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**Child Feeding Practices among the Nuer, Dinka and Latuko of Southern Sudan**

UNICEF/OLS

September 1997

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# **CHILD FEEDING PRACTICES AMONG THE NUER, DINKA AND LATUKO OF SOUTHERN SUDAN**

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**A Study for UNICEF-Operation Lifeline Sudan (OLS)**



**UNICEF**

**Operation Lifeline Sudan (OLS)**

**Southern Sector**

**Nutrition Section**

*September 1997*

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**Child Feeding in Southern Sudan**

## ACKNOWLEDGEMENT

We are grateful to UNICEF-OLS for entrusting this study on child-feeding in Southern Sudan to us. Our special thanks go to the organizations that took care of us by providing; accommodation, food, transport and conducive social environment for data gathering. We would like to mention the following organizations by name due to the special role they played : RADDA BARNEN (Swedish Save the Children Fund) and Health-Net International in Leer, Action Contre la Faim in Nimule, Norwegian Church Aid in Ikotos and World Vision International in Nabagok. We are also grateful for the timely assistance we got from the UNICEF-OLS staff based in Lokichokio.

We acknowledge that we could not have collected data without the blessings and guidance of Relief Associations of Southern Sudan (RASS) and Sudan Relief and Rehabilitation Association (SRRA). To the two groups we say "*SHUKRAN*".

Within all these organizations there are individuals who actually made it happen. Special thanks are due to them as well as other community members who accompanied us to the communities and acted as interpreters and guides as we moved from place to place. These included: Violet Gikonyo of UNICEF-OLS/EPI, Helen Achiro of WOMANAID, Zalalemu Tedessa, Yei Dak, Daudi of SRRA, Leer, Gideon Gaddor, Delphine Lambert, Eunice M.K. Mutua, Jina Iyafok, Rose, Grace Ouso and George Were. We also thank all the drivers and the pilots who made it possible for us to move safely from one area to the other as we searched for respondents.

Finally, we are indebted to the communities especially the mothers in the different study-sites (Leer, Nimule, Ikotos and Nabagok) for accepting us and for participating as respondents.

## ACRONYMS

<i>ACF</i>	<i>Action Contre la Faim</i>
<i>ACROSS</i>	<i>Association of Christian Resource Organizations Serving Sudan</i>
<i>CBHC</i>	<i>Community Based Health Care</i>
<i>CHW</i>	<i>Community Health Worker</i>
<i>CRS</i>	<i>Catholic Relief Services</i>
<i>DOT</i>	<i>Diocese of Torit</i>
<i>EPI</i>	<i>Expanded Programme of Immunization</i>
<i>FGD</i>	<i>Focus Group Discussion</i>
<i>GoS</i>	<i>Government of Sudan</i>
<i>HNI</i>	<i>Health Net International</i>
<i>MoH</i>	<i>Ministry of Health, Kenya</i>
<i>MSF-H</i>	<i>Medicines Sans Frontieres-Holland</i>
<i>NCA</i>	<i>Norwegian Church Aid</i>
<i>OLS</i>	<i>Operation Lifeline Sudan</i>
<i>ORS</i>	<i>Oral Rehydration Solution</i>
<i>RADDA BARNEN</i>	<i>Swedish Save the Children Fund</i>
<i>RASS</i>	<i>Relief Association of Southern Sudan</i>
<i>PHCU</i>	<i>Primary Health Care Unit</i>
<i>RRC</i>	<i>Relief and Rehabilitation</i>
<i>SCN</i>	<i>Sub-Committee on Nutrition</i>
<i>SFC</i>	<i>Supplementary Feeding Centre</i>
<i>SPLA</i>	<i>Sudan Peoples Liberation Association</i>
<i>SPLM/A</i>	<i>Sudan Peoples Liberation Movement/Army</i>
<i>SRRA</i>	<i>Sudan Relief and Rehabilitation Association</i>
<i>SSIA</i>	<i>South Sudan Independence Army</i>
<i>SSIM/A</i>	<i>South Sudan Independence Movement/Army</i>
<i>SSS</i>	<i>Sugar salt solution</i>
<i>TBAs</i>	<i>Traditional Birth Attendants</i>
<i>TOR</i>	<i>Terms of Reference</i>
<i>VSF-B</i>	<i>Veterinaires Sans Frontieres-Belgium</i>

## **EXECUTIVE SUMMARY**

This is a report on a qualitative study undertaken in Southern Sudan to explore practices and reasons for child feeding among the Nuer, Latuko and Dinka. The three study groups were purposively selected as required under the terms of reference. The study also explored the willingness by the mothers to change and adopt alternative methods and knowledge in infant and child feeding. The study was commissioned by UNICEF/OLS and undertaken by a team of three consultants. The data and field visits, which involved visits to Leer, Nimule, Ikotos and Nabagok, were conducted in August 1997. Principally, qualitative data collection methods were used which included; focus group discussion (FGD), in-depth interviews with key informants and as base for case studies, observations. Home visits were done to make direct observations and determine quantities and amounts of foods given to children. For the latter partial 24 hour recall food intake method was also used. In total 15 FGD were conducted; 13 with mothers, one with community leaders and the other with community health worker trainees (CHWs) in Leer only. Eighteen case studies and 10 key informant interviews were done while anecdotal data from various individuals was found useful in appreciation of the findings and thus their interpretation.

The report is in four parts. The first part gives the introduction to the study including, the terms of reference, the study setting, rationale and methodology;. The second part records the findings in which seven (7) case studies, two on the Nuer and the Dinka and three on the Latuko, are presented to give readers a more perceptive picture of the situation. Detailed information on each study group including misconceptions and conclusions is presented. The third part compares the three study groups, discusses and interprets the information and lays down a base from which nutritional messages could be developed. The fourth and final part presents recommendations and conclusions.

Child feeding though a shared responsibility is primarily done by mothers who are also responsible for food processing, preparation, cooking and feeding it to children. The fathers' role is to provide a base for food acquisition thus is responsible for food security. They also mind and feed children when the mothers go out. The Dinka fathers play a bigger role in that at the cessation of breastfeeding they take children to cattle camps and assume the role of caretakers but with assistance from other family members. In child care other family members assist.

Breastfeeding is initiated in the first day but in most cases not within the half hour after birth as recommended for good bonding between child and mother. Most babies are put on prelacteal feeds as mothers wait for their milk to "come-in", so for the first three or so days babies are given neat or diluted cowmilk, oral rehydration solutions or water. Many mothers continue with prelacteal feeds even after breastmilk flow is established. Breastfeeding is universally done on demand and introduction of supplements occurs between 0-6 months and



is done because mothers feel they are not producing adequate milk. The mothers are fully responsible for deciding when to introduce supplementary feeds and the type of foods to give. Cowmilk and sorghum porridge constitute the principal supplements which are given at a range of 2-6 times a day. The Nuer feed their children less frequently compared to the Latuko and the Dinka.

Breastfeeding ceases for the majority between 18-24 months but for some it ceases soon after the age of one year usually as a result of the mother becoming pregnant. From the age of 2-3 years the children are more less dependent on family diet. The fathers are major determinant of when breastfeeding ceases. Among the Latuko and the Nuer children are more likely to be sent to their maternal grandmothers as way of concluding end of weaning but for the Dinka the tendency is to send them to cattle camps. Due to disintegration of families because of war, some families are unable to put these traditions into practice. There is no gender bias in child feeding. Sorghum and cowmilk constitute the staple foods for the different study groups but due to war and drought accessibility to cowmilk is somewhat limited.

The main nutritional deficiency conditions include; protein energy malnutrition that manifests itself as marasmic-kwashiorkor; goitre, anaemia, conjunctivitis of the eyes and bitot spot (common among the Nuer) probably as a result of vitamin A deficiency. Considering that the people in the camps of displaced people were receiving relief food, among the three groups the Nuer appeared to be the most food insecure. Diarrhoea is the commonest childhood disease. Some types of diarrhoea as judged by colour are not considered as illnesses. Although TB remains a common disease inspite of the efforts made by OLS/ EPI to cover all children under five years. The efforts have been hampered by harsh climatic conditions, insecurity, inaccessibility and inadequate trained personnel.

There are dietary adjustments that are put in place when a child is sick but mostly they involve making foods softer. Nevertheless, a few dishes that are considered unsuitable are withdrawn, but they would not have a significant impact. Breastfeeding, continues during illness.

Displacement and other effects of the war have resulted in minor modifications to child feeding practices but the traditional staples still constitute the main foods. Bottle feeding has been adopted and if not checked, by discouraging its use, it could become a major hazard to health. There are no good nutrition information sources and hence the need to set up nutritional advisory and counselling services. It appears that changes can be adopted if the communities understand the rationale under which they are advocated but as is always the case, when changes involve practices which operate under traditional and customary guidelines they would take time to be adopted.

#### Child Feeding in Southern Sudan

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## **Recommendations**

- Address the issue of nourishing new-borns in the first week with the aim of liberating mothers from the misconception that pre-lacteal feeds are necessary during that period. This should encompass the types of pre-lacteals being used with the aim of discouraging use (as pre-lacteals) of fluids that are meant to be used in oral rehydration therapy.
- Breastfeeding in the current practice is universal. This practice should be protected while attempts should be made to encourage mothers to extend the period of full exclusive breastfeeding to a period of at least four months. This implies the need to address mothers' self confidence in their capacity to produce breastmilk.
- Assuming that the three study groups are a reflection of communities in Southern Sudan there is need to encourage and empower households to optimise nutritional benefits from the existing food base. With the observed indications of both macronutrient and micronutrient deficiencies noted in the process of this survey they should be guided towards maximising consumption of foods that are rich in micronutrients (specifically vitamin A and iodine) while prevalence studies on these deficiencies (to include iron) should be considered. Empowering in this context implies the need to show them how to prepare some of the foods and at the second level the need to convince them that certain foods that are not given to children are not harmful to children.
- Advocacy for increased consumption of indigenous vegetables and fruits that are rich in micro-nutrients is recommended.
- of awareness in communities in general on causes and management of such diseases.
- TB is a common disease and communities should be convinced to adopt some simple household technologies, such as boiling milk, as preventive measures. While immunization coverage of children against common childhood diseases should be widened there is need to consider immunization of the general population against TB.
- The message base provided in this study should be used in the development of nutrition messages for various population segments that are involved in child feeding. The segments include: mothers, fathers, grandmothers, siblings of both the mother and the father. Message development should be done with the full participation of these segments and having in mind the medium of communication to be used in passing the messages. Awareness creation focusing of the household members and the social networks involved in child care rather than the mother only is recommended.
- The misconceptions highlighted in this report should be considered as points of resistance in propagating behaviour change or adoption of new ideas and should be central in the



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development of messages. It is crucial that the target groups are involved in developing messages that address such matters.

- Set up campaigns and advocate for improved environmental sanitation and personal hygiene.

# 1. INTRODUCTION

## 1.1 BACKGROUND

This is a report on a qualitative study commissioned by UNICEF-Operation Lifeline Sudan (OLS) and undertaken in Southern Sudan to explore reasons and practices that determine child feeding. The study also explored mothers' willingness to change and adopt alternative methods and knowledge on infant and child feeding practices.

Of the 4.25 million people targeted by the UN in inter-agency in Southern Sudan an estimated 3.6 million are living in Bahr el-Ghazel, Equatoria and Upper Nile provinces. The infant mortality rate of under five which stands between 128 and 292 in different regions is among the highest in the world. It has been argued that child survival could be enhanced if breastfeeding and weaning practices are well understood to design clear and specific interventions to promote and protect the lives of children and reduce malnutrition.

The civil war in Southern Sudan has been on-going for the last 14 years (since 1983) and little has been documented about child feeding, in general and during this period in particular. Thus there are significant gaps in information and understanding about poor nutrition and its underlying causes in this region. A 1996 study conducted in parts of Southern Sudan (UNICEF, 1997) showed global malnutrition prevalence that ranged between 10.1% and 20.9% and in the extreme, some regions ie., Atar in Upper Nile had a prevalence of 29%. The 1996 UNICEF-OLS review (Karim et al, 1996) recognised gaps in information pertinent to poor nutrition and recommended exploration of its underlying causes.

The child feeding study was thus proposed with the underlying assumption that causes of poor nutrition are multifactorial; ranging from health status, insufficient food intake, mothers' workload, the weaning process to socio-economic / political reasons. Everyday practices, beliefs and perceptions were highlighted as having an important role in the scenario of poor nutrition. Such include child feeding practices (UNICEF, 1997) and hence the focus of this study.

The goal of the study was to identify the socio-cultural determinants of infant feeding practices in Southern Sudan with the aim of strengthening intervention programmes and, specifically, the designing of communication and training activities.

The study was based on the terms of reference (TOR) (listed below) as stated by UNICEF-OLS.

The objective of the study, thus, was to carry out a qualitative assessment to explore practices and reasons for child feeding among the Nuer, the Latuko and the Dinka of Southern Sudan. The study also explored the willingness by the mothers to change and adopt alternative methods and knowledge in infant and child feeding and advances a message base to serve as a spring board from which nutrition messages can be developed.

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### **Terms of reference ( TOR)**

- The early onset of weaning: Does this vary by location or ethnic group? When are foods introduced? Why is the food introduced early? Types of foods introduced?
- Are there differences in how male and female children are weaned? Why? How differently are children weaned and what are the reasons behind the differences.
- The importance of mother's **self confidence** in child weaning? Who determines when a child should be weaned? The mother, care giver or the child? Does the mother introduce the foods when she feels it is right or because the child agrees to take them? What happens when a child refuses a particular food.
- What is the role of fathers in determining the onset of weaning process.
- Examine the quantities of food introduced to children of different ages.
- How much food is given to a sick child? Do mothers continue to breastfeed if their infants are unwell or do they discontinue altogether?
- How is food prepared? Who does the preparation of the food? What is their workload like? Is the food prepared under hygienic conditions.
- What are the perceived functions of food (ie., growth, illness and strength etc).
- Has weaning changed with time? How was it before? How many times do children eat in a day. Seasonal variations in weaning.
- Probe for underlying causes explaining each of the factors.
- Explore mothers' willingness to change.
- Make recommendations which will be used in communicating messages to mothers, based on promising practical improvements and possible areas to stimulate change.

#### **1.1.2 Rationale for the Study**

Global infant feeding recommendations promote exclusive breastfeeding for the first four to six months of an infant's life (Jelliffe and Jelliffe, 1978; Underwood and Hofvander, 1982; WHO/UNICEF, 1990). Rarely do mothers adhere to this recommendation for soon after birth they are faced with the challenge of sustaining nutrient need of babies in a context in which breastmilk does not 'come in' until the third or fourth day after day delivery.

During this time, many mothers feed children on substitutes 'prelacteals' while awaiting establishment of breastmilk flow. Studies indicate that few mothers exclusively breastfeed for the recommended period. For example, a study carried out in Kenya (Mukuria et al., 1996)

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showed that by the time the study children were two weeks and one month old, respectively, only 46% and 25% were exclusively breastfed. Various reasons were cited by mothers as justification for early introduction of breastmilk supplements. The main reasons were that breastmilk was not enough, the baby was crying, had stomachache etc.

