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The Role of Social Capital in Enhancement of Food Security
in Twic County, Warrap State, Southern Sudan

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A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shock and maintain or enhance its capabilities and assets both now and in the future while not undermining the natural resource base”
(Chambers and Conway, 1992:9)

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Abstract

Twic County is a food insecure area in Southern Sudan and is recovering from the effects of civil conflict. This situation compels households to engage in various coping mechanisms including relying on family and kinship connections or wider social networks.

Using interview schedules for households and key informants, an exploratory study was conducted with the aim of finding out the basic characteristics of food insecure households; the extent households' are food insecure, their perceptions of factors that contribute to food shortages and the extent households rely on their social capital to reduce their vulnerability to food shortages. It also explored the livelihood strategies pursued by households.

The data collected from the households and key informants were analyzed both quantitatively and qualitatively. Thus, the study unveiled that seventy percent of the respondents had a household size of 6-10, 20% had a household size of 1-5 and 10% had an 11-15 household size. Thus on average the household size was 7 family members. This means that the number of people consuming food per household is actually high. Therefore, the households' are susceptible to frequent food shortages given the periodic crop failures in the region. Fifty seven point five percent (57.5%) of the respondent households (n=23) were food insecure and 42.5% were food secure (n=17). The study also identified the respondents' opinion on the causes of food insecurity in the study area. It was established that shortage of rain, infertile soils and lack of land played a major role.

Unfortunately, the role of social capital is not given priority in terms of development by livelihood supporting agencies. The findings established that although some of the households draw on their social capital as a social resource during times of food shortages there still remains untapped potential. Supporting agencies can include initiatives that build the communities social resource. A community with greater social capital will likely have residents more willing to participate in community activities and solve problems they face together like food insecurity.

Finally, the study recommended that supporting agencies should ensure that social networks are established with the aim of improving food availability, access, use and utilization for the people of Twic County in Southern Sudan.

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God bless Africa. Guide her leaders. Guard her people. Give her peace.

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND TO THE STUDY

No human right has been so frequently and spectacularly violated in recent times as the right to food, despite the fact that it is one of the most consistently enshrined rights in international human rights law, as constantly reaffirmed by governments (FAO, 1999).¹ FAO's estimates in 2002 confirm an alarming trend – progress in reducing hunger in the developing world has slowed to a crawl and in most regions the number of undernourished people is actually growing.

A report by FAO (2004:8) using the available data for 2000–2002 estimated that 852 million people worldwide were undernourished. This figure includes 815 million in developing countries, 28 million in countries in transition and 9 million in industrialized countries. The number of undernourished people in developing countries decreased by only 9 million during the decade following the World Food Summit baseline period of 1990–1992. During the second half of the decade, the number of chronically hungry in developing countries increased at a rate of almost 4 million per year, wiping out two thirds of the reduction of 27 million achieved during the previous five years.

Throughout the 1970s, the population in sub-Saharan Africa expanded more rapidly than food production. With population growth, the estimated number of people who were undernourished increased from 60 million in 1969/1970 to nearly 80 million by the end of the decade (Sigot, 1998:2). Droughts have contributed negatively to on nutrition as stated by the UNICEF, “Africa's nutrition situation became worse in the early 1980's with the onset of severe droughts and reduced food production. At the height of the crisis, the undernourished population rose to 100 million people” (quoted in Sigot, 1998:2). Current estimates of chronic under-nutrition in developing countries and projections for the year 2010 provide a rough guide to the nature of the food security challenge that lies ahead. The bleakest prospects are for sub-Saharan Africa, where the number of undernourished people could rise to some 300 million from an estimated 175 million in 1988 - 90 (Sigot, 1998:2).

¹ Extracts from international and regional instruments and declarations, and other authoritative texts addressing the right to food, Rome, 1999. <http://www.fao.org/legal/RTF/statemts/vidar03.pdf>

In Sudan, as in many sub-Saharan African countries, food insecurity is not a new phenomenon. This is reaffirmed in a paper presented by Elamin et al which notes in part, “despite the potential of increasing food production, Sudan has been experiencing grain shortages since the early 1980s which have become severe enough to put the country in the list of food crisis countries (2003:2).”

Crisis events like food shortages may lead to famine which in turn leads to loss of life in which case they are often called disasters. Such events call for the mobilization of resources at various levels to cope with their impact (Blaikie et al, 2004:114). It is important to recognize that communities that are in-food insecure areas have developed certain strategies and coping mechanisms to minimize the effect of food shortages. Blaikie et al (2004:115-119) note that almost all coping strategies for adverse events which are perceived to have precedents consist of actions before, during and after the event. They identify the following seven strategies:

1. *Preventive*: These are attempts to avoid the disaster happening at all. Many require successful political mobilization at the level of the state.
2. *Impact- minimizing*: These are referred to elsewhere as “mitigation”, especially where they are the object of government policy.
3. *Building up stores of food and saleable assets*: For those rural people who have access to land, a store of grain or other staple food is a most important buffer against expected seasonal shortages as well as prolonged periods of hardship.
4. *Diversifying production*: Farming people are often regarded as being risk-averse in the sense of avoiding chances in cultivation that may bring higher rewards but with greater exposure to dangers.
5. *Diversifying income sources*: The entirely self-provisioning rural house hold is an ideal type, and is very rare in the world today.
6. *Development of social support networks*: These include a wide variety of rights and obligations between members of the same household with the extended family and with other wider groups with a shared identity such as clan, tribe and caste.
7. *Post-event coping strategies*: When there is a potential food shortage and possible famine, the period during which stress develops can be long, allowing for a succession of strategies.

