70 percent to 80 percent of the median of the NCHS reference, and for the management of SAM, WFH less than 70 percent, MUAC less than 110 mm and/or presence of bilateral pitting edema. Admission criteria for the integrated management of AM will be adapted when transitioning to the WHO standards.

Strategies also exist to prevent SAM and treat MAM at a population level. During a nutrition crisis, this involves a large-scale, blanket supplementary food distribution to all children 6–35 months old, most often using fortified blended foods like corn soy blend, but increasingly using lipid-based ready-to-use supplementary food (RUSF). Research is currently under way to further develop RUSF and other innovative approaches to preventing SAM through large-scale public health programs.

It is important to note that AM is not just a problem for “emergency response” organizations. It is often a problem within development contexts and frequently is a result of issues such as the seasonal hunger gap, or inadequate IYCF and care practices. Individual treatment requires a response within a functional health system. Population level strategies can be de-medicalized and be more creative. NGOs with a good understanding of the context are more likely to develop successful strategies.

### Breakout Session: Management of Acute Malnutrition

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During the breakout discussion, convention participants made recommendations for how the GOSS MOH/DN should move forward in tackling the heavy burden of AM in Southern Sudan. The group strongly recommended integrating the management of AM into the existing health system, and developing Southern Sudan CMAM guidelines. The GOSS MOH should also take ownership of services, which means taking responsibility for resources, provision of therapeutic foods, supervision, and technical support. The MOH should also have a plan to make a specific budget allocation in the middle term for the integrated management of AM. The GOSS MOH should put in place other provisions to respond to the high rates of MAM. GOSS should also seek donor support for the provision of food by prescription for acutely malnourished HIV-positive people.

Inpatient care sites should be established within hospitals, while outpatient care should be integrated into routine health services based on needs. The GOSS should also make provisions for food assistance to mothers or caregivers who must stay with their children during inpatient care to help prevent defaulting. Different points of entry can serve as platforms for integrating the management of AM into the health system. For example, nutrition screening can take place during vaccination and other child survival campaigns. Another entry point for integration of the management of AM could be mother child health services.

Health care personnel will need training in the planned guidelines. Training in nutrition, detection of AM, and community mobilization should therefore be part of the minimum package of training for community health workers, and become part of the standard health education they receive and provide to community members.

Community systems should also be strengthened for better detection of AM and especially for referral of SAM cases, and NGOs can assist in providing the necessary technical support and mentorship to do this.

#### Plenary Session 4. Food Security and Its Link to Nutrition

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##### *Food Security and Nutrition (Dr. Senewa Montet-Timayio, Tear Fund)*

Different definitions of food security are currently in use. One of the most common definitions was developed by USAID: “When all people at all times have both physical and economic access to sufficient food to meet their dietary needs to lead a healthy and productive life.” World Vision Africa defines food security as, “The ability of households to sustainably meet their own food needs.” Along with the household child care environment and access to health care, household food insecurity plays a significant underlying role in malnutrition as it limits a family’s access to adequate food intake. There are generally four components of food security:

- Availability of food
- Access to food
- Utilization of food
- Asset creation

Availability of food can depend on whether food is produced by households themselves or obtainable in local markets to ensure an adequate supply throughout the year. Availability requires sustainable agricultural production and functioning markets. Access to food requires that households be able to purchase or obtain their food requirements. Programs can help increase access to food through interventions such as micro-enterprise development and income generation for purchasing unmet food needs. Proper use of food requires that households store, prepare and consume food in a sanitary, nutritionally balanced and safe manner. WASH and other public health measures must be in place and resources must be shared equitably within a household. Asset creation provides the household with resources to rely on in times of emergency. This can be in the form of savings and investment, as well as appropriate assets.

Within Southern Sudan, food consumption varies in adequacy. Overall, 17 percent of the population experiences poor food consumption, with 22 percent at the borderline of adequate

consumption, and 61 percent attaining acceptable consumption. Seasonality is a serious issue affecting sustained adequate food consumption for most households in Southern Sudan. When households experience food insecurity, they resort to a number of coping mechanisms. Most commonly, they limit portion size, reduce the numbers of meals, restrict adult consumption, or eat less preferred foods. Wild foods also play a major role in the diets of the Southern Sudanese, especially in times of food deficits.

Food insecurity has been a contributing factor to high rates of malnutrition in Southern Sudan, in particular where GAM is well above 15 percent, the emergency threshold. There are three household food security categories. A severely food insecure household faces poor consumption, poor ability to acquire food (poor income sources and high expenditure on food), and frequently employs a range of severe coping mechanisms. The household's condition is so severe that lives could be at risk, especially in the case of further shocks. A moderately food insecure household has poor or borderline consumption, a poor-to-medium ability to acquire food, and sometimes uses negative coping mechanism that will put its future livelihood at risk. A food secure household experiences good consumption, a good ability to acquire food, and does not use many of the severe coping mechanism that could be a sign of future problems. In Southern Sudan, overall, 12 percent of households are severely food insecure, and 24 percent are moderately food insecure. Most states are around 14 percent severely food insecure.

