CHILDHOOD MALNUTRITION AND THE DINKA OF SOUTHERN SUDAN

AN EXPLORATION INTO THE CULTURAL AND SOCIAL DETERMINANTS OF MALNUTRITION IN CHILDREN UNDER THE AGE OF FIVE YEARS IN TONJ SOUTH COUNTY

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ACRONYMNS AND ABBREVIATIONS:

CC	Cattle Camp
CHW	Community Health Worker
CM	Continuous Monitoring
CMAM	Community Management of Acute Malnutrition
CPA	Comprehensive Peace Agreement
CTC	Community Therapeutic Care
GAM	Global Acute Malnutrition
GOSS	Government of South Sudan
FGD	Focus Group Discussion
IDP	Internally Displaced Person
IYCF	Infant and Young Child Feeding
KI	Key Informant
MCH	Maternal and Child Health
MUAC	Mid-Upper Arm Circumference
PA	Payam Administrator
PHCC/U	Primary Health Care Centres/Unit
NGO	Non-Governmental Organisation
OCM	Outline of Cultural Materials
OTP	Outpatient Therapeutic Care
RA	Research Assistant
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SFP	Supplementary Feeding Programme
SHHS	Sudan Household Health Survey
SPLA	Sudan People's Liberation Army
SPLM	Sudan People's Liberation Movement
SRRC	Sudan Relief and Rehabilitation Committee
TBA	Traditional Birth Attendant
UN	United Nations
UNICEF	United Nations Children's Fund
WASH	Water and Sanitation and Hygiene
WV	World Vision
WVI	World Vision International
WVS	World Vision Sudan
WHO	World Health Organisation

EXECUTIVE SUMMARY

This paper reports on social and cultural practices that contribute to the nutritional status of children amongst the Rek Dinka of southern Sudan. The report emphasises that nutritional states result from both biological and cultural forces and that in order for nutrition programming to be successful both must be targeted in programme design.

The Dinka are the largest ethnic group in southern Sudan, a region recovering from years of civil war, climatic changes and ethnic tensions which have left it's infrastructure in tatters. Malnutrition in children under the age of five years is prevalent in the region at an unacceptable threshold and whilst the causes for this are multifaceted, standard assessment approaches, which look at nutritional surveys and food security assessments, have failed to uncover the underlying causes. Focusing on the region of Tonj South County, Warrap State, this research was commission by World Vision, one of the few humanitarian agencies working in the county, to provide a situational analysis of the socio-cultural determinants of childhood malnutrition amongst the Rek Dinka of this region. It is primarily based on social research carried out between November 2009 and February 2010, but also summarises other available information. The study was carried out using ethnographic methods that have included quantitative and qualitative techniques.

The findings of this report identify the following cultural characteristics as having a particular influence on levels of nutrition amongst children, pregnant women or lactating mothers in Tonj South County:

- **Sharing food**

'Sharing is part of a Dinka', and the practice of sharing food with neighbours, kin and visitors is practised widely. This practice serves to create and strengthen social relationships, solidify group membership and reinforce social ties. It also acts as an important strategy for accessing food when stores are limited. This practice however, threatens the nutritional status of permanent members of the household by reducing the quantity of food available for permanent members, including children. Targeting food aid is also made particularly difficult as there is a definite discrepancy between the number of persons technically 'living' within a household and the actual number of people eating at that household.

- **Understanding of nutrition and malnutrition**

Local understanding of the connection between diet and health is limited and there is little or no knowledge of the components or the importance of a balanced diet. Explanations of malnutrition are surrounded by traditional, animist beliefs that focus on the need to please the disgruntled spirits of ancestors who are thought to be making children become 'thin, old-in-the-face, and sick'. These beliefs affect treatment patterns and choices as well as the speed at which health centres or Community Therapeutic Care (CTC)/Community Management of Acute Malnutrition (CMAM) services are sought.

- **Hygiene practices and awareness**

Poor water quality, sanitation and hygiene practices are widespread in this region with little basic understanding of hygiene or how germs are spread. In cases where there is some understanding and desire for soap, many families are limited in what they can afford to buy and how much access to water they have.

- **Cultivation and diet**

There are a limited number of crops currently grown in this region. This is due to both a lack of knowledge of other crops and how they are grown, and the limited availability of, and access to, new seedlings. In addition, sporadic conflicts have undoubtedly had a dramatic impact on recent harvests, displacing communities at times traditionally set aside for planting or harvesting.

The Dinka staple diet of durra, or sorghum, pounded into a thick porridge accompanied with dried okra, dried fish or meat, ground nuts and water is not nutritionally diverse. Whilst people do eat a varied range of 'wild fruits', particularly when food stocks are low, access to them differs significantly between household members and at different times of the year.

- **Distribution of food at the household level**

At the household level, patterns regarding the distribution of food, including the ways in which food and people are divided into groups and served in a designated order, has an impact on the nutritional status of household members. This can have a particularly negative affect when portion size is gender-biased in adults.

Ideally Dinka families will eat three times a day, however the most common coping strategy for dealing with limited food availability is for households to reduce their number of meal times to twice or even one meal per day. As children typically eat with the rest of the household they become particularly vulnerable to malnutrition when this strategy is implemented, as they are physically unable to ingest sufficient quantities of food in one sitting.

- **Treatment of illegitimate children**

The treatment of illegitimate children amongst the Dinka is highly dependent on the community the child is born into. Different communities will either embrace or stigmatise such children. Some illegitimate children are mistreated physically and others have limited/reduced access to food. Many of the children living on the streets of the big towns are illegitimate children who have run away from home and their communities.

- **Cattle camps**

Most Dinka children are sent to the cattle camp to be weaned and to 'forget their mothers', where their diet is restricted to cow's milk only, although porridge is sometimes introduced. Microbial contamination of cow's milk is common and often results in intestinal irritations and infections that lead to diarrhoea, constipation or other illnesses.

- **Cultural beliefs and practices of and towards pregnant women, in regards to diet, behaviour and work ethic**

Women consistently perform the same daily duties (including walking long distances for water or firewood, pounding sorghum, sweeping the compound and cooking) up until the day of delivery. Diet remains as it was before pregnancy. No supplements in food groups or quantity are made. Pregnant women are also governed by a number of food taboos that limit sources of protein, which is particularly dangerous during the months of the year when cow's milk is unavailable to supplement this deficiency. The nutritional status of mothers before and during pregnancy is important for the quantity and quality of her milk (specifically in regards to vitamin and mineral content) and the nutritional status and birth weight of new born babies.

- **Introduction of water to babies who would otherwise be exclusively breastfeeding**

Breastfeeding is typically exclusive of solid foods for children aged 0-6 months, but due to the very hot climatic conditions, water is often introduced before six months. This water tends to be untreated and given from 'dirty' jerry cans or cups, thereby exposing young children to pathogens that affect their health and nutritional status.

- **Polygamy**

Dinka society is polygamous and most men have more than one wife. By having multiple wives men are able to have more children and larger families who can provide security and protection for the household. The number of wives a husband has affects how much time he spends within that household, if he has many wives he will split his time between them, which in turn impacts the

quantity of food available for other family members at meal times. It also affects the age at which children are weaned, with children likely to be weaned earlier in households where the husband has fewer wives and spends greater time. Children who are weaned earlier are generally sent to the cattle camps at a younger age where their diet and nutritional intake is potentially restricted. In this instance, polygamy therefore, can have a favourable impact on the nutritional status of children. However, favouritism between wives is also common and can lead to the unequal distribution of a husband's often limited resources - resources may include cattle or money which in turn impacts the wife's access to milk and purchasing power – thereby negatively impacting nutritional status.

- **Adult education levels**

Adult education levels across southern Sudan are particularly low. The significance of a balanced diet, importance and maintenance of hygiene, what to do when your child develops symptoms of an illness and the importance of continuing treatment after symptoms disappear are all areas that are currently not well understood. School attendance rates among Dinka children are unlikely to dramatically increase in times of peace because of the cattle camp culture.

- **Migration away from villages to urban centres**

People in this region are increasingly moving away from the villages to urban centres in search of paid employment. This represents a cultural shift from traditional subsistence village life to a consumerism mentality where value is placed on receiving a regular income to purchase goods. A lack of job opportunities has led to a perceived increase in cattle-raiding as a means of getting money and threatens family nutrition levels.

- **Perceived increase in cattle-raiding and revenge attacks**

Rek Dinka are a proud people who aren't afraid to fight for what they need. It is perceived, though there is no recorded data, that cattle-raiding and revenge attacks have increased in recent months. This has resulted in a pronounced number of displaced persons without reliable access to food.

The report concludes that these cultural practices can and must be targeted in nutrition programming to reduce the levels of childhood malnutrition in the region.

The following key recommendations would significantly contribute to effectively tackling malnutrition in children under the age of five years amongst the Rek Dinka in this region:

1. Stronger focus on community mobilisation, education and promotion of behavioural change within the current World Vision CTC/CMAM programme. This should include:
   - Nutritional education targeted at pregnant and lactating women that emphasises the importance of a balanced diet of adequate proportions during pregnancy and the post-partum period.
   - Further nutrition education targeted at men and grandmothers, as the primary care-givers of children at the cattle camps, with nutrition and behaviour change communications.
   - Monitoring of Infant and Young Child Feeding (IYCF) principles with emphasis placed on the importance of assisting younger children to eat smaller, more frequent meals.
   - Collaboration with village executive chiefs to be explored as a means of disseminating key messages.
   - Inclusion of some diet, nutrition and basic hygiene topics to be included in the state curriculum for schools.
2. Greater education component for mothers currently using World Vision CTC/CMAM services and visiting health centres; behaviour change cannot happen unless mothers fully understand what has gone wrong.
3. Further and more comprehensive training for World Vision CTC staff in Tonj South. Local staff must understand the fundamental causes of malnutrition and not just how to weigh and

measure for the symptoms of it.   Local staff are the public voice of World Vision and must lead behavioural change by example.

4. Further research on maternal nutrition status and adult malnutrition prevalence in the region with particular emphasis placed on micronutrient deficiencies.
5. Further anthropological study focused on different sub-clans of Dinka from different regions at different periods of the year is needed to build a fuller understanding of the socio-cultural aspects of malnutrition and the variety of coping mechanism used by the larger Dinka ethnic group. This study offers a valuable insight into the cultural traits of the Rek Dinka in Tonj South County between the months of November and February. It cannot be assumed that all Dinka sub-clans behave in the same way and it must be recognised that behavioural patterns will change at different times of the year.
6. Target key household decision makers as agents of dietary change.
7. Develop and expand current livelihood projects to other regions of Tonj South that go beyond the provision of tools and seeds. Projects should include the promotion of crop diversification, the introduction of different farming methods and irrigation techniques, the introduction of new seeds and crops to the region and the promotion of groups or clubs for women, older males and youths.
8. Develop hygiene promotion campaigns that focus on the basic science of hygiene and disease transmission.
9. Support and partner with government ministries and private organisations to provide a multi-sectoral approach to improving health and nutrition in the region.

CHAPTER 1: INTRODUCTION

1.1 Background
1.2 Objectives of study
1.3 Scope of study

1.1 Background

Sudan is one the largest countries in the world and is bordered by nine neighbours. Before the signing of the Comprehensive Peace Agreement (CPA) in 2005, Sudan had been embroiled in civil war since 1956. The civil war was fought between the Arabic, Muslim north and the largely Christian and Animist south. At the same time there were, and continue to be, ethnic tensions between tribal groups in the south. These decades of fighting have left southern Sudan's infrastructure in tatters, disrupting food supplies and livelihood systems, crushing the education system and leading to the region becoming one of the most underdeveloped places in the world. The effects of the civil war have been further compounded by a series of climatic events that have led to regional flooding and devastating droughts.

Southern Sudan is divided into 10 States: Western, Eastern and Central Equatoria, Lakes, Jonglei, Upper Nile, Warrap, Unity, Northern and Western Bahr el Ghazal. World Vision Sudan Programme (WVS) implements its programmes in six of these states (Warrap, Western Equatoria, Upper Nile, Jonglei, Unity and Northern Bahr El Ghazal). Tonj South County is one of the three counties of the greater Tonj County of Warrap State. It borders Cuiebet County to the south-east, Yambio County to the south, Wau County to the West, Tambura to the south-west, Tonj East County and the eastern swamp (*toic*) to the east.

Most of Tonj lies in the western flood plain's agro-ecological zone, a swamp, prone to extensive seasonal flooding of the Nile tributaries. The low lying swampy areas, locally known as *toic*, are rich in fish and wild foods and provide grazing in the dry season. The county has rich fertile soils that produce high yields of sorghum, groundnuts, short maturing maize and a variety of indigenous vegetables.

The predominant group of people in the county are the Dinka, though Bongo and Jurchol (Luo) people, who are minority groups, are represented. The Dinka practice an agro-pastoral lifestyle while the Bongo people practice subsistence farming, hunting and bee keeping. Sporadic conflict to the south-east of the county is common and usually results from skirmishes related to cattle raids, and control over the limited number of water points and good pastureland for the cattle.

The Dinka, or Moinjaang as they call themselves, are a Nilotic people made up of several independent groups linked by ties of kinship, and together form the single largest ethnic group in southern Sudan. Traditionally the Dinka are transhumant pastoralists whose cattle form the mainstay of life and culture. Seasonal migration from riverside cattle camps during the dry season to more permanent settlements in the wet season are the norm. Most Dinka today are agro-pastoralists, who cultivate crops such as sorghum, grains, beans, groundnuts and vegetables to supplement the household diet.

According to the SHHS[1], 31% of children under the age of five years in Sudan are moderately to severely underweight. In southern Sudan, 14% of children are severely underweight (this means that a child's weight-for-age is more than three standard deviations below the median average). In the state of Warrap, 14.1% of children are severely underweight and in Tonj South County, using the WHO standards, the Global Acute Malnutrition prevalence (GAM, WHZ <-2 SD scores) in June 2009 was 20% (15.2-24.8 95% C.I), whilst the Severe Acute Malnutrition (SAM, WHZ <-3 SD

[1] Sudan Household Health Survey 2006

scores) rate was 3.7%[2] (1.8-5.5 95% CI). These results were based on research conducted during June 2009 which is traditionally the hunger period in this region when food availability is at its lowest. These results show an increase from a nutrition survey World Vision conducted in February 2006, which indicated GAM prevalence in children under the age of five years of 13.1%[3] and SAM rate of 1.3%. Significantly, this survey identified children under 24 months as more affected, with a GAM rate of 23.3% (compared to a GAM rate of 14.4% for children aged over 2 years) and a SAM rate of 4.2% (compared to 4.2% in those aged under two years).