The above strategies are human coping behaviours which attempt to protect individuals and the community at large from the adverse consequences of a disaster due to food insecurity. The study was carried out in Twic County, Warrap State, Southern Sudan. Twic is a food insecure area in Southern Sudan and is recovering from the effects of civil conflict. The aim of the researcher was to look into the coping behaviours of households to food insecurity in the area of study. Particular attention focused on the use of social capital as a coping mechanism to counter-act the adverse effects of food insecurity in a post conflict setting. This enabled the researcher to find out to what extent social capital as a livelihood asset helps in reducing household vulnerability to food insecurity in a post conflict environment.

1.2 PROBLEM STATEMENT

Prior to the signing of the Comprehensive Peace Agreement (CPA) between the Government of Sudan (GoS) and the Sudanese People's Liberation Movement (SPLM) in January 2005, Southern Sudan had experienced more years of war than peace since independence in 1956. The second phase of the civil war which began in 1983, and has destroyed productive activity, uprooted socioeconomic structures and systems as well as hindering the development of civil society, as noted by the Catholic Relief Services (CRS) (see Guvele et al, 2003:1). According to Majok and Schwabe (quoted in Guvele et al, 2003:1), "Displacement and drought disrupted agricultural production which led to famines. Disease and starvation claimed much of the Southern Sudan's estimated four million livestock. Insecurity generally hindered economic growth. Political development was stifled because the demands of the war took priority over the implementation of democratic political and socioeconomic structures in both northern and southern Sudan." In addition, CRS add that, "The effects of the war disproportionately impacted women and children. As men left to join the army or pursue economic opportunities elsewhere, women were left to bear the dual burden of being both providers and caretakers, thus exacerbating their traditionally subordinate position, preventing them from pursuing existing opportunities, and making them less capable in coping with danger" (Guvele et al, 2003:1).

In conflicts such as the one experienced in Southern Sudan, the main human costs are not the result of direct violence, but arise from hunger, forced migration, and the collapse of income opportunities and public services. A study found that a very large proportion of the human costs of war stemmed from such indirect consequences of conflict, and, in

some cases, as many as 90 % of the casualties were civilians (Tofte, 2004:2). According to a report by the US Committee for Refugees [USCR] cited in Tofte (2004:2), "Serious food shortages caused by the war, population displacements and droughts have remained a chronic threat in many areas of the south of Sudan, which resulted in widespread famines in 1988, 1992 and 1998." Over the last twenty-one years, the conflicts increased people's vulnerability to famine eroded their already fragile coping strategies and destroyed vital assets and livelihoods. It is estimated that 92 % of Sudan's people live below the poverty line. The civil war led to an erosion of the basic infrastructure and was an obstacle for development (Tofte, 2004:2).

As pointed out above, households living under such risky environments develop coping mechanisms as a strategy in order to survive the adverse effects of crises such as food shortages caused by crop failures, loss of livestock, conflict or unfavourable climatic situations. A coping mechanism which can be adopted by households under such environments includes falling back on social support networks. As shown by Agarwal, "This entails drawing support from a wide variety of rights and obligations between members of the same household with the extended family and with wider groups with a shared identity such as clan, ethnic group and caste. The support may be economic or non-economic" (1990:343).

As mentioned earlier, post-event coping strategies may be called for and could include the substitution of lower quality and wild foods for more expensive staples. The next step involves calling on resources from others (usually family and kin) that can be obtained without threatening future security. Sale of easily disposable items that do not undermine future productive capacity (such as small livestock) may also take place. As the food crisis deepens, loans from money lenders and sale of important assets such as oxen for ploughing, agricultural implements and other livestock may be arranged. Finally when all the preceding strategies have failed to maintain minimum food levels, migration of the whole household to road-side towns and possible sources of food often ensues (Blaikie et al, 2004:119).

Studies have established the association between the level of social capital [a measure of trust, reciprocity and social networks] and positive health outcomes (Kawachi et al, 1997:1491-1498). Other studies that have examined the potential relationships of social

capital have been conducted in Tanzania, Bolivia, Burkina Faso, Indonesia, Ghana and Uganda (see Grootaert et al, 2004:2-3).

Studies have also been conducted on the relationship between food security and social capital. One such study was conducted and found correlations between low-income households' ability to secure sufficient food and their connection to neighbours, friend and helping services (see Seavey and Sullivan, 2001: 74). In Southern Sudan, kinship is a major part of life within the community and kinship support is particularly vital in times of need, as it is used as a mechanism to buffer the impact of external shocks. Other support networks in Southern Sudan include women and youth groups, religious groups, trade and agriculture associations, parent-teacher associations, community-based organisations [CBOs] and non governmental organizations [NGOs] (Mackenzie and Buchanan-Smith, 2004:21).

According to Unruh (2004:27),

“Subsequent to conflict, and particularly conflict which has lasted for long periods of time, the rural population will have experienced a much reduced degree of social capital. While connections, networks, group membership, and relationships of trust, reciprocity and exchange that provide for important informal safety-nets will be quite valued and heavily relied upon in the early years of conflict (where they are not abruptly disrupted due to the conflict), these can become exhausted as continued food, personal, and livelihood security is progressively degraded”.

Civil wars in the world and Africa in particular, have raised the need to improve understanding of their effects for better policy direction in a sustainable livelihoods (SL) framework. By focusing on the SL approach, one can draw attention to: the assets that people have, rather than what they do not have; the cross-sectoral nature of many people's livelihood strategies and the fact that assumptions based on an analysis of a single sector may be incorrect; the vulnerability context and the factors that are beyond local control but which are responsible for many hardships faced by the poor; and the role of policies, processes and institutions. There is therefore an apparent dearth of information and understanding of coping behaviours of communities and households which have been exposed to prolonged civil wars (Deng, 2002:12).