#### *Food Security and Nutrition Analysis (Grainne Moloney, FAO)*

Food security is a major contributing cause of malnutrition. Causes of food insecurity range from natural and manmade disasters to poverty, drought and illness. Food security indicators can help interpret nutritional status, and methods to obtain information on food intake can be included in nutrition surveillance. For example, food intake or consumption surveys quantify the amounts and types of food eaten. Dietary diversity scores and hunger scales can obtain consumption information relatively quickly. Food basket monitoring can also be carried out at food distribution sites or at the household level in emergencies.

To analyze nutrition and food security information together, FAO developed the IPC System, which enables food security and humanitarian interventions to be more needs based, strategic, and timely. The IPC can lead to a technical consensus on needs and appropriate interventions by providing comparability over space and time. It establishes transparency through evidence-based analysis, clear early warning, a more strategic response and, therefore, more accountability in humanitarian interventions. From 2004 to 2006 the IPC was developed internally in the FSAU. Since 2006, the IPC has received interest from different partners and has been undergoing an ongoing external review and further development.

Major IPC components are:

- Reference Tables
- Analysis Templates
- Cartographic Protocols
- Standardized Population Tables

The IPC Reference Table Food Security Direct Reference allows an analysis of dietary diversity and food access as they relate to nutrition outcomes such as stunting and wasting. Maps allow an analysis of geographic determinants of food security for better planning and targeting. Mapping can also demonstrate that food insecurity in terms of quantity of food and malnutrition are not necessarily related. For example, in Somalia, where the IPC is fully implemented, the Bay Region experienced a sorghum bumper harvest. This region was therefore classified as not being in a food security crisis, yet the GAM was greater than 20 percent. The mapping indicated that while there may have been enough sorghum to feed the population, there may not have been enough diversity in the diet for children to remain well nourished.

In Southern Sudan, under the technical leadership of the SIFSIA Project, and through the Livelihood Analysis Forum, the IPC is now being implemented across Southern Sudan. Several analysis sessions have been held to date, however there is a bias toward food security information due to lack of available nutrition data. To correct this bias, timing of nutrition and food security assessments and monitoring should be coordinated for integrated analysis. A seasonal calendar would help with this. Both food security and nutrition surveys should use similar units of sampling, e.g., the livelihood level. A mapping of existing nutrition data information sources should be carried out to identify gaps, determine which indicators to use, the frequency of surveys and monitoring and other factors. Careful consideration should be made in determining the relative importance of the different indicators of nutrition, food access, etc.

### Breakout Session: Food Security

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The group discussed underlying causes of food insecurity and made recommendations on where the GOSS should focus its efforts to improve food security. Underlying causes of food insecurity include insecurity from conflict (both local and wider spread) and cattle raiding. Damage from pests, climate conditions, floods and drought also contribute. A shortage of inputs, inadequate farming practices, and poor infrastructure to get agricultural products (crops and livestock) to the market continue to hinder food security, and high food prices prevent available food from being accessible to low-income households.

The GOSS can take many measures to improve the food security of Southern Sudan, even under the present conditions. In the short term, the MOA should collaborate with other line ministries, including the MOH, to address related issues, such as nutrition and WASH. A focal person should take the lead. As part of an integrated agriculture and nutrition policy, extension workers can be trained in nutrition to educate community members on dietary diversity. Existing tools and guidelines can be adapted to include relevant nutrition components. The MOA should oversee the development of a food composition table for local foods. Extension workers can also train community members in food security-related disaster preparedness and mitigation.

In the medium term, the MOA should introduce standardized food security tools and guidelines. It should strengthen capacities to improve food security, introduce improved agriculture technology, and promote a better allocation of resources. Food security is not just about cereals; the MOA should enact policy to increase food diversification, promote improved nutrition content of dietary consumption, and strengthen household knowledge and skills in food production and utilization. To help accomplish this, the MOA can promote local production of nutrient dense foods. It can also advocate for implementation of land policy reform to promote

household food security. The GOSS should also advocate for legislation and standards of quality control and safety of locally produced and imported foods, including legislation for enforcing the international code of marketing of breast milk substitutes. Given the high risk of food insecurity in Southern Sudan, food security surveillance and early warning systems must be in place to provide for timely response, which is critical to improving food security. In the long term, for Southern Sudan to be food secure, peace building initiatives must lead to lasting stability.

### Day Three (April 8, 2009)

As with Day Two, Day Three began with plenary presentations and two breakout sessions in the morning. Louise Sserunjogi of the Global Alliance for Improved Nutrition (GAIN), presented on micronutrients, and Robert Mwadime of FANTA-2 presented on nutrition and HIV. During the afternoon, the states gathered in groups according to the old, traditional state geographic delineations to discuss their respective nutrition situations and to propose ways forward, based on what they had learned during the Convention. Day Three ended with a plenary session to review the Convention Declaration.

#### Plenary Session 6. Micronutrients: Time to Act (Dr. Louise Sserunjogi, GAIN)

Micronutrients consist of vitamins and minerals that all humans need to maintain strong bodies, fight off disease, and bear healthy children. Among the most important micronutrients essential to maintaining optimal health are vitamin A, iron, iodine, zinc and folic acid. Micronutrient deficiencies occur even when people have enough to eat if their diet lacks micronutrient rich foods. The quality of our diet depends on the nutrient content and the bioavailability of its nutrients. Presence of infections and parasites also inhibits the full absorption and utilization of available micronutrients. Good sources of micronutrients include animal food, vegetables and fruit, cereals and pulses, fortified foods and food supplements.