The WHO classifies the severity of malnutrition in any region based on the GAM rate, as illustrated in table 1[4]. This classification system provides simple guidance for assessing the severity of a crisis.

Table 1: WHO Global Acute Malnutrition (GAM) crisis classification

Severity	Prevalence of GAM
Acceptable	<=5%
Poor	5-9%
Serious	10-14%
Critical	>=15%

Using these guidelines, acute malnutrition in children under the age of five years in Tonj South has been, and continues to be, at an unacceptable and 'critical' level. The standard assessment approaches of nutritional surveys which look at Global and Severe Acute Malnutrition levels (GAM and SAM), and food security assessments which examine harvest levels and food stocks, have been done in the county but they cannot uncover the underlying causes of malnutrition in Tonj South. Equally, factors contributing to malnutrition could be many and varied: inappropriate feeding practices (for example, people not giving their children the right type of food rather than there being a shortage of food), cultural practices (which lead to children receiving inadequate food), poor targeting, and inappropriate food security activities amongst others. This report provides a comprehensive approach to examine the situation from the beneficiary household viewpoint.

1.2 Objectives of the study

The broad goal of this research was to help contribute to World Vision's understanding of the cultural and social factors contributing to malnutrition in children under the age of five years, among the Dinka living in Tonj South County, southern Sudan.

World Vision currently adopts a Community Therapeutic Care (CTC)/ Community Management of Acute Malnutrition (CMAM) programme to treat malnutrition in children, pregnant women and lactating mothers in the region. The approach aims to treat the majority of severely acute malnourished children at home using therapeutic foods. It combines outreach and community mobilisation to better manage care of malnourished children and promote behavioural change within the community. The programme combines Supplementary Feeding Programmes, Outpatient Therapeutic Programmes and Stabilization Centres[5].

This research was conducted alongside World Vision's CTC/CMAM team and aims to identify opportunities for the approach to be further tailored to the specific cultural and social needs of the Rek Dinka communities.

[2] June 2009 World Vision Report of Nutrition and Mortality
[3] February 2006 World Vision Nutritional Survey, Tonj South County
[4] WHO 2000
[5] Grobler-Tanner and Steve Collins 2004

Specifically the objectives of the study were:

1. To create an in-depth understanding of the historical trends of malnutrition in Tonj South, identifying underlying problems contributing to recurrent malnutrition in Tonj South and highlighting prescribed cultural activities that impact the nutritional status of children.
2. To contribute to an in-depth understanding of project beneficiary households, investigating the immediate environment of households using World Vision CTC/CMAM facilities in terms of access to water, health facilities, markets, cultivated crops and so forth.
3. To develop a community 'map' of the factors contributing to malnutrition, identifying community knowledge and beliefs of what malnutrition is, how it is caused and how it can be treated.
4. To further investigate the social–cultural factors affecting the current CTC/CMAM and local environment, identifying local perceptions of child illness, treatment preferences and knowledge and perceptions of CTC/CMAM services.

1.3 Scope of the study

This study was conducted between the months of November 2009 and February 2010. The study focused on the Dinka living in the geographical region of Tonj South County and aimed to provide a detailed knowledge of the existing diet of adults and children, an analysis of the factors responsible for it, and an investigation of current attitudes and beliefs about food and malnutrition. Efforts were made to ensure that data collected was representative of the diversity of the entire county and not just certain Payams.

CHAPTER 2: LITERATURE REVIEW

The determinants of malnutrition are complex and multifaceted. Poverty and economic factors are undoubtedly extremely significant; however this report will illustrate that it is also important to appreciate the role social and cultural factors play in dietary patterns and nutritional status, particularly in relation to persons living in resource poor settings.

<u>Wealth status:</u>

Links between household wealth status and a child's nutritional status are surprisingly indirect. Recent research has looked to explain the disparity in nutritional status among groups and individuals within the same geographical area - that is to account for how well-nourished and malnourished children can live within the same social setting side-by-side. Whilst it might reasonably be assumed that malnutrition levels are directly related to household wealth, or lack of it, a number of recent studies have shown that child malnutrition occurs regardless of household wealth status. For example, Helen Young's research in Darfur showed that:

> 'Contrary to our expectations we found that malnourished children were from both rich and poor families in the community. Thus poor nutritional status did not correspond with the low 'wealth status' as perceived by the people themselves'[6]

Sharp's work on food aid in southern Sudan further supports this by identifying women in feeding centres as coming from both poor and wealthier households[7]. This suggests that targeting food to households on the basis of socio-economic data alone may be inappropriate.

<u>Status of women:</u>

In his review on the impact of food aid in South Sudan, Buzz Sharp suggests that further study is required to assess what impact the status of a mother - in terms of wealth, social status and position within the household - play on nutrition levels. He asks whether men with fewer wives or households without 'adequate male representation' are more likely to have malnourished children.[8]

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[6] Young 1990:10
[7] Sharp 2007
[8] Sharp 2007

The suggestion is that in households with poor male representation, mothers spend less time with their infants as they have more duties and jobs to fulfil. Low social status of women will affect resources – such as money- available to her and position within the household will affect inter-household allocation of these resources.

Educational status of mother:
Studies show a significant relationship between a woman's level of education and the nutritional status of her child. A comparative study on maternal malnutrition in ten sub-Saharan African countries showed that women who received even a minimal education were generally more aware of how to utilise available resources for the improvement of their own nutritional status and that of their families than those with no education.[9] As a direct result of a number of factors, including the civil war, female literacy levels are particularly low in South Sudan.

Sharing practices:
Kin sharing is a topic that is repeatedly highlighted in studies on the Dinka. The Dinka operate within a cultural system that is both egalitarian and kinship based and as a result all food is shared in equal parts among each member of the family and kin group. This act creates and strengthens social relationships, solidifying group membership and social ties. The social value of food therefore plays an important role in household decision making; rather than sell or consume surplus supplies one coping strategy for harder times is to use these products to reaffirm social connections. This creates an 'insurance policy' of mutual reciprocation during harder times[10]. An exploration into who is included in household and kinship groups is explored in this study to appreciate the potential impact this practice may have on nutrition levels in children.

Social status:
Francis Deng asserts that:

> 'Most illegitimate [Dinka] children die because of the treatment they receive from society, lacking affection and adequate care as they do. Even the mother, whose love for her baby is rarely shaken, may be so convinced of paternal curse that she despairs and the quality of her care is adversely affected.'[11]

However, as children are generally regarded as assets who will one day either bring cattle into the family, if the child is a girl (in the form of bride wealth paid by a groom's family at marriage), or offer protection to the family if the child is a boy, the status and treatment of illegitimate children and their predisposition to becoming malnourished has been explored in this research.

The theme of diminished care for certain children can be linked to Nancy Scheper-Hughes ethnography based in slum settlements in north-east Brazil. This study identifies mothers who invest love and care only in those infants likely to survive and distance themselves psychologically from vulnerable infants from whom they withdraw love and care.[12] The concept of investing limited resources and love only in those children who are born strong and healthy may link to the number of children Sudanese women aspire to have. Understanding what attributes are considered to make a strong and healthy baby vary within cultural groups and may impact nutritional status. This research begins to look at the attributes attributed by Dinka women to a strong and healthy baby and explores whether 'weaker' babies are treated any differently.

In contrast to the lack of care assertions made by Deng and Scheper-Hughes; Hadley et al.[13] concentrate on the 'buffering hypothesis' in their research focusing on the impact of food insecurity

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[9] Loaiza 1997
[10] Mintz & DuBois 2002; Oba 1994; Bush 1995, Guerrero & Mandalazi 2008
[11] Deng 1972:29
[12] Scheper-Hughes 1993
[13] Hadley et al. 2007

on young people in Ethiopia. The buffering hypothesis assumes that adult members of a household will 'buffer' younger household members from the ill effects of food insecurity. This research goes on to suggest that 'buffering' is extended in the Ethiopian context to preference boys above girls. Gender bias and preferential treatment are commonly cited in the literature as determinants of malnutrition at the household level.

Care and nurture:

The impact of care and social environment on a child's nutritional status has received considerable attention since UNICEF incorporated the role of care into their conceptual model of child welfare.[14] Key care practices are all influenced by the social environment and Arabella Duffield suggests that children left with other carers rather than their mothers (such as older siblings or grandmothers) are up to five times more likely to become malnourished[15].

Although women's employment enhances the household's accessibility to income, it may also have negative effects on the nutritional status of children, as it reduces a mother's time for childcare and ability to breastfeed.

Birth spacing and intervals:

Deng's ethnography on the Dinka highlights the birth control mechanism of abstaining from sex during breastfeeding as a means of ensuring longer birth intervals, improving the nutritional status of a mother and child by allowing a mother time and energy to focus on one baby at a time. Deng discusses the concept of '*thiang*' as an illness said to develop in the babies of mothers who break this cultural rule.

Broad societal change:

The effects of broad societal changes on eating habits and dietary patterns are an area of increasing interest to researchers[16]. This report seeks to situate the Dinka of Tonj South within their historical context, to understand the impact and influence of broad societal changes on food and eating practices. Occurrences such as the occupation of Tonj town by northern government forces during the 1990s, the impact of the civil war as an agent of dietary change, the return of high numbers of displaced people following the signing of the CPA and urbanisation will all be investigated.

In sum, this literature review reflects the broad range of social and cultural factors that impact the nutritional status of children in resource poor settings and identify some of the key factors to look out for when assessing a specific cultural group.

[14] UNICEF 1990
[15] Sharp 2007
[16] Mintz and Du Bois 2002

CHAPTER 3: STUDY FINDINGS

3.1. **Historical context and influences**
3.2. **Typical household composition**
3.3. **The role of men and women**
3.4. **Illegitimate children**
3.5. **Diet**
3.6. **Sharing practices**
3.7. **Cultivation**
3.8. **Wealth status**
3.9. **Cattle camps**
3.10. **Pregnancy, weaning and childcare**
3.11. **Awareness, understanding and treatment of malnutrition**
3.12. **Hygiene**
3.13. **Education and awareness**
3.14. **Availability and migration**

This section of the report presents the findings of the study from both the qualitative and quantitative aspects of the research - a discussion section follows. Findings presented represent a triangulation of the different data collection methods used. All enumerations used have been taken from the 163 questionnaires completed, which were used to support the qualitative data collected during interviews, observations, conversations and FGDs. Other data gained from the questionnaires were used to identify trends and develop interview questions, the findings of which have been incorporated below.

3.1 Historical context and influences:

The Dinka are the largest ethnic group in southern Sudan, inhabiting the Bahr el Ghazal region of the Nile basin, Jonglei and parts of southern Kordufan and Upper Nile regions. The Dinka are comprised of many independent but interlinked clans and Tonj South County is largely populated by the Rek sub-tribe of Dinka.

There is little documentation of the history of southern Sudan until the beginning of Egyptian rule in the north in the early 1820s. Prior to this it is believed that Sudan consisted of independent kingdoms and tribal communities. Following the occupation of the north of Sudan by the Ottoman Turks, tensions and fighting ensued as the Turko-Egyptian and North Sudanese collaborated in raids against southern Sudan attempting to exploit the rich resources of the south such as slaves, gold, ivory and timber. The Dinka defended their homeland and resisted the attempts of slave merchants to convert them to Islam, preferring instead to hold onto traditional religious beliefs or Christianity, as introduced by American and European missionaries.

When Egypt came under British rule in 1882 Egyptian troops were pulled out of Sudan, and owing to the geographical, political and cultural differences between north and southern Sudan, the British devised a system of separate administration for the two regions. When Sudan became independent in 1956 a civil war erupted between the Arabic, Muslim north and Christian and Animist south as one northern, Muslim government was now expected to rule both regions as one country. This first civil war lasted until 1972 and ended with the Addis Ababa Agreement, the violation of which led to the second civil war which started in 1983, lasting 21 years until the signing of the Comprehensive Peace Agreement (CPA)[17] in 2005. During the war many Dinka moved to neighbouring East African countries mainly for education but the majority of greater Tonj stayed put. Several major towns in Tonj South were captured by government forces for many years during the war, including Tonj

[17] Holt and Daly 2000

town, whilst many others were held by the Sudan People's Liberation Army /Movement (the southern Sudan rebel movement-turned political party who fought against the northern government forces during the war, with whom many Dinka fought). Many Dinka were forced to migrate between villages and towns to escape the bitter fighting and since the signing of the CPA many displaced people have returned to their villages.

Today there is sporadic internal conflict in many regions of southern Sudan that usually relates to control over the limited number of water points and good pastureland for cattle, or raids to steal the cattle themselves. These conflicts further exacerbate the number of displaced people forced to flee their homes and move between rural and urban areas.

3.2 Typical household composition:

The researchers spent a great deal of time observing the households interviewed, recording information about who lives and eats within a household and their relationship to it[18]. Kinship diagrams were used by the anthropologist as a means of understanding the often complex relationship of persons living together.

The Dinka live in *tukuls*, homes made of mud walls with thatched conical roofs (see figure 1), built by both a husband and his wife.

Figure 1: A traditional Dinka *tukul*

Two or more *tukuls* make up one homestead[19], with one typically used for sleeping and the other for cooking and storage or for livestock. Homesteads are typically surrounded by grassland used for cultivation meaning that the distances between different homesteads in one village can be far. In urban areas it is common for different households from the same family to share one compound[20].

The number of persons living within one homestead varies greatly from one household to the next. Most Dinka families are large; 70% of those who completed the questionnaires live in a household of five people or more and 28% in a household of seven people or more. Larger households are typically made up of extended family members and whilst it is most common for these family members to be blood-related to the husband, there are examples of family members from the wife's side living together. The Dinka are patrilineal, meaning property, status and lineage is passed from father to son, rather than mother to daughter. Household duties, such as sweeping, fetching water, pounding sorghum and cooking, are divided amongst all female persons living in the household. All

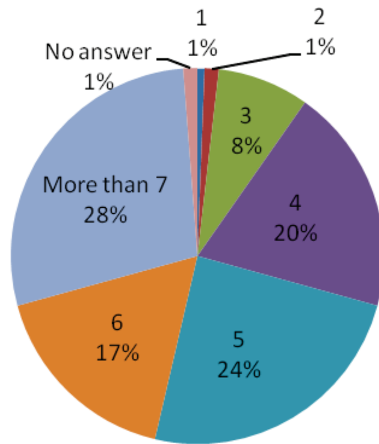
[18] For the purposes of this report, a household is defined as a person or group of people occupying a single dwelling or homestead.