According to the Australian Bureau of Statistics (2002:5-6), "The measurement of social capital may provide insights into social functioning and how networks and links can be utilised to contribute to positive outcomes for the individual, group and community alike. In this way the measurement of social capital may enlarge our understanding of how individuals in a community can work cooperatively to achieve shared goals and to deal with difficulties." Pelling (2003:1) further notes that, "The contribution of social capital is in marking a distinction between formal organisational structures of development policy and social life and the often hidden or unexplored 'black box' of social norms and networks that influence the distribution of decision-making power and guide the final enactment of policy."

As mentioned earlier, for households experiencing food shortages, the development of social support networks and other post-event coping strategies are important in food insecurity situations. The concern about food insecurity in Twic County is not new. According to available records from OCHA (2005:13), "The proportion of the population facing food deficit in the County increased from 21% in 2002 to 57% in 2004. The amount of food aid distributed also rose from 846 MT in 2003 to 4,077 MT in 2004." However, little if any attention has been paid to the linkage between household access to social support networks [an indicator of social capital] and households' ability to secure food in a post-conflict environment. Findings concerning the contribution of social support networks as a coping mechanism against food shocks in the study area will add value to the stock of evidence used by development partners to improve food security for sustainable development in the study area.

1.3 STUDY OBJECTIVES

1.3.1 General Objective

The general objective of the study was to assess the impact of social capital on food insecurity reduction among post conflict households in Twic County, Southern Sudan. This was realized by pursuing the following three specific objectives.

1.3.2 Specific Objectives

The specific objectives of the study were:

1. To assess the extent of food insecurity among households.
2. To establish the characteristics of food insecure households.
3. To establish their perceptions of factors that contributes to food shortages.
4. To determine the extent to which households rely on their social capital to reduce their vulnerability to food shortages.

1.4 SCOPE AND LIMITATIONS

As noted earlier, there are several coping mechanisms that communities develop to counteract the adverse effects food insecurity. The mandate of this study was to assess the role of social capital as drawn upon by different households as a coping strategy to reduce their vulnerability to food insecurity in a specific post-conflict environment, namely Twic County. For the purpose of this study, the food security levels among households in the study area was limited to access and availability and not utilization. Conclusions in this report are limited to Aweng and Wunrok *payams* (divisions) in Twic County and should therefore not be generalized beyond the *payams*.

Definition of Key Terms

The following concepts will be used in the sense in which they have been defined hereunder:

- **Capacity** - A combination of all the strengths and resources available within a community or organization that can reduce the level of risk or the effects of a disaster (UN-ISDR, 2002:337).
- **Coping mechanisms** - Coping mechanisms are the ways people act within the limits of existing resources and range of expectations to achieve various ends (Blaikie et al, 2004:113).
- **Disaster** - A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the community /society to cope using its own resources (UN-ISDR, 2002:338).
- **Drought** - Is a complex, gradual and cumulative process with varying degrees of impacts on ecosystems and human activities. There is no one universal definition for the term "drought". However most interpretations of drought include a meteorological element in which drought is defined as a significant decrease from the climatologically expected precipitations (Herlocker, 1999:7).
- **Entitlement** - This refers to the ways in which people gain access to assets, including, for example, access to social services such as education and health. The ability to command entitlements derives from, for example, legal rights, access to financial resources or relationships with other groups and individuals. The concept of entitlement has been specifically used to examine how individuals and households are able to access resources during periods of change and poverty (Meikle et al, 2001:37).
- **Food security** - This is access by all people at all times to enough food for an active, healthy life. Food insecurity, in turn, is the lack of access to enough food (UNDP- DMIP, 1994:24).
- **Hazard** - A rare or extreme event or process in the natural or human environment that has the potential to adversely affect human life, poverty or activity, to the extent of causing a

disaster (Davis and Wall, 1999:105).

- **Livelihood assets** - These are the resources on which people draw in order to undertake their livelihood strategies. They include financial, human, natural, physical and social capital. Livelihood assets do not necessarily need to be owned by the men and women who use them but they do need to have access to the assets that they require for their livelihood strategies (Meikle et al, 2001:37)
- **Resilience** - Refers to the capacity of a system, community or society to resist or to change in order that it may obtain an acceptable level in functioning and structure (UN-ISDR, 2002:341)
- **Social capital** - These are the rules, norms, obligations, reciprocity and trust embedded in social relations, social structures and society's institutional arrangements which enable members to achieve their individual and community objectives.²
- **Sustainability** - When referring to livelihoods, sustainability refers to the capacity to withstand shocks and stresses while, at the same time, not compromising the environment. When referring to development interventions, sustainability refers to the scope of projects and programmes to continue to function after the withdrawal of external support. This issue of sustainability is often applied to projects which are intended, after an initial intervention by donors, public sector organizations, or NGOs, to be managed locally by community organizations (Meikle et al, 2001:37).
- **Vulnerability** - A set of conditions and processes resulting from physical, social, economical and environmental factors, which increase the susceptibility of a community to the impact of hazards (UN-ISDR, 2002:342).
- **Vulnerability reduction** – Are the positive factors, that increase the ability of people and the society they live in, to cope effectively with hazards, that increase their resilience, or that otherwise reduce the susceptibility, are considered as capacities (UN-ISDR, 2002:342).