Prelacteal feeds are feeds of any sort, including water, that are given to an infant during the first few days after delivery, in the days before full lactation is established. Prelacteal feeds are considered unnecessary and harmful to the establishment of lactation. They can cause the baby to be less hungry and, therefore, lesser eager to suck at the breast. The sooner and more frequently the baby sucks at the breast the sooner lactation is established. If the baby does not suck sufficiently, it misses out on valuable colostrum which is an ideal food for a newborn and has protective immunological factors (King, 1992; MoH and UNICEF, 1990).

Putting the child to the breast in the first half an hour after birth is considered beneficial as it enhances psychological bonding between mother and child. In addition, suckling stimulates let-down reflexes and release of oxytocin (a hormone that is responsible for contraction of the uterus and hence the expulsion of the placenta).

Supplementing breastmilk leads to a reduction in suckling; consequentially, less stimulation of the prolactin and let down reflexes and reduction of milk supply. The overall effect of this chain of events is necessitation of substitute milks or fluids.

The first few days after delivery are critical in establishing breastfeeding. If stimulation of the breast, by sucking, is delayed flow of breastmilk is also delayed. This is even more important for primigravida. The normal changes and the emotions from labour coupled with the stress of taking care of the newborn requires that mothers be socially supported and be provided with information on breastfeeding. In traditional societies, most women were guided through this period by other women within their communities, traditional birth attendants (TBAs) and other relatives.

Wet nursing (a situation in which babies whose mothers die are breastfed by relatives who are already lactating or are willing to establish breastfeeding) is a common practice in some African Communities.

Breastfeeding is a key child survival intervention. It is known for its important and unique nutrients that contribute to the growth and development of infants. Breastmilk reduces the incidence and severity of infectious diseases and hence reduces infant morbidity and mortality. Breastfeeding is also beneficial to mother's health as it is known to reduce the incidence and risk of breasts and ovarian cancer not to emphasise that it also serves as a family planning method. Breastfeeding enhances the bonding between mothers and their children. It saves the family, communities and the nations at large a lot of money which would otherwise be spent on breastmilk substitutes. It is also environmental friendly and deserves support promotion and protection.

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In this study weaning was considered to be a process that starts with introduction of fluid or foods into child's diet that initially consists of breastmilk only to the time breastfeeding ceases. Mothers are encouraged to exclusively breastfeed their babies for at least four months.

Exclusive breastfeeding can be viewed at two levels of intensity; first level refers to "full exclusive" breastfeeding, the situation in which a child relies on breastmilk only and the second level "almost exclusive" breastfeeding refers to the situation where a child is principally reliant on breastmilk but receives other fluids such as water, sugar water solution or medicinal fluids such as salt sugar solution (SSS) or herbal concoctions.

From the age of four to six months breastmilk alone is no longer adequate to meet nutrient requirement of an infant. It is at this age that supplementary foods should be introduced. Such foods should be of high biological value to provide protein with the correct amino-acid constituent as required by young children. The energy foods should also include foods of high energy density to provide sufficient calories without cumbersome bulkiness considering that children have small stomachs and would not be able to take large amounts of foods of little energy value.

### **1.1.3 Purpose And Justification for the Study**

#### **1.1.3.1 Purpose**

UNICEF-OLS plays a leading role in the scenario under which child nutrition in Southern Sudan is addressed . However, it is seriously handicapped in its effort to play this role effectively due to inadequate information. UNICEF-OLS recognises that there are significant information gaps that need to be filled to be able to convince and consequently be able to garner adequate support for diversified child nutrition activities as is required for effective intervention. As a result of such gaps, the strategies that are currently being applied neglect the role of cultural factors in child nutrition. Thus UNICEF-OLS in requesting this study on child feeding practices has made a critical move towards the right direction and should regard this study a first step in the Triple A-Cycle.

In accordance to the global awareness that support for nutrition is diminishing , and that there has been stagnation of nutrition improvement and that socio-political and cultural situations in some of the affected regions have been a major factor. In this context other UN bodies like SCN ( Sub-Committee on Nutrition) are deeply concerned that most internally displaced and inaccessible populations remain at high nutrition risks. *As such, UN bodies have been challenged to play a critical role in drawing attention to the problem of malnutrition and fostering policy shifts that support effective programmes.*

The recognition and admission that malnutrition is not simply the result of inadequate food availability or inadequate access to health services and a clean environment makes the scenario more complex under which child nutrition issues must be addressed. *The quality of care and feeding offered to children are thus seen as significant contributing factors to malnutrition (SCN, 1997).*

### 1.1.3.2 Justification

Despite several studies conducted by various NGOs and other sectors in Southern Sudan there is still a big information gap on weaning and child feeding practices. To enable UNICEF-OLS as the lead agency in guiding and supporting NGOs operation in designing appropriate nutrition interventions, there is need to have sound knowledge on weaning and child practices which would prompt immediate action, once the communities knowledge, attitude, practice and perceptions are understood. This poses a challenge to UNICEF- OLS as the previous studies focus tended to be on the general population and the under five.

Most of the interventions by other organizations are often in form of studies to explore the actual feeding practices to give a deeper understanding of why children are fed on what they are fed and the confidence of the care givers has been lacking.

The survey conducted by UNICEF-OLS (1996) revealed a high prevalence of poor nutritional status, while it is appreciated that displacement and insecurity are contributory factors to the poor nutritional status no anthropological studies have been undertaken to reveal other underlying causes of poor nutritional status among children in Southern Sudan. Malnutrition has multi-factorial causality ranging from food intake and supply, women work-load and more important on the actual practices and care which are socio-cultural in nature. The study was therefore unique in that it explored qualitatively reasons, beliefs, perceptions and practices related to child weaning and feeding practices.

The study focused on two larger ethnic groups namely the *Dinka* and *Nuer* and one smaller group the *Latuko*.

## 1.2 STUDY SETTING

### 1.2.1 UNICEF-OLS

Since 1955, the year before Sudan was granted independence, political debate in the country has centred on whether the Southern Sudan deserves special political status. The idea evolved from the combined effects of natural, physical, historical and cultural differences between the South, which is dominated by Africans (Christians and animists) and the muslim Arabized North. Lack of involvement of the South in decision making by the ruling North led to demand for a federal relationship of the South with the rest of the country. The North has consistently ignored the 'Southerners' demand for federalism and this has sustained continued constitutional crisis and civil wars.

These wars have led to general erosion of social and economic infrastructure in addition to destroying kinship ties. On the general population, the result has been manifested in the persistent hunger and chronic health problems among the people. In Southern Sudan the situation is worsened by the adverse weather conditions such as, flooding, drought and

constant population movements due to insecurity and general war situations. It is within this political and social framework that OLS was founded.

The OLS was established in April 1989 as a humanitarian programme that sought to assist internally displaced and war-affected civilians during ongoing conflict within sovereign country as opposed to refugee programmes which cater for people beyond its borders. According to Karim et al (1996), it is a political and organisational arrangement which allows humanitarian assistance to reach war-affected populations in an ongoing conflict. OLS came to existence as a result of the impotence of the international community in the face of the 1988 war-induced famine in Bahr el-Ghazal.

Activities of OLS take place within two operational and contractual environments; the Northern and the Southern sectors. The former is a sector of government areas whose activities are organised from Khartoum within a managerial regime defined by the Government of Sudan (GoS) while the latter pertains to most non-governmental (NGO) areas and is managed from Nairobi, Kenya. The logistical base for the Southern Sector is situated in Lokichokio in northern Kenya (Karim, et al, 1996).

UNICEF is the lead agency and is responsible for co-ordinating UN and NGO activities. Annex 1 lists the NGOs operating in the study sites as well as their activities. These are the NGOs that could be involved in the implementation of interventions that evolve from this study.

## **1.2.2 The Southern Sudan**

### **Position and climate**

The Democratic Republic of Sudan, which covers approximately 8.3% of the entire area of the continent of Africa, is the largest country. As shown in Map 1, it is bordered by Kenya (South East), Uganda (South), The Republic of Congo (the former Zaire) and Central African Republic (South West), Chad and Libya (West), Egypt (North) and Ethiopia (East). It extends from latitude 3<sup>0</sup>N to latitude 23<sup>0</sup> North and from longitude 21<sup>0</sup> East to longitude 38<sup>0</sup> East. It stretches 1070 miles (1722 km) from west to east and 1245 miles (2003 km) from north to south and covers an area of 967,500 sq. miles.

Southern Sudan is that part of the country which lies south of latitude 10<sup>0</sup> north to 3<sup>0</sup>N extending as far South as Kajo-Kaji and Nimule on the border with Uganda. It covers about 250,000 sq. miles, which is just over a quarter of the total area of the Republic. It consist of three provinces, namely; Upper Nile, Bahrl-el Ghazal and Equatoria. The boundaries with neighbouring countries were arbitrarily drawn by the imperial powers that colonised the Sudan and her neighbours and, thus, tribes in the Southern Sudan spill over the border into the neighbouring countries.

The climate of the Sudan is tropical continental in nature. Whereas the country merges into desert in the north, it runs into an equatorial belt (rainy climate) in the South. The climatic regime in the Southern Sudan lies between the tropical and the equatorial. Southern Sudan



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experiences prolonged rainfall period that lasts five to eight months (that is between April and December). Thus January to March consists the dry season lasting for about three months. The expected rains at this time are often less than 1.2 inches. Nevertheless, allowing for local variation, the annual rainfall in the Southern Sudan on average exceeds 40 inches . The season between January and March, which is characterised by high humidity, is also the hottest period in the year; with mean daily temperatures of 84.4<sup>0</sup>F. August which is the wettest month in the whole country is also the coolest month, with mean daily temperatures of 77.5<sup>0</sup>F.

### **Economic viability**

Eighty percent of the population live in the rural areas. Almost half of the population is under 15 years of age while less than 5% is over 60 years. The diminution of rainfall eastward is matched by changes in vegetation and soils and this also accounts for the variability in tribal economies, ranging from those that are basically agricultural to agricultural mixed with pastoralism and then finally to predominantly or exclusively pastoral economies. The war torn Southern Sudan leads a migratory life characterised by very small scale agriculture, small scale fishing and heavy dependence on cattle.

Shifting cultivation is widely practised and crops like maize, sorghum (*dura*), *duldum*, groundnuts, cassava, simsim, sweet potatoes and beans are grown. Cotton, tobacco, coffee, rice and sugar-cane could be developed on a large scale and some areas have cocoa, tea and sisal. Some minerals such as Copper, gold and iron-ore have been discovered and although economically viable, they have not been exploited. The cash economy has been retarded by the long distances from the main markets and the lack of efficient means of transport. The civil war in Sudan has created food scarcity which has made the South dependent on the North even for grains which could be grown in the South. On the whole the Southern Sudan is, potentially, an agricultural wealthy area.

### **The People of Southern Sudan**

The people of Southern Sudan fall into three main groups: the Nilotes, Nilo-Hamites and the Western Sudanic tribes. These groups in turn have their sub-divisions, thus, the total number of tribes and sub-groups is approximately 572. The Nilotes comprise: Dinka, Nuer, Shilluk, Anuak, Burun, Bor, Balanda, Jur, Shilluk Luo and Acholi.

The Nilo-Hamites are divided into three (3) groups based on cultural affinities. One group constitutes the Bari, Mundari, Nyangwara, Pojulu, Kakwa, Nyepu and Kuku. The second group is composed of the Lokoya and Luluba and the third group comprises the Latuko and the Lango. The main occupation of the Nilo-Hamites is cultivation with some pastoralism. They attach great importance to the existence of rain-chiefs and rain-making

In the extreme South-West of the country are the Sudanic tribes who are composed of the Azande (a group of tribes) the Ndogosere group live near Wau while the Moro-Madi group is divided linguistically into 3 sub-groups.

The Moru who occupy the Meridi and Amadi districts, the Avukaya and the Kaluchi who live in Yei district extending into the Congo and Uganda and the Madi who inhabit the Opari and Nimule areas spilling over into Uganda.

The Dinka, the Nuer and the Latuko constituted the study population and hence were the focus of this study. The following are short notes on each of the groups. According to Ogot (1967) the Dinka and the Nuer were least affected by external influences.

*The Dinka*, numbering about one million, form the largest group of people in Southern Sudan. They live along the Upper Nile in the south of Bahr el-Ghazal province, along the bank of the Nile from the South-East of Ayod to Malek up to the west of Tonj. The Dinka are divided into a number of sub-tribes-Cic, Bor, Aliab, Agar and Atot. The Dinka people are mainly pastoralists. They have large numbers of big long horned cattle to which they devote their lives. They practice transhumant agro-pastoralism which involves moving between cattle camps near the village and sorghum fields and the dry season grazing areas known as *toich* (these are areas which are swampy and tend to remain grassy during the dry season). Generally, the rains begin in May-June and it is during this period when cattle are brought back from the *toich* to cattle camps situated near homesteads. The cattle are moved back to the *toich* as soon as grass and water become insufficient.

*The Nuers* occupy the swampy and open savanna areas that stretch on both sides of the White Nile south of the junction with River Sobat and the Bahr el-Ghazal, and on both sides of the banks of the two tributaries. They are related and are culturally similar to the Dinka. Despite being alike in culture, the Nuer and Dinka differ in social organization. The Nuers are semi-nomadic pastoralists. At the end of the rainy season they leave their villages in search of pasture for their cattle. Sometimes the cattle move with only young men and unmarried girls. By night they build huge fires and sleep close to their cattle.

*The Latuko* are a mixture of Hamites of the north and Negroes of the south. They are known to be easy adopters of ideas that prove to be good. This implies that they are amenable to experimentation with new ideas. The Latuko, who are also called the Lotuko live near Torit. They grow millet, maize, groundnuts (peanuts) and tobacco in addition to cattle keeping (Encyclopedia Britannica, 1984). They also grow pumpkins and sweet potatoes. They believe in a supreme being known as *Naijok* and also have rainmakers who bear political authority over the people. They also believe and practice witchcraft.

### 1.3 METHODOLOGY

This study on child feeding practices was carried out among the Nuer, the Dinka and the Latuko of Southern Sudan. The study sites were, therefore, purposively selected to elicit these three study groups. Consequently, the study sites were: Leer for the Nuer, Nimule and Ikotos for the Latuko and Nimule and Nabagok for the Dinka. The communities in Nimule constitute mainly war displaced persons.

The study, as proposed by UNICEF-OLS, was qualitative and used focus group discussions (FGD), indepth interviews, case studies, observations, conversations and partial 24 Hour food intake recall. The study involved an element of triangulation by weighing what mothers said they do against what others reported and what the researchers observed. The FGD and case studies were extremely useful in extracting and clarifying information, perceptions and beliefs on various aspects of child feeding. In-depth interviews were conducted with key informants (ie. people who were considered knowledgeable on the study subject), for example, health staff, community health workers (CHWs), community leaders and traditional birth attendants (TBAs). While the FGD reflect group norm, the vividness of current feeding practices was captured through use of case study method which tapped on individual mothers' experience on child feeding; thus reflecting the individual variations and similarities with others. Two case studies are presented for the Dinka and the Nuer and three for the Latuko. In total 13 FGD were conducted with an average of seven mothers per FGD (5-14 range) and two additional FGD consisting, respectively, CHWs and community leaders in Leer. The structure of study respondents is illustrated in Table 1. The number of respondents representing the three different groups were; 41 Nuers, 38 Dinkas and 63 Latukos. Their distribution according to mode of data collection used is also shown in Table 1. In addition, anecdotal information, which was useful in understanding and appreciation of some of the practices was also obtained using conversation as a method of data collection. In Leer, the team was able to organise a focus group discussion with local leaders in which recommendations on child feeding were the focus of the discussion. Unfortunately, due to time limitations it was not possible to replicate this with the other two study groups.