[19] For the purposes of this report, a homestead is defined as the dwelling in which people live, including all buildings and *tukuls* as well as surrounding land.

[20] For the purposes of this report, a compound is defined as a cluster of different homesteads often occupied by members of the same family and often enclosed by a fence or wall.

men living within the household provide protection to the home and will contribute food or money if able.

Figure 2: Average number of persons sampled, living within one household



Polygamy is the ideal for the Dinka man. A Dinka man must marry outside of his clan (following rules of exogamy) to create a union between two families. A "bride-wealth"[21], in the form of cattle, is paid by the groom's family to the bride's family to finalise the marriage alliance. The price paid as bride-wealth correlates to the social position of a bride's father, with the daughter of a village chief or big man (important men within the community) requiring more cows than others. Men are restricted in the number of wives they have by the number of cows they can afford to pay as bride-wealth. Men who are of high social standing will often have many wives to illustrate their social status – it has been known for some men to have up to 100 wives. Each of his spouses will normally have her own *tukul* and homestead where she and her children are based (along with any additional extended family members). It is not uncommon for two or more wives to be based together on one compound but living in different *tukuls*. Where wives live on different compounds, husbands will split their time and resources between each wife, however this is not always done equally and it is common for a husband to have a favourite wife with whom he spends more time and provides with greater resources such as milk or money.

3.3 The role of men and women:

The Dinka are a male-dominated society with the role and status of women largely restricted to the household. Girls learn to cook from a young age and will assist their mothers in their daily duties and with taking care of younger siblings until they reach an age to be married themselves. Boys tend goats and sheep until old enough to help their fathers look after the prized family cattle.

A husband and wife will build their home together and repair it every two to three years. Men will construct the mud base of the *tukul* and use wood from the forest to shape the conical roof, and women are responsible for collecting grass to thatch the roof.

On a daily basis women are responsible for the household. They sweep the homestead, collect the household water, go to the forest for firewood, gather wild vegetables when other food is lacking, pound *durra* (sorghum), prepare food and care for the children. From March to July, women and available men will prepare the land around their homes for cultivation. Women will tend to crops

[21] 'Bride-wealth' is a system of marriage payment whereby the groom's family transfer wealth to the family of the bride at marriage in order to cement the union.

and the harvesting is done by both men and women. Increasingly, many women are starting small businesses to earn an income, some of which include making and selling local Mou (an alcoholic beer), selling firewood or cultivating and selling tobacco.

Men are responsible for looking after the household's cattle, for protecting the family and for producing children. 66% of those asked also consider it solely the man's responsibility to provide food for the household through fishing, hunting or selling livestock to provide money to buy food at the market. Men will also set fire to shrub-land to provide future grazing and cultivation areas. Most young men spend the majority of their time with their cows at cattle camps located near the family home. Young men leave their homes in November to live on the riverside cattle camps until March or April. They are established during the months of the dry season to ensure that cows have access to drinking water. Hundreds of households from different villages come together for these months for young men to tend and protect their cattle in one place.

The most important role for every husband and wife is to have children. Children are extremely important for the Dinka as they provide labour, protection when the males are older, and cows for the family. Girls will help their mothers in the household, help care for younger siblings, provide the family with cows and create alliances with new families when they get married. Boys help their fathers to tend livestock as children, fight and protect the family during conflict and will continue the family lineage. If a man dies before getting married or before his wife has children, a brother or close relative will take the widow as his wife and all children born in this relationship will be treated as those of the dead man. He is known as the 'ghost father and husband'. Despite the biological father having died, the new father, the uncle, will protect and treat those children as his own.

3.4 Illegitimate children:

Due to war, disaster and the ensuing upheaval of cultural norms there are many orphaned and illegitimate children, those born to unmarried parents, within most Dinka communities. Many are loved and embraced by extended family members but many others are abandoned and live on the streets of urban centres. The way children are treated is entirely dependent on the 'heart of the father', with whom all children are believed to belong – he may decide to show love and affection or he may ignore the child entirely. A father may request for his child to join him at any time. In some instances the child can be absorbed into the family unit, either of the mother and her husband or of the father and any of his wives. Some illegitimate children are treated badly however, particularly by spouses who resent the child. In these cases, children may be given only small amounts of food, physically mistreated, made to work or turned out of the family home:

> *'There are many my friend.' Most of the street children are born out of marriage - some live at home but they are neglected when there isn't enough food. 'If a man has a good heart, he'll take care of the child.'*
>
> *KI Interview with a man*

The treatment of illegitimate or '*Tuong*' children is highly dependent on the individual community who will either embrace or stigmatise such children[22].

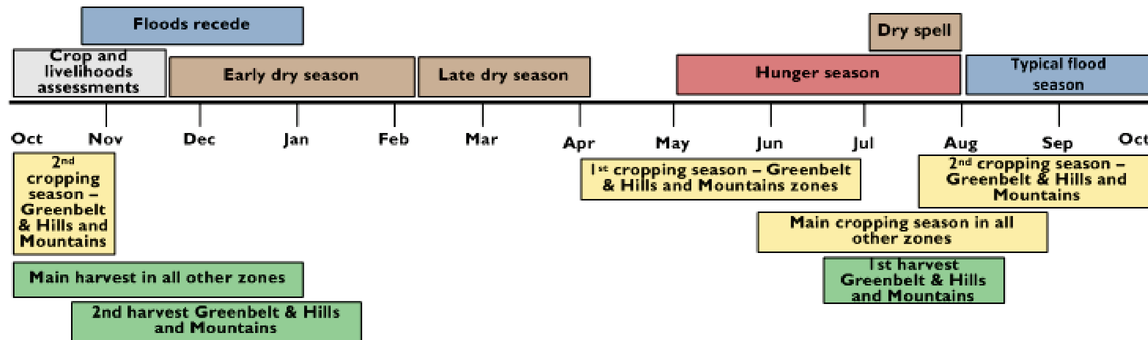
3.5 Diet:

Ideally Dinka families eat three meals a day, however due to a lack in current food availability it is more usual for households to eat two meals; once in the afternoon and once in the evening before going to bed. For those households who only have access to enough food to eat one meal a day, it will be eaten in the evening between 7 and 9pm to ensure that the family can go to bed with a full stomach. All members of the household are treated the same and young children will not be given any more meals than other family members. When there is a severe shortage of food, young children will be given priority to eat first at the sole meal time. The number of meals a household eats is dependent on the time of year; see figure 3, seasonal timeline below. Households eat fewer

[22] See also Deng 1972:29

meals as harvested stocks decline. The period when cattle stop producing milk during the dry season (due to a lack of fresh grass and water for cattle to eat and drink) and harvested stocks have run out is known as the 'hunger period'.

Figure 3: Traditional calendar of events[23]

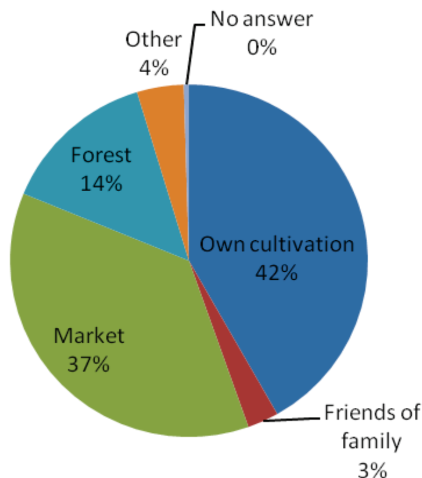


The staple of the Dinka diet is durra, or sorghum, pounded into a thick porridge called asida. This is usually eaten with a broth, typically made from dried okra, dried fish or meat, groundnuts and water. There is little variation in this staple diet and this dish is typical for both afternoon and evening meals. Other foods eaten include beans, meat (from cows, goats or chickens), fish, millet, onion, and wild fruits or vegetables. Cow's milk, in various forms, is considered a primary food for the Dinka, particularly at the cattle camps.

Wild foods, such as Cui (tamarind), thou (balagnitis egyptica), akuor, lang and nguit, play an important role in Dinka life. This is particularly so during food shortages and the 'hunger period', and also as a supplement to diversify the traditional diet. Wild fruits are gathered by women and girls as they collect firewood from nearby forests and young boys often snack on these fruits as they tend to their cattle in pastures and forests.

42% of households who completed the questionnaires rely on their own cultivation as their main source of food, whilst 37% rely on purchasing foods from a market. Only 9% of those asked felt that their main food sources were sufficient to meet the household's needs.
Figure 4 identifies the main sources of household food.

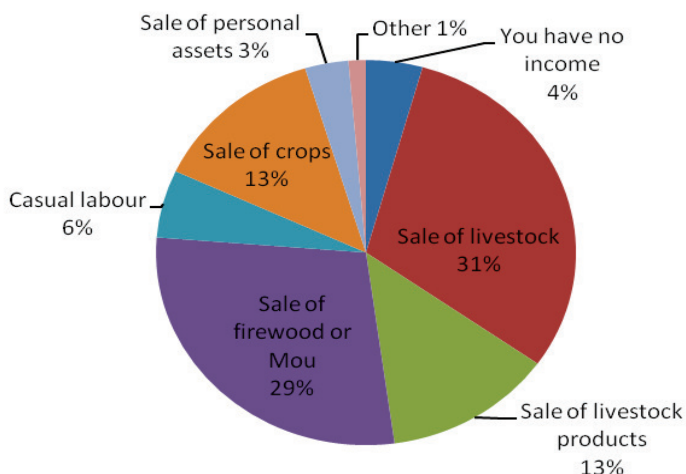
Figure 4: Sources of household food



[23] World Vision 2010

The decision to go to the market and purchase food can now be made by the husband or wife. In the past only men had access to money, as it is their decision whether or not to sell livestock. This is still the principal means of obtaining household income, however 52% of households questioned said that they rely on the sale of Mou (alcohol) and firewood. These enterprises generate a small income which enable women to make purchases at the market. Other sources of income are illustrated in figure 5.

Figure 5: Sources of household income for those sampled



Where food comes from depends on a number of factors including the time of year, access to and whereabouts of cows, the availability of money, and the location of the household. The time of year in relation to harvest time naturally dictates whether there is still any availability of stock. Access to cows is vital as their milk is used heavily in supplementing the diet when there is little food; when the cows are at the dry season cattle camps and away from the villages there is little access to their milk. The availability of money is important for purchasing and stocking up on produce from the market and location dictates what food is available to a household; those located next to a river may rely more heavily on fish than families further away. Some Dinka communities migrate towards the rivers during the dry season. Those living a long way from the bigger markets are less able to purchase and carry large quantities of food back to their homes.

All meals are prepared by women. In general, men do not know how to cook and if they do, they do not do so. Women will spend several hours preparing food over open fires (figure 6 shows how asida and porridge are cooked) and when it is ready they will divide it up onto large plates that are given to different 'groups' to share. Groupings differ slightly between households but it is usual for groups to include one with young children, another with older children, one with the husband and men, and another with the women. Figures 7 and 8 show how groups will usually sit near to each other, but sit separately during meal times. Extra groups may include young men, visitors and grandmothers. Groups will share food from one dish. Children are usually, but not always, watched by their mothers to ensure that each child has an equal share.

Who is served first is the choice of the mother. During our in-depth interviews, women told us that they typically serve their husbands and the men of the household first whilst the questionnaire responses stated women were more inclined to serve the youngest children first. 83% said the youngest children were the first to be served at meal times. The reality can only be confirmed through further observation of meal times. The women and mother of the household will always eat last even if pregnant or breastfeeding. They will usually sit with the younger children and encourage and assist them to eat their food.

Whilst there is no gender bias affecting which children eat first or the quantity they receive, there is a tendency for women to give larger quantities of food to the men of the household. This means they often serve themselves smaller portions which may not adequately meet nutritional needs.

Figure 6: Two mothers prepare *asida* and porridge over open fires for their families

Figure 7: Older boys and younger children sit separately - the older boys use their fingers to eat whilst some of the young children use a spoon for the broth

Figure 8: A male group sharing *asida* and *broth* – all use their fingers

Figure 9 shows the divided asida before it is handed out, demonstrating the different portion sizes.

Figure 9: *Asida* divided for different groups to share; notice the slightly different portion sizes

Households eat inside during the daytime where it is cooler, preferring to eat outside in the evenings. Adults and children will use their right hand to eat. They may also use a spoon depending on what is being eaten and the preference of that individual. Asida is usually rolled into a small ball in the palm of the right hand with a well created in the centre using the tip of the thumb. This can then be used in place of a spoon to scoop up broth and soups.

The types of meals eaten tend to be the same everyday with little knowledge of the components or importance of a balanced diet. Women are taught how to cook by their mothers and are unaware of how to cultivate or prepare other foods. They have limited access to other varieties of food which also hinders them in trying to cook new things. Figures 10 and 11 show typical produce bought at the market.

Figure 10: Market stall - dried fish and tomatoes

Figure 11: Dried Okra, sold by the cup

3.6 Sharing practices:

The Dinka operate within a cultural system that is both egalitarian and kinship based and as a result all food is shared in equal parts among all those present.

'Sharing is part of a Dinka'

KI interview

Most Dinka households share their food with all, whether related by kinship or stranger. This action is based on the belief that all people may 'meet again' and by feeding a stranger today, he could feed you tomorrow.

3.7 Cultivation:
The Rek Dinka practice an agro-pastoral lifestyle with migrations and cultivation determined by climatic conditions. Their migration and cultivation culture incorporates strategies for dealing with the annual cycle of one long dry season from November to April, followed by a long rainy season from May until October. Land around the homestead is prepared for cultivation before the rains are expected between March and April; cultivation begins in May. The harvest of crops takes place between July and October. A portion of these crops are then stored and preserved by hanging upside down or smearing cow's urine and ash on the seeds to prevent *weevils* from eating the grain. They are for use throughout the dry season and hunger period, however it is rare for much of this stock to be available after late December. In recent years there have been extreme weather patterns leading to low yields or no harvest, with severe flooding one year followed by drought the next.

Increasingly those living close to rivers are turning to swamp fishing for food sources and are relocating to form permanent riverside communities.

The main crops grown by the Dinka are sorghum, both short growing cycle of 90 day varieties and longer growing cycle varieties of 130 days or more, millet, pumpkin, ground nut, sim-sim (sesame), okra and tobacco. Other crops include maize and beans. Reasons stated for not growing other types of crops include not knowing how to, lack of water and poor soil. There is an apparent desire to attempt to grow new types of crops if shown how and made available. Lack of water and irrigation systems remain a potential barrier during the dry season.