² <http://www.worldbank.org/poverty/scapital/whatsc.htm>

CHAPTER TWO: LITERATURE REVIEW

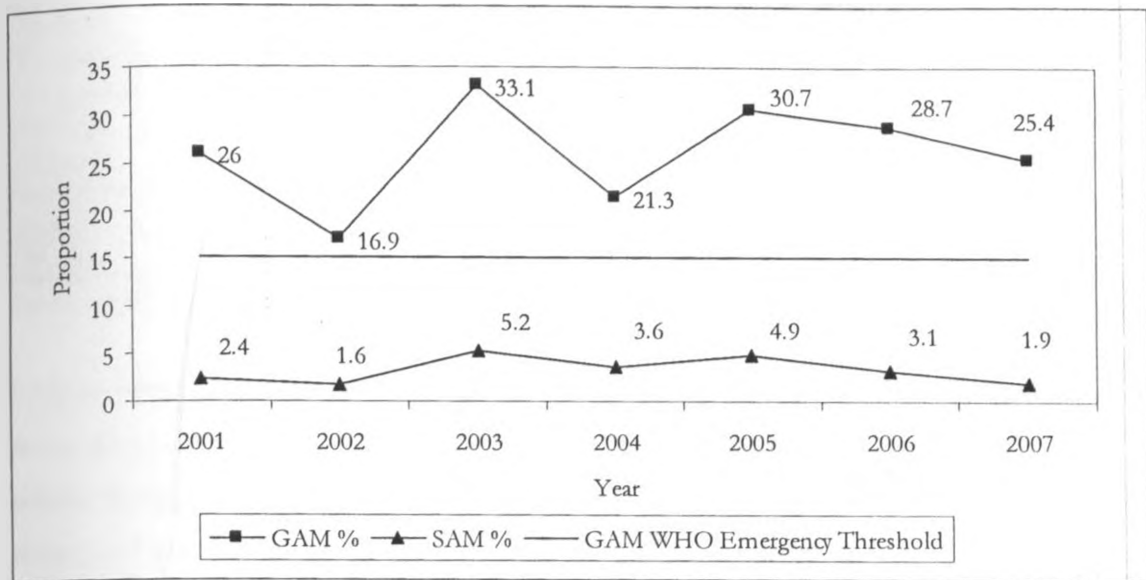
2.1 REVIEW OF EMPIRICAL LITERATURE

Food insecurity and the high prevalence of malnutrition are still rampant in spite of the improved harvest across Southern Sudan in the year 2005 as compared to 2004. In a report submitted by FAO (2007: 2), Sudan has been listed as one of the 33 countries in crisis requiring external assistance due to “severe localized food insecurity” as a result of civil strife, returnees and drought. Other countries in this category include Burundi, Central Africa Republic and Chad to name a few.

Households continue to experience food insecurity due to a combination of factors namely: insecurity, poor harvests and inaccessibility to food markets in some regions as well as increased influx of returnees (United Nations, 2006:34). The food insecurity situation in Sudan and in particular the area of study is characterized with poor nutritional standards, influx of returnees, poor health status and unsafe water and poor sanitation.

One of the indicators for the Millennium Development Goals (MDG 1 – Eradication of poverty and hunger) is the occurrence of under weight children under five years of age. A multi-indicator survey conducted in Twic County by GOAL Ireland (2007:19) reported that the prevalence of global acute malnutrition (GAM) has been reducing in Twic County over the last 3 years. Although still high above the WHO critical threshold of 15%, it appears to be on a more stable downwards trend since 2005 (GAM 30.7%) when the Peace Agreement was signed down to 28.7% in 2006 and now at 25.4% in 2007. Malnutrition is attributed to food insecurity due to poor harvests and inadequate pastures in some areas. Figure 1 illustrates the malnutrition trends in Twic County for last seven years.

Figure 1: Malnutrition trends in Twic County 2001-2007



Source: GOAL Ireland (2007:19)

On top of an already compromised food security, Twic County has been experiencing an influx of returnees mostly since the beginning of last year. The returnee households are integrated in the host community and are depending on the host families for their food further increasing food shortage. According to a draft report by OCHA-IMU (2004: 15), it was projected that Twic County will receive 4,446 returnees following the signing of the Comprehensive Peace Agreement in 2005.

Health and nutrition are linked and according to FAO (2005:17), "Poor maternal nutrition and health can be considered the hub of the vicious cycle that passes hunger from one generation to the next – from malnourished mothers to low birth weight babies who are at high risk of stunting during childhood, of reduced working and earning capacity as adults and of giving birth to low-birth weight babies themselves." Respiratory tract infection, diarrhoea and malaria which are the leading causes of morbidity in Twic County are also associated with the high rate of malnutrition. Findings on morbidities in Twic County as reported in a survey conducted by GOAL Ireland are summarized in Table 1.

Table 1: Prevalence of illness

Illness	Number	% Morbidities
Respiratory Tract Infection	95	37.9
Diarrhoea	70	27.9
Malaria	58	23.1
Measles	3	1.2
Eye Infection	3	1.2
Other	22	8.8
Total	251	100

Source: GOAL Ireland (2007:23)

Unsafe water and poor sanitation also contribute in widespread malnutrition, disease and morbidity parts of Southern Sudan. This is confirmed by FAO (2005:24), "The countries where hunger is most prevalent are also marked by the lowest levels of access to safe water and sanitation." It is in order to have all quotes starting with a capital letter?

Food aid actions in Southern Sudan have significantly contributed to maintaining and improving nutritional status of assisted people in WFP operational areas. WFP provided approximately 34,176 MTs of food to 1.2 million IDPs and vulnerable residents in chronically food insecure areas as a measure to minimize food insecurity and malnutrition. (United Nations, 2006:34-35).

The United Nations Work Plan for the year 2006 indicated that the planned support for humanitarian and recovery/development programming in Sudan was pegged at USD 1,603,418,468 (United Nations, 2006:18). The breakdown per sector is shown in Table 2.