Qualitative methods are time consuming and in the context of this study, in which collection of data per indicated community was compressed into a few days and in which field conditions did not render appropriate situation for collection of quantitative food intake data, it was difficult to meaningfully assess quantities of foods eaten by children .

For example, to be able to make a valid statement on nutrient content of a calabash of porridge or *asida* .

Food Tables indicating nutrients per set unit eg., 100g are needed (such Tables are not available). This limitation was compounded by the fact that many of the older children were served in a communal receptacle from which food was shared with others [See section on Dinka: Recipes and Cooking Methods]. The study, however, has indicated quantities in volumes (eg., milk, porridge etc) in some of the case studies.

The 24 Hour recall on food intake was used in establishing the quality of diets and, to a limited extent, the quantity of foods being offered to children. In addition, it was not possible to assess quantities of breastmilk taken. It was thus not possible to be conclusive about quantities and by extension nutrient intake of the children. Thus the objective relating to quantities could not be satisfactorily addressed.

**Table 1: Distribution of Informants by Study Group Village and Data Collection Method**

STUDY GROUP by Village	FGD [N]	CASESTUDY [N]	KEY- INFORMANTS [N]
<b>NUER</b>	[4]	[7]	[6]
Leer	3	6	1 CHW
Gill	0	1	4 TBAs
Nyangdier	1	0	1 mother
<b>LATUKO</b>	[7]	[7]	[2]
Nimule	1	0	0
Mogale 2	2	2	0
Ikotos	2	1	0
Huma	2	0	2 TBAs
Kekerek	0	4	0
<b>DINKA</b>	[4]	[4]	[2]
Nimule	1	2	1
Nabagok	3	2	1

A guideline, in form of key questions, was developed and used in eliciting information. The terms of reference of this assignment provided the base on which the guideline was developed.

The extension staff working with various NGOs introduced the team to local community leaders. The study team explained the purpose and objectives of the study to the community leaders who, apparently included local extension staff. The team then elaborated on the type of the respondents that were needed and the local leaders then identified and arranged for the meetings. Some of the leaders also acted as interpreters. In appreciation of their participation, the study team gave them incentives in form of iodized salt and soap.

## **2. CHILD FEEDING PRACTICES**

### **2.1 Child Feeding Among the Nuer**

Prelacteal feeding is a common practice among the Nuer. Water, cowmilk and water sugar salt solution (SSS) are given as prelacteal feeds. Undiluted cowmilk is given as a prelacteal feed when the milk is from a lactating cow with a young calf. Although not well articulated by the informants the belief appears to be that there is a similarity between human milk and milk of a lactating cow which, as perceived by mothers, makes this type of milk more appropriate for babies vis-a-vis milk from a non-lactating cow. As such the milk is not diluted as would be the case with cowmilk from a non-lactating cow. Instead of diluting cowmilk, a baby can be given SSS or water after taking undiluted milk. The water that is used for diluting milk is not boiled. Prelacteal feeds are given for three days, on average, or until breastmilk flow is established. Few mothers discontinue the prelacteal feeds completely because the majority continue giving, as supplements to breastmilk, the foods that were used in prelacteal feeding. As such, the Nuer hardly practise full exclusive breastfeeding.

All babies are breastfed on demand and as observed during interview sessions or focus group discussions duration of a breastfeeding session is determined by the baby. Hence breastfeeding time and hence frequency as well as duration is baby rather than mother determined. Surprisingly, mastitis (a condition that results from failure to empty the breast (see definition) was sighted as one of the common problems experienced by the Nuer lactating women. This is a problem which occurs the first few days following delivery when breastmilk flows in abundance beyond what the baby requires.

The intensity of mothers' attention as they breastfeed varies with child's age. The younger the baby the more the attention. Although CHW trainees who participated in the FGD claimed that mothers tend to look for isolated places where they then breastfeed in privacy when mothers are in public gatherings, the mothers did not appear inhibited to breastfeed in public.

The researchers observed that many mothers breastfed comfortably in public forums. For example, as mothers waited to have their babies attended to at the immunization clinic, which was being done under a tree, a forum where other people were present and this included men, the mothers breastfed on demand.

A few concealed the baby under a cloth but the majority freely gave the breast to the child without bothering to conceal or to look for isolated spaces.

Breastfeeding is initiated at a range of half to eight hours after delivery. The procedure followed starts with washing of the baby and mother before the baby is put to the breast for the first time. The babies, henceforth continue breastfeeding on demand but the frequency reduces with the age of the baby. It is difficult to perceive a period of full exclusive breastfeeding amongst the Nuer because they strongly believe in cowmilk.

It is considered to be the most powerful food in promoting child growth and energising the body; more than any other food including breastmilk. The value of the colostrum is not known

to the Nuer. Colostrum which is the milk produced during the first days has the protective immunological factors which protect the baby from infections. It is therefore critical that babies get colostrum at birth.

The child feeding process among the Nuer has five critical stages: the prelacteal stage; (1) a short period which lasts between birth and six days when babies are fed on cowmilk or water or SSS as mothers await the (milk to come in) establishment of breastmilk flow; (2) the period between establishment of breastmilk flow to about one to three months when some mothers, and especially the older women are able to breastfeed exclusively or almost exclusively; (3) the stage between three and six months when the babies are still heavily reliant on breastmilk and less on supplements; (4) the last stage lasting from the age of six months when intensity of breastfeeding is reduced as that of reliance on breastmilk supplements increases and (5) the final stage when breastfeeding ceases, this occurs at the time the child is 18-24 months. Age at which breastfeeding ceases amongst the Nuer appeared quite universal (18-24 months) although in isolated cases it occurs before the age of 18 months. Some babies never have a period of full exclusive breastfeeding as prelacteals in such cases are never completely withdrawn.

Both key informants and focus group discussion participants concurred on establishment of breastmilk flow and continuation of feeds that are introduced to the baby as prelacteal. While few mothers discontinue these feeds after breastmilk flow is well established, the majority continue giving them in addition to breastmilk. The period it takes for breastmilk flow to be established as expected, varies from woman to woman. The informants, however, indicated that on average breastmilk flow is well established 2-3 days after delivery. Using the last born child as a base, it was established that breastmilk flow was established between three and six days. The days between birth and first proper flow of breastmilk the babies were fed on cowmilk either neat or diluted with water.

In almost all the cases that were observed, the mothers appropriately held babies close to their bodies for breastfeeding and tried to make them comfortable. The mothers interacted with their babies as they breastfed. It was noted that (most noticeable with older children) that eye contact was regularly maintained, the mother inspected the babies skin, finger, toes etc and massaged their bodies; bottoms mostly; as they suckled. It was noted that when children fall asleep after breastfeeding the mothers, rather than put them away, would allow them to sleep on their laps. None of the mothers attempted to burp the children at the end of a breastfeeding session it was observed that some mothers would play with the babies (throw the baby up and then catch it).

***Allocation of cows as a weaning strategy:*** Traditionally a father allocated a cow to a child's mother when a baby was born. This cow which was supposed to be lactating catered for the nutritional needs of the baby. This was a strategy to ensure and enhance food security for the baby. Some of the respondents like eighteen year old Nyalwar Kai confirmed that her three month old son Peter Dwal was allocated a cow.

***Child feeding and the "not enough milk syndrome":*** This is a very common problem to many mothers all over the world. Many mothers who do not have confidence or for some

reasons have not established breastfeeding feel that they do not have enough milk. Some women too who experience hunger usually feel that they do not have enough milk. It is often claimed that poorly nourished women cannot breastfeed but studies have, however, shown that such mothers can produce up to 700ml/day during the first six months and 300-500ml/day in the second year (Jelliffe and Jelliffe, 1978). In some cultural set-ups like in Nuer where cowmilk is highly valued babies are supplemented early. Supplementing breastmilk leads to a reduction in suckling, less stimulation of the prolactin and let down reflexes and reduction in milk supply. Among the Nuer the majority of mothers feel that they do not have enough breastmilk and this leads to early introduction of cowmilk. The mothers relate breastmilk production to their own dietary intake. Thus the inability to produce adequate breastmilk is a consequence of poor food intake. This is characterised by hunger and not having enough food to eat. The Nuer strongly believe that cowmilk is the most powerful food and as such children must get used to it when they are still reasonably young. Mothers are, therefore, usually anxious to make sure that babies get used to cowmilk.

When the mother is absent the baby is fed on cowmilk or given water and is left under the care of relatives who could be older siblings, the mother's sister, in-laws and where there are no relatives (near-by) they are left with neighbours.

### **Child Feeding and Morbidity**

The common childhood diseases mentioned among the Nuer were:- malaria, diarrhoea, chest-infections and conjunctivitis. The director of health Mr. Gideon Gador pointed out that when there is an outbreak of measles a lot of cases of bitot spot are noticed. The researchers also noticed a number of bitot spot cases. Although the cause of the bitot spots was not investigated it is important to recognise that vitamin A deficiency is a common cause of bitot spot. Guinea worm, kalazar and tuber-culosis (TB) are common diseases in the area. Diagnosis and treatment are being facilitated by MSF-Holland. Noting that milk is usually not boiled, health facilitators in the area associate consumption of non-boiled milk with the incidence of TB. Therefore, simple preventive and promotive measures like boiling of milk should be put in place.

During sickness amounts of other foods are reduced while milk intake is increased as breastfeeding continues. Cowmilk is used to dilute the thick sorghum porridge to make it lighter. The Nuers believe in cowmilk as a power food hence its critical role in times of sickness.

The Nuers use traditional roots/herbs like *reft* and *neem* to prepare medicinal fluids for treating sicknesses like diarrhoea in children, thus additional fluids are introduced into the diet.

Breastfeeding a baby when sick is practised in many communities in Africa. Mothers believe that breastmilk is good for sick children and reported that babies lose appetite when sick but may be willing to breastfeed because the breast is an important source of comfort. With the comfort, the child gets valuable nourishment.



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## **The Nuer Culture as it Relates to Child Feeding**

To understand the context of child feeding among the Nuer, it is important to acknowledge the cultural framework within which it occurs. It seems that gender discrimination in feeding would occur in the context of the value placed on children of different sexes. It is commonly believed that negative discrimination in most societies is likely to be directed at the girl child.

The girl child in this society is valued as an asset because her family expects to gain wealth (in form of bride price) from her. The Nuer, therefore, believe that girl children should be taken care of to ensure and to enhance their value at the time of marriage. Being patrilineal, the Nuer also place value on male children as they are the ones who will sustain the lineage.

Both male and female children are valued albeit on different basis but the end result is that there is no gender based discrimination in feeding of children among the Nuer. FGD, case studies and conversations with people indicated that there is no discrimination in feeding.

When babies are born families who are economically capable slaughter a goat and share with other family members. The ceremonies have reduced with time as the situation among the people has worsened due to political insecurity. The drought has also contributed to the reduction of livestock. When there is drought families depend on animals for their livelihood they eat the meat and also sell or barter them for food. On the trend and changes in feeding many noted that there has been great changes mainly due to the reduction of household food security. The displacement and constant movement is the major draw-back because families are not able to grow sufficient food to sustain themselves. The displacement brings about breakdown in family structures as sometimes older people are left behind. These are the people who usually are the custodians of traditions and once their interaction with younger people is disconnected this gradually has its impact on socialization which leads to changes in beliefs, knowledge and practices.

## **The Role of Social Networks in Child Feeding Advice**

The Social Networks which influence child feeding can be classified into two groups: those who play major role and are therefore key determinants of child feeding. They include the child's father and mother and maternal grandmother. The other networks that are currently playing minor roles include health personnel especially the EPI team and other extension staff, TBAs, older women, in-laws and neighbours.

The role of the father in child feeding is very crucial as they are important on the decision making when it comes to cessation of breastfeeding. The father either solely makes the decision, that the child stops breastfeeding or in consultation with the child's mother but even in such cases he has the final say. It is important to understand that culture requires that women abstain from sex as long as they are breastfeeding.

It is the husband, who determines when he is ready to have another child and, therefore, the child should stop breast feeding. It appeared that intercourse with a lactating woman is a taboo though there seemed to be no clear explanation as to what would happen if the taboo is defied.

The role played by the maternal grandmother is also crucial as she is the main child feeding advisor to the mother. After the sixth month of pregnancy, a woman stops intercourse in anticipation of delivery. Between this time and delivery (which was described as a few weeks before delivery; the last stages of the third trimester ) the pregnant woman moves back to her family and her mother takes on the responsibility of taking care of her and advising her on child rearing. She remains with her family until the baby is born and thereafter she rejoins her family. The paternal grandmother plays a very minor role in this process. It was emphasized that it is important that the woman is with the mother for the delivery of the first baby and preferably the second. If possible she should return to her mother for the delivery of all her children.

The TBAs did not seem to have a role in child feeding. Their role appeared to be restricted to assisting women during delivery, a skill they learnt from observing other women/TBAs during delivery sessions. They do not have the capacity to provide satisfactory advice on child rearing. For example, they do not understand the mechanism of milk production and were part of the network propagating SSS as a prelacteal.

### **Quality of Weaning foods**

The food base for the Nuer include: cowmilk, fish, sorghum, meat, beans, cowpeas, yams<sup>1</sup>, tomatoes, cassava, vegetables (eg., okra, pumpkin leaves, cow-pea leaves and indigenous vegetables). Fish and vegetables are not part of children's diet. Pumpkin leaves although they grow in abundance are not part of the general diet. It appears that improved consumption of leafy vegetables may be a feasible way of addressing vitamin A deficiency considering that bitot spot cases could be due to this deficiency.

Many mothers do not prepare children's food separately from the family pot. There were a few isolated cases of bottle-feeding probably due to urban influence. In such cases the mothers did not seem to know the dangers associated with bottle-feeding. The bottle feeders started using them on second day after birth. In general, sorghum porridge is given after children reach the age of one year. The porridge is sweetened with sugar (when available) some mothers mentioned that porridge gives energy to their children and that the child cannot grow without taking cowmilk.

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<sup>1</sup>What the Nuer were calling yams were actually sweet potatoes

*Mother Bottle-Feeding Her Baby*



*Below- Food Preparation Environment*



Child Feeding in Southern Sudan

## Nuer: Recipes and Cooking Methods

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### **To Prepare Sorghum Porridge**

Mix sorghum grains with water

Put in the sun to dry

Grind into flour on a grinding stone (*pil*)

Put in a cooking pot

Add more water and cook stirring vigorously to avoid lumps

Add milk and simmer for five minutes

Cool and serve in a calabash or cup.

### **To Prepare Yams**

Peel the yams

Cut into small pieces

Boil until soft

Add milk and salt and mash

Serve.

### **To Prepare Beans**

Wash the beans

Put to boil until soft

Add salt and fat (when available)

Serve.

### **To Prepare *Apok* (Used as a snack)**

Soak sorghum grains for a short period (15-20 minutes)

Pound and grind on a *pil*

Roast with fat

*Apok* is a popular snack for children from the age of one year.

One year old Dok eats 50g/day.