3.8 Wealth status:
For the Dinka, wealth is measured by the number of cows owned; the more cows a family has the richer they are perceived to be. Cattle, described as 'the bank of the Dinka', are used as the medium of exchange for all Dinka transactions including marriage, payment of debts and as a sacrifice to the spirits. Cows provide the Dinka with milk, their urine is used to wash and dye hair and their hides are used for mats and blankets. Cow dung fuels fires and the ash it produces is used to keep the cattle clean and free from blood-sucking ticks. It is also used to decorate the Dinka themselves, and as a paste to clean teeth and, mixed with urine, to preserve seeds. When cows die, their skins are used to make mats, furniture, belts and ropes as well as being used to stretch over drums.

Cows are extremely important to the Dinka who can survive on cow's milk in various forms for weeks at a time or they can sell them to gain money to buy food at the market. Significantly, people are reluctant to sell their cattle as social status is measured by the number of cows a family owns. Many Dinka will be rich in cattle, with hundreds of animals, yet they and their children will go hungry and wear worn out clothing. In February 2010 a female cow could be bought for between 380 and 560 Sudanese pounds (USD170 to USD250[24]) at a livestock market in the town of Thiet. Bulls were selling for up to 730 Sudanese pounds (USD326). One cup of sorghum could be bought for 2 Sudanese pounds (USD0.90) at the same market.

Families who have sold all of their cows have no insurance policy for when times get difficult. They are unable to live off cow's milk and would need to purchase this, and they would need to sell other assets to gain money to buy food.

3.9 Cattle camps:
Cattle camps play an important role within the Dinka culture and are the scene of all major social activities. Young men, unmarried women, grandmothers and children all live in large camps to tend to, milk and protect cattle. During the dry season the camp moves to where the water source is

[24] Based on the exchange rate of 2.23 Sudanese Pounds to one US dollar, as quoted on Yahoo Finance on the 24th March 2010.

greatest, often a great distance from the villages they are from. All children are sent to the cattle camp to be weaned and to *'forget their mothers'*; many will be very young when they arrive and will be taken care of by grandmothers or male relatives.

The cattle camps are dirty and dusty places; figure 12 shows a typical cattle camp scene. The diet for young children below the age of three years is purely cow's milk, believed to make children strong and grow fast. Occasionally porridge is used to supplement the infant's diet; this porridge is sorghum based and mixed with cow's milk. As children become older, typically aged five years and above, their diet is matched to that of the 'big people' living on the camp and includes a*sida*, *broth*, milk and porridge, prepared by unmarried women and grandmothers.

Child health within the camps is visibly poor as the hygiene levels are low and there is so much dust and smoke around. Most children suffer from respiratory problems including coughing and wheezing while being there.

Figure 12: Scene at a typical cattle camp

3.10 Pregnancy, weaning and childcare:

Children are extremely important within Dinka culture as they provide labour, protection and cows for the family. It is difficult to estimate the average number of children a Dinka woman will have in her lifetime as, like many African cultures, Dinka men and women view talking about the number of children they have, or pregnancies they have had, as bad luck. Similarly, it is also considered inappropriate to ask about children who have died. This research has concentrated on the number of children under the age of five years currently living within a household and the pregnancy and weaning practices women used with their youngest surviving child.

93% of the 163 questionnaire respondents had at least one child under the age of five years living with them.

Table 2 shows that the mode average number of children living within each surveyed household was two, with 30% of households having more than three children aged under five years living there.

Table 2: Number of children under the age of 5 years living in the household

Number of children in household	Number of households with this number of children	Percentage
0	11	6.7%
1	39	23.9%
2	64	39%
3	27	16.9%
4	16	9.8%
5	6	3.6%
6 or more	1	0.6%

Dinka women do not change any aspect of their daily routine when pregnant. Lifestyle and work ethic remains the same, with women performing the same daily duties right up until the day of delivery. Diet remains largely as it was before pregnancy with no supplements in food groups or quantity except for the encouragement to drink more cow's milk, if available, in the later stages of pregnancy. 65% of respondents said that pregnant women should drink more cow's milk if available. The questionnaires also revealed that 68% of pregnant women eat two meals or less a day with 29% of these respondents believing that less food should be eaten in the later stages of pregnancy. Only 39% knew that food intake should increase during pregnancy. Pregnant women do not limit the amount of work they perform or the distances they walk. The only changes a heavily pregnant woman will make are to refrain from carrying heavy objects and to abide by certain food taboos. Taboo foods include eel, *chur* (a fish), fatty meats, *cir* (an animal similar to a large pig), *þer* (an animal similar to a deer), *amuk* (a mole), *amiyok* (a porcupine), deer, or cows that have been killed by a hyena. They must also avoid drinking *Mou* (beer).

When giving birth for the first time, women will return to the house of their father to be with their mother during the delivery. After their first child is born all women deliver at their own home. Often grandmothers and traditional birthing assistants (TBAs) will be present to help the delivery and to push the woman's neck down during labour; it is believed that if a woman is too upright the baby and placenta won't deliver properly.

After delivery a woman may rest inside her home for an average period of 3–10 days before returning to her daily routine. During this time she will drink more cows' milk and be offered extra *asida* and *broth*.

If a woman gives birth to twins this is celebrated and seen as a blessing from God. Twins must be treated equally as infants and dressed and fed in exactly the same way. It is common for one twin to be born bigger and more dominant than the other but despite this, both must be fed and weaned at the same time. As twins become older they must continue to be treated equally to the point that a mother will punish both children for a mistake made by one. If a mother is seen to treat twins differently it is believed that God will take at least one away.

Dinka women begin breastfeeding as soon as the placenta is delivered, usually within one hour of delivering the baby. Table 3 illustrates the typical time taken for breastfeeding to begin.

Table 3: Average time taken for mothers to begin breastfeeding

Within 1 hr	86%
More than 1 hr	7%
1 day	1%
More than 1 day	0
Other	5%
No answer	1%

Colostrum breast-milk is given to new-borns and babies are breastfed on demand usually until they are 12 months of age. Whilst breast-feeding is typically exclusive for the first three months, with only 8% of respondents introducing other foods earlier, water is then commonly introduced to the child's diet. Water tends to be untreated (in 69% of those surveyed) and given from dirty jerry cans or cups which can lead to common childhood illnesses such as diarrhoea.

Table 4 illustrates the typical age at which other foods such as cow's milk and porridge are introduced.

Table 4: Age at which other foods were first introduced

Less than 3 months	12
4-6 months	44
7-12 months	76
13-18 months	1
19-24 months	4
Older than 24 months	5
No answer	2

Most mothers continue breastfeeding until the child is two years old. Breastfeeding women will refrain from eating fatty meats and many will avoid ground nuts which are believed to cause stomach upsets. Women who are breast-feeding do not increase the quantity they eat with 68% of respondents eating two or less meals per day. Breast-feeding will continue if the mother or child becomes unwell with diarrhoea.

Babies are carried on their mother's backs while they walk, cook and perform their daily activities to ensure access to breast-milk and opportunity for bonding time. Most mothers have some time in the afternoons to rest and play with their babies. Older siblings will care for young children if left behind when mothers have to carry heavy loads.

All babies are treated the same, as 'gifts from God', regardless of how strong or weak they appear. The characteristics that make a baby strong are the size of the child and how active they are when laying down. Weak babies are born smaller and are less energetic. It is believed that some babies 'belong to God' and will die as babies, but they should be treated the same as any other child until God decides to take them.

Table 5: Reasons to stop breastfeeding

Reason	%
Mother couldn't produce enough milk	32%
Mother had to leave child to go to work each day	0
Mother died	1%
Child refused the breast	4%
Health worker or traditional healer said to stop	8%
To produce another child	38%
Beliefs related to the negative effects of breastfeeding and having sex	14%
Other	3%

Table 5 identifies the responses given as reasons for women to stop breastfeeding. The principal purpose of weaning for women is to have more children. The Dinka believe that having sex whilst breast-feeding leads to sickness for the suckling child.

> *'When the woman is passing her menstruation period and the man decides to sleep with that woman, then the woman will conceive and therefore the baby will breastfeed on the blood of that child which is inside.'*
>
> *Interview with a mother*

This belief results in a shortened breastfeeding time for many children.

The second reason why most women stop breastfeeding is due to not producing enough milk (32% of questionnaire respondents). When asked why they are not producing enough milk many women responded that it is because they are hungry, because there are no crops. When probed further, the response was that there are no crops due to drought and that there is drought because of conflict; conflict makes God angry and he is punishing the people by causing the crops to fail. Other factors that may influence the amount of milk produced by a mother include stress and rest levels. Anxiety, stress and lack of rest slow down the rate at which a woman's body produces milk and as Dinka women often return to their demanding daily routines between three to ten days after delivery this may impact on their milk production. Insecurity in the area must also contribute to increased stress levels and reduced access to water may impact milk production negatively.

3.11 Awareness, understanding and treatment of malnutrition:

The most common responses during interviews, to the question: 'What is your understanding of the word malnutrition, thot or door[25]?' were as follows:

- *'My understanding about that is when the mother sleeps with the husband and when the child breastfeeds bad milk from his or her mother.'*
- *'It is a disease or hunger'*
- *'It is Jong-nar-lou'*

When asked about what causes malnutrition the most common responses were:

- *'Sleeping with your husband while breastfeeding'*
- *'It is also caused by Jong-nar-lou.'*
- *'It is caused by spending a lot of time without feeding children'*

[25] Research assistants identified the Dinka words 'Thot' and 'Door' as the Dinka translation of malnutrition

There is some knowledge of the connection between eating habits and malnutrition however it is very limited. The more common explanations surround having sex with your husband while breast-feeding and *Jong-nar-lou* and *Jak-nar-lou*.

Sex and breast-feeding: It is believed that the male semen that enters the woman during sex will negatively affect breast-milk and effectively 'poison' the breastfeeding child.

> *'It is seen! It is seen! This lady has been sleeping with this man and her baby will be diseased. It will be seen!'*
>
> *KI interview with educated man*

This belief is what Deng's ethnography on the Dinka, refers to as '*thiang*'[26].

Jong-nar-lou and *Jak-nar-lou*: *Jong-nar-lou* is the belief that the spirit of a child's maternal uncle is looking for a goat, a chicken or a bull. When this spirit is hungry and looking for something he will demand to be given it by making one family member, usually a young child, sick and unwell. *Jak-nar-lou* is the belief that the spirit of a child's maternal grandmother is angry and punishing the family, by making a child unwell, for not paying enough bride-wealth or for not making an offering to her. Both *Jong-nar-lou* and *Jak-nar-lou* can only be overcome by making an offering to these angry spirits through their living relatives. This offering must include a bull, a goat and a chicken. It is interesting to note that the angry spirit can come from a living person.

Beliefs surrounding the causes of ill health and malnutrition affect treatment patterns and choices as well as the speed at which health centres or CTC/CMAM services are sought. For approximately half of those interviewed, parents of malnourished children will first try to appease the spirits of the ancestors before going to a Community Health Worker (CHW) or Primary Health Care Unit (PHCU). To appease these spirits parents will first visit an Acor or diviner who will tell them the root cause of their child's sickness and advise them where to go for treatment. The diviner does this by singing a song and looking into a calabash filled with water to 'see' what the problem is. Parents will normally pay one US dollar or a chicken for this service. Depending on the problem they may visit various 'experts' for treatment:

- ❖ Witchdoctors[27]: For an offering, a witchdoctor is able to tell a person why they are suffering and will commune with God and the ancestors on the victim's behalf, for them to get better. Witchdoctors are able to communicate directly with God and the ancestors and ask for all that person's desires to come true; whether these are to get better, to become rich or to be safe in battle. Witchdoctors will tell a person what they need to change in order to make God and the ancestors happy. Interestingly, witchdoctors are directing more and more malnourished children directly to CTC/CMAM services.
- ❖ Ager or exorcist: An Ager carries around a calabash that contains a small amount of grain inside. For an offering, the Ager will use this calabash to ask a particular spirit why it has chosen to possess its victim and then to ask that spirit to leave.
- ❖ Spear Masters: They are believed to be second to God and able to commune with God directly. He or she is similar to a prophet who preaches for the community to be well and prosperous. For an offering, a Spear Master will ask God to make a sick child better, or they will ask for the rains to come when there are none.
- ❖ Magicians: For an offering, they give individuals power and protection. A magician is able to get rid of whatever is causing a person sickness or unhappiness. He or she does this through providing special herbs or performing specific rituals.

[26] Deng 1972
[27] The term 'witchdoctor' is used throughout this report to distinguish a separate role to that of a Spear Master or magician. Each of the three terms - 'witchdoctor', 'Spear Master' and 'Magician' - were generated and defined by local WV staff, they were not introduced by the anthropologist and may differ between regions.

Mothers and fathers will decide which health provider to see first. Distances to medical facilities have an impact on health seeking behaviour as does word-of-mouth. Increasingly parents are witnessing and hearing about success stories from children who have used CTC/CMAM facilities and are therefore beginning to prioritise this form of treatment. Due to the current shortage of food, because of the time of year and the drought, there is little shame or stigma attached to using CTC/CMAM services or receiving food aid. It should be noted that a significant number of informants commented on the lack of drugs and medication available at their nearest hospital and PHCU and cited this as a reason not to use these facilitates.

There is a general belief among those interviewed that there is considerably more malnutrition today than in the past and that it is a condition that affects all members of the community.

'It was not there in the past, don't know what has bought this disaster'.

Interview with a mother

For those that understand there is some connection between lack of food and malnutrition, the most common explanation for lack of food is drought, believed to be caused by God because of the inter-clan fighting. Inter-clan fighting is believed to be more intense today because people have guns and are raiding cattle to generate money to buy food. The families of those killed during cattle raids then seek revenge which causes more inter-clan fighting which in turn makes God angrier and exacerbates the drought.

Figure 13: A Spear Master

Figure 14: A witchdoctor beginning a blessing ceremony for the health and good fortune of young men in the cattle camps.

3.12 Hygiene:

Knowledge and awareness about germs and how they are spread is very limited amongst much of the Dinka community, particularly those living in rural areas. While cleanliness is considered important, it can often be a low priority when resources such as water and soap are scarce. 40% of questionnaire respondents travelled further than 30 minutes to collect their water on a daily basis. This impacts how much water is available, and how much water people are prepared to use, for bathing and cleaning.

67% of households do not treat their water before drinking it.