Table 2: Humanitarian funding level per sector for Sudan in 2006

Sector	Total Requirements for 2006 (USD)	Percentage of Total
Direct Food Aid	674,813,719	42.09
NFIs, Common Services and Coordination	151,415,369	9.44
Education and Vocational Training	132,506,017	8.26
Health	116,087,893	7.24
Water and Sanitation	104,236,229	6.50
Basic Infrastructure and Settlement Development	102,077,341	6.37
Food Security and Livelihood Recovery	72,724,317	4.54
Protection and Human Rights	69,353,462	4.33
Cross-sector Support for Return	63,731,000	3.97
Nutrition	57,793,451	3.60

Sector	Total Requirements for 2006 (USD)	Percentage of Total
Mine Action	54,819,670	3.42
Governance and Rule of Law	3,860,000	0.24
Total	1,603,418,468	100.00

Source: United Nations (2006:18)

As shown in Table 2, the direct food aid requirement for Sudan comprises of a significant 42.09% or USD 674,813,719 of the total humanitarian funding. This further demonstrates the magnitude of the dire food situation in Sudan. The study looked at the household food security levels in Twic County and established household perceptions of factors that contribute to food shortages.

2.2 REVIEW OF THEORETICAL LITERATURE

Any empirical study should be grounded in theory. This is because among other roles a theory provides secure grounds on which we can come up with some questions to be answered by a study (Singleton et al, 1988:475). It is therefore safe to infer that a theoretical framework is essential to the understanding of the factors that influence or are associated with an identified problem. This study was guided by the following theories:

2.2.1 Food Security

Throughout history conflict has frequently been an important contributory cause of food insecurity. For instance the surrounding and laying siege to large towns and cities was a regularly employed military technique in Europe during the middle ages, causing the starvation of large numbers of civilians as well as soldiers. The Rumanura famine of 1916-18 in Rwanda, Eastern Africa resulted from the military campaigns waged by the colonial powers involved in the First World War. A much remarked feature of the African Food Crisis of 1983-86 was the fact that while drought and food shortages affected as many as 24 countries on the continent it was the countries experiencing civil war that developed famines i.e. Ethiopia, Chad, Mozambique and Sudan (UNDP-DMTP, 1994:29).

The continuing evolution of food security as an operational concept in public policy has reflected the wider recognition of the complexities of the technical and policy issues involved. The most widely used definition of food security is that outlined by the World Bank, "Food security is access by all people at all times to enough food for an active, healthy life" UNDP-DMTP (1994:24).

The Forum for Food Security (2004:5) identified three critical components of 'food security' namely:

- *Food availability*: the sum of domestic production, imports (both commercial and food aid), and changes in national stock;
- *Food access*: people's entitlement to food, namely the amount they can produce, purchase or otherwise receive (e.g. through formal and informal food distribution systems);
- *Food use and utilization*: both the way that food is prepared and distributed between individuals within the household, and the individual capacity to absorb and utilize nutrients in the food consumed.

Food insecurity, in turn, is the lack of access to enough food. There are two kinds of food insecurity: chronic and transitory. Chronic food insecurity is a continuously inadequate diet caused by a household's persistent lack of ability to buy or to produce enough food. Transitory food insecurity is a temporary decline in a household's access to enough food. It often results from instability in food prices, declining food production or household incomes – and in its worst form produces famine (UNDP-DMTP, 2004:24).

Amartya Sen has been credited with initiating the paradigm shift in the early 1980s that brought focus to the issue of access and entitlement to food. The term 'entitlement' is used to signify command over resources which, in turn, give control over food or which can be exchanged for food. A farmer has the option of consuming his/her own production directly or selling for cash in order to buy some other type of food. An agricultural labourer sells his/her labour either for money or for payment in kind, usually food. Rural artisans (e.g. shoe-makers and weavers) sell their labour or products for money. Entitlements are, therefore, not fixed or equal but vary according to an individual's position within the wider system of production, exchange, control and distribution (UNDP-DMTP, 2004:26). Most households' in Southern Sudan also have entitlement in that they command resources in the form of livestock and can also offer their labour in order to get food.

Declines in food availability may be caused by a range of "natural" and human-induced factors. Among the "natural" factors are: agricultural drought, floods, high winds, unseasonable cold spells/frosts, crop disease, pest infestation (e.g. locusts, army worms

and quelled birds). Among the human-induced factors are: conflict preventing farmers from planting, weeding, harvesting, and selling or possibly, involving the physical destruction of standing crops, external economic shocks, e.g. sudden increases in the price of imported oil or fertilizers or a sudden decline in the value of a country's exports thereby limiting its capacity to import items normally necessary for agricultural production internal macro-economic mis-management, e.g. poor agricultural pricing policies discouraging farmers from growing surpluses, the overtaxing of export commodities so that the country's foreign exchange earnings fall and it becomes less able to import vital commodities such as oil and fertilizer, forced procurement of farm produce by state organizations, over-export of foods which reduces the amount available nationally to below required levels (UNDP-DMTP, 2004:27). In the case of Southern Sudan two of the causes of the decline in food availability cited above are relevant to this study namely natural and human induced factor through agricultural drought and conflict respectively.

Communities that are in food insecure areas have developed coping mechanisms to minimize the effect of food shortages. Coping can be defined "as the manner in which people act within the limits of existing resources and range of expectations to achieve various ends" (Blaikie et al, 2004:113). Thus coping can include defence mechanisms, active ways of solving problems and methods for handling stress. Resources in this context are physical and social means of gaining a livelihood and access to safety and include labour, power, land, tools, seeds for crops, livestock, draught animals, cash, jewellery, items that can be sold, storable food stocks as well as skills (Blaikie et al, 2004:113).