Micronutrient deficiencies are a major cause of mortality and morbidity among vulnerable populations, and micronutrient malnutrition has effects on health and survival, educability, economic productivity, and disability. There is an increasing recognition that malnutrition, especially in terms of essential vitamins and minerals, is an indicator of poverty at the individual, household and national level. Deficiencies represent an estimated five percent loss in GDP for countries due to morbidity and lost productivity. Yet, addressing micronutrient deficiencies would cost less than 0.3 percent of GDP.

Micronutrient deficiencies are also widespread globally. Vitamin A deficiency affects 30 percent of children under-5 in the developing world, compromising immune systems, and causing a million preventable deaths a year. Iron deficiency is also of international public health importance. It affects women in particular, putting them at risk of death in childbirth. It also feeds into the intergenerational cycle of malnutrition as it causes low birth weight and puts children at greater risk of severe infections and death. Children who survive iron deficiency may be less intelligent, scoring up to 10 points lower on standard intelligence quotient tests. As a result, their school performance is below their potential and their future productivity is diminished. These effects are long lasting and potentially irreversible. Worldwide, iodine deficiency causes 65,000 children to be born as cretins and leaves another 194,000 with severe mental disability. Less severe permanent effects include diminished learning ability, poor school

performance and reduced retention rates. Children may also suffer speech and hearing defects. Inadequate folic acid leads to increased birth defects. Around the world, 200,000 children are born each year with severe neural tube defects such as *spina bifida* or *anencephaly*.

In Southern Sudan, few data exist on micronutrient deficiencies. However, other indicators indicate a strong likelihood that they are widespread. In Southern Sudan, according to Sudan Household Health Survey data, more than 50 percent of the population in six out of ten states had never received vitamin A supplementation. Sudan (north and south) produces approximately 175,000 MT of salt per year, though only 3,000 MT is iodized, leading to consumption of iodized salt in only one percent of households. In seven states, less than 50 percent of the population was consuming the necessary level of iodized salt (> 15 ppm). Micronutrient deficiencies are compounded by the presence of infectious diseases endemic to Southern Sudan. Southern Sudan also suffers from a lack of dietary diversity, seasonality in availability of micronutrient rich foods, high food prices, difficult logistics conditions resulting from rough terrain and poor road infrastructure, as well as inadequate human resource capacity to respond to micronutrient deficiencies.

Addressing micronutrient deficiencies is therefore an excellent investment in Southern Sudan's greatest resource – the intellectual power of its people. Southern Sudan has the potential to experiment with different approaches to reduce micronutrient deficiencies. Supplementation, especially for vitamin A, folic acid and zinc, is effective. Food-based solutions, such as increasing dietary diversity, can also help, although this is subject to seasonality and price fluctuations, as well as availability of different kinds of crops produced. Fortification programs including iodized salt, staples and complementary foods, condiments, and sprinkles can be effective. Other public health measures also tackle other causes of micronutrient deficiencies. These measures include breast feeding promotion, de-worming, disease prevention, and campaigns to raise awareness of micronutrient deficiencies.

Southern Sudan can also learn lessons from other countries at different levels of success in the implementation of micronutrient deficiency control programs. Based on experience, it is known that a multisectoral approach implemented within an integrated mechanism for service delivery will achieve high-priority investments in education and economic growth. Certain specific elements of success have been attributed to specific steps related to program initiation, implementation and impact.

Program initiation starts with national documentation on the magnitude of the problem. National advocacy meetings and awareness creation follow. The government then establishes national technical and intersectoral committees and mobilizes resources from bilateral and international agencies. The government takes the lead on integrating and developing national plans of action for nutrition and for program implementation. The government also issues a decree on mandatory fortification (salt iodization and micronutrient fortification).

Program implementation builds upon a successful management design. The management design incorporates local-level government and community participation, and creates ownership to achieve good coverage. Community acceptance and participation can be established through deploying village health volunteers. Monitoring and evaluation must incorporate program

utilization indicators into national survey instruments to help track national and regional trends in program exposure.

To understand program impact, evaluation has mainly been done for clinical vitamin A deficiency and goiter rates in some areas of Southern Sudan. Program evaluation must also take place for other micronutrient interventions. Intervention efficacy trials have been carried out for high-dose vitamin A supplementation, iodine supplementation, and iron supplementation. An evaluation can also assess the coverage of national programs such as vitamin A capsule distribution, and iodized salt programs. National program effectiveness in other countries at similar stages to Southern Sudan demonstrate a reduction in prevalence levels for vitamin A deficiency and iodine deficiency disorder, but not for iron deficiency anemia.

Building partnerships is essential to establish effective micronutrient programs, and each partner in the intervention adds value. The government can ensure quality through policy formulation, regulation, standards and guidelines, and resource mobilization, and by measuring program impact and results and ensuring accountability. Civil society can protect the consumer through advocacy, awareness creation and civil education. Consumers can then demand quality services and higher food quality, and implement appropriate behavior change practices. The private sector can add value to processed foods through food fortification, providing consumer education and conducting product development. International organizations can provide technical assistance, funding for interventions, human resources, program support, and advocacy for national policies and programs to address micronutrient deficiencies.