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## Case studies: Nuer

### Case Study : Nuer 1

Martha Nyalik is 26 years old and has two children. Dok is one year old and comes after two year old Nyatwal. Martha is married to a soldier and has a co-wife Mary who is hardly eighteen years old. When Dok was born he was, as is the custom among the Nuer put on the breast immediately after birth and has continued to breastfeed on demand. The breastmilk flow was, however, not established until the third day. Until this time timing Dok fed on prelacteal feeds consisting of cow-milk diluted with water and sweetened with sugar. He was fed using a feeding bottle. The practice of bottlefeeding was observed when the study team visited the home. Probed about the bottle, it seemed that Martha was quite unaware of the dangers posed to Dok by such a practice. Martha said that in addition to breastmilk, Dok drinks 200ml of cow milk from the bottle twice a day (400ml/day), sorghum porridge and tomato puree. Other than this he occasionally eats vegetables and when available yams and cassava twice a week. Martha does not allow Dok to eat okra as she believes it causes diarrhoea in children. Martha does not know the difference between breastmilk and cowmilk. Although Martha let Dok suckle colostrum, she did not seem to appreciate its value to the body. Breastfeeding even at one year was still on demand as was observed during the interview. Martha who had been away when the team arrived came after ten minutes picked up Dok and started breastfeeding as we explained our mission to her household members. Martha said that Dok sleeps in her bed and therefore has access to the breast, despite this, she continued to explain she does not feed often probably because he is also on porridge. Martha feels she is a good breastfeeder and continues to breastfeed Dok even when he is ill. When he has diarrhoea, she breastfeeds him and also give him a concoction made from roots of reft and neem which she adds to cow-milk. Martha gets health and nutrition information on child-care from her mother and health staff based at a near by PHCU. When Martha is not at home she leaves Dok with her co-wife with whom she leaves cows milk in a feeding bottle to be given when he cries. Martha prepares a sorghum based snack, *apok*, which she gives to Dok and other children. *Apok* is prepared by soaking sorghum in water for fifteen-twenty minutes, pounding it and grinding on the traditional pil; traditional grinding stone. The wet crushed sorghum is then toasted in a pan with fat to make rice-like pellets. The study team was able to observe this process during a home visit. This is a popular snack for 1-3 year old children. The three year old children take about 50gm of apok in a day. When asked when she planned to wean, Martha said that she would discuss this with Dok's father as the final; decision lies with him Martha confided that even though Nuer people believe in 'no sharing of the mosquito net with a husband while lactating' ( this means no sex while lactating) things are changing and root her she resumed active sex life when Dok was six months.

- The 400 ml of a whole cowmilk that Dok takes every day gives him about 1320 kilojoules (316calories), 15.2gm protein, 145gm calcium, 107 ug vitamin A 24ug folic acid and 4 gm vitamin C and negligible amounts of the B vitamins. Milk is deficient in iron but sorghum has some (see Annexe 3)

### **Case study: Nuer 2**

*Nyalwar Kai is a young woman hardly 15 years old. Her lower six teeth were removed when she was eight years old according to Nuer custom and tradition. Nyalwar is currently the only wife but confirmed that she had no problem with polygamy and was looking forward to the day her husband would bring home another wife. Nyalwar was born in a family of two sisters and three brothers in a polygamous home. She received training in preparation for marriage from her mother. The training covered general house keeping, food preparation, farming and how to be a wife. Nyalwar moved back to her parents home when she was six months pregnant where she stayed until she had her now three months old Peter Dwal. Nyalwar was assisted by her mother to deliver and Peter was put to the breast within one hour after birth although no milk flow was noticed until after the second day. Meanwhile Nyalwar gave Peter prelacteal feeds of neat cowmilk; twice a day, using **tung** the traditional spoon while continuing to let Peter suckle at the breast. Peter was fed on colostrum although his mother does not appreciate its significance. Peter has a cow which was given to him by his father to ensure his food security. Breastfeeding is done on demand as observed during the interview. Whenever Peter started to cry in his **dieng**; baby cot; Nyalwar would pick him hold him nicely and put him on the breast. Unfortunately, Peter was unwell and that is why he had been brought to the Primary Health Care Unit (PHCU). This sickness was a blessing in disguise in one way because the expanded programme of immunization (EPI) staff took advantage of the opportunity to immunize Peter in addition to treating him for what sounded like malaria, a common children's disease in this area. Asked when she would wean Peter she replied that the decision lay with Peter's father but that she would start giving sorghum porridge at six months of age. Other foods like maize, meat and pumpkin would be given after Peter attained the age of one year. Nyalwar said that giving other foods to Peter would depend on whether he was getting enough milk or not 'the not enough breastmilk syndrome'. Nyalwar confirmed that in case of death, Peter would be looked after by her mother who would wet nurse him. Nyalwar does not leave Peter behind when she goes on long journeys this is to ensure continuity on feeding on demand. Nyalwar collects water from a nearby borehole. She wakes up at 6.00 am. cleans the house and prepares sorghum porridge. she then goes to the farm and takes Peter with her and places him in his **dieng** as she works the field. she goes back home at 10.00 am. and milks the cows. She then goes to collect water and firewood and starts food **dura** preparation which is quite time consuming. There is no midday meal. Nyalwar's diet, like Peter's mainly consists of milk when available. When the evening meals is ready Nyalwar serves her husband separately while she eats with her mother-in-law. The family retires to bed at 8.00 pm.*



*Nyalwar prepares to put Peter in his dieng after breastfeeding  
(THIS PICTURE WAS TAKEN INFRONT OF PHCU IN LEER)*



### **Nuer : Misconceptions**

- That prelacteals are necessary to keep the baby going while establishment of breastmilk flow is awaited.
- Use of ORS and water salt solution as a prelacteal feed.
- The strong belief in cowmilk as a must in the survival of children..
- Children should not be fed on leafy vegetables like( pumpkin leaves) and fish believed to cause diarrhoea in children.
- That chronic diarrhoea is due to adultery (mother). This interferes with proper management of diarrhoea episodes that are perceived to arise from breaking taboos.

### **Specific Conclusions For Nuer Based on Study Results:**

- Breast feeding is well established in the community and is done up to between 18 and 24 months.
- There is early weaning attributed to "not-enough milk syndrome" primarily, the desire to get the child used to cowmilk and to women's workload (type).
- Mothers have confidence in breastfeeding and will do it on demand and without restriction even in public places but do not have confidence in terms of the volume of breastmilk that they produce (not adequate to satisfy the baby).
- A cow with a young calf is allocated to a child to ensure the child's access to milk.
- There is under-utilization of the available food base (specifically fish and vegetables).
- Cessation of breastfeeding is mostly determined by the child's father when he feels it is time to have another baby. The father is an important factor in the total duration of breastfeeding and thereafter, as the main food resource base he determines the quality of nourishment of the child.
- The child is introduced to the family foods after eighteen months and the types of foods to give are identified by the child's mother.
- There is a tradition that if a baby loses its mother at an early age, wet-nursing can be done by the maternal grandmother.
- There is no gender bias in feeding of male and female children.
- Cowmilk is the most important food for growth, energy and health and hence the belief that so long as children get milk their nutritional requirements are adequately met.
- Perceived function of food is to promote growth give energy and keep child healthy.
- some of the deficiency in current feeding is due to under-utilization of traditional foods.
- Frequency in feeding supplementary foods to children ranges between two to four times
- The mother is responsible for child care: food preparation and feeding . In her absence the grandmother or older sibling assume the role of minding the baby.

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### **Nuer : Specific Recommendations**

These recommendations are based on child feeding aspects that are unique to the Nuer while those that cut across the three study groups are presented in section 4 .2.

- Since the practice of exclusive breastfeeding is almost non-existent advocacy aimed at empowering women to believe in their ability to produce enough milk is highly recommended.
- The belief in cowmilk as power-food. vis a vis breastmilk should be demystified .
- The mothers should be encouraged to feed children on fish and pumpkin leaves which are abundant and yet excluded from childrens diet
- The mothers should be encouraged to feed children on fish and pumpkin leaves which are abundant and yet under-utilised
- Having observed bitots spots in children it is recommended that extra emphasis be placed on consumption of leafy vegetables as a source of vitamin A .
- The frequency of child feeding should be increased preferably to a minimum of five times.

## 2.2 Child Feeding Among the Latuko

Information gathering on child feeding practices among the Latuko was undertaken in Nimule and Ikotos. The Latuko in Nimule are living in camps for the displaced people-Mogale I & II. Most of them have been residing in the area since 1995, the indigenous people having fled to Uganda due to insecurity. The camps are inhabited by people from different ethnic backgrounds. This exposure has definite effect on ways of life of the people; while Ikotos is inhabited by people in their ancestral land as was confirmed by one of the respondents. When asked for how long he had been residing in Huma village he retorted " My ancestors lived here, I was born in this place and I am twenty-nine years old." Ikotos is thirty minutes away by air from Nimule.

Data collection included one FGD in Nimule and four FGD in Ikotos, six case studies in both locations, one key informant and two home visits. A total of over forty women of child bearing age with children under-five years were reached.

### *BreastFeeding*

The Latuko women we talked to were assisted in the delivery of their youngest child by a TBA in the presence of their mothers. The mother assists by boiling water to bathe the newborn and its mother; she also prepares food. A goat or cow is slaughtered by the baby's father depending on the capability of the family. The birth of the baby is celebrated but the baby is not taken out of the house until after four days for boys and three days for girls. The celebration culminates in a beer drinking ceremony where local brew is served and representatives from both families invited. This is the time the child is given a name; once the umbilical cord heals the baby can be taken out of the house.

On average, babies are put on the breast within the first hour after birth. A baby whether a boy or a girl is put on any breast . All the mothers concurred that there is no breastmilk flow for two to four days following delivery. Probed on what they did with their babies during this period, the mothers said they gave prelacteal feeds. These feeds range from neat cowmilk, cowmilk diluted with water to boiled salt-sugar solution (SSS) from health facilities. These are given to the baby using a calabash or spoon.

The practice of giving SSS as a prelacteal feed seemed to be a misconception originating for misadvice on its use from health facilities as some mothers said they had obtained the oral rehydration solution (ORS) from the health Units. It seemed both mothers and health workers felt that babies can get hungry or dehydrated in the first few days before the mother's milk comes in. They were unaware that prelacteal feeds are not necessary. A normal baby is born with a store of water which keeps him well hydrated until the milk comes in (King, 1992). For all women, breastmilk flow is well established two to four days after delivery but for most it happens on the third day.

Latuko women know and recognise colostrum and described it as yellow and thicker than mature milk. Nevertheless, the women did not seem to know the tremendous contribution of colostrum to the newborn's body. Some thought that the yellow colour was due to the time it had stayed in the breast. Some mothers reported that although they let their babies take the colostrum; it made them have constipation for several days. This is an obvious misconception as colostrum is rich in growth factors which stimulate a baby's immature intestine to develop. It is laxative and helps the baby to pass meconium which helps to prevent jaundice.

Breastfeeding is done on demand both during the day when the mother is at home and at night since babies sleep with their mothers. The underlying factor is the baby's accessibility to the breast. When going out to collect water or fetch firewood or attend to other household chores, the mothers make sure they breastfeed before leaving the home. These household chores do not keep the mothers away for more than two hours on average. During such times babies are looked after by older siblings or grandparents. Probed further if they would express breastmilk and leave behind for the babies; the reaction of mothers clearly showed that this is a practice which has never been heard of among the Latuko. Washing of breasts before breastfeeding was reported by the urban based women at Nimule.

The mothers indicated a period of exclusive breastfeeding for one to two months then they start giving water to the baby whenever they (mothers) felt thirsty. The cow plays a key role in the life of children among the Latuko. Many of them lamented the effect of displacement vis-a-vis access to cows. Traditionally when cows were many a man gave a cow to an expectant woman. This cow would calf almost at the same time as the woman.

This cow was meant to be the source of milk for the child. The child grew up knowing his/her cow. With displacement of people because of the war and drought cowmilk has become a rare commodity but when available children from two to three months are given cowmilk four times a day as top-up to breastmilk. "The not enough milk syndrome" seems a strong feature among the Latuko. Although generally the mothers looked well nourished. The women held their babies well, had good eye contact, massaged their bodies and breastfed without restrictions.

### **The Weaning Process**

Exclusive breastfeeding seems to be restricted within a very narrow margin (one to three months) as water and cowmilk when available is commonly given to babies as top up. After breastfeeding a child is left to play a bit then cowmilk given three to four times a day. When mothers feel the babies are not getting enough milk either by crying soon after being breastfed; a phenomenon that is common after the age of three months; most mothers will (due to inaccessibility of cowmilk) put their babies on sorghum porridge. The women in Nimule reported that they give their babies a wheat based mixture locally referred to as *kestra*. This was only reported in the camps for displaced persons and seemed to be some form of unimix.

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The mothers start giving sorghum porridge (to increase energy intake) between three and six months. It is given in a small cup (about 200ml) at the rate of four times a day. Other foods like groundnuts, honey and tamarind may be added to the porridge (see recipes elsewhere in this report).

Breastfeeding on average continues for a period of two to three years unless the mother gets pregnant. It is interesting to note that sex is not forbidden for Latuko lactating mothers as long as it is done within matrimonial bonds. Mothers confided that they could resume their matrimonial duties from four to six months after delivery. Otherwise, to stop breastfeeding under normal circumstances, a husband will initiate a discussion with his wife when he feels that it is time to have another baby. The two to three year old child will be sent a way to his maternal grandmother or the father's sister for periods ranging from several weeks to years. The child's father gives a cow to the person who will be taking care of the child. The parents of the child will only pay occasional visits to the child.

The child is introduced to the family foods at about the age of two years. The diet of Latuko children in the Camps for displaced persons in Nimule Therapeutic Centre (TFC) is standard for all ethnic groups. It includes Unimix for those below 80% weight for age and dry ration supplementary feeding consisting of sorghum, lentils and oil. As pointed out elsewhere in this report, cattle are rare in the camps and therefore, the use of milk is restricted. The use of groundnuts, sweet potatoes, pumpkins and cassava leaves was mentioned. Fish and eggs are also given to children in the camps.

Papaya, tomatoes and mangoes have also been introduced in the area and are being incorporated into the children's diet. Whereas in the traditional setting in Ikotos the food base consists of cowmilk, okra, sorghum, meat, tamarind, wild vegetables *emoloto*, pumpkin leaves *ehaya*, river yams *oyeji*, *lallobo*, *eduti*, beans, honey, white sorghum *atari*, red sorghum *osinjo*, maize, groundnuts, and simsim *anyim*.

The mother is fully responsible for food preparation both for the baby and the whole family. At the age of two years a child is introduced to the family meals and his food is no longer prepared separately. This was confirmed through home visit where goat head was being boiled for the whole family for the evening meal. The child eats with his mother, grandmother and other siblings while the father is served separately. There is no gender bias in feeding children among the Latuko.

### **Child Feeding and Morbidity**

The most common children diseases apart from the usual six immunizable; polio *ayogo*, measles *ehieji*, T.B. *ayala* included; malaria, diarrhoea, cough, meningitis, typhoid and marasmic-kwashiorkor. Diarrhoea during teething is not regarded as a sickness whereas chronic diarrhoea automatically brings suspicion of unfaithfulness in marriage.

Diarrhoea may be green yellow and watery. It is managed with traditional treatment by boiling the bark of *adungok* tree.