The study focused on social capital as a coping strategy. As pointed out earlier there is limited information on households' ability to secure sufficient food and their connection to neighbours, friends and helping services, this study aimed to establish the linkage between the role of social capital in households and households' ability to secure sufficient food.

2.2.2 Social Capital

Social capital is becoming a common buzzword in political science, sociology and even in economics. According to the World Bank (2000)³, social capital is "...the rules, norms, obligations, reciprocity and trust embedded in social relations, social structures and society's institutional arrangements which enable members to achieve their individual and community objectives." Classical theory has identified four bases for social capital namely bounded solidarity, reciprocity transactions, values introjection and enforceable trust (Woolcock, 1998:161). Bounded solidarity from Marx and Engles posits that adverse circumstances such as poverty, social oppression etc. can act as a source of social cohesion. Reciprocity transactions from Simmel through personalised networks of exchange ranging from swapping favours between neighbours to the coping mechanisms of pastoralists in Africa. Values introjection from Durkheim and Parsons which refers to the values and moral imperatives and commitments that precede exchanges. These are more personal in their nature and include for example gifts to children, religious practices etc. Enforceable trust from Weber which describes the agreed upon rules of conduct for compliance within a group. An example of which are the community savings groups found in many types of microfinance programs in developing countries.

Pantoja (1999:28) identified six forms of social capital:

- a) *Family and kinship connections* - include the single household, extended family or clan based on "strong" ties of blood and affinity. An important factor is that family and kin relationships are mainly created by birth not by choice.
- b) *(Wider) social networks or "associational life"* - include networks of individuals, groups and organizations that link individuals from different families or groups in common activities for various purposes. This would be the form of social capital closer to the definition in terms of "networks of civic engagement" or "local associations". This form of social capital covers a full range of formal and informal horizontal arrangements.
- c) *Cross-sectional linkages or "networks of networks"* - include the networks linking together organizations from various sectors of society (i.e. NGOs, grassroots organizations,

³ <http://www.worldbank.org/poverty/scapital/whatsc.htm>

government agencies and private firms) that allow to combine resources and different types of knowledge to find solutions to complex problems. Through these networks, public-private cross-sectoral linkages and mutually supportive and complementary relations are established. This form of capital provides the articulations between horizontal and vertical associations and organizations.

- d) *Political Capital* - include the norms and networks shaping relations between civil society and the state thereby allowing a society to mediate conflict by effectively responding to multiple citizen demands. Political capital is related to informal institutional arrangements that may result in effective representation, accountability and participation. This is a form of social capital that lies in the realm of “political society”. Such political society comprises the institutions and actors who mediate the civil society-state relationships, and depends on the embeddedness of civil society and state.
- e) *Institutional and policy framework* - which include formal rules and norms (constitutions, laws, regulation, policies) that regulate public life. This is what has generally been identified as macro-level social capital. It has a sort of double nature since it may induce the creation of other forms of social capital while it constitutes in itself a resource that facilitates coordinated actions. Existence of a consistent institutional framework is necessary to generate and strengthen generalized social trust.
- f) *Social norms and values* - which would include widely shared cultural beliefs and the effects such beliefs have on the functioning of society at large. Norms and values support other forms of social capital as well as representing the most general and most difficult form of social capital

Social networks theory is further discussed in a paper by Mark Granovetter published in the American Journal of Sociology in 1973. Granovetter argues that innovation often travels most effectively via weak connections. He posits that one is likely to already be familiar with the work and ideas of his/her immediate colleagues and friends. But a colleague that he/she communicates with only occasionally—say at a village meeting—is more likely to be a source of novel information. Moreover, that distant colleague will be more effective at spreading ones novel ideas because close colleagues and friends likely

know many of the same people as you do, whereas the distant colleague likely has a very different group of people in his/her social networks.

In his article, Granovetter discusses the 'strength' of weak ties in a community. While many authors and researchers of the past tend to ignore these seemingly insignificant social connections, Granovetter (1973:1373) claims that these connections are extremely important, and perhaps essential, to the growth and continued prosperity of a community. According to Granovetter (1973:1373), a strong tie between two individuals of a community will never act as a bridge (where a bridge is a single connection that connects two different groups of people). Because of this, passing information along a strong tie will keep that bit of information contained within one of one's own primary cliques. As those in one of one's own primary cliques would tend to pass along any information they receive to another of their own strong ties (which would likely be another member of the original clique), information would most likely not go beyond the bounds of the initial clique. Because strong ties are never bridges, explains Granovetter, all bridges in a community must be weak ties (this does not mean, however, that all weak ties are bridges). If one passes information along one of his weak ties, then, it is likely (or at least more likely) that that bit of information will reach a broader audience. Clearly, then (at least according to Granovetter), it is the weak ties of a community, and indeed not the strong ones, that are responsible for 'spreading the word'; without weak ties, it would be nearly impossible to spread information in mass.

In African societies, family and kinship connections are extremely important as family members provide an essential support network. Blood links extend out to clan members and there is the sense that blood relatives will unquestioningly support each other - the closer the blood link, the more automatic and total the support. Family and kinship connections are bonding ties which are relevant for the study as they are associated more with survival than development and are often observed in recovery from natural disaster and conflict. In the event of a shock within the community individuals withdraw from maintaining associations with the wider society and turn to their close family members.

The relevance of the social capital theory to this study is that it guided the researcher in examining the associational life of households as a resource for society in response to the idea of building the personal stock of material capital as the basis for rational behaviour to reduce their vulnerability to food shocks. The study sought to establish whether the

existence of social capital acts as a productive safety net against the adverse effects of food shocks in Twic County.