#### Breakout Session: Micronutrients

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During the micronutrient breakout session, the group focused on several of the most important micronutrients: vitamin A, iron, iodine, zinc and folic acid. They proposed interventions that could be included in the Southern Sudan NHP and realistically implemented in the current context.

As with all other micronutrient deficiencies in Southern Sudan, the true prevalence of vitamin A deficiency is unknown but is likely very high. Health care providers in Southern Sudan also lack the knowledge to identify its symptoms. It is, therefore, not clear whether high rates of blindness are due to the river blindness or vitamin A deficiency. Although no one is sure of the likely impact at the population level because of lack of information, vitamin A deficiency could be contributing to the high child mortality and morbidity in Southern Sudan. A likely cause of vitamin A deficiency in Southern Sudan is the high measles prevalence, in addition to poorly diversified diets.

Vitamin A supplementation can be administered as an integrated service using several different primary health care platforms, such as routine EPI at the primary health care unit (PHCU) and primary health care center (PHCC). It can be given to children during national immunization days (NIDS). It can also be given during antenatal care (ANC) sessions. Additionally, an Accelerated Child Survival Initiative (ACSI) strategy has already started and is ongoing.

Currently, anemia in Southern Sudan contributes to high child and maternal mortality rates. It also takes a toll on intellectual capacity. In general, iron supplementation has a low coverage

rate. To help prevent anemia, de-worming has just recently been considered for women, and it should also be done for children during NIDs and routine EPI activities at the PHCU and PHCC. Iron folic acid should be provided during ANC. Anemia is difficult to monitor among pregnant women because although most women go for ANC at least once during pregnancy, attendance reduces over time. This makes it all the more important to provide iron folic acid on the first visit so pregnant women at least get a dose.

Iodine deficiency disorder, which has a negative impact on the intellectual capacity of the population, is at 11 percent in Sudan as a whole, and may be even higher in Southern Sudan, though rates are unknown. It would be possible to use goiters as a proxy indicator when attempting to determine rates. The GOSS should enact legislation for salt iodization for the whole of Sudan. At the same time, a mechanism for monitoring and enforcement must be developed. In the meantime, iodine should be provided through remaining emergency programs.

Zinc supplementation should be provided during diarrhea management both in pediatric wards and through community health initiatives.

There are many challenges to tackling micronutrient deficiency in Southern Sudan. To start with, no data are available, making it hard to understand the scope of the issues. Poverty, low purchasing power, and lack of food and/or seasonality of micronutrient rich foods and lack of preservation practices and technology make food-based solutions less feasible.

The people of Southern Sudan still have only limited access to health services. Poor logistics and disrupted supply chains cause the existing health infrastructure to be inadequately equipped. Poor infrastructure makes it harder to reach the already insufficient numbers of poorly equipped health facilities. Lack of income prevents people from paying for services. Inadequate funding and human resources capacity in the health sector are also constraints to implementing any health system-based solutions. Furthermore, the majority of health care staff are male while nutrition is still perceived as the domain of female health professionals, making a focus on nutrition-related health problems less likely.

Among the population, illiteracy remains extremely high so people do not understand which foods are healthy or why, or which behaviors lead to better micronutrient intake. Lack of awareness leads to lack of demand for services. Even among the literate, lack of awareness remains a problem because nutrition is not part of the school curriculum. At the same time, there is no GOSS communication or knowledge dissemination strategy.

Cultural issues also contribute to the problem. Men are the main decision makers in the Southern Sudanese household, but lack of male involvement in health issues such as EPI, child spacing, access to facilities delivery, etc., means mothers have little power to change the situation. Aggravating traditional practices include food proscriptions, while the average number of children per family is also a contributing factor.

Nevertheless, opportunities exist to improve the micronutrient situation. First of all, despite its inadequacies, there is an existing health system in place, the MOH already has plans to develop a minimum nutrition package, and the health management information system (HMIS) will soon

include micronutrient indicators. The health system also enjoys programmatic support from NGOs. Additionally, the agriculture sector is interested in promoting improved micronutrient consumption.

The group completed its discussion by making recommendations for the nutrition policy. For a micronutrient strategy to be effective, coordination must improve between all stakeholders at all levels. The policy must provide for formal coordination mechanisms. The policy should stipulate that the HMIS include micronutrient-related indicators. It should also include provisions for BCC to improve micronutrient intake.

The MOH should develop a communication strategy to raise awareness among communities and stakeholders about the importance of adequate micronutrient intake. The MOH should identify and empower community structures to deliver services aimed at preventing micronutrient deficiencies. Protocols should be developed for micronutrient interventions, including both prevention and treatment. Mechanism must be established to mobilize resources for these interventions. The MOH must also develop a comprehensive monitoring and evaluation strategy to ensure impact and accountability.

#### Plenary Session 7. Nutrition and HIV: What Are the Policy Implications? (Robert Mwadime, FANTA-2)

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Today, the developing world experiences a high prevalence of malnutrition and food insecurity, along with an increasing HIV prevalence. This added factor has important programmatic implications because malnutrition linked to HIV differs from malnutrition due to other underlying causes. Notably, most HIV is found in urban areas while most malnutrition is found in rural areas. Most HIV-positive people are adults while most malnutrition is in children.