Figure 15: Treatment of water before drinking

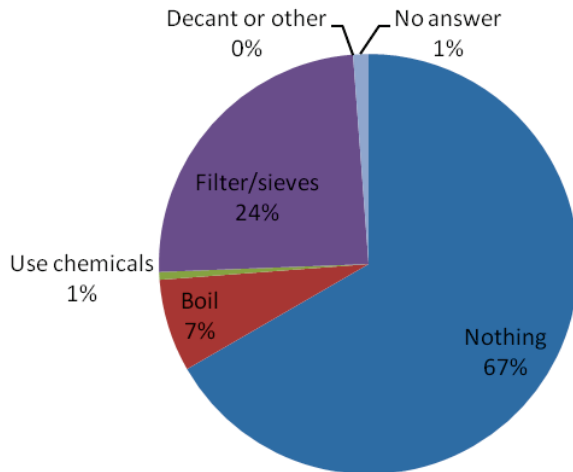
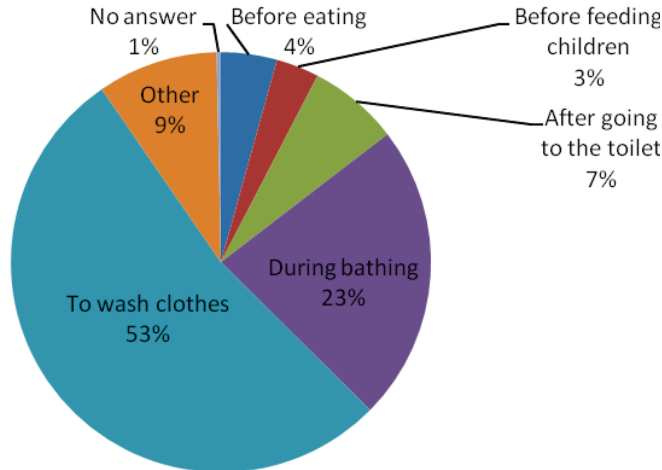


Figure 16: Typical containers and drinking water

People will bathe regularly when water is available but there is little awareness of the importance of soap to maintain health. The most common use of soap, when it is available, is to wash clothes. Very few families use soap after visiting the toilet or before eating and it is common for children to eat their food using fingers or utensils that have been rinsed rather than cleaned.

Access to water and soap are often lacking in communities where knowledge is present. Access is limited due to the distance from a water source and money to buy soap. As a result people, including children, often eat using dirty fingers and from unclean utensils or containers.

Figure 17: Household uses of soap



There is a lack of toileting facilities in Tonj South and 91% of adults and children (as identified in the questionnaire) traditionally use the bush or an open field to defecate. This is the accepted cultural norm and people would often choose to use these areas even if toilets were available. The disposal of young children and babies' waste is taken care of by the mother, usually disposed of in the areas surrounding the homestead. 72% of the children under the age of five years, living in the households who completed the questionnaire, had suffered from diarrhoea more than once in the past fourteen days.

3.13 Education and awareness:

The significance and components of a balanced diet, importance and maintenance of hygiene, what to do when your child develops symptoms of an illness, and the importance of continuing treatment after symptoms subside, are all areas that are currently not well understood. 97% of men and women surveyed in the qualitative questionnaire cannot read or write. The educational level of women in southern Sudan is particularly low for several reasons. The civil wars prevented many from starting school but the cultural reality of the Dinka people today means that schooling isn't considered as important for girls as it is for boys. A woman's responsibility in life is to get married, have children and take care of the household. Many girls are also not allowed to attend school so they are kept away from young men not approved by the family.

The education level of men is also very low in southern Sudan, mainly because of the civil war but also due to the cultural tradition of sending boys of school-age to look after cattle.
Generally, those adults who are educated in southern Sudan today are the ones who travelled to East Africa/or north Sudan for schooling during the war.

3.14 Food Availability and migration:

There is a seasonal variation in the variety of food available as evidenced by market surveys completed in conjunction with this research. Differences in availability between a Boma [28]and town market highlight dietary differences between town and village people. The larger towns have more produce and more variety available. Distance to and from the market, as well as the availability of money, impact nutritional status since some families will simply not venture the distance (up to a day's walk) on a regular basis.

Seasonal migration to riverside cattle camps during the dry season impacts the availability of milk at the village and household level. Some Dinka communities will migrate to riverside village camps during these months to supplement their diet and income through fishing. Communities are increasingly relocating to live close to the rivers on a permanent basis as they turn to swamp fishing to supplement their diet all year round.

More and more people are migrating away from the villages to urban areas where life is perceived as being better. The reality of limited job opportunities and less land means that life is hard and many people see this as the reason for a perceived increase in cattle-raiding. Cattle-raiding impacts directly the number of internally displaced persons in the larger towns which further exacerbates the situation with limited jobs and land.

Warrap State and Tonj County is heavily affected by the movement of internally displaced persons from surrounding States and counties. This movement and integration creates a cultural pluralism within the county.

CHAPTER 4: DISCUSSION

4.1. Historical context and influences
4.2. Typical household composition
4.3. The role of men and women
4.4. Illegitimate children
4.5. Diet
4.6. Sharing practices
4.7. Cultivation
4.8. Wealth status
4.9. Cattle camps
4.10. Pregnancy, weaning and childcare
4.11. Awareness, understanding and treatment of malnutrition
4.12. Hygiene
4.13. Education and awareness
4.14. Food availability and migration

4.1 Historical context and influences:

The social and cultural identity of Tonj South has been and continues to be influenced by Sudan's recent history. Tonj South, like other regions of southern Sudan, has become a fusion of traditional Dinka belief and practice and Arabic, Christian and East African culture. The social fabric, economy, food, lifestyle, tools and attitudes of the Dinka people have all been affected and impacted to varying degrees. For example, due to the occupation of Tonj town by Northern forces during the long civil war, the staple food now enjoyed here is *Kisera* or 'paper food', a traditionally Arabic dish.

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[28] The term Boma refers to the administrative centre, typically of a collection of villages, it is the lowest level of local government and generally ruled by a chief.

Broad societal changes as a result of cultural pluralism are generally more evident in towns and urban areas where people from different cultural backgrounds come together and share ideas and practices. Once merged, these ideas and practices are adopted and gradually disseminated outwards towards rural areas. Where these ideas and practices are concerned with food and dietary intake they affect food availability and affordability which has the potential to positively or negatively impact nutrition levels.

The civil war in Sudan impacted the nutritional health of the population in more ways than dietary preferences. During the conflict, attacks were frequent and hospitals and health care facilities were destroyed, making treatment and prevention campaigns extremely difficult to operate and for communities to access. Road networks and communications were cut and rural communities became isolated and dependent on the agricultural production and resources around the household. As many of the most productive members of the household left their homes to fight in the war, where many died, household agricultural production was low and people became dependant on food aid which wasn't always available or accessible. Cattle raids, where communities attack each other to steal cows were, and continue to be, commonplace, thus reducing family resources further. The impact of these events on child and maternal health is particularly negative. Poor maternal health and malnutrition often result in the low birth weight of infants, which predisposes many of them to malnutrition early in life[29]. Mothers, who would typically continue breastfeeding until the child is two years old, are also restricted in their abilities to breastfeed due to the impact of poor diet, limited access to water, stress and anxieties related to access to food and conflict, on the amount of milk their bodies produce.

Traditions and practices have also been forced to change because of the civil war and ongoing conflicts in the region, for example the traditional 'fattening contest', where young men from different villages drink cow's milk for three months of the year in an attempt to become the fattest man, has had to stop in recent times because of fighting. Men are unable to take part in this competition as they become so fat that they are unable to fight or run during cattle raids. The positive consequence of the end of this tradition is that there is more cows' milk available for other members of the family, thereby potentially positively influencing nutrition statuses.

Conflict affects nutritional status by disrupting cultivation, destroying crops and forcing people to flee their land, making it difficult to obtain food, water and shelter, therefore impacting the basic material requirements for a healthy life. Conflict also causes cows to be stolen which act as a coping mechanism for most Dinka households; when crops run out households will typically try to survive on cow's milk or sell a cow to buy food at a market.

4.2 Typical household composition:

The size of a household affects the amount of food consumed by the household as a whole and the amount of food available. A larger household usually means that there are more people able to cultivate land, to fish, to hunt or to collect wild vegetables. However, a larger household also means that when supplies of food are limited, the food that is available must be divided further, creating greater competition for limited food and a higher cost of living. One typical coping mechanism used by many of the sampled Dinka households where access to food is limited is to reduce the number of meals consumed per day.

Patterns regarding the distribution of food at the household level, including the way in which food and people are divided into groups and served in a designated order, impacts nutrition status. This is particularly negative when preferential treatment is given to male members of the household or visitors to the household above pregnant women and breastfeeding mothers.

[29] World Vision (2006) Tonj South Community Nutrition and Survival Project

The value of male representation within the household is ambiguous and needs further research as the number of wives a husband has effects how much time he spends within that household. Men, in Dinka society make all important household decisions and their absence can result in long delays in making important decisions, threatening the health and nutritional status of every member of that household.

69% of questionnaire respondents lived with at least two children under the age of five years which places a higher burden on women to feed and care for young children. This is particularly difficult during the months of the dry season (December to April) when cows have been moved to far away riverside cattle camps, thus significantly reducing the household's access to milk. Mothers must decide whether to send their children away to the cattle camps where they will have regular access to cow's milk or to keep them at home. Children who go will have reduced access to health facilities and are unable to fulfil any immunisation programmes or growth monitoring check-ups they may be part of. Children who do not go will have reduced access to food and nutritional intake, making them vulnerable to malnutrition.

4.3 The roles of men and women:

Men are exclusively responsible for cattle management and will spend large portions of their day away from their wives and homes on the cattle camps. Many will also migrate with their cattle for several months of the year, during the months of the dry season. This leaves the full responsibility for maintaining the household and child-rearing to women. Given their heavy work-load women have little time to play or focus attention on their children which, according to the UNICEF conceptual model of child welfare[30], can lead to increased levels of malnutrition amongst children under the age of five years. Significant to note here is the fact that most mothers do take children who are still breastfeeding with them, carrying babies on their backs, when they leave the homestead to collect water or firewood, for example. Weaned children are more likely to be left behind to be cared for by older siblings, neighbours or grandparents. This means children between the ages of two and five years receive very little focused time, attention or care from their mothers, placing them at greater risk of malnutrition.

Men share responsibility, usually with grandmothers, for weaning children at the cattle camps. Whilst grandmothers will be the principal care providers doing the cooking and cleaning, men will play with young children and make key decisions about their welfare such as when to seek medical assistance or if and when the child is ready to be returned to their village. It is therefore important that men, and grandmothers, are also targeted in educational programmes addressing the nutritional needs of children.

The cultural tradition of only men being responsible for providing food for the household is slowly changing as women earn their own money and are able to make household decisions for themselves.

Dinka society is polygamous and most men have more than one wife. Favouritism between wives leads to unequal distribution of a husband's often limited resources such as money to make purchases at the market. The number of wives a husband has affects how much time he spends within that household which affects the age at which children are weaned, with children likely to be weaned later in households where the husband has many wives with whom he can spend his time.

[30] UNICEF 1990

4.4 Illegitimate children:
Illegitimate children and orphaned children are common and the treatment of such children is highly dependent on the community the child is born into. All Dinka children are believed to belong to the father who may request the child to be with him at any age. Most fathers will wait until the child is old enough to be of use to him (to care for livestock, tend cattle or old enough to get married and generate bride-wealth) before requesting the child join him. Upon entering the new family unit the child is vulnerable to health and protection issues from the father's wife, who may embrace or resent the child. Children left with their mothers are also vulnerable to the treatment of new husbands. Some illegitimate children will remain with grandparents if born to particularly young girls who remain unmarried. Many of these children are perceived as extremely vulnerable to health and protection issues.

4.5 Diet:
For those who took part in this research, the Dinka staple diet does not consist of a great deal of variety. Whilst people do eat a diverse range of 'wild fruits', particularly when food stocks are low, there is little or no knowledge of the components or the importance of a balanced diet. Whilst it could be argued that eating an increased quantity of these diverse 'wild fruits' all the time, as a supplement rather than replacement to the staple diet, would be nutritionally beneficial to all members of the household this is currently not the practice. Members of the household who have greater access to 'wild fruits' such as the boys who take their cattle into the forests for pasture, are less vulnerable to nutritional deficiencies than those who spend more time at the homestead.

Young children are more vulnerable to malnutrition than adults, because they are unable to ingest large quantities of food in one sitting, thus requiring small, frequent meals. Within the communities studied, 54% of children under the age of five years who had stopped breastfeeding ate only two meals a day, thereby increasing the likelihood of malnutrition in children between the ages of two and five years.

All meals are prepared by women, who serve onto large plates that are given to different 'groups' to share. Mothers will watch over younger children while they eat and assist them where necessary. They will wait for all other members of the household to finish before they will eat their own food. Whilst it is said that there is no favouring of boys over girls it was common during in-depth interviews and direct observation that husbands and young men received larger quantities of food and were served first, often serving themselves smaller portions that may not adequately meet nutritional needs. It is argued that households with fewer adult males or husbands who have multiple wives and therefore, spend less time in each household, have more food available on a daily basis, thus improving the nutritional status of children and women within that household.

4.6 Sharing practices:
Whilst sharing practices are continued to create and strengthen social relationships, solidify group membership and reinforce social ties it threatens the nutritional status of permanent members of the household by further reducing food available. It also makes targeting food aid extremely difficult as even ration food is divided and shared; there is a definite discrepancy between the number of persons in a household and the actual number of people eating with that household.

Patterns regarding the distribution of food within the household impact the nutrition status of women and children.

4.7 Cultivation:
In recent years there have been extreme weather patterns leading to low yields of the typical crops grown in this region. Only a limited number of crops are currently grown in the region; however there is an expressed willingness, but little knowledge, among local people to grow other produce

and to expand cultivation areas and techniques. Limited access to seedlings and water, particularly during the dry season, is commonly cited as the reason attempts have not been made previously.

Normally households cultivate the land immediately around their homesteads. Individual households have limited resources to cultivate larger plots of land and many households expressed an interest in using ox-ploughs or mechanical equipment, were they to be made available. The request for ox-ploughs, made by a significant proportion of those interviewed, is an indicator of the influence the World Vision livelihoods project has had in this region. When World Vision introduced ox-ploughs to the region they were initially rejected by the Dinka on the grounds that they were cruel to their beloved cows, however, following education and training programmes, people now understand that cows are unharmed using the machine and they can in fact offer a huge contribution to cultivation potential.