2.2.3 Sustainable Livelihoods Theory

Sustainable livelihoods theory is centered on people and their livelihoods. It prioritizes people's assets (tangible and intangible), their ability to withstand shocks (the vulnerability context), policies and institutions that reflect poor people's priorities, rather than those of the elite. The sustainable livelihoods theory provides means to consider factors that influence livelihoods, interactions between those factors and sustainability of livelihoods. Focus is on ways in which people, especially the poor, earn a living. The application of the sustainable livelihoods theory provides a framework for analysing the risks to which the poor in particular are vulnerable, and the strategies they adopt in striving to achieve livelihood outcomes such as food security (Blaikie et al, 2004:96).

A livelihood is defined as “the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shock and maintain or enhance its capabilities and assets both now and in the future while not undermining the natural resource base” (Chambers and Conway, 1992:9). The sustainable livelihoods theory appears to be an adequate complement for this study in that it links vulnerability, social capital and food security (as a livelihood outcome).

Components of the Sustainable Livelihoods Approach

The sustainable livelihoods theory identifies five components that include vulnerability context, livelihood assets, transforming structures and processes, livelihood strategies and livelihood outcomes.

Vulnerability Context

A central feature of the sustainable livelihoods theory is that it views people as operating in the context of vulnerability. It is widely recognized that natural hazards do not necessarily lead to disasters (Cannon, 1990:1). Hazards become disasters when they hit vulnerable people. They act as trigger events. In agricultural settings, for instance, natural factors largely determine people's entitlements to food and livelihoods in “normal” years; their prospects for creating surplus and their ability to accumulate assets that reduce vulnerability. While natural hazards act as trigger events for a disaster to occur, the

underlying explanations are to be found in people's vulnerability. These explanations for the root causes of vulnerability are often as a result economic and political ideologies as well as limited access to power, structures and resources (Blaikie et al, 2004: 53).

From the above it will be therefore noted that the vulnerability context frames the external environment in which people exist and is responsible for many of the hardships faced by the world's poorest people. The factors that make up the vulnerability context are important because they have a direct impact upon people's assets and the livelihood options that are open to them. The model presents three types of vulnerability that is shocks, trends and seasonality (Mukherjee et al, 2002:8).

Shocks are various factors that affect the community that are beyond their control and include health conditions (precipitous changes in health service availability or disease profile), natural disasters (like floods, droughts, tidal waves, volcanic eruptions), economic disruptions like a monetary crisis, changing price of foodstuffs as well as farm inputs as well as crop pests and rodents. Shocks can destroy assets directly (e.g. in the case of floods and earthquakes). They also force people to dispose of assets as part of the coping strategies.

Trends are long-term and usually large scale. This includes population (demographic aspects, family planning, unemployment and in- and out- migration), resources (changes in yields, in size of land holdings, availability of natural resources and environmental changes) and local economy (commodity prices, subsidies, food security and the cost of services, employment).

Seasonality concerns non controllable effects on livelihoods in such matters as: food prices (due to shortages in non-harvest periods), production (fluctuations in agricultural output) employment opportunities and local illness and disease patterns. The vulnerability context of the study area is mainly characterized by unreliable rainfall patterns leading to recurrent food shortages due to crop failure including livestock death thus directly affecting household livelihoods.

Livelihood Assets

The approach breaks assets (also referred to as capital) into five categories, human, physical, social, financial and natural capital (Mukherjee et al, 2002:8). Human capital (number of people in the study community, household size, labour availability, education and skills, population health). Natural capital (land, water for agriculture, forests, wildlife, marine and other environmental resources). Financial capital (credit sources, savings, remittances, pensions). Physical capital (infrastructure, including transport, electricity, domestic water supply, energy, access to information and producer goods, including access to tools and equipment). Social capital (cultural and kinship networks and group memberships, trust relationships, community institutions, supportive traditional practices, access to wider social institutions). Considering households in the study area, the approach can be used to show the strengths and weaknesses of different types of assets, their relative importance and the linkage between them. However, the study focused on social capital as a coping strategy and established the extent household draw upon their social support networks to enable them mitigate the adverse effects of food shocks.

Transforming Structures and Processes

Transforming structures and processes within the livelihoods framework are the institutions, organisations, policies and legislation that shape livelihoods (DFID, 1999: 17). Transforming structures are public sector, private sector and civil society organizations. They set and implement policy and legislation, deliver services, purchase, trade and perform many other functions that affect livelihoods. Transforming processes determine the way in which structures and individuals operate and interact. They include policies, legislation and other rules that regulate access to assets, markets and culture and power relations in society. Transforming structures and processes can reduce or worsen the impact of external shocks on vulnerable people for example through the lack of policies that support local efforts of vulnerable people to enhance their livelihoods. Thus it is important to find out whether transforming structures and processes support households' efforts towards vulnerability reduction in the study area.

Livelihood Strategies

The livelihoods approach seeks to promote choice, opportunity and diversity. This is nowhere more apparent than in its treatment of livelihood strategies – the overarching term used to denote the range and combination of activities and choices that people make/undertake in order to achieve their livelihood goals (including productive activities,

investment strategies, reproductive choices, etc.) (DFID, 1999: 23). Households have three broad options to improve their livelihoods. These include natural resource based activities, non-natural resource based activities and migration to other agricultural areas or to urban areas. The SL approach seeks to understand the many factors influencing people's choice of livelihood strategy and then to reinforce the positive aspects and mitigate constraints. In the study area, it would be interesting to find out through research the livelihood strategies pursued by the households.

Livelihood Outcomes

Livelihood outcomes are the achievements or outputs of livelihood strategies (DFID, 1999: 25). Livelihood outcomes include more income, increased well being, reduced vulnerability, improved food security and more sustainable use of natural resource base. (Hefferman and Misturelli, 2000:3). The study also sought to find out to what extent social capital contributes to achieving the above mentioned outcomes.