Weight and growth are highly predictive of survival, even when on highly active antiretroviral therapy (HAART). Among people living with HIV (PLHIV), malnutrition leads to a lower likelihood of survival even when on antiretroviral therapy (ART). If a PLHIV's pre-ART BMI is less than 18.5, s/he has a 3–5 times greater risk of dying within six months of diagnosis. With a BMI of less than 18.5, a PLHIV is 2–3 times more likely to die in the first 90 days of starting HAART. In Uganda, infants with HIV and low WFA had a fivefold increase in risk of death by age 25 months. Studies from Zambia reported that clients with anemia are four times more likely to die within 90 days of starting HAART.

Malnutrition among PLHIV can spiral out of control. HIV-infected children have body composition abnormalities. PLHIV suffer a disproportionate decrease of lean body mass (muscle) while preserving body fat. This reduced lean body mass is actually detectable prior to decelerations in linear growth. Malnutrition and the shift in body mass among PLHIV results from several factors. Activity-related energy expenditure decreases while resting energy expenditure increases. This occurs against a backdrop of reduced appetite and food intake.

Through the course of infection, nutrition requirements actually increase at the same time weight decreases. The increase in energy expenditure results from the HIV infection itself (viral load), as well as opportunistic infections like tuberculosis. Reduced food intake accompanies the need for more energy because of a loss of appetite, mouth sores, depression and anxiety, food

insecurity, and illnesses like diarrhea. At the same time, HIV-specific effects lead to malabsorption of nutrients and growth hormone receptor insensitivity.

HIV-positive mothers are frequently very young, with fewer emotional and financial coping mechanisms. They tend to be food insecure, and are often depressed. Lactating HIV-positive mothers also have additional challenges. Even under normal circumstances, energy needs for lactating mothers are 500 more kcal per day and micronutrient needs are 25 percent higher, and this becomes higher still for HIV-positive mothers. HIV-infected women tend to lose more weight while breast feeding than uninfected women, but they still retain lean body mass.

International best practices for optimal IYCF for HIV-positive mothers stipulate that they should exclusively breastfeed their children for six months unless replacement feeds meet Acceptable Feasible Affordable Sustainable and Safe (AFASS) criteria. They should also continue to breast feed after six months unless other animal milks are AFASS. HIV-positive mothers should also receive nutrition care and support while they breastfeed.

Nutrition interventions that can assist PLHIV to remain healthy longer include a periodic nutrition assessment (especially for weight and anemia) and counseling and education. They should have an increased energy intake and manage diet related symptoms. To increase food intake, targeted therapeutic or supplementary feeding for clients with AM can be effective. Micronutrient supplementation at about one recommended dietary intake to vulnerable groups is also appropriate. At the same time PLHIV should be started on cotrimoxazole prophylaxis immediately after they are found to be losing more than 10 percent weight or with CD4 of less than 500. Additionally, care must be taken with regard to metabolic changes related to the drugs. Because of their heightened risk for opportunistic infections, PLHIV must also observe proper WASH practices, which can be partially achieved with simple water purification at point of use, where much drinking water contamination occurs. Routine monitoring of simple measures is valuable and can be done by patients (including in their support groups). Finally, these interventions can be linked to livelihood and food-security programs.

Southern Sudan faces many challenges in adopting a nutrition policy focused on PLHIV. Currently, the true prevalence of HIV is unknown, making it impossible to plan. The available estimates are about three percent, but this could be higher in the big towns and along the border points. Tremendous stigma is associated with PLHIV making it difficult to encourage testing and care seeking. Testing rates are also low and counseling mostly unavailable. At-risk populations for HIV are also at high risk of food insufficiency in terms of quantity, quality and diversity. Chronic malnutrition in the general population introduces complex issues of equity and distribution relative to targeting in the context of wide-spread poverty. A higher burden of infectious diseases also exists among PLHIV while quality health care remains extremely limited. Follow-up during postnatal care for prevention of mother-to-child transmission (PMTCT) is also virtually unavailable. If measures are put in place, it is not even clear who would perform the additional work, given the inadequate human resources within the health system.

Therefore, important policy implications include determining commitments the government can realistically make. PMTCT and infant feeding with regard to duration of breastfeeding come up

against pressures to accept donated milk. The government must enact standards to ensure milk safety, including a clear determination on who gets such donations, and also make provisions to educate mothers and their families on how to keep it safe at point of use. The MOH must define the nutrition services that will be available for HIV clients. For example, will clients have the right to routine assessment and counseling? The question of who would provide food supplements must also be answered.

### Breakout Session: HIV and Nutrition

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The HIV group laid out priorities for determining which steps the MOH/DN should take to address the nutrition status of PLHIV, and recommended key provisions the Southern Sudan NHP should contain. To start with, the GOSS should establish a HIV/AIDS commission to oversee a multisectoral, integrated program, which should include nutrition. To make sure the NHP appropriately addresses HIV and nutrition, the MOH/DN should seek the advice of international experts. The MOH/DN should determine whether there are NGOs in Southern Sudan already working in HIV and nutrition, and reach out to them for technical support. Because of the high risk of AM among PLHIV, and given the current transitional phase in Southern Sudan, HIV and nutrition should integrate with emergency nutrition, and implementing NGOs should be involved.