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Breastmilk is not withdrawn when a child has diarrhoea but foods like groundnuts and vegetables are not given as they are believed to aggravate the situation. Simsim is not given for the same reason. Malaria fever is another common sickness among the Lotuko children and is treated with a traditional tuber called *abowon*. Similarly, anaemia and kwashiorkor are known and managed at the home level traditionally. A sick child is given softer food mixed with more milk when available. Response to diarrhoea depends on its perceived cause. Diarrhoea that is associated with adultery brings shame to the mother and is likely to go unreported even at a health facility. One of the ways used to distinguish causes of diarrhoea is colour.

### **Food preparation and Cooking Environment**

The Lotuko have a separate kitchen where food preparation takes place. A kitchen has a fire-place, a grinding stone for sorghum *dura*, waterpot with cover for storing drinking water and storage facilities for general household items. Dry coconut shells are used for fuel in addition to the usual firewood. A household may have one or two cooking pans/pots but most can only afford one for general cooking (stew and *dura*).

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## Latuko: Recipes and Cooking Methods

### Sorghum porridge *nema*

- Flour one handful
- Water 2 litres
- Tamarind juice
- Honey
- Groundnuts (pounded)

### Method

- Sorghum dried in the sun
- Beaten with a stick to separate grains, winnowing
- Sifted
- Grind the sorghum twice on a traditional stone into fine flour

### To make porridge

- Mix the flour with a little water to make thin paste
- Let it stand overnight
- Filter using fine cloth *domora*
- Boil the filtered liquid in a saucepan stirring vigorously. Add more water as necessary and simmer over low heat for five minutes
- Cool and serve.

Pounded and toasted groundnuts or honey may be added to the porridge. *Tamarindus indica* when in season is used in porridge which has not been fermented. Note the nutritional value of *Tamarind indica* (see Annex 3).

### Whole Sorghum

Sorghum can be cooked whole then fried into rice like pellets called Akop. This is a popular snack for children over one year.



### **Vegetables**

- Tomatoes- boiled into puree given to younger children (aged 4-6 months)
- Pumpkin leaves, okra shredded boiled and added to dura
- Meat boiled but children fed on the broth only
- Boiled eggs may be given from age five months
- Wild river yams soaked in water for two to three days to remove poisonous alkaloids then boiled for several hours and mashed mixed with milk if available
  
- Simsim, toasted, pounded and mixed with porridge
  
- Wild vegetables like *Gynandropsis* sp.(see nutritional value annexe )are given to older children above four years.

## Case Studies: Latuko

### Case study Latuko 1

Madalina's baby, Jok, is nine months old. She has lived in Kekerek village in Ikotos county for three years and has, apart from Jok, three other children. Jok, who is still breastfeeding feeds on demand and being a big baby; he just reaches out for his mother's breast and suckles as much as he wants. At least this is what was observed during the interview with his mother. Jok was put to the breast for the first time two days after he was born, when breastmilk flow was established. Madalina said the way she breastfeeds Jok in the night is different from the way she breasts during the day. During the night, Jok breastfeeds fewer times than during the day. At night, Jok breasts feeds about 2-3 three times but during the day the frequency is higher than that; indeed Madalina cannot tell how many times it happens during the day because Jok breastfeeds on demand. At this age Jok is not only dependent on breastmilk alone as he takes porridge as well. His mother feels she is a good breastfeeder and continues breastfeeding him even when he is ill. Madalina has been receiving advice on how to feed her children from her mother and has not had the privilege of being advised by health/ extension staff. Madalina started giving Jok plain non-boiled water when he was two months old for the simple reason that just like his mother he needs water. At seven months, Jok started taking porridge as his mother's breastmilk was not adequate to satisfy his needs. Since ground groundnuts and tamarind fruit juices are part of the porridge recipe, he consequently started taking these at the age of seven months. Madalina is currently giving Jok wild fruits because she does not have much food and has also been introduced to the family staple sorghum dish. The supplements are fed using a calabash from which Madalina uses her finger to transfer the porridge to Jok's mouth. Madalina was solely responsible for deciding when to introduce supplementary foods. Jok's father's role is to provide resource base for food acquisition. Jok is fed on supplements three times a day, at intervals that correspond to breakfast, lunch and supper. When Jok refuses to eat, Madalina tries to cajole him. Jok's diet is modified during illness episodes. Madalina does not withdraw any foods from his diet; rather it is the consistency of the diet that changes. The food is made lighter eg. porridge is diluted with tamarind fruit juice. She also prepares a herbal concoction, by crushing roots of a (specific) tree and dissolving it in water, which she feeds to Jok two times a day. Jok, up to date, has suffered from diarrhoea, malaria and skin diseases. Although she did not mention vomiting, on probing she said that when Jok has diarrhoea, it is sometimes accompanied by vomiting. As far as Madalina knows, there are no foods that can protect the body against diseases but she knows that food gives energy to the baby and is responsible for growth. Madalina is responsible for preparation of the family meals which is done in the same place where some of the household members sleep. The household relies on firewood as a cooking fuel. She has two cooking pots, which do not have lids and hence, as confirmed by Madalina, cooked food is never covered. The pots are cleaned using grass and water. Washing of children's hands prior to eating is not yet a concern for Madalina. The water that is used in the household is drawn from a river. Water for drinking, even that given to the baby, is not boiled, filtered nor treated in any other way.

### **Case study Latuko 2**

Rose Amir is 19 years old and has two children Paska Alias and Peter Alias. Peter the first born is three years old while Paska his follower is three and half months old. Rose's husband is a soldier with SPLA. When Peter was born, he was, as the tradition requires, put to the breast immediately. The breastmilk flow was, however, not established until the fourth day following his birth. Before this happened, Peter was given salt and water solution. Rose claimed that this is a Latuko custom but also pointed out that traditionally, babies were given cowmilk but with scarcity and hence inaccessibility to cowmilk the salt solution suffices. For the four days preceding establishment of breastmilk flow, Peter was given this solution on demand. Rose recognises colostrum as the thick yellow milk which is followed by watery milk although she does not know the qualitative difference between the two. She believes that colostrum causes constipation or stomachache. A concoction whose base is atagiri root which is boiled in water was administered to both of Rose's children to help in the digestion of colostrum. The root is crushed and given to the child. Rose exclusively breastfed Peter up to the age of six months when cowmilk was introduced into his diet. Peter was first breastfed before topping-up with cowmilk. Rose practised this type of dual feeding because she felt that her breastmilk was not sufficient because her own diet was inadequate. Rose believes that a mother whose food intake is adequate is capable of producing higher amounts of breastmilk than one whose intake is inadequate. Peter was given cowmilk three times a day. Cowmilk was available in the village as some people had cattle and Rose would have had access to it. Peter continued breastfeeding up to the time his mother became pregnant at the age of two years. Peter is fed three times a day from his own plate. Rose had resumed sexual contact with her husband when Peter started crawling (approximately at the age of six months). At the age of six months, porridge into which cowmilk was added, was introduced into Peter's diet. The porridge was given in small amounts when Peter cried. Apart from cowmilk and porridge, Peter was given green vegetables, both exotic and indigenous, and on rare occasions fruits. Rose reported that generally they eat indigenous vegetables like amaranth, gudra a common vegetable eaten with the main sorghum dish. Rose recalled that in the past 24 hours, Peter had boiled beans in the morning, meat for the evening meal and the staple sorghum dish with pumpkin leaves for the midday meal. Paska is currently dependent on breastmilk and water. If cowmilk was accessible the mother would give it to Paska in addition to breastmilk. Rose plans to give additional foods when Paska is able to sit on her own. Rose takes Paska with her whenever she goes so she has access to breastmilk all the time. Rose, at the time of interview was living in a rehabilitation camp run by DOT/in Ikotos town. In the camp the kitchen is separate from the sleeping place whereas in the village she cooks in the same room where they sleep. She has two cooking pots.

### **Case study Latuko 3**

*Elizabeth Night is 20 years old and was born in a family of four brothers and four sisters. Elizabeth went to school in 1989 up to primary 4 and could speak English and as such the interview was conducted in English. She has been living in Mogale II since 1995. Her source of water is a bore-hole. Elizabeth is a second wife and has two children; Sarah, aged two years and George, aged seven months. George was born at home and put to the breast immediately; however, milk did not come until the second day. Meanwhile George survived on a prelacteal of water and sugar. Exclusive breastfeeding on demand was continued, even when he was sick, until George reached the age of three months. At this age, Elizabeth started giving George porridge at the rate of four times a day and at five months she introduced other foods, such as, eggs and boiled fish. Elizabeth also gives pumpkin and cassava leaves to George. On being asked when she would wean George, stop breastfeeding, she said that the decision lies with her husband but this would probably be at the age of two to three years. In case of death George would be looked after by his grandmother up to the age of three years. Elizabeth listed the following as the common childhood diseases: malaria, diarrhoea (dysentery) meningitis, measles, typhoid and malnutrition. She knows that food plays a role in preventing the body against diseases. She also believes that certain foods, unhygienic handling of food and unfaithfulness in marriage are the main causes of diarrhoea. George is almost fully immunised. Elizabeth's father and school were cited as her sources of health and nutrition information. Elizabeth wakes up at 6.00 am, cleans the house then makes fire and cooks porridge for her children. She then prepares food for the whole family, mostly green vegetables *segery* *Gynandropsis gynandra* mixed with *corchorus* sp. and sweet potatoes fried in oil. Food for small children is prepared separately. She collects firewood and prepares *dura* for supper at 6.00 pm. after eating the family retires for the night at about 8.00 pm.*

**Elizabeth with Her Children Sara and George at Mogale-II**



### **Latuko : Misconceptions**

- Prelacteal: That prelacteals are necessary to keep the baby going while establishment of breastmilk flow is awaited.
- Use of salt sugar solution as a prelacteal feed.
- Colostrum: that its yellow colour is due to the period it has stayed in the breast.
- Colostrum: its special nutritional and immunological quality not appreciated
- That chronic diarrhoea is due to adultery (mother). This interferes with proper management of diarrhoea episodes that are perceived to arise from breaking taboos.

### **Specific Conclusions For Latuko Based on Study Results:**

- Prelacteal feeds are given to newborns
- Children are always breastfed on demand
- Breastfeeding frequency is baby rather than mother determined as it is universally done on demand.
- Weaning process starts between the age of one to two months with either cowmilk if available or sorghum porridge as the main substitutes
- Mothers start giving sorghum porridge between two to six months at the rate of four times a day in a small cup. Pounded groundnuts , honey or tamarind fruit juice may be added to this porridge.
- The mother "not enough breastmilk syndrome" is the universal reason for initiating weaning. Thus the mother's confidence in her capacity to produce milk is absolutely necessary in the decision to initiate weaning.
- While cessation of breastfeeding is mostly determined by the child's father when to initiate weaning and the foods to give are dependent on the child's mother. The father is an important factor in the total duration of breastfeeding and thereafter, as the main food resource base and the quality of nourishment of the child.
- The child is introduced to the family foods at about the age of two years.
- If a baby loses its mother at an early age, wet-nursing is done by the maternal grand-mother or aunt( mother's sister). Other relatives from the mother's side can play this role if neither of these is available; the person, who has to be a relative, is identified by the child's father. The person is given a cow which is meant to provide milk for the child.
- Almost all children are on supplementary feeding at or from the age of six months.
- There is no gender bias in feeding of male and female children.
- Cowmilk when available is the most important food for growth, energy and health and hence the belief that so long as children get milk they are adequately catered for.
- Perceived function of food is to promote growth give energy and keep child healthy.
- Marasmic-kwashiorkor is common in camps of displaced persons due to inadequate food intake compounded by infections.
- Frequency in feeding supplementary foods to children ranges between two to four times while it is recommended that the frequency be at least five times a day.

- The mother is responsible for child care: food preparation and feeding. In the absence of the mother the grandmother or older siblings assumes the role of taking care of the baby.
- The maternal grandmother plays a substantial role at the cessation of breastfeeding when a child is sent a way from home to stay with her.
- Mothers continue breastfeeding their children during times of sickness.
- Traditionally there were ceremonies at birth and during naming of the child.
- Mothers appear amenable to change concerning issues in which there are no traditional guidelines. Otherwise adoption of change would occur if coupled with some real success cases of what is being proposed.
- The grandmothers, health workers in a few areas are the only sources of information/advisors on child rearing that mothers have.
- There are no major dietary changes during sickness episodes. Foods are made softer and there may be temporary withdrawal of foods that are perceived to cause or aggravate a disease. Groundnuts and simsim are believed to aggravate diarrhoea.
- Diarrhoea is very common.
- There is seasonal variation in child feeding.
- Since Latuko women start weaning their babies between two and four months with nutrition education and encouragement they can change to the recommended practice of four to six months.

#### **Latuko: Specific Recommendations**

These recommendations are based on child feeding aspects that are unique to the Latuko while those that cut across the three study groups are presented in section 4.2.

- The current exclusive breastfeeding period is about one month thus mothers should be encouraged to extend the period beyond one month to at least four months.
- The practice of incorporating groundnuts, simsim and tamarind into porridges and other childrens meals should be re-emphasised and supported.
- Creation of awareness with respect to quality ( immunological and nutritional) and appearance of colostrum is highly advocated.
- There is need to educate the community on causes of diarrhoea to counter the belief that diarrhoea is caused by adultery and hence propagate appropriate management regimes.

### 2.3 Child Feeding Among the Dinka

Data collection included three focus group discussions with eight, seven and nine women; in-depth interviews with two case studies and one key informant and observations. The first FGD was conducted at Paweng Cattle Camp and the women who participated in this session were women of childbearing age (from 18 years) and all had experience on child rearing as mothers.

*Initiation of breastfeeding:* Between three weeks to three months before a pregnant woman delivers, she moves back to her parents home so that her mother can take care of her in these last days and the few days after birth. The Dinka, despite being patrilineal, believe that the pregnant woman's mother is in the best position to take care of her daughter. After delivery the newly delivered woman stays with her parents for between five to ten days and thereafter she returns her husbands place. It is notable that the women never referred to their homes as their own homes but rather, as their husband's. It is during these days that breastfeeding is initiated.

For many mothers, the baby is put to the breast within the first two hours after birth. There are, however, those who do it within 12 hours and those who do it two to three days after birth. It appears like the former may be those who only put the child to the breast when there are signs of breastmilk flow. All the women concurred that there is no milk in the first and second day after birth and hence do not see the point of putting a baby to the breast. They were unaware of the need and advantage of putting the baby to the breast immediately after birth. This suggests they are oblivious of the contribution and importance of that first contact to bonding of the mother and baby and the role of stimulating milk production through sucking of the breast.

Only on rare occasions are prelacteal feeds not given to babies prior to establishment of breastmilk flow. The prelacteal feeds include cowmilk or commercial milk (hardly available now) or salt water solution. The latter is used when mothers have no other alternative and is given once a day. Currently it is difficult to get salt. The fluids are given using a spoon-like calabash or cowrie shells. These prelacteal feeds are withdrawn on the establishment of breastmilk flow. It was clear that all mothers consider prelacteal feeds to be necessary because those who did not give any to their last child explained that they did not have anything to give.

For all women, breastmilk flow is well established three to eight days after delivery but for most it happens on the third and fourth days. Hence, those who claimed that it is established from the fifth day could have erred as a result of memory failure.