Other barriers to improve cultivation include the fact that young men, typically the most productive members of a household, spend long periods of time at the cattle camps away from the homestead (from November to April) and are unavailable to assist women in the preparation of land for cultivation between March and April. Men who engage in the traditional Dinka fattening competitions, wherein men will compete to drink the most cow's milk and become the fattest, are limited in how much they can assist with the household's cultivation activities as the competition takes place during the same time of year (April to August), although the competition has not run for at least the past two years because of inter-clan fighting and conflict.

Sporadic conflict has undoubtedly had a dramatic impact on recent harvests. Increased inter-clan and Payam fighting, usually over cattle, are perceived to have increased because of hunger, poverty and access to guns. These conflicts prevent people from beginning cultivation at the right time, destroy cultivated land and force people to flee cultivated areas. It has also been increasingly cited that food as well as cattle is being stolen. People will steal grains at night time and venture into unattended houses to steal other food during the daytime.

4.8 Wealth status:
During this research childhood malnutrition was found to be present in households of all wealth statuses. Traditional migration to dry season cattle camps, the *'toic'*, results in all households, regardless of wealth status, having limited access to milk as a supplement to their diet and to the male decision makers who typically migrate with the cattle who could decide to sell livestock to gain money to buy food at the market. Seasonal vulnerability to malnutrition is therefore, likely to be the same for all children regardless of household wealth.

Significantly, other forms of malnutrition, evidenced by signs of severely swollen stomachs and hair discolouration in young children, were seen daily during this research amongst families from different wealth groups.

4.9 Cattle camps:
Cattle camps play an important role within the Dinka culture as all children are sent to the cattle camp to be weaned. This practice places often very young children in dirty and dusty environments. The diet for weaning children consists purely of untreated (non boiled or sieved) cow's milk which is believed to make children grow quickly. Microbial contamination of cow's milk is common and often results in intestinal irritations and infections that lead to diarrhoea, constipation or other illnesses. A diet of cow's milk alone is inadequate for weaning a young child as it does not contain the micronutrients needed to meet the demands of a growing infant.

The health concerns for children living in the cattle camps are many and include dusty air leading to respiratory problems, burns from open fires, crushed limbs from cattle stampedes and a host of infections common in environments where people and animals are living and sleeping so closely

together. Limited access to water and soap exacerbates the spread of germs and bacteria and the opportunities for infection. Infections in children often lead to poor appetite and nausea, resulting in reduced food intake. They can also restrict the body's ability to absorb nutrients, increasing the likelihood of malnutrition. Malnutrition, in turn, weakens the immune system and increases the incidence, severity and duration of infections. Access to health care facilities are also restricted for children living on the cattle camps as these are generally in permanent settlements.

4.10 Pregnancy, weaning and childcare:

Cultural beliefs and practices of and towards pregnant women, in regards to diet, behaviour and work ethic, are impacting the strength and health of new mothers, as well as their babies' birth weight. Women are governed by a number of food taboos during pregnancy and whilst breastfeeding, that excludes certain meat and valuable sources of protein. This is particularly dangerous during the months of the year when cow's milk is unavailable to supplement this deficiency. Protein is a necessary nutrient for the development of maternal tissue as well as for foetal growth.

It is recommended that all babies are exclusively breastfed for the first 6 months of life, as breast milk contains all the nutrients newborns need. The introduction of other foods or liquids, including water, before the age of six months increases the risk of infections such as diarrhoea and illness in the child. A child who is consuming water, other liquids or foods will reduce the amount of breast milk consumed, thereby replacing a highly nutritious diet with a diet of lower nutritional quality. In addition, a baby being fed other foods will suckle less, thereby reducing the amount of milk produced by the mother. Insufficient milk supply due to non-exclusive breastfeeding may be another reason for the introduction of other foods to a baby's diet at a younger age. Significantly, 32% of questionnaire respondents cited being unable to produce enough milk as the principal reason they stopped breastfeeding. It must also be noted that the water in breast milk exceeds the infant's water requirements in normal conditions and is adequate for breastfed infants in hot, dry climates so additional water is an unnecessary and potentially dangerous addition.

Breastfeeding places high nutritional demands on a mother. An additional 500 calories per day is required above normal energy requirements for breast milk production[31]. If a mother is severely malnourished, the quantity of breast milk produced for each feeding may be diminished. Stress and lack of rest will further affect this. The nutritional status of mothers before and during pregnancy is also important for the vitamin and mineral content of the milk, and the nutritional status and birth weight of new born babies. Whilst data on maternal nutritional status is scarce, a 2008 assessment reported a low birth-weight (babies born weighting 2.5kg or less) rate of 30 to 40 per cent within the whole of South Sudan[32]. Mothers must therefore be targeted with nutrition education that emphasises eating a balanced diet of adequate proportions during pregnancy to support the healthy growth and development of her infant and continuing to eat an adequate diet during the post-partum period.

The purpose of weaning for women within the Dinka culture is to have more children and to be able to have sex with their husbands. Dinka belief is that having sex whilst breast-feeding leads to malnutrition. While this practice is encouraging for birth spacing, it has a negative effect on children who receive shortened breastfeeding time and are sent away to cattle camps at a very young age.

According to the results of the questionnaire, 77% of weaned children between the ages of six months to two years ate two or less meals per day. This is below the WHO recommended amount of four to five meals per day, plus nutritional snacks[33], for non breast fed children[34]. Children of this

[31] WHO 2004

[32] USAID (2008) Sudan Health Transformation Project (SHTP) Assessment Report - March 2008

[33] http://www.who.int/features/qa/21/en - accessed 25th March 2010.

age need diets rich in energy and nutrients. Dinka children are weaned onto a diet of pure cow's milk which is typically supplemented with porridge as the child becomes older. Children of age five years and above eat the same food as the other people at the camp (typically *asida* and broth). Young children should eat small meals frequently as they only have small stomachs and cannot eat sufficient quantities at a single time. Dinka children who are fed cow's milk exclusively before the age of six months are vulnerable to malnutrition and illness, as cow's milk does not contain the appropriate nutrition profile for infants and can cause serious health problems. At six months of age, infants can safely consume cow's milk; however a diet of milk alone is insufficient to meet the nutritional demands of the growing child. For example, at six months of age, infants require more iron than is available in milk alone. Children in their first two years are generally not eating enough small meals to produce the energy they require to grow properly, which therefore places them at a high risk of acute malnutrition.

4.11 Awareness, understanding and treatment of malnutrition:

Most Dinka people have little understanding of what malnutrition is or what causes it. Explanations offered are surrounded by traditional beliefs that affect treatment patterns and choices as well as the speed at which health centres or CTC/CMAM services are sought. The two dominate Dinka explanations of what causes malnutrition in children are:

1. The belief that having sex whilst breastfeeding contaminates the milk of the breastfeeding mother, therefore poisoning her breastfeeding child.
2. Disgruntled spirits who are thought to be making children become 'thin, old-in-the-face, and sick' who need to be appeased.

Both traditional explanations for malnutrition play a functional role within Dinka culture. The origins of the belief that having sex whilst breastfeeding can easily be identified as a birth control mechanism ensuring higher birth spacing for mothers, improving the nutritional status of mother and child by allowing a mother time and energy to focus on one baby at a time. The origins of beliefs in *Jong-nar-lou* and *Jak-nar-lou* (the need to appease disgruntled spirits) are harder to identify but could be linked to the concept of reaffirming and solidifying social ties. Marriage creates a union between two families and this union provides an avenue for mutual reciprocation during hard times. By offering a goat, a bull and a chicken to the wife's family, the connection between two families is reaffirmed years after the initial union was made. The consequence of these traditional explanations for the causes of childhood malnutrition often result in many parents waiting until malnutrition is advanced, having exhausted traditional health provider options, before going to seek treatment from a health centre. Many families are also left with reduced assets as they have given valuable livestock away in the hope of appeasing disgruntled spirits.

Education is needed for parents to understand exactly what the causes of malnutrition are so they can be equipped with the knowledge to prevent malnutrition or to seek appropriate treatment as soon as symptoms present.

4.12 Hygiene:

Basic understanding of germs and how they are spread is lacking among many Dinka communities. Whilst cleanliness is important to most Dinka, the use of soap is often placed as a low priority, particularly when other resources are scare. This is essentially because the connection between cleanliness and health is not understood and where there is some understanding, many families are limited in what they can afford to buy and how much access to water they have. Few families recognise other techniques to disinfect and clean such as boiling or using ash.

Most families do not treat their water (for example boiling or filtering) before drinking it and store it in dirty containers. Domestic animals move in and out of the food preparation areas and may share

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[34] WHO 2004

containers. Drinking untreated water and sharing containers and living space with animals exposes the household to infections, diarrhoea, worm infestations and other more serious health issues.

The lack of toilet facilities in Tonj South and the tradition of using the land around the homestead to defecate poses health concerns. Good sanitation can avoid episodes of diarrhoea and affect the nutritional status of all members of the household.

4.13 Education and awareness:

Education levels in southern Sudan are particularly low largely as a result of the civil wars. Knowledge and awareness around diet, illness and treatment are all areas that are currently not well understood. A higher level of maternal education, in particular, could lower childhood malnutrition through increased awareness of healthy behaviour, sanitation practices and nutrition. Research conducted in other parts of Africa has shown that women who receive even minimal education are generally better able to utilise available resources for their own nutritional status and that of their families than those who have none[35]. Education could also be a means for both men and women to generate the necessary income needed to purchase food.

As schooling becomes more readily available in the region, the Dinka will be faced with the difficult decision of deciding which children should go to school and which should remain to follow the more traditional Dinka lifestyle of village life and the cattle camps.

4.14 Availability and migration:

Seasonal migration from villages to riverside cattle camps or fishing communities is the norm for most Dinka communities in Tonj South. In recent years it has become increasingly common for people to move away from the villages to urban centres in search of paid employment. This represents a cultural shift from traditional subsistence village life to a consumerism mentality where value is placed on receiving a regular income to purchase goods over an agro-pastoralist lifestyle. In the urban centres people face hunger and welfare issues when employment opportunities do not arise. Lack of job opportunities has led to a perceived increase in cattle-raiding.

As people flee raided or targeted villages they turn to other family members in search of safety. This increases the number of persons living within one household and reduces food stocks. Persons who have lived in different regions may also have different dietary preferences and potentially different ideas about child rearing, which may negatively impact nutritional status of the existing children within the household and the children of the internally displaced people (IDPs) arriving.

Urban life is different to rural life in numerous ways. There are more varieties of food and produce available at the markets, greater access to healthcare and more opportunities for public aid. There is however less space for an individual's own cultivation and more emphasis on purchasing foods and produce. This means that poorer households have a harder time accessing food and are more vulnerable to malnutrition.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

The determinants of malnutrition amongst the Dinka of Tonj South County are known to be many and multi-faceted and undoubtedly reduced crop yields and poverty have a significant impact on the nutritional status of children. This research however has identified that there are a broad range of social and cultural practices and beliefs that contribute to and hinder child health and nutrition status considerably, collectively making them a major determinant of childhood malnutrition within this

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[35] Loaiza 1997

region. These cultural practices can and should be targeted in nutrition programming to reduce the levels of childhood malnutrition.

Recommendations:
In order to address these cultural factors, this research suggests that the following measures would significantly contribute to tackling child malnutrition amongst the Rek Dinka of Tonj South.

1. The CTC/CMAM approach, which treats the majority of malnourished children within their homes and communities, is found to be effective within Tonj South, however community mobilisation to promote behavioural change needs to be increased. Education and awareness programmes need to be developed and delivered by local people to ensure community understanding on the following issues: what malnutrition is, how it is caused, what a balanced diet is and its significance for maintaining health and the behaviour of pregnant women.
   - Women specifically, should be targeted with nutrition education that emphasises eating a balanced diet of adequate proportions, both during pregnancy and the post-partum period as a means to support the growth and development of the baby and the production of breast milk.
   - Men and grandmothers should be targeted, as the primary care-givers of children at the cattle camps, with nutrition and behaviour change communications.
   - Infant and Young Child Feeding (ICYF) principles should be incorporated and monitored within the CTC programme with emphasis placed on the importance of assisting younger children to eat smaller, more frequent meals.
   - Working with and gaining the understanding and cooperation of village executive chiefs would be a particularly effective way of promoting behavioural change, as people listen to and respect their chiefs and will do as they ask.
   - Lobbying the Ministry of Education stipulating for diet, nutrition and basic hygiene to be included in the curriculum would encourage behavioural change for the future generations of those who attend school.

2. There is a need for greater emphasis on how malnutrition can be treated and avoided, and the significance of a balanced diet for mothers currently using CTC/CMAM services and visiting health centres. The current system of only recording the names and details of children admitted to the programme is not sufficient. Rather, the mother's full details should also be noted and monitored. Mothers should not leave a CTC/CMAM treatment programme without understanding their child's condition and how it was caused. It is unacceptable for the same mother to be returning to the stabilisation centre year after year with different children simply because a lack of understanding. Behaviour change cannot happen unless mothers fully understand what has gone wrong and are targeted with nutrition education.

3. Further and more comprehensive training is required for CTC staff in Tonj South. It is imperative that local staff understand the biology and fundamental causes of malnutrition, and are not just taught how to weigh and measure for the symptoms of it. Comprehensive training should be provided for all members of the CTC/CMAM team regardless of duties and position, each member of the team should have an understanding of how the human body works, what a balanced diet is and what the biological causes of malnutrition are. Local staff are the public voice of World Vision and without a thorough understanding of malnutrition, it will be very difficult to promote lasting behavioural change.
   - Increasing the local capacity of staff to diagnose and treat the early signs of malnutrition would be a positive step in reducing the number of severely malnourished children in this region.

4. A concerted effort should be made to ensure that essential, quality drugs and medication are available at hospitals and in the PHCUs. Current shortages are inhibiting people from using these facilities (and importantly putting them off returning).

5. There is a need for greater research and understanding of maternal nutrition status and adult malnutrition prevalence in the region with particular emphasis placed on whether there are micronutrient deficiencies.
   - Further exploration into the value and availability of wild fruits is also needed.

6. Further anthropological study should be completed in other regions and during different periods of the year. This is to build a fuller understanding of the socio-cultural aspects of malnutrition amongst the different sub-tribes of Dinka and the coping mechanisms used at different times of the year. Further study is specifically required to investigate the link between the number of wives a man has and the nutritional status of children. We need to ascertain whether the number of wives a man has affects the age at which children are weaned and sent to the cattle camps. We need to ascertain whether everyone regularly eating within a household contributes to that household and in what ways. It is important to note that this study has been limited to the cultural practices of the Rek Dinka only and it should not be assumed that all Dinka behave in the same way.