The MOH/DH needs to develop HIV and nutrition protocols, which, among other things, will ensure best practices for micronutrient supplementation and specify which cut offs to use to determine whether PLHIV should be eligible for supplementary feeding. The Southern Sudan NHP should also integrate micronutrients with HIV and nutrition, and provide for nutrition counseling for PLHIV. HIV and nutrition must be integrated into community health programs, and other programs that support returning refugees and IDPs. The policy should address the need for capacity building of health care providers to respond to the nutrition needs of PLHIV, and health care provider education curricula should include HIV and nutrition modules. The MOH must also ensure adequate supervision and necessary tools for HIV and nutrition within the health system. The MOH must mobilize resources for HIV and nutrition interventions and seek out partnerships with international entities working in HIV. HIV and nutrition is a cross cutting issue, and is directly related to food security. PLHIV are among the most vulnerable to food insecurity, so the agriculture sector must also be part of any policy regarding nutrition and PLHIV. PLHIV may also need financial support to remain food secure.

### Plenary Session 8. Wrap Up Plenary Session

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The Convention wrapped up with state-level group discussions and a plenary to summarize priorities and ways forward. The state representatives all congratulated the MOH/DN on holding a successful Convention and reaffirmed their commitment to working in partnership in the future. Common themes in the lively discussion were similar to the state-level presentations on Day One, however, participants were now much more aware of the importance of developing nutrition departments at the state and county levels. They also had a new appreciation for the significance of good nutrition with respect to other health outcomes. Some states had already taken steps to build up nutrition departments and infrastructure, while others affirmed their intention to do so in the near future. Without exception, the states all requested separate budget lines for nutrition. They did not agree that nutrition budgets should be integrated into the general health budget or into components of other health subsectors such as infectious disease or mother

child nutrition. They reiterated their need for MOH/DN assistance for staff recruitment, capacity building and training, and for equipping the nutrition departments. They emphasized again the challenges they continue to face including lack of resources and poor logistics and communications. The states also still do not have corresponding nutrition structures even when they have nutrition departments. The states expressed their desire to establish coordination mechanisms at all levels, reporting formats and internet-based communications.

Following the state presentations, Convention participants reviewed the draft Convention Declaration and formed a consensus on content and wording. The Declaration, which is annexed to this report, recaps what participants learned and summarizes commitments made during the Convention. In the Declaration, convention participants made a series of broad recommendations with corresponding action items:

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

# ANNEX 1: Nutrition Convention Agenda

## Southern Sudan Nutrition Convention

6–9 April 2009

Venue: Juba Bridge Hotel

Monday 6 April

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- 8:30 – 9:00 Introductions and Expectations, opening of the convention & Convention objectives
- 9:00-9:20 **Plenary presentations:**
- Mainstreaming Nutrition
    - GOSS: MOH, Directorate of Nutrition, State Nutrition Department structures, policies and main priorities and goals in mainstreaming nutrition
    - Nut policy, overall framework, use and need, process of the developments
    - Next steps: Implementation plan; strengthened coordination; task forces and technical working groups
- 9:20–9:40 Opening Remarks by the MoH Undersecretary and welcoming H.E the Minister of Health
- 9:40–10:00 Official Opening of the Convention by H.E. Mary Kiden the Acting Minister of Health
- 10:00-10:30 Break
- 10:30-11:20 **Plenary presentation:** NGO presentation and panel discussion on programs, challenges and recommendations
- 11:20-11:30 MSF program presentation
- 11:30-12:00 General discussion
- 12:00-13:00 Lunch
- 13:00-15:30 **Plenary presentation:** State-level presentations
- 15:30-16:00 Break
- 16:00-17:00 Resume state-level presentations
- 17:00-17:30 Questions and Discussion

- 8:30-9:30     **Plenary presentations:**
- I. Nutrition Information System
- WHO 2006 Child Growth Standards
- Nutrition Information Systems – how they function
- II. Infant and Young Child Feeding
- 9:30-10:30    **Breakout Session I:** Nutrition Surveillance & nutrition management information system.
- Relevance to disease surveillance, early detection, growth monitoring, and targeting food aid. Linkages to HIS, EW systems etc.
- SIFSIA
- Nutrition Surveillance
- Breakout Session II:** Infant and Young Child Feeding, Protecting breastfeeding in southern Sudan: BFHI, Integrating the Essential Nutrition Actions and the Southern Sudanese & Nutrition Counseling Context
- The Intergenerational Cycle of Malnutrition
- 10:30-11:00   Break
- 11:00-12:00   **Plenary Discussions**
- Groups report back
- Questions and discussion
- 12:00-13:00   Lunch
- 13:00-14:00   **Plenary presentations:**
- I. Management of acute malnutrition
- Introduction to acute malnutrition
- Individual level management of acute malnutrition: Inpatient care and outpatient care for the management of severe acute malnutrition, management of MAM, Community outreach
- Population level management of acute malnutrition
- II. Food Security and its link to nutrition
- 14:00-16:00   **Breakout Session I:** Management of acute malnutrition in Southern Sudan
- Breakout Session II:** Food security and its impact on nutrition Southern Sudan
- 16:00-16:30   Break