The women recognise colostrum, which they described as being thick and yellowish in colour. The unique value of colostrum, however, is neither understood nor appreciated. Nevertheless, all women said they had fed colostrum to their youngest child. They explained the war has aggravated food insecurity resulting in scarcity of breastmilk substitutes such as tinned milk and this has forced them to feed colostrum to their children. The women with children born during periods of relative peace in South Sudan, which facilitated availability of breastmilk substitutes, fed their babies on this and discarded



colostrum. The Dinka used to believe that colostrum could lead to the death of a baby. It is ironical how on one level the war aggravates nutritional problems due to food scarcity and on the other level it results in utilization of foods (ie. colostrum) that would be ignored or even discarded in times of peace.

***Breastfeeding Frequency:*** Since breastfeeding is done on demand, frequency is dependent on the child and the mother's accessibility to the child. Fortunately, mothers are very accessible to their babies and the younger the child the more access it has to its mother. Mothers with young children do not go very far away nor do they go away for long except on rare occasions when they have to go to the market to buy food. This, as estimated by the women could take about two hours. At such times, the child is left under the care of its father who takes the responsibility of feeding it. Often the father is assisted by the child's older siblings.

If mothers with babies have to go to cultivate, they take the babies with them. Hence, breastfeeding is not disrupted. Cultivation is a chore most women undertake in the morning hours; from about 7.00 am. to noon.

The mothers claimed they wash the breast before offering it to the baby, particularly when they have come from dusty areas. It is to be noted that most women's breasts, due to their nature of dressing or rather semi-nudity are uncovered. Despite this claim, as observed while interviews were being conducted and other occasions, it is most likely that mothers do not wash the breasts. It is thus likely that, as indicated by further probing that, the mothers only wash their breasts if they have been out in the fields and get home sweaty and dusty.

***The weaning process:*** The Dinka can exclusively breastfeed for a period ranging between one and six months. The duration of exclusive breastfeeding is based on the mother's perception of her capacity to produce adequate milk to satisfy her baby's hunger. When a baby cries continuously even after a feed signifies that it is not getting enough and hence needs additional foods or fluids. Varying from baby to baby, this happens anytime between age one and six months. Poor breastmilk production is associated with inadequate dietary intake by the mother.

Although babies are given water *to quench their thirst and cool their bodies*, cowmilk (for those who have access to it) or porridge (those who have no access to cowmilk) are usually the first supplementary foods that a baby's are introduced to. Those without milk tend to introduce porridge at a later age. Hence, while cowmilk will be introduced within the first month, porridge is introduced at about the age of three to four months. Thus accessibility to milk based substitutes, specifically cowmilk at the current times, is likely to be an important determinant of the duration of exclusive breastfeeding.

Breastfeeding, on average, continues for a period of two to three years. This coincides with the time the father of the child decides it is time to have another child and breastfeeding has to stop in the context of the prevailing Dinka traditional practice which requires the abstinence from sex for lactating mothers. It is a taboo for a lactating mothers to have sex during the whole period of lactation. The father of the child, in most cases, is the sole decision maker as

to when breastfeeding should cease. As always, there is an exception to all rules, some spouses discuss this issue and concur on when to stop making this a shared decision. The Dinka believe that should a lactating woman engage in sex, the child will develop diarrhoea accompanied by vomiting and will finally collapse and die. The FGD participants said they knew and could quote examples of families in which babies had died as a result of this kind of indulgence. The grand finale of breastfeeding cessation is characterized by sending a child to a cattle camp or, as is the practice in rare cases, to its maternal grandmother.

***The cattle camps as part of the weaning process:*** The Dinka keep their cattle away from the homestead in cattle camps where different families bring their cattle together for the night. The cattle are milked in the morning and the evening and milk is sent to the household members who do not reside in the camps while those in camps retain their portion. To complete the weaning process, when children stop breastfeeding, from the age of two years, they are sent to the cattle camp. The children are usually accompanied to the camp by the paternal grandmother or their older siblings, preferably sisters. These are the people who take care of the children.

Occasionally the child's mother prepares other foods and comes to see the child at the camp where she could stay for a short period, two days was given as an example. Living in the camp ensures that a child has access to milk on demand because they know where it is kept and will keep going for a drink anytime they wish. The children can remain in the camps for a number of years (between 3-5 yrs). Sending the child to the camp physically separates the child from the mother and hence are not sent away to their maternal grandmothers. However, a minority of children are sent to their maternal grandmothers to complete the weaning process through physical separation of mother and child.

***Allocation of cows to children as a weaning strategy:*** tradition required that when a child is born the father allocates a cow to the child's mother. This cow is supposed to cater for the nutritional needs of the child. This, as expected, is not feasible in the current war circumstances as there are those who do not have cattle or have a limited number. If feasible, this is a good strategy for enhancing food security circumstances for households.

***Quality and quantity of weaning foods:*** The diet of Dinka children in the camps of displaced persons (in Nimule and Mogale include: sorghum, sugar (when accessible), unimix (for children admitted at the Therapeutic Feeding Centre (TFC)), meat (goat/beef) and in very rare households; cowmilk. Communities in camps do not have cattle so milk is not easily accessible. In a traditional Dinka setting, vegetables and fruits did not constitute a significant part of their diet. It was, nevertheless, pointed out that the exotic fruits that are being introduced in the area are being accepted and incorporated into the diet. The fruits, as confirmed through observation of food crops in the gardens, include, papaya and mangoes.

The foods given to children in Nabagok, which is not a camp, include: cowmilk, sorghum, meat, pumpkins, fish and, though seasonally, honey. Meat and fish are not commonly consumed. This diet is based on a very restricted food base and, indeed, the significance of meat, fish and fruits is minimal. The main foods are milk and sorghum.

## **Food Preparation and the Cooking Environment**

Ideally, before starting to prepare food for the family it is important to ensure that cooking utensils, surfaces and hands are clean and that there is enough safe water for cooking and washing utensils. The areas the researchers visited presented situations in which the ideal was impossible to attain. In most households the **kitchen** was being shared with small livestock at night.

An open fire as the only cooking stove, a single cooking pot for *dura* and stew, a pot for water, a grinding stone for *dura* and not much storage space. In keeping with the traditional practice, grinding of cereals on a stone and pounding in a mortar is widely done by the Dinka. When asked to identify the most difficult household chore, most women said pounding and grinding sorghum.

Indeed most of the key informants suggested village level technology eg., dehullers as an intervention to lessen the burden of women so that they could spend more time in taking care of children. Later discussions revealed that the technology has been introduced in some areas. Women often juggle multiple roles balancing time between household responsibilities and economic activity. Women are primary custodians of the health and well-being of the family.

The researchers noted that it was almost impossible to prepare safe uncontaminated food under the conditions observed where washing of hands was done using cow-urine; containers for the milk were also rinsed with the urine. Detergents like soap is hard to come-by and in most cases ash from cow-dung and grass is used for cleaning utensils. Environmental sanitation was poor with no pit-latrines in site. Personal hygiene of the mothers was unsatisfactory, which partly explains the high diarrhoea incidence.

## Dinka: Recipes and Cooking Methods

### Preparation of *Asida*

- Sorghum rough grade 1144 gm
- Sorghum fine grade 1144 gm
- Water 2000 ml
- Milk 3000 ml
  
- Keep separate the rough sorghum flour and the fine one
- Boil water
- Add the rough flour and mix vigorously to avoid lumping
- Cook for 15-20 minutes and keep turning
- Add the fine flour and mix thoroughly avoiding lumping
- Cook for about 10 minutes and remove from the fire
- If too soft add more of the fine flour
- The mixture should not be as fluidy as porridge and not as stiff as mashed potatoes
- Leave to cool before serving.
- Serve according to groups of people (sharing group) to partake the meal. This particular dish was served as following:

- One plate for the young men (13-18 years old)
- One plate for the women
- One plate for the young girls
- One plate for the older men

Each of this group was given milk in a container. The milk was poured over and around the *asida* and the two are eaten together. Any milk that remained after the *asida* was finished was drunk fresh by any of the sharing group member who wished to. The milk used in the dish was raw since boiling of milk is not a common practice in the community.

If among the groups of young people there are some who are so young as to be disadvantaged by speed of eating, the mature members of the sharing group leaves some for these younger people to ensure some type of equity at sharing. The described eating pattern reflects current serving and eating pattern of the staple dish. The portion was eaten by six people. The food is eaten with fingers, or with small calabashes or cowrie shells which serve as spoons.

**Morbidity and child feeding:** As shown in the following list, the Dinka enumerated a long list of the childhood diseases that are common among their children. The following is the list of childhood diseases: diarrhoea (*yac*), vomiting, goitre locally known as *liir*, whooping cough, measles, malaria, TB, skin diseases, diseases of worms in the hands and buttocks, guinea worm, eye infections, measles (*konthok*), and polio. Even diphtheria was mentioned as a common condition.

Because this study has invested interest in nutritional perspectives of the diseases, probing was done as a follow-up on perception of goitre. According to the Dinka, goitre is a form of guinea worm manifestation but instead of coming out through the skin or remaining in the stomach as the two other forms of goitre, it gets lodged in the throat. The guinea worm that remains in the stomach, is locally known as *kom*. Goitre, although not known to respond to treatment, is treated with herbs. Some people try to remove by cutting-off the swollen gland but this does not also work. This is a clear indication that the origins of goitre is not understood. The main intervention strategies applied in many countries is fortification of salt with iodine. The women indicated that they have not had salt of any type since 1993. The researchers later learned that this was due to the difficulties experienced by UNICEF/ OLS in air-lifting the salt.

There are no major dietary changes during sickness episodes though there is temporary withdrawal of foods that are perceived to cause or aggravate a disease. *Asida* and porridge are associated with causing diarrhoea in very young children. Diarrhoea, in such a case, could be a reaction to a food that the baby's digestive system is not accustomed to and hence what is perceived as diarrhoea may be the body's a coping mechanism. In this case there appears to be a rationale with a scientific base for withdrawal

### **Traditional Practices and Current Weaning Practices**

FGD and case studies indicated that traditionally the Dinka did not have child naming ceremonies, the child was just given a name by its father. Nevertheless, the educated people of towns have started having child naming ceremonies. It is felt that these are practices that are being adopted as a result of influence being exerted on the Dinka as they interrelate with Arabs.

Currently the mothers are practising confinement of newborns for the first three days. The mothers do not take the babies outside the house until the fourth day.

Although not a universal practice among the Dinka, it appears that there are some mothers who believe that the breast that a newborn is put to the very first time is gender based.

The report was that baby boys are put to the right side breast while baby girls are put to the left side. Many of the mothers in the FGD appeared unaware of this practice; hence the conclusion it is not important and in any case it is insignificant in the nourishment of babies. This practice was not reported among the Nuer while the Latuko have a similar practice but the baby girls are put on the right side breast while baby boys are put on the left.

Mothers obtain knowledge and information on child feeding from their mothers mostly by observation. When asked whether there are problems in the way children are being fed, they pointed out that some important food items, eg., sugar, rice, salt, bread and tinned milk are not available. In spite of the World Vision International attempt to provide such services probably there is need to target a bigger population. The fact that they raised the issue of inadequate advisory facilities implies that they would be amenable to change. This was confirmed when the women said that they are willing to adopt new practices if advised to do so.

*At a Cattle Camp in Nabagok*





### **Case study, Dinka 1**

*Rebecca Jok is twenty seven years old and lives in Nimule camp for displaced persons. She is married in a monogamous setting. She has had six children, two have died thus only four, all boys, are alive. The youngest child Chotbol is two and a half years old and is still breastfeeding. Chotbol was put on the breast within the first hour after his birth. Ever since, Chotbol has been breastfeeding on demand. The only difference between the way Rebecca breastfeeds in the day to the way she does it at night is frequency. At night Chotbol breastfeeds fewer times than during the day as he sleeps most of the time. There are times when Chotbol is left under the care of others and thus has no access to the breast. Although Rebecca has no girls, she feels there is no difference in breastfeeding of males and females. When Chotbol is ill his mother continues breastfeeding him. Chotbol does not take any other milk apart from breastmilk but this is because his mother has no access to other milk. When Rebecca is absent Chotbol is left under the care of the maternal grand-mother. Chotbol was initiated to supplements to breastmilk at the age of five months when his mother started giving him plain water. She was advised by other women (older than her) to give water as it keeps the baby's body cool. At six months he was introduced to sorghum porridge in which sugar, when available, is added. Porridge was introduced because Chotbol kept crying even after breastfeeding. Rebecca, thus, concluded breastmilk was not adequate and hence Chotbol needed additional food. Rebecca was solely responsible for the decision to supplement to breastmilk. Rebecca does not force Chotbol to eat when he refuses food. Instead she comforts and cajoles him as she tries to coax him to eat. Chotbol is given three meals a day; in the morning, midday and evening. Rebecca prepares unimix porridge and gives it to Chotbol in the morning and midday before sleeping. Chotbol is served a full cup (500 ml) of unimix porridge per feed. Mostly he finishes this amount but on few occasions he does not drink all the porridge. On assumption that Chotbol finishes the cupful of the porridge then he at least takes 1000 ml of unimix porridge. Rebecca prepares a sorghum dish called *kisra* but does not give it to Chotbol when he is ill neither does she give him *kop*. These are hard foods and are therefore not suitable for sick children. During the periods Chotbol is experiencing illness episodes. Rebecca makes an effort to give him chicken soup. On asking Rebecca whether there are foods that are known for protecting the body against diseases. She responded that a child who is well fed does not easily get ill. In addition she thinks that milk, fish and meat protect the body against malaria and pneumonia. She also explained that the function of food is to keep children and people alive in addition to satisfying hunger. Rebecca gets advice on how to feed children from her mother. Rebecca is mainly responsible for meal preparation.*



### Case study: Dinka 2

Arual Chol had three children; she delivered the first two children at her parents home where she returned to 10-20 days before delivery and remained for about a week after delivery. The first child died three days after he was born. Arual believes that washing of the baby before the stipulated number of days lapsed caused the death. Achol, the last born, therefore, was not washed until the fourth day. Arual and her husband did not have naming ceremonies for their children who have all been born in rural areas. Naming ceremonies, according to Arual, are held in towns by educated people. Achol, who was born at night, at his father's house, was put to the breast immediately and, henceforth, was breastfed on demand. Although breastmilk flow was established on the third day, Arual did not give any prelacteals, not because she does not believe in giving them, but because she had nothing to give. She described the first milk that came from her breasts as watery and had nothing else to say about it. This is an indication that, either way, colostrum was of no significance to her. The first breastmilk supplement that Achol was given was sorghum porridge. It was given at the time he was able to sit alone (unsupported). A child at this developmental stage would be about 5-6 months old. It is most likely that Achol was exclusively breastfed for about five months, thus, his diet consisted of breastmilk and sorghum porridge of which the latter was given once a day. Thus qualitatively, the child would be getting all the nutrients he was getting from breastmilk and in addition the following from sorghum porridge. The following are the main nutrients that could be yielded from sorghum; energy, protein, calcium, iron and folic acid. Arual would extract the juice of *balanites aegyptica* lallob fruit and add it to the porridge. The porridge was fed to Achol using a spoon like calabash. Other foods were introduced at the age when Achol was able to stand; at about nine to ten months. The foods included asida, the staple dish of the Dinka (see recipe) whose basic ingredient is sorghum. Because asida is thicker than porridge, Arual uses a finger to feed it to Achol. She said she used to wash her hands before feeding the child. A 100 g of sorghum flour would yield the following nutrient levels: energy at 335 calories, 9.5 g protein, 26 mg calcium, 10 mg iron 51 ug folic acid. Achol was breastfed until the age of three years; the time Arual and her husband decided they were ready to have another child. Achol, thus, had to stop breastfeeding. Arual is now eight months pregnant. To wean her child, Arual did not send her Achol away; she gave cowmilk whenever he wanted to breastfeed. She did not smear chilli on her breast as some women do. At the age of three years Achol was given milk at the rate of two times a day at 250 ml per intake. This means he was taking 500 mls of (whole) milk per day. This amount of milk would provide energy equivalent of 1600 kilojoule or 395 calories, 19 g protein, 525 mg calcium, 27 ug retinol and 80 ug B carotene, a little of the B vitamins and 6 ug folic acid. Cowmilk is lacking in iron and hence a child who is totally dependent on milk subsists on an iron deficient diet. Achol, so far in his short life has had meat once, no eggs and no fish (his mother, however, reported that if these were available she would give them to the child). Arual allows the child to eat pumpkin but not pumpkin leaves. On probing Arual explained that when she gives Achol the pumpkin leave dish she prepares he refuses to eat. Further probing on how she prepares the leaves revealed that due to lack of salt, chilli is added to the leaves to make them tasty. It then became obvious that the pumpkin leaves are too chilly for him and thus their rejection. Arual explained in many households chilli is used in preparation of pumpkin leaves. Chilli substitutes for salt. It is unfortunate that young children are unable to eat this food because pounded groundnut, which is of higher calorie density and nutrient value (see Annex 3), is added to the pumpkin leaves. When honey is in season, Achol is given neat honey. The rest of the family eats boiled cassava but Achol is still too young for this. He will be able to eat it at about the age of five years. Arual pointed out that cassava has recently been introduced in the area and that in some households, cassava leaves are used as vegetables. Arual said children do not like cassava leaves because they are bitter. Arual in describing what Achol had eaten in the past twenty four hours said that at midday the child had a cup of fresh non-boiled milk and for dinner he had an asida like meal but instead of sorghum it was made from maize. He also drank a lot water throughout the day.