7. There is a need to address traditional dietary taboos and preferences, and actively target key household decision makers and food providers, principally husbands as well as mothers, in nutrition behaviour change communication.

8. Anybody working with the Dinka populous should have an awareness of the culture and history of the Dinka people and the sensitivities of the current environment. It is critical that non-Dinka staff are culturally sensitive and realise that questions about ill health, traditional beliefs, culture, treatment of children, death and dying need to be posed in an appropriate manner in order to gain reliable feedback.

9. There is a need to develop and expand current livelihood projects to other regions of Tonj South, beyond the provision of tools and seeds. These projects should include the promotion of crop diversification, the introduction of different farming methods and irrigation techniques, the introduction of new seeds and crops to the region and the promotion of groups or clubs for women, older males and youth, to produce vegetables and to produce them to levels beyond what the household needs as a means to generate income. Dinka people are proud and ethnocentric but many are willing to try new things to make life better and are eager for projects such as the vegetable and kitchen gardening, ox-plough training and introduction of new crops to become available in all five Payams in Tonj South. The introduction of any new practice needs to be done with a thorough explanation, so that local people understand how and why this will improve current conditions.

10. Hygiene promotion campaigns need to be increased and should focus on helping people to understand the basic science of hygiene and disease transmission. This could be achieved through actively targeting mothers who use any of the health services, through specific community health promotion campaigns and through lobbying the ministry of education to include health and hygiene as part of the educational curriculum. It could also be increased through using local media sources as a means to promote discourse on the links between hygiene and health in the local language, thereby making the message accessible to a wider audience.

11. WASH facilities are still in demand in this region. Most people walk less than half an hour to fetch water but there is still high demand for more bore-holes, the creation of which would make crop irrigation possible. A cultural education programme would need to be developed with local communities with the introduction of toilets to counter traditional practice.

12. There is a need to support and partner with government ministries and private organisations to create projects that effectively address health, agriculture, education and welfare issues. A multi-sectoral approach to improving health and nutrition in this region is essential.

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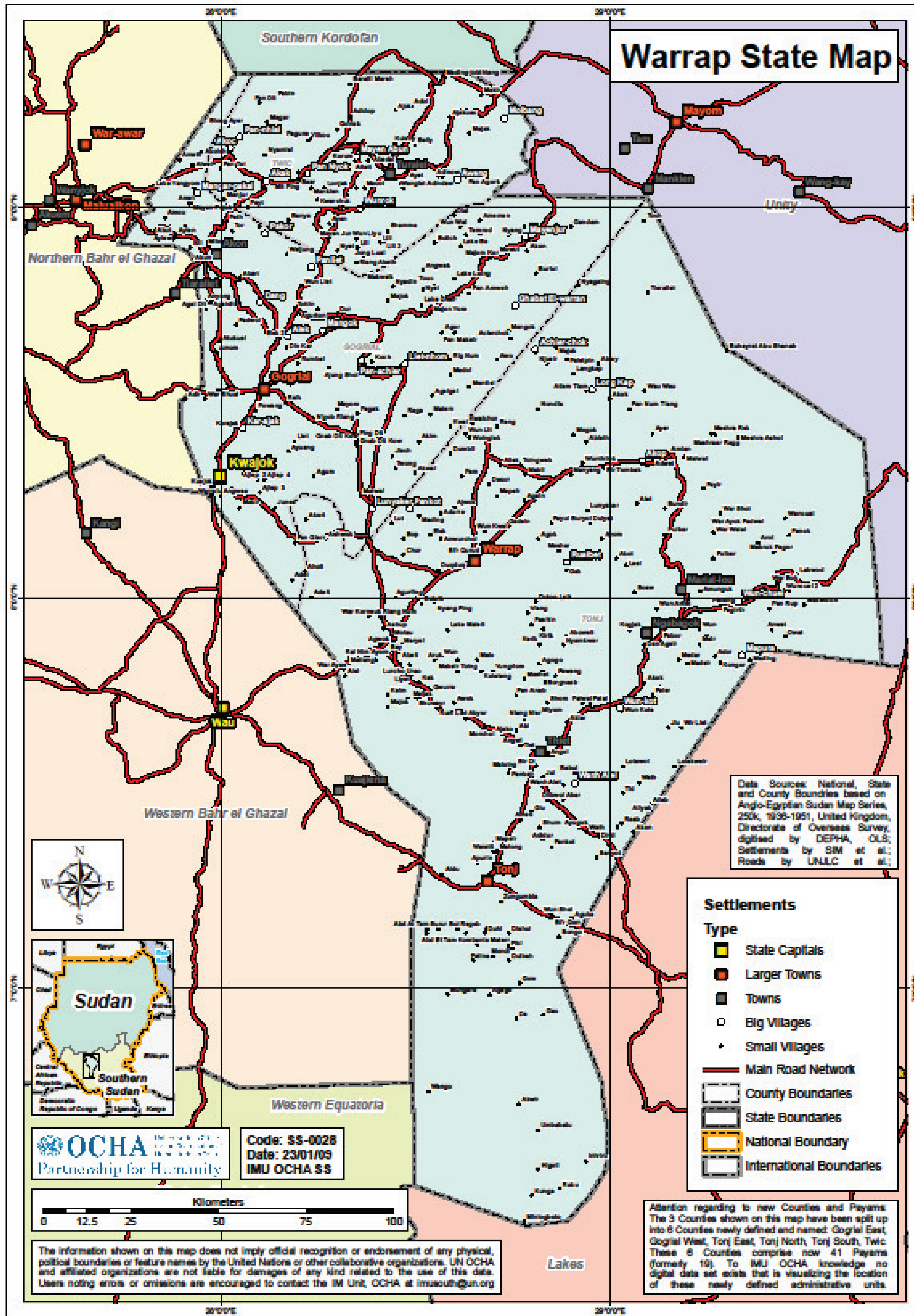
- World Food Programme: www.wfp.org
- World Health Organization: www.who.org
- Yahoo Finance: www.finance.yahoo.com

APPENDIX 1: MAP OF WARRAP COUNTY, INCLUDING TONJ SOUTH (source: UN Office for the Coordination of Humanitarian Affairs (OCHA), *Warrap State Map*, 23 January 2009, SS-0028)



APPENDIX 2: STRUCTURED QUESTIONNAIRE

World Vision: A questionnaire designed to support anthropological fieldwork on childhood malnutrition in Tonj South.

Date: ____

Payam Name: ____

Village Name: ____

(Interviewer's name: ______________________________________)

Gender of respondent (*circle correct answer*)
Male Female

Age of respondent (circle appropriate age group)
Under 15 years 15 – 30 years 30 – 45 years Older than 45 years
(*Circle correct answers and specify more information where requested*)

1. How many people currently live in your household?
1 = 1 2 = 2 3 = 3 4 = 4 5 = 5
6 = 6 7 = more than 7 (specify how many_____)

(Interviewer: how many buildings make up this homestead? _____________________)

2. How many children, under the age of 5 years, live in your household?
1 = 0 2 = 1 3 = 2 4 = 3 5 = 4 6 = 5
7= 6 or more

(Interviewer: fill in question 2.1 and 2.2 if information is forthcoming)

2.1 How many children, under the age of 5 years, have died in the past 5 years in your household?
1= 0 2 = 1 3 = 2 4 = 3 or more (specify how many) ________

2.2 What were the causes of these deaths? (circle as many as appropriate)
1 = Fever 2 = Malnutrition 3 = Measles 4 = Accident
5 = Unknown 6 = Other _______

<u>**Food security and livelihoods**</u>

3. Where do you get most of your food from?
1 = Own cultivation 2 = Friends of family 3 = Market
4 = Food aid rations 5 = Forest 6 = Other (specify) _______

4. Whose responsibility is it to get food each day?
1= The husband 2 = The wife 3 = other (specify) __________________

5. Who cooks the household food each day?
1 = Husband 2 = Wife 3 = Other relative (specify) ________
4 = Other (specify) ______

6. What is/are your main source(s) of income? (tick all appropriate answers)
1 = You have no income
2 = Sale of livestock
3 = Sale of livestock products
4 = Sale of firewood or Mou
5 = Casual labour
6 = Sale of crops
7= Sale of personal assets
8 = Other (specify) ____

7. Are your main food sources sufficient to meet your household's needs?
1= Yes (skip to question 9)   2 = No

8. What do you do when your household food stock declines? *(if more than one answer is correct, number the answers1-6 in order of what would be done)*
1 = Ask relatives for money   2 = Ask for food from relatives
3 = Rely on food distribution   4 = Sell livestock
5 = Sell personal assets   6 = Other

<u>Pregnant woman and new mothers</u>

9. What, if any, special arrangements are made for women who are 5 months pregnant or more?
(Probe and list all that are appropriate)
____
____

10. When pregnant, what if any, particular foods should be eaten?
____
____

11. When pregnant, what if any, particular foods should not be eaten?
____
____

12. On average, how many times a day will a woman, more than five months pregnant, eat?
1 = once   2 = twice   3 = three times   4 = other (specify) ______

13. Should a pregnant woman drink more or less cow's milk?
1 = more   2 = less

14. When a woman is eight or nine months pregnant should she eat more or less food?
1 = More (probe for reason why?) ______________________________
2 = Less (probe for reason why?) ______________________________
3 = She should eat as much as she normally would

15. What special treatment, if any, will a woman have after delivery and for how long will this treatment last?
(List and probe)
____
____

16. How many times a day will a mother, with a child less than six months old, eat?
1 = once 2 = twice 3 = three 4 = other?

17. Are there any foods a mother with a young baby should eat or should not eat?
1= No 2 = Yes (probe, what?)________________________________

18. How much cow's milk should a mother with a child less than six months old, drink per day?
1 = 1 cup 2 = two cups 3 = three cups 4 = four cups 5 = more

Child care practices

(Ask questions 19 to 29 to women with children only. Skip to question 30 if talking to a man)

19. Do you have children under 5 years old?
1 = Yes 2 = No (*skip to question 22)*

20. How soon after birth did you start breastfeeding your youngest child?
1 = Within 1 hr 2 = More than 1 hr 3 = 1 day 4 = More than 1 day
5 = Others (specify) ____

21. When do you breastfeed your youngest child?
1 = On demand 2 = When you remember 3 = When the rest of the household eats
4 = Other (specify) ____

22. Are you able to read and write?
1 = Yes 2 = No

23. What age was your child when solid food was first introduced to your child's diet?
1 = Child still breastfeeding 2 = Less than 3 months 3 = 4-6 months
4 = 7-12 months 5 = 13-18 months 6 = 19-24 months 7 = Older than 24 months

24. Why did the child stop breastfeeding at this age?
1 = Mother was pregnant 2 = Mother couldn't produce enough milk
3 = Mother had to leave child to work every day 4 = Mother died
5 = Child refused the breast 6 = Heath worker/traditional healer said to stop
7 = Beliefs related to negative effects breastfeeding and sleeping with husband (specify what beliefs are) ____
8 = Other (specify) ____
(If answers 2 or 7 are given – place a star in the top corner of the page and highlight during review meeting)

25. Which foods are fed to your children aged 6-59 months? (tick all that are appropriate)
1 = Breast milk 2 = Cow/goat milk 3 = Porridge (specify)
4 = Vegetables 5 = Sorghum 6 = Other (specify)

26. Since yesterday morning, which of the following foods has the mother of the household eaten? (Probe and tick all that are appropriate)
1 = Sorghum 2 = Meat 3 = Milk 4 = Beans 5 = Fish
6 = Any green vegetable (e.g. Okra, lady-fingers, pumpkin, spinach) 7 = Mo

27. Who cooks for the children (under 5 years)?
1 = You 2 = Grandmother 3 = Other family member (specify) 4 = Neighbour
5 = Other (specify) ____

28. Over the last 7 days, on average how many times a day did the children under the age of 5yrs, in this household eat? (Excluding, those who are breastfeeding)
1 = None 2 = Once 3 = Twice 4 = 3 times 5 = More than 3 times

29. When you have limited food who within the household is fed first?
1 = The oldest children 2 = The youngest children 3 = The husband
4 = The wife 5 = Other (specify) ______________________________

(Ask all)
Water and sanitation

30. How long does it take to go to the main source of water and back?
1 = Less than 30 minutes 2 = 30 minutes to 1 hour 3 = More than 1 hour

31. Does this change depending on whether it is the dry or rainy season?
1 = No 2 = Yes (Specify how________________________)

32. What do you do to water before drinking?
1= Nothing 2 = Boil 3 = Use chemicals 4 = Filter/sieves 5 = Decant
6 = Other (specify) ______________________________

33. Where do you use to go to the toilet?
1 = Bush 2 = Open field 3 = Near the river 4 = Behind the house
5 = Other(specify)____________________________________

34. If soap is available, when does the household use it? (tick all that are appropriate)
1 = Before eating 2 = Before feeding children 3 = After going to the toilet
4= During bathing 5 = To wash clothes
6 = Other (specify) ____

Health

35. How often have any of your children, under the age of 5 years, suffered from diarrhoea in the last 14 days?
1 = none have at all 2 = once 3 =twice 4 = three times
5 = more than 4 times (specify how many children and how many times)
____

36. Should a child still breastfeed if they have diarrhoea?
1 = Yes 2 = No

37. Are there certain foods that can make diarrhoea worst?
1 = No 2 = Yes (specify)______________________________

38. Are there certain foods that can make diarrhoea better?
1 = No 2 = Yes (specify)______________________________

39. When a member of your household is sick, list the order in which you would use the following:
1 = Traditional healer 2 = Community health worker (CHW) 3 = PHCC/U
4 = Hospital 5 = Relative/friend 6 = Spear master 7 = Do not seek assistance

40. How long does it take to walk to the nearest health facility?
1 = Less than 30 minutes 2 = Between 30 minutes and 1hr 3 = 1 hr to 2 hrs
4 = More than 2 hrs

41. What is your understanding of the word malnutrition, Thot or Door? (probe)

____
____

42. What is your understanding about how a child becomes malnourished/ thot or door? (probe)

____
____

43. Have any of your children sought treatment for malnutrition from the WV CTC services?
1 = Yes 2 = No

44. Before there was a CTC service where would you have taken children who needed medical assistance?
(*probe and be specific*)

____
____
____

<u>**Other**</u>

45. When you have little money, put the following in order of importance to you: (number 1 – 10 in order of preference)
Buying cattle
Buying sorghum
Buying vegetables
Buying meat
Buying other livestock
Sending children to school
Buying medicine
Travelling to a hospital or CTC
Buying Mou
Purchasing something else that is more important to me (specify what ___________________)

Thank you for taking the time to fill out this

APPENDIX 3: EXAMPLES OF INTERVIEW QUESTIONS

Questions:

1. **Please would you tell me about the people who live with you here?** (Probe to find out exactly who lives in this household – how many wives does the husband have and how much time does he spend here?)