- 16:30-17:30 **Plenary Discussions**
- Groups report back
  - Questions and discussion

### Wednesday 8 April

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8:30-9:30 **Plenary Presentations:**

I. Micronutrients

II. Nutrition and HIV

9:30-10:30 **Breakout Session I:** Micronutrient deficiency in Southern Sudan: preventing and control of critical micronutrient deficiencies

**Breakout Session II:** Nutrition and HIV - Integrating food and nutrition into HIV services

10:30-11:00 Break

11:00-12:00 **Plenary Discussions**

- Groups report back
- Questions and discussion

12:00-13:00 Lunch

13:00-15:30 **Group Discussions and Plenary Presentations:**  
State group discussions and plenary presentations on state priorities

15:30-16:30 Wrap-up & declaration of the convention

### Thursday 9 April

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Venue: Home and Away

15:30 – 18:30 Closing ceremony

## ANNEX 2: Nutrition Health Convention Declaration

**Government of Southern Sudan, Ministry of Health  
Nutrition Convention: Towards a Nutrition Health Policy for Southern Sudan,  
6 - 9 April, 2009, Juba**

**Participant Statement**

Malnutrition continues to affect many people in Southern Sudan. The levels of malnutrition have remained high even after the CPA of 2005. Southern Sudan has global rates of acute malnutrition as high as 22 percent, well beyond the 15 percent threshold for nutrition emergencies. Data on micronutrient deficiencies are not as widely available, but we can be certain that rates are high. Rates of underweight and stunting are at 48 percent and 45 percent, respectively. It is estimated that currently no more than 20 percent of children under 5 in Southern Sudan are reached and receive nutrition support.

Malnutrition has a serious impact on the lives of individuals and their families. It attacks the very young at their most vulnerable age, while their minds and bodies are still developing. This causes irreversible damage that could have been prevented. Many infants and young children suffer frequent illness and die at an early age as a result of malnutrition, which is a contributing factor to over one third of all young child deaths in low-income countries.

Rates of malnutrition as high as those found in Southern Sudan yield a heavy toll on the well-being of the entire population. This inhibits the ability of the country to move forward in its recovery from conflict and build a better future. The malnourished children of today will represent nearly half of the adults of tomorrow if they survive; in other words half the productive capacity of the nation will be left impaired. This has significant implications for the economic development and the security of the nation.

Participants from the Government of Southern Sudan (GOSS) Ministry of Health (MOH) and Ministry of Agriculture (MOA), the state ministries of health, nongovernmental organizations (NGOs), United Nation agencies, academia and donors met during April 6–9, 2009 in Juba, to build a renewed, empowered and proactive consensus on why nutrition matters, create a platform of senior level nutrition advocacy, and draft recommendations to be enacted through a nutrition policy.

The Nutrition Convention participants recognize that:

1. To improve maternal and child survival and alleviate poverty in Southern Sudan, far reaching steps must be taken to reverse current trends in malnutrition and food insecurity.
2. Adequate food and poverty reduction alone cannot eliminate malnutrition. Immediate essential nutrition actions need to be taken to sustainably maintain good nutrition and health and to correct malnutrition. Such actions include the promotion of adequate infant

and young child feeding (IYCF) and maternal nutrition, prevention and control of acute malnutrition and micronutrient deficiencies, to achieve optimal quality of life.

3. Adequate nutrition is required to optimize the benefits of health care including prevention and treatment of communicable and chronic diseases. Nutrition support is also necessary to strengthen HIV/AIDS care, in support of antiretroviral therapy, treatment and control of opportunistic infections, and of the prevention of HIV transmission from mother-to-child.
4. Southern Sudan is still emerging from a protracted emergency. The majority of the limited scale nutrition interventions are still emergency models operated by international NGOs. As the country undergoes its transition from relief to development, a transitional strategy at scale is necessary in the nutrition sector.
5. Although nutrition is a cross cutting theme involving all sectors, the GOSS MOH, in partnership with the state ministries of health, have the obligation to take lead in coordination and fostering collaboration and partnership efforts in nutrition.
6. Key nutrition policy, strategies, legislation, guidelines, human capacities and resources are needed to ensure that high standards and best practices are applied to mainstream nutrition.
7. The GOSS MOH is committed to addressing nutrition and has shown its commitment by establishment of the Directorate of Nutrition (DN) in the MOH and by including nutrition actions in the basic package of health services. Development partners, NGOs and UN agencies are also committed to allocating resources, time and technical support for strengthening nutrition in Southern Sudan.
8. While the GOSS MOH DN stands ready to provide stewardship and technical support in nutrition, it is the states that must take direct action by establishing nutrition officers within their ministries of health, and linking with the multiple actors addressing nutrition and related issues.
9. Participants of the nutrition convention unanimously call for a commitment from the GOSS and partners to mainstream nutrition with a comprehensive and multi-sectoral approach and with involvement of stakeholders.