### **Dinka:- Misconceptions**

- Prolactal feeds are necessary to keep the baby going while establishment of breastmilk flow is awaited.
- Use of salt water solution as a prolactal feed.
- Colostrum should be discarded and belief that it can cause death. Currently being fed to babies due to scarcity of breastmilk substitute; eg. Infant formula
- Belief that breasts should be washed prior to breastfeeding.
- Diarrhoea: children would probably develop diarrhoea if they consume pumpkin leaves.
- That children will develop diarrhoea if their mothers have sex when they are still lactating. This interferes with proper management of diarrhoea episodes that are perceived to arise from breaking a taboo, such as this one.
- Treatment of diarrhoea; buying tetracycline capsules from shops and administering as advised by mothers who have previously used capsules.
- Goitre: perceived as a form of guinea worm manifestation.
- That since traditionally Dinka did not add groundnuts to child's porridge the status quo should be maintained.
- Point of clarity; the relationship between poor dietary intake with their capacity to produce breastmilk.

### **Specific Conclusions For Dinka Based on Study Results:**

- Children are always breastfed on demand
- Weaning process starts between the age of one to three months with either cowmilk or sorghum porridge as the main breastmilk compliments.
- The mother 'inadequate breastmilk syndrome' is the universal reason for initiating weaning. Thus the mother's confidence in her breastmilk production capacity is absolutely necessary in the decision to initiate weaning.
- While cessation of breastfeeding is mostly determined by the child's father, when to initiate weaning and the foods to give are dependent on the child's mother.
- The father is an important factor in the total duration of breastfeeding and thereafter, as the main food resource base, the quality of nourishment of the child.
- By the age of one year children are fed on *asida* (family diet) whose basic ingredient is sorghum flour with, on availability, cowmilk is incorporated; but breastfeeding continues.
- Those with access to cowmilk introduce supplementation when babies are younger than those without access. Access to cowmilk is an important determinant of the duration of exclusive breastfeeding.

- If a baby loses its mother at an early age, wet-nursing is done by the maternal or the paternal grandmother. Other relatives can play this role if neither of these is available; the person has to be a relative and is identified by the child's father.
- Almost all children are on supplementary feeding at or from the age of six months.
- Breastfeeding frequency is baby rather than mother determined as it is universally done on demand.
- There is no gender distinction in feeding of male and female children.
- Cowmilk is the most important food for growth, energy and health and hence the belief that so long as children get milk they are adequately catered for.
- Perceived function of food is to promote growth and keep the child healthy.
- Deficiency in current feeding practices: children cannot eat leaves (vegetables), while key foods identified as missing are: tinned milk, salt, sugar, rice and bread.
- Community is experiencing iodine deficiency as manifested by presence of third grade goitre. Households' lack or have very limited access to salt let alone iodized salt which is a major contributory factor; this confirms why more focus should be given to iodine deficiency in this region and especially Tambura in the Western Equatoria.
- Frequency in feeding supplementary foods to children ranges between two and four times a day when children are residing at the normal household level.
- When residing at the cattle camps children have access to milk throughout and hence feed on demand.
- While at home base, feeding of children is the responsibility of mothers while the father assumes that responsibility once a child moves to the cattle camp. In the absence of the mother, the father temporarily assumes the role of feeding the child.
- The paternal grandmother may be given a substantial role at the cattle camp where she assists the child's father in child-care. The maternal grandmother will play a substantial role if the child is temporarily staying with her at completion of the weaning process.
- Mothers continue breastfeeding during the times when children are sick.
- Traditionally there were no child naming ceremonies. The current celebrations of child naming is a new adoption from Arabs and practised by a few; mostly those who have been exposed to urban life.

- Community appears amenable to new ideas, that is, concerning issues in which there are no traditional guidelines. Otherwise adoption of change would occur if coupled with some real success cases of what is being proposed.
- The grandmothers or elder siblings are the only sources of information/ advisors on child rearing that mothers have.
- There are no major dietary changes during sickness episodes though there is temporary withdrawal of foods that are perceived to cause or aggravate a disease. *Asida* and porridge are associated with the two conditions but only in respect to very young children.

### **Dinka: Specific Recommendations**

These recommendations are based on child feeding aspects that are unique to the Dinka while those that cut across the three study groups are presented in section 4.2.

- The Dinka exclusively breastfeed their infants for a period lasting between 3-6 months, although a good practice, there is need to encourage them to be more observant to child growth after 4 months if the child is still being exclusively breastfed beyond this age.
- Due to modernisation and exposure, there seemed to be a desire or even pressure to feed children on commercial foods at the expense of breastmilk. There is therefore an urgent need to protect breastmilk by discouraging use of breastmilk substitutes.
- There is need to educate the community on causes of goitre to counter the belief that it is a form of guinea worm disease and to enlighten the community on its nutritional origin. In this connection unavailability of iodized salt should also be addressed.
- Adding groundnuts and simsim to childrens diet should be protected and strengthened.

## **3. COMPARISONS AND MESSAGE BASE**

### **3.1 Comparison Between The Three Study Groups**

In general, the three study groups have very similar child feeding practices but the similarities and differences are captured in Table 2. As can be seen all mothers breastfeed on demand while the main reason for introducing supplements to breastmilk is the feeling that they are not capable of producing breastmilk that is adequate to satisfy the child. The mothers determine the timing of introduction of supplements and the type of food to give while the fathers are mainly responsible for termination of breastfeeding. Most mothers give prelacteal feeds. This may jeopardise breastmilk production which is stimulated by sucking at the breast which prelacteal feeding undermines; thus less sucking may result in poor milk production.

There is great need to dialogue with mothers on the best ways to deal with nourishing the baby prior to proper establishment of lactation.

The Nuer women tend to stay with their parents for a longer period prior to and after delivery than the Dinka while the Latuko do not seem to place much significance to staying with their parents. The practice of sending children to their maternal grandmother not feasible among the Dinka and Latuko living in camps of displaced persons due to dispersion of family members which has resulted from the war. The Dinka unlike the Nuer and the Latuko who send their children to the grandmothers to close the weaning process, send the weaned children to the cattle camps where they have access to cowmilk all the time.

Unlike among the Nuer and the Latuko whose lists of childhood diseases were short, the Dinka provided a long list. Diarrhoea, however, is common among all children and none of the mothers appeared to be aware of the consequential dehydration that often accompanies diarrhoea.

**Table 2: Child Feeding a Comparison Between the Nuer the Latuko and the Dinka**

The Nuer	The Latuko	The Dinka
<p><b><u>Prelacteal Feeds</u></b></p> <p><input type="checkbox"/> Give ORS and Water salt solution</p> <p><input type="checkbox"/> Give cowmilk not diluted if cow is lactating, diluted if it is not.</p>	<p><input type="checkbox"/> Cowmilk diluted with water</p> <p><input type="checkbox"/> Sugar salt solution</p> <p><input type="checkbox"/> Salt water solution</p>	<p><input type="checkbox"/> Cowmilk or tinned milk</p> <p><input type="checkbox"/> Salt water solution</p>
<p><b><u>Exclusive BF</u></b></p> <p><input type="checkbox"/> Mostly no exclusive breastfeeding</p>	<p><input type="checkbox"/> Many exclusively breastfeed for a period of at least one month</p>	<p><input type="checkbox"/> Many exclusively breastfed for a period ranging between one and six months</p>
<p><b><u>Breastfeeding</u></b></p> <p><input type="checkbox"/> No differentiation by sex of the breast offered at the initial feed</p> <p><input type="checkbox"/> Breastfeed on demand/frequency mainly determined by baby</p>	<p><input type="checkbox"/> Initial feed baby boy offered left breast, girl right breast</p> <p><input type="checkbox"/> Breastfeed on demand /frequency mainly determined by baby</p>	<p>•Breastfeed on demand/frequency mainly determined by the baby</p>

<p><b><u>Breastmilk supplements</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The strong belief in cowmilk being more powerful than breastmilk</li> <li><input type="checkbox"/> Greater use of cowmilk</li> <li><input type="checkbox"/> The feeling that cowmilk is a must in the survival of children</li> <li><input type="checkbox"/> No consumption of pumpkins by children</li> <li><input type="checkbox"/> No fish for children below 2-5 years</li> <li>• Ideally a cow should be allocated to each child at birth to provide for its milk requirement.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Rare use and lack of emphasis in cowmilk as a power food.</li> <li><input type="checkbox"/> Less use of cowmilk</li> <li><input type="checkbox"/> Cowmilk not that crucial</li> <li><input type="checkbox"/> Ideally a cow should be allocated to each child at birth to provide for its milk requirement</li> <li>• Children consume pumpkins</li> <li>• Children consume fish</li> <li>• Children consume eggs</li> <li>• Children fed on sorghum porridge mixed with groundnuts and/or honey, tamarind</li> </ul>	<ul style="list-style-type: none"> <li>• Cowmilk plays a crucial role</li> <li>• Children are sent to cattle camps</li> <li>• Ideally a cow is allocated to each child at birth to provide for its milk requirement</li> <li>• Vegetables and fruits do not constitute a significant part of the diet</li> <li>• Exotic fruits are being used</li> </ul>
<p><b><u>Feeding Frequency</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Majority of children are given supplementary feeds two times a day</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Latuko give supplementary feeds more frequently 3-6 times a day</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Supplementary foods are given 2-4 times a day.</li> <li><input type="checkbox"/> Feeding while at the cattle camp is on demand/ thus frequency is child determined</li> </ul>
<p><b><u>Food security</u></b></p> <ul style="list-style-type: none"> <li>• The Nuer are more food insecure than the Latuko of Ikotos</li> </ul>	<ul style="list-style-type: none"> <li>• The Latuko are more food secure than the Nuer.</li> </ul>	<ul style="list-style-type: none"> <li>• Of the three study groups, the rural Dinka are most food secure</li> </ul>

<p><b><u>Food base</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Narrow food base</li> <li><input type="checkbox"/> Foods are: milk, sorghum, wild vegetables</li> <li><input type="checkbox"/> Salt: occasionally available (not clear whether iodized; samples seen at the market had expired)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Latuko have a wider food base than the Nuer and the Dinka</li> <li><input type="checkbox"/> Foods: sorghum, maize, groundnuts, simsim, cassava, wild yams, sweet potatoes, milk, eggs, chicken, meat, fish, honey, papaya, mangoes, corchorus sp. and g. gynandra sp. indigenous vegetables and fruits.</li> <li><input type="checkbox"/> Salt: Appeared not to be as rare as in Leer or Nabagok</li> </ul>	<ul style="list-style-type: none"> <li>• Dinka food base wider than Nuers' but Latukos' is wider than the Dinka's</li> <li>• Foods: milk, sorghum, maize, cassava, sweet potatoes, indigenous vegetables and fruits, meat, fish, pumpkins, groundnuts, simsim, eggs, chicken, okra, honey</li> <li>• No salt available since 1993 (cases of obvious goitre were seen in Nabagok).</li> </ul>
<p><b><u>Father's role in weaning</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Main food resource</li> <li><input type="checkbox"/> Main determinant of age at which breastfeeding ceases</li> <li><input type="checkbox"/> Does not cook but feeds child when mother goes out</li> </ul>	<ul style="list-style-type: none"> <li>• Main food resource</li> <li>• Main determinant of age at which breastfeeding ceases</li> <li>• Does not cook but feeds child when mother goes out</li> </ul>	<ul style="list-style-type: none"> <li>• Main food resource</li> <li>• Main determinant of age at which breastfeeding ceases</li> <li>• Does not cook but feeds child when mother goes out</li> <li>• Mainly responsible for child at the cattle camp.</li> </ul>
<p><b><u>Gender concerns</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> No difference in feeding boys and girls</li> <li><input type="checkbox"/> No tradition of taking or not taking newborn outside the house is being practised</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> No difference in feeding baby boys and girls</li> <li><input type="checkbox"/> Latuko newborns not taken outside the house first four days (girls) three days (boys)</li> </ul>	<ul style="list-style-type: none"> <li>• No difference in feeding baby boys and girls.</li> <li>• No tradition of taking or not taking newborn outside is being practised</li> </ul>



Although among the three groups there were those who felt that their food intake was poor, the Latuko and Dinka women generally looked better nourished than the Nuer women. There appears to be a general neglect of consumption of vegetables and fruits either indigenous or exotic.

### 3.2 Message Base

The following are propositions which could form a base for development of messages to be communicated not only to mothers but to all population segments that are involved in child feeding (mothers, fathers, grandmothers and siblings of both the mother and child). The propositions lean towards promising practical improvements and possible areas in which change can be stimulated. There are two basic premises for the messages those to be encouraged and those to be discouraged. The message base should take the misconceptions listed under each study group into consideration.

#### Messages that encourage:

- The mother to suckle the baby prior to the establishment of breastmilk flow.
- In the first few (2-3) days following the birth of a baby, the baby should be put to the breast even when there is no breastmilk flow.
- It should be accompanied with messages explaining why this is critical:- to enhance and stimulate let down reflex which enables flow of the milk
- The promotion and understanding and appreciation of the unique value of colostrum.
  