2. **Can you describe how you spend your days?** (Probe to find out what time the day starts and ends and how any relaxing time is spent. Who are children if mother has to travel distances to do jobs?)

3. **List everything you have eaten and drunk since yesterday morning? (inc. drinks such as tea or Mou,)**

4. **When was the last time you ate something different? (**Probe; are there other foods available – why don't you buy them? Why aren't they available)

5. **What do you think makes a good wife and a good husband?**

6. **What was the birth of your youngest child like?** (Probe, who was with you? How long did it take? How long did it take to deliver the placenta? How long before you resumed your daily jobs?)

7. **Are some babies born stronger than others? How can you tell and why do you think this is the case?** (Probe, will you treat the baby any differently?)

8. **After your baby was born how quickly did you begin breastfeeding and how long did you exclusively breastfeed before introducing other foods?** (Probe to find out what other foods were introduced and at what age, ask specifically about water and cow's milk)

9. **What reasons are there to stop breastfeeding?** (Probe, if your child or you developed an illness, would you still breastfeed?)

10. **Do you know of any Dinka stories or beliefs to explain the reasons why children get sick?**

11. **Where would you take your child if they were sick?** (Probe, have you had to pay for your prescriptions in the past and is this a reason not to go to the hospital?)

12. **Where does the household food come from each day?**

13. **Describe a typical meal time – how is food divided, who serves the food, who eats first and who sits where?**

14. **How much milk does your household drink per day, does this change during different times of the year and do you ever convert milk into cheese or butter?**

15. **Do you know of any illegitimate or 'Tuong' children in the community – are they treated any differently?** (Probe, if not, why are they not treated equally?)

16. When available, how do you use soap and if you only had a small amount of money how important is soap for you to buy? Put the following in order of what you would buy first:

a) Clothes b) Sorghum c) Medicine for cows d) Medicine for children
e) Soap f) Meat g) Vegetables h) Something else (probe, what?)

17. Do you think life is changing for the Dinka people – in what ways and why?

Malnutrition:

18. What is your understanding of the word malnutrition, thot or door, what does it look like and what causes it?

19. Do you think that there are more cases of malnutrition today than in the past? (Probe, what has changed and why?)

20. How can malnutrition and child health be improved?

APPENDIX 4: VISIT 2 VILLAGES VISITED

Payam	Village/Cattle camp
Tonj	Tonj- Makuei
	Akel Kau
	Wunanyii cattle camp
Jak	Chir
	Pankoor
	Lietnhom cattle camp
Thiet	Panakdit
	Ahaclecah
	Maker camp
Wanhalel	Wunliet
	Lang
	Tonj Pec cattle camp
Manyangnok	Cuei Chok
	Adama
	Tit camp
Thiet	Thiet SC
Jak	Chir and Pankoor
Thiet	Panakdit and Ahaclecah
Wanhalel	Wunliet and Lang
Tonj	Makuei and Akal Keu
Manyangnok	Cuei chok and Adama

APPENDIX 5: METHODOLOGY

1. **Study type**
2. **Study area**
3. **Setting and interviewers**
4. **Sample size**
5. **Sample methodology**
6. **Study techniques and data collection methods**
7. **Data analysis**
8. **Ethical considerations**
9. **Study limitations**

1. Study type:

This research has been carried out using a range of ethnographic methods to illicit an understanding of the cultural beliefs and customs around food and malnutrition in Tonj South. Fieldwork was carried out in two phases between November 2009 and February 2010.

2. Study area:

Administratively, Tonj South County is divided into five Payams: Jak, Thiet, Wanhalel, Manyangnok and Tonj. The county comprise 151 villages with an estimated population of 86,592, of which 18,607 are children under the age of five years (21.4% of the total population)[36]. Each Payam is comprised of Bomas which contain numerous villages. The study area for this research included selected villages from selected Bomas from each of the five Payams in Tonj South County. Bomas and villages were chosen using both purposive and random sampling techniques to ensure that they were representative of the target population as a whole, logistically accessible and contained a combination of WV CTC/CMAM[37] beneficiaries and none.

This research was interested in gaining qualitative data on the Dinka living in Tonj South County and as such only a limited number of villages were studied. A minimum of one village from each Payam was visited during phase one of this research. During phase two, two further villages from each of the five Payams were visited over three days (two consecutive days followed by one further follow-up visit up to two weeks later). Half a day was also spent at a cattle camp at each Payam.

3. Setting and interviewers:

Six research assistants (RAs) were appointed to assist the anthropologist in data collection. RAs received a manual on ethnographic data collection as well as two days of training to be orientated on data collection tools, techniques and interpretation of a qualitative questionnaire. The training was provided by the anthropologist to ensure data quality. These training sessions also provided an opportunity for questionnaires and interview questions to be tested, translated where necessary, timed and altered according to the recommendations of the team. All RAs were bilingual, speaking both Dinka and a good level of English. Many could also speak Arabic. All RAs were Dinka themselves.

For each field visit RAs were split into three 'teams' of at least two people, the team with the anthropologist was made up of three persons. One team focused on completing a qualitative questionnaire with randomly selected respondents. One team focused on semi-structured interviews with mothers of both well-nourished and malnourished children. These mothers were selected based on local CTC/CMAM staff knowledge of which mothers were using CTC/CMAM services and which did not need to. The anthropologist and the remaining research assistants conducted KI interviews and focus group discussions. One member of each team focused on posing

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questions whilst the second was responsible for recording interviews, the third person with the anthropologist acted as a translator.

4. **Sample size:**

Data collection was carried out in two phases for this research. In phase one, a minimum of one village from each Payam was visited and introductions and initial discussions were made with Payam administrators as well as with Payam chiefs and elders. Focus group discussions were held with men, women, village and Boma leaders and chiefs, and families. Key Informant (KI) interviews were conducted with Dinka members of the WV staff, the county health officer, WV project officers and traditional health-practitioners including witchdoctors and Spear Masters.

During phase two, two villages and one cattle camp from each of the five Payams were visited. The purpose of phase two research was to explore the degree to which there was consensus in the community around the key aspects of the findings from phase one.

Throughout both stages of this study, participant and direct observation were used to supplement information. A qualitative questionnaire was used to quickly identify trends to be further explored in interviews and to substantiate findings.

At the end of this study, up to 23 villages, 15% of the total 151 villages in Tonj South County were visited with interviews, focus group discussions, questionnaires and direct observation conducted. A total of 100 in-depth interviews, 14 FGDs and 163 questionnaires were carried out.

5. **Sampling methodology:**

In phase one, interviews were conducted randomly according to availability. Phase two involved random and purposive sampling within selected villages. Two villages from each of the five Payams were selected. The first village in each Payam was selected entirely at random from a full list of villages in the Payam; each village had an equal chance of being selected. The second village was chosen using purposive sampling techniques to ensure that this village was at a similar distance from health and Boma facilities as village one, that it was logistically accessible and that it contained a combination of WV CTC/CMAM beneficiaries and none.

Upon arriving in the selected village, team one sought direction from local WV staff to identify potential participants to interview and conduct FGDs with. Those identified included WV CTC/CMAM beneficiaries and none, witchdoctors and Spear Masters, men and women, village elders and young people. From those identified by local WV CTC/CMAM staff the research team randomly chose participants to interview; researchers were aware only of the nutritional status of children and were not influenced by any other factors when selecting participants. Team two began research at the first house at point of drop-off to conduct face-to-face interviews. A system of snowball sampling was then employed to identify further informants. The criteria for the selection of informants was based on the identification of households, by participants, with children under the age of five years who were well-nourished in village one, and those with malnourished children in village two. World Vision local CTC/CMAM staff identified the first household in which to begin interviews. Team three completed systematic sampling of households to conduct questionnaires, walking in a clock-wise direction from point of drop off. No household was interviewed more than once. Questionnaires were completed with one member from each household of any capable age or gender.

FGDs (of between5 and 10 participants), interviews and questionnaires all endeavoured to include a cross section of the village being visited, including men and women of all ages as well older children. Direct observation was carried out and noted during all field visits by all members of the team.

The study employed a grounded theory approach to collecting data; generating theory through an iterative process, involving continual sampling, collection and analysis of data to inform the next stage of the sample design.

6. Methods:

Using free-listing, probing, open ended questions, informal conversations, questionnaires and direct observation, the anthropologist and research assistants collected data from the field every day. Direct, first-hand observation of daily participation formed a crucial part of this research. A number of study techniques were used with different respondents to ensure that data collection methods could be triangulated. Table 2 illustrates techniques used and their purpose during the two phases of research.

Table 6: Study techniques used

Phase One: Desk review, initial interviews and submission of research protocol.		
Techniques used	*Who/what was targeted*	*Purpose*
Literature review	Review of literature on Tonj South County, the Dinka, pastoralists and malnutrition. Literature included ethnographic data, nutrition and agricultural assessments and surveys, reports and historical accounts.	Used to establish a cultural context of childhood malnutrition and perceived precursors for it - the outcome of these interviews were used to formulate research questions for phase two.
Initial interviews	With potential key informants and health providers (as identified through World Vision CTC/CMAM team)	
FGDs	Men, women, traditional health providers	
Direct observation	Particular attention given to preparation and consumption of food, evening meal times, breastfeeding and weaning practices.	
Phase Two: Focused information and systematic data collection		
Structured interviews with key informants	Key informants included WVI project officers, county health officers, Payam administrators, village chiefs and elders and traditional health providers.	In-depth interviews with key informants (KIs) were used to provide necessary baseline information on cultural beliefs related to staple foods and understanding of malnutrition. Information collected during key informant interviews was explored during semi-structured interviews with a wider cross-section of the community.
Semi-structured interviews using interview guide	Any community members including mothers, fathers, older children, men and women without children, village elders and health providers.	Used to explore topics and as a means of collecting a range of different 'types' of data, including information on behavioural practices, opinions, feelings, knowledge, sensory data and background context.
FGDs	Groups of individuals (usually between 5 and 15 participants) including men, women and children.	Used to explore broad issues such as maternal roles, ideas about child rearing, aspirations for children, general feeding

		practices, taboos associated with sex and pregnant or nursing mothers.
Direct Observation	Of everyone but particular attention given to preparation and consumption of food, meal times, breastfeeding, weaning practices, hygiene practices, interaction between adults and children, and cattle camps.	Since most human behaviour is subconscious, direct observation was used as a means for the anthropologist to mentally review the nutritional status of children for possible signs of malnutrition, and to investigate 'norms' for feeding practices, eating habits, caring practices and all aspects of child care techniques.
Informal conversations	Everyone.	To illicit 'deeper' information than is available during a formal interview. Informal conversations create a sense of rapport between the researcher and respondent which provides an opportunity for respondents to disclose greater information
Qualitative questionnaire	Any community member including men, women, grandparents and capable children.	Used to substantiate qualitative findings and to identify trends. The same questionnaire was completed by a variety of informants and primarily used to underpin findings identified in qualitative data collected during fieldwork interviews.
Market surveys	Boma and town markets.	To compare availability and pricing.

The hours of data collection aimed to be 8.30am to 3pm, followed by a review meeting at 3.30pm to 4.30pm each day, however logistical challenges including access to vehicles, distances between households, distances to the field and further delays meant this wasn't always the case. For these reasons the total number of people interviewed and the total number of questionnaires completed on any one day differed. A minimum of 5 hours research was completed each day.

7. Data analysis:

Both quantitative and qualitative methods have been used in the analysis. The methods used for the quantitative analysis are descriptive statistics such as percentages. Excel was used to carry out analysis of questionnaires. Daily review meetings between the anthropologist and research assistants provided an opportunity for the team to summarise the day's qualitative data collected, discuss themes and collectively formulate explanations and further questions to explore.

Theory notes from review meetings were incorporated into written-up, coded field-notes.
The findings of this research have been incorporated into this report.

8. Ethical considerations:

Since ethnographic research takes place amidst people's daily lives, there were a number of special ethical concerns to be aware of while completing this research. The well-being of the research participants was always the top priority. The main ethical considerations when dealing with human

subjects are privacy, informed consent, confidentiality and impartiality and so steps were taken to ensure these were all met. Details of the research, purpose of research and research goals were explained to members of the community and formal discussion only took place with those persons who agreed, through oral consent, to be interviewed. As much as possible, interviews were conducted away from other community members. Names of respondents were not recorded and have not been printed in the final report. No inducements of any kind, including money, food or sweets were used to encourage participation.

Researchers worked to ensure that the rights and dignity of those with whom the research was completed were maintained at all times. Respect for individual and community beliefs, practices and values were held at all times.

9. Limitations of the study:

a) This research was limited to the time frame of November 2009 to February 2010, which are typically the months following the harvest period and of the dry season in this region. Practices and eating habits are likely to vary considerably during the hunger season (May to August) and during months of rain.
b) The single CTC/CMAM vehicle made available for this research suffered several mechanical problems which created delays during some of the days of fieldwork. The need to use other vehicles created tensions amongst the research team and other staff and delayed fieldwork.
c) The long walking distances between households in the villages made data collection slow and tiring, and this limited the number of households visited on a daily basis.
d) Language was a barrier to probing deeper during qualitative data collection. Translators were used during FGDs and interviews, however it was difficult to exhaustively probe or to follow through some notions. It is also difficult to know whether assumptions or personal understandings were assumed by the translators and communicated to either the informants or the anthropologist.
e) This research has focused on the Rek Dinka in Tonj South County, however there are small minority groups of Bongo and Jurchol (Luo) people present in this region. Further study amongst these minority groups and the influence of their cultural practices on the Dinka would be interesting and potentially beneficial to the study of malnutrition in Tonj South.
f) The security situation in Tonj South deteriorated as this research was being conducted as cattle-raiding and tribal and Payam conflicts increased. Security updates affected the research timetable, making certain areas too dangerous to visit, which influenced which Payams were visited on which days and prevented all evening visits during phase two of data collection.

- Due to a high security alert, Manyangnok Payam was not re-visited during the final week of data collection and this one full day of data-collection was lost.
- Three review meetings (held at the end of each data-collection day between the research assistants and anthropologist) were cancelled due to the need for research assistants to return home early.
- The insecurity and tensions between different Payams affected the morale of the research assistants who were anxious at conducting research in Payams they were not from.