This convention reviewed global evidence, best practices, and programmatic experiences in the promotion of nutrition and the prevention and control of malnutrition, and the international recommendations. The convention participants came to the following **recommendations** for mainstreaming nutrition in Southern Sudan:

## **Strengthen the political commitment and improve the positioning of nutrition at the GOSS, State and County levels**

1. Call on the President's Office, the Cabinet and the Parliament to strengthen the political commitment and improve the positioning of nutrition in Southern Sudan.
2. Strengthen the stewardship role of the GOSS MOH DN and state ministries of health in nutrition. Work on developing nutrition departments in the States and establishing nutrition officers in the Counties.
3. Accelerate the development, dissemination and application of the nutrition health policy and implementation of the strategic plans by GOSS in participation with key partners and stakeholders.
4. Prioritize nutrition when allocating budget and resources at the GOSS, state and county levels for program implementation and capacity development.
5. Clarify and improve multi-sectoral collaboration and coordination between nutrition and agriculture, health, social services, education, and water and sanitation. For instance, the use of "food security coordination meetings" should be strengthened at county levels as forums for the coordination and co-planning of nutrition activities at state levels.

## **Strengthen, Develop and Protect Human Capacity and Skills**

6. Develop a nutrition cadre for the entire echelon from decision makers and managers, to implementers and community-level nutrition educators.
7. Incorporate nutrition into the curriculum of health professionals, including in pre-service and in-service training of physicians, various levels of health care providers, and community health care workers.
8. Integrate nutrition into the curriculum of multi-sectoral extension workers e.g., agricultural extension workers, to deliver nutrition services at the community levels.
9. Strengthen the capacity of relevant institutions and civil societies to use nutrition assessment and monitoring and tools for improving effectiveness of nutrition programs.
10. Identify and utilize local expertise to improve the emergency response capacity.

## **Establish a Nutrition Information System**

11. Establish a nutrition surveillance system that is appropriate for scale-up, and that generates trends of the nutrition situation that will inform planning and response, using

the WHO child growth standards. Anthropometric surveys should use the SMART methodology, and cover priority areas where more accurate information is needed for timely action. A national micronutrient survey should be carried out.

12. Include key nutrition indicators in the health management information system (HMIS) that is currently being piloted (e.g., children 6–59 months with acute malnutrition, pregnant women with severe anemia for children, vitamin A deficiency).
13. Commit UN agencies and NGOs to supporting and collaborating with the MOH for strengthening capacities -through e.g., seconding staff- to carry out nutrition surveillance activities.
14. Establish a nutrition monitoring and evaluation system with standardized monitoring and reporting tools in all nutrition intervention programs to measure effectiveness.

### **Promote and Support Adequate Infant and Young Child Feeding (IYCF)**

15. Accelerate the development of guidelines and protocols for the integration of infant and young child feeding into the basic health care package targeting health care providers at the facility and community levels.
16. Develop behavior change communication (BCC) strategies to strengthen IYCF. Supportive information, education and communication will need to be developed appropriately for Southern Sudan. The results from the ongoing knowledge, attitudes and practices, and coverage surveys will inform the key messages for health and nutrition education and BCC.

### **Strengthen the Management of Acute Malnutrition**

17. Finalize and endorse national guidelines for implementing the approach of community-based management of severe acute malnutrition (SAM) (including community outreach, inpatient care and outpatient care) promoting best practices reflecting relevant experiences from Southern Sudan. The guidelines will promote standardized treatment and harmonized monitoring and reporting. A next version of the guidelines will include management of Moderate Acute Malnutrition (MAM).
18. Develop strategies for strengthening capacities, integrating and scaling-up the community-based management of SAM and MAM in Southern Sudan at the GOSS MOH, state MOHs, health facilities, and communities, including health services strengthening and human resources development strategies. Look at the Malakal experience to draw lessons learnt.

19. Include management of SAM and MAM into the basic health care package to strengthen early detection and treatment of acute malnutrition. Include screening and referral for acute malnutrition at population-level initiatives, such as National Immunization Days and the Accelerated Child Survival Initiative.
20. Develop strategies for appropriate and/or seasonal population-level interventions for the prevention of acute malnutrition.

### **Promote Adequate Micronutrient Intake and Strengthen the Management of Micronutrient Deficiencies**

21. Develop a strategy to prevent and control micronutrient deficiencies, including legislation, fortification, supplementation and treatment of micronutrient deficiencies (MND)
22. Develop the necessary legislation for fortified foods, including for imported foods with enforcement at the border points.
23. Promote micronutrient intake through the consumption of diversified diets, fortified foods, and micronutrient supplementation. WHO recommendations on vitamin A, zinc, iron (in combination with malaria testing and treatment), folate and multiple micronutrient supplements should be used.

### **Strengthen the Food Security at the Household Level**

24. Advocate for strengthening capacities to improve food security including efforts for better agriculture technology through capacity building and better allocation of resources.
25. Advocate for increasing local production of nutrient dense foods.
26. Promote food diversification and quality diets, and strengthen household knowledge and skills on food production and utilization.
27. Advocate for implementation of land policy reform to promote household food security.
28. Advocate and develop legislation and standards of quality control and safety of locally produced and imported foods, including legislation for enforcing the international code of marketing of breast milk substitutes.