- The mother to put the baby on the breast within the first half hour after birth
- Messages explaining the issue of bonding between baby and mother and the psychological benefits accrued especially by the baby
- The mother to continue breastfeeding on demand ??
- (do we understand the negative effect this may have on breastmilk production. where the body is not encouraged to have a pattern of milk production.
- Mothers to exclusively breastfeed for up to about six months as per WHO (1997) recommendations . In this context must address lack of mothers confidence in successful breastfeeding which often has led to '*inadequate breastmilk syndrome*' and the subsequent introduction of supplementary foods. Messages that contribute to empowering mothers into believing in their capacity to produce adequate breastmilk
- Insisting on exclusive breastfeeding for 6 months appears a losing battle when the realities facing the mothers include a baby who cries most of the time and wants to suckle ever so often and perhaps when given a supplement will settle for a considerable time to allow a woman with heavy workload to put some work into that time. The majority of mothers believe that capacity to produce milk is related to the persons diet.
- Mothers to burp their babies after feeding. Babies bring out milk after breastfeeding and this is perceived as vomiting

- Pass messages that inform mothers about the value of colostrum (immunological and nutritional) and that it does not cause constipation.
- During weaning encourage mothers to feed their children at least five times a day (especially those who are feeding only twice a day; particularly the Nuer)
- Address the issue of low calorie density foods that currently constitute the main weaning foods. Hence encourage consumption high calorie density foods ie.,oil/fats. Add fat/oil to food.
- Related to above is support for sustained consumption of groundnuts and simsim and advocacy for its consumption in communities where it is not being consumed.
- Advocate consumption of vegetables; among the three groups and the Nuer in particular eg., propagate consumption of pumpkin and cowpea leaves.
- Advocate consumption of fruits.
- Educate community of nutrient value of fish and promote its inclusion in children's menu hence consumption.
- Attention into feeding of young children to ensure adequate food intake through supervision and support eg., putting food into the mouth.
- Address preventive measures that protect/promote good nutrition:
- Boiling of milk (TB is common)
- Importance of complete Immunization of children and pregnant women.
- Causes of diarrhoea (to shatter the myth that adultery, pumpkin leaves and fish cause diarrhoea)
- Address dehydration prevention and management
- Education on nutrient leakage due to intestinal parasites infestation
- Filtering of water
- Washing hands before eating
- Use of latrines

#### **Educate community on:**

- Under-utilised locally available foods that are of high nutrient quality .
- Conscientize extension workers on the nutritional quality of the food crops they introduce to communities and encourage them to appraise the nutrient output of these foods. eg., when Tomato is introduced is it for its nutritional value. The crucial consideration should be on what the nutrient contribution of the new food crops will be.
- **Childcare:** Messages that sustain the role fathers are playing in child care as a way of freeing time for the mother.
- Address causes of misinformation on child feeding arising from the sources of advice available to the mothers. For example, What is the knowledge base of the child's grandmother, TBAs and finally the CHWs and other extension staff who play advisory role to mothers.
- Addressing micronutrient deficiency: use of iodized salt, and sensitize on expiry dates on products) prevention of Bitot's spots through consumption of leafy vegetables and other vitamin A sources eg., fish oil.

## **To Discourage**

- Use of ORS and salt water solution as a prelacteal-misuse of ORS.
  - Washing of breasts before every feed.
  - Withholding of foods and fluids during diarrhoea.
  - Explain about oil/fat that it does not aggravate malaria as this leads to withholding of food with fats eg. meat and fish when a child has malaria.
  - Use of cow urine as a milk preservative (observed amongst the Nuer).
  - Use of cow urine for washing hands (observed amongst the Nuer).
  - Correct misconception eg., fish causes diarrhoea.
  - Bottle feeding.
  - The misconception that leafy green vegetables like pumpkin cause diarrhoea.
- Although it is stated that use of cow-urine should be discouraged there is no evidence that urine poses danger to health.*

## **4. CONCLUSION AND RECOMMENDATIONS**

### **4.1 General Conclusions**

1. Early introduction of supplements result from mothers lack of confidence in breastmilk production "inadequate breastmilk syndrome"
2. Onset of weaning between Latuko/Nuer is different . Nuer introduce prelacteal feeds and continue giving them as supplements once breast-flow is established. Latuko have a distinct period of exclusive breastfeeding once breastmilk flow is established
3. The Latuko have a higher frequency (3-6) times of daily meals, the Nuer offer two meals a day while the Dinka give 2-4 time a day. These frequencies are likely to be insufficient to enable the older child obtain adequate protein and calories.
4. There is no gender bias in feeding male and female children.
5. Among the Nuer, Latuko and the Dinka the child's father is a critical decision maker in determining when a child should stop breast-feeding, while the decision to introduce supplements and the types to give lies with the mother.
6. Almost all mothers think they are good breastfeeders yet they do not have confidence in their ability to produce adequate breastmilk.
7. The Nuer strongly believe in cowmilk as a "*power food*" and hence the importance of initiation of the child into its consumption at a very early age for the child to get used to the breast. The Dinka and Latuko are not as emphatic about the power of milk as the Nuer.

8. Child's mother is principally responsible for preparing food and feeding the child, when she has to go out the child's father feeds the child and other relatives, ie., child's siblings, grandmother, siblings of mother and father.
9. Scarcity of resources sometimes makes people use what they have more efficiently, eg., lack of other alternative feeds makes prelacteal feeding impossible and also results in use of colostrum.

#### **4.2 Recommendations**

1. Address the issue of nourishing newborns in the first week with the aim of liberating mothers from the misconception that prelacteal feeds are necessary during that period. This should encompass the types of prelacteals being used with the aim of discouraging use (as prelacteals) of fluids that are meant to be used in oral rehydration therapy.
2. Breastfeeding in the current practice is universal. This practice should be protected and supported while attempts should be made to encourage mothers to extend the period of full exclusive breastfeeding to a period of at least four months. This implies the need to address mothers' self confidence in their capacity to produce breastmilk.
3. Assuming that the three study groups are a reflection of communities in Southern Sudan there is need to encourage and empower households to optimise nutritional benefits from the existing food base. With the observed indications of both macronutrient and micronutrient deficiencies noted in the process of this survey they should be guided towards maximising consumption of foods that are rich in micronutrients (specifically vitamin A and iodine) while prevalence studies on these deficiencies (to include iron) should be considered. Empowering in this context implies the need to show them how to prepare some of the foods and at the second level the need to convince them that certain foods that are not given to children are rich in micronutrients
4. Advocacy for increased consumption of locally available indigenous vegetables and fruits.
5. Diarrhoeal diseases are common and there is a need to dialogue with mothers and creation of awareness in communities in general on causes and management of such diseases.
6. TB is a common disease and communities should be convinced to adopt some simple household technologies, such as boiling milk, as preventive measures. While immunization coverage of children against common childhood diseases should be widened there is need to consider immunization of the general population against TB.
7. The message base provided in this study should be used in the development of nutrition messages for various population segments that are involved in child feeding. The segments include: mothers, fathers, grandmothers, siblings of both the mother and the child. Message development should be done with the full participation of these segments and having in mind the medium of communication to be used in passing the messages.

8. Awareness creation focusing of the household members and the social networks involved in child care rather than the mother only is recommended.
9. The misconceptions highlighted in this report should be considered as points of resistance in propagating behaviour change or adoption of new ideas and should be central in the development of messages. It is crucial that the target groups are involved in developing messages that address such matters.
10. Set up campaigns and advocacy for improved environmental sanitation and personal hygiene.

## **Research Questions**

1. There is need to establish nutrient content and bioavailability of the indigenous foods, particularly fruits and vegetables, with the aim of incorporating them into the mainstream food base.
2. A study to explore utilization of available foods and define existing food base is recommended as a prerequisite to addressing nutrient insecurity in general but in micronutrients specifically.
3. Implications of breastfeeding on demand on milk reserve in the breast appears to be an issue to be addressed. Does breastfeeding on demand give the body time to build adequate reserve to satisfy the baby. Could insufficient reserve be the reason why children cry even after breastfeeding and hence the 'not enough breastmilk syndrome' reported by mothers. How much time does the body need between feeds to build an adequate milk reserve and does breastfeeding on demand facilitate this.
4. Separation of children from their mothers at the time of cessation of breastfeeding. Separation implies sending the child away to maternal grandmother or other relatives or to the cattle camps as is the practice with the Dinka. What is the implication on the health of the child. We believe that no work has been done to determine the quality of child care in general but specifically in the cattle camps and the implication of care on the health of children in Southern Sudan where child mortality is extremely high. Body mechanism controlling production; the current thinking is that breastmilk flow mechanism is like a tap that flows efficiently whenever opened by mechanism of baby sucking on the breast.
5. Alternative theory-breastfeeding on demand makes it more like leakage when not enough milk can ever be there and hence the feeling by mothers that they do not have adequate milk. Cows are normally separated from their calves and only milked at specific times. This is to regulate milk supply to enable build-up of a reserve. Farmers know that if you keep on milking a cow 'ad hoc' anytime you feel like you will not get much from that cow per time. Could this may be true of mothers' breastmilk.

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LIST OF ANNEXES

**Annex 1: Distribution of Study Sites by NGO Activities**

Area/people and NGO	Activities of the NGOs
<p><b><u>LEER [Nuer]</u></b> ACROSS</p> <p>HNI</p> <p>MSF-Holland</p> <p>RADDA BARNEN</p> <p>NCA</p> <p>WOMANAID</p>	<p>1. Health Education 2. Veterinary Services 3. Water</p> <p>1. Health 2. Coordination of onchocerciasis interventions</p> <p>1. Health 2. Water</p> <p>1. Education 2. Psychology</p> <p>1. Health 2. Education 3. Water 4. Women's programmes 5. General relief</p>
<p><b><u>NIMULE [Latuko]</u></b> ACF</p> <p>CRS</p> <p>DOT</p>	<p>1. Health 2. Nutrition 3. Water and sanitation</p> <p>1. Agriculture 2. Food 3. Water 4. Gender programmes</p> <p>1. Health 2. Education 3. Water 4. General relief 5. Peace work 6. Capacity building 7. Veterinary services</p>
<p><b><u>IKOTOS [Latuko]</u></b> ACF</p> <p>CRS</p> <p>DOT</p>	<p>1. Health 2. Nutrition 3. Water and sanitation</p> <p>1. Agriculture 2. Food 3. Water 4. Gender programmes</p> <p>1. Health 2. Education 3. Water 4. General relief 5. Peace work 6. Capacity building 7. Veterinary services</p>

NCA	<ol style="list-style-type: none"> <li>1. Health</li> <li>2. Education</li> <li>3. Water</li> <li>4. Women's Programmes</li> <li>5. General Relief</li> </ol>
<u>NABAGOK(DINKA)</u> WORLD VISION	<ol style="list-style-type: none"> <li>1. Health</li> <li>2. Agriculture</li> </ol>
CRS	<ol style="list-style-type: none"> <li>1. Food Relief</li> <li>2. Capacity building</li> <li>1. Water/Agriculture</li> <li>2. Food</li> <li>3. Water</li> <li>4. Gender Programmes</li> <li>5. Gender Programmes</li> </ol>

**Annex 2: Lexicon of Local Names of Indigenous/Other Vegetables and Fruits**

Vegetables	Fruits
<b>NUER</b> Rila Kuothro Makading Manpor Kosro Pumpkin <sup>1</sup> Beans <sup>1</sup> Squash Okra <sup>1</sup> Water lily Cowpeas <sup>1</sup> Sweet potatoes <sup>1</sup> Cassava <sup>1</sup>	Lallobo Toug Koat Bou Banlat Neem Mango Lemon Water melon Coconut
<b>LATUKO</b> Acimidat Eduti Emoloto Ehaya Ongete Amagui Cowpeas <sup>1</sup> Okra <sup>1</sup>	Tamarind fruit Mango Pawpaw Banana

Pumpkin Sweet potatoes <sup>1</sup>	
<b>DINKA</b> Pumpkin Cassava <sup>1</sup>	Ngap, Lalope Cuie Chum Kurnyuk Kuec
<sup>1</sup> The leaves can be used a vegetables but are not	

### Annex 3: Nutrient Quality of the Foods Consisting Food Base for the Study Groups

Nutrient s	Nutrients per 100 g edible portion												
	Food	kJ	Kcal	Protein g	Cal mg	Iron mg	Vit A ug	Vit B <sub>1</sub> mg	Vit B <sub>2</sub> mg	Vit B <sub>6</sub> mg	Niacin mg	Folic acid ug	Vit C mg
	Sorghum	35	345	11.0	26	11.0	20	.34	.15	.25	3.3	-	0
	Milk	330	79	3.8	145	0	80	.04	.21	.05	0.1	6	1
	Maize	1525	365	8.0	16	3.6	0	.33	.10	.20	2.2	0	0
	Beans	1340	320	22	120	8.2	0	.37	.16	.20	2.4	180	1
	S.potato	460	110	1.6	33	2.0	1800	.09	.04	.27	0.7	52	37
	Pumpkin	96	23	1	25	1.4	1200	.05	.02	.10	.5	8	8
	Cassava	575	140	1.2	68	1.9	15	.04	.05	0	0.6	24	31
	Gro udn	2395	570	23.0	49	3.8	8	.79	.14	.50	15.5	110	1

uts												
Cow peas	13 30	32 0	80	5.0	15	15	0.90	0.15	0.2	2.0	439	2
Green Veg.	0	0	2	2	2	75	2	2	-	2	-	2
Sesame <sup>1</sup>	55 8		17. 9									
Wild yam <sup>1</sup>	10 2		1.9									
Fish	48 0	11 5	22. 0	32	1.7	-	0.05	0.08	0.16	2.8	-	0
Tam arin d	92 0	22 0	5.0	165	2.2	45	0.18	0.09	0.08	0.6	-	9

Sesame and wild yam<sup>1</sup> blank refer to values not given in the Food Table

Source: West C.E., Pepping, F. and Temaliwa C.R. (1988).

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Under Estimates for dark green vegetables are used because most of them were dark green eg. g.gynandra

<sup>1</sup>FAO (1968). Food Composition Table for Use in Africa. FAO, Rome. B carotene given as mcg.

**Annex 4: Vernacular Language and Botanical Names of Selected Indigenous Foods**

<b>Vernacular Name</b>	<b>Language</b>	<b>Botanical Name</b>
Lallob	Arabic	Balanites aegyptica
Lallok	Bari	Balanites aegyptica
Bao	Dinka	Ziziplus mauritania
Bam	Nuer	Acacia Senegal
Reek	Nuer	Butyrospermum Niloticum
Rin	Nuer	Lannea schweinfurthii

## **Annex 5: Definitions**

- Asida*** A sorghum based staple dish for the Dinka which is thicker than porridge and not as stiff as mashed potatoes. Usually enriched with milk whenever available.
- Bonding** Is building of close relationship between mother and child. It also creates security for the baby.
- Mastitis** This is a condition where milk ducts get blocked or engorged because of failure to empty the breast and it becomes infected. Part of the breast becomes red, hot, swollen and tender. The woman has fever and feels unwell ( King 1992).
- Toich*** Is a swampy grassy area where cattle are taken during the dry season.
- Walwal*** A sorghum based staple dish for the Nuers which is thicker than porridge and not as stiff as mashed potatoes. Usually enriched with milk whenever available.
- Weaning** The process of feeding which starts at the time fluids and other solid foods are introduced into a child's diet to the time breastfeeding stops.





# SUDAN