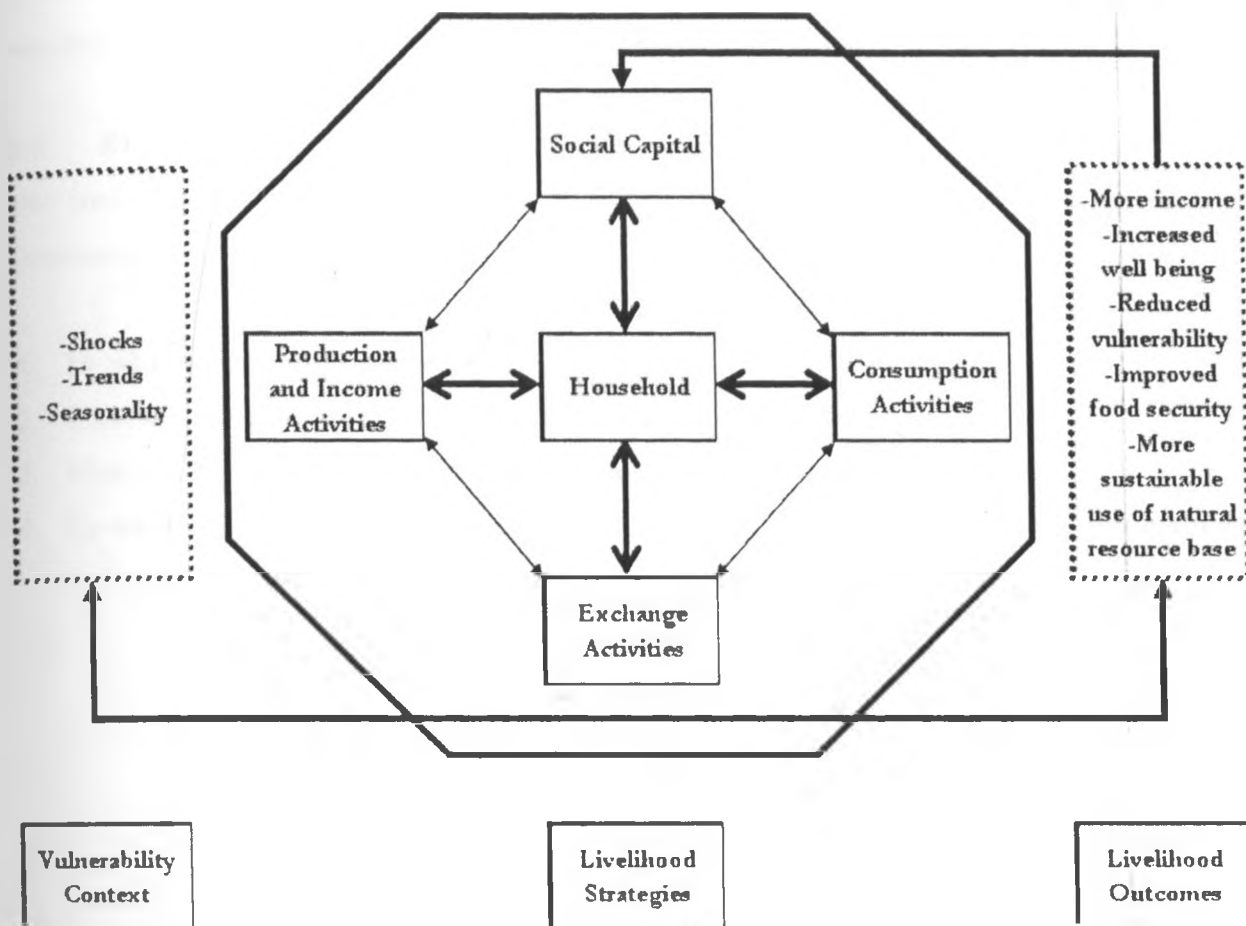
2.3 CONCEPTUAL FRAMEWORK

According to the Wikipedia Free Encyclopedia⁴, “a conceptual framework is used in research to outline possible courses of action or to present a preferred approach to a system analysis project. The framework is built from a set of concepts linked to a planned or existing system of methods, behaviours, functions, relationships, and objects”.

The study adopted a household-centred model to view household livelihoods aspects in setting risk reduction and hazard vulnerability in their wider vulnerability context. This is illustrated in Figure 2.

⁴ http://en.wikipedia.org/wiki/Conceptual_framework

Figure 2: Conceptual framework



The framework adopted by the research provides means to consider factors that influence household livelihoods, interactions between those factors and sustainability of livelihoods. Focus was on ways in which households earn a living. The application of the above model provides a framework for analysing the risks to which the households in particular are vulnerable (shock, trends and seasonality). The vulnerability context of households was examined to assess households' level(s) of food (in)security and their perceptions of factors that contribute to food shortages. The livelihood strategies (social capital, production, income, consumption and exchange activities) households adopt in striving to achieve livelihood outcomes (e.g. more income, increased wellbeing, reduced vulnerability, improved food security and more sustainable use of natural resource base) was also examined.

Using the above framework, social capital was examined as a social resource. The study explored social capital by analyzing those formal and informal institutions that

households' draw upon in times of trouble. Consequently, the study analyzed the variety and strength of associations that are available to household members. Thus social capital was measured via the levels of household association in groups.

2.4 RESEARCH QUESTIONS

The study did not test any hypotheses. However, it was guided by the following research questions:

1. To what extent are households' food insecure?
2. What are the characteristics of food insecure households?
3. What are their perceptions of factors that contribute to food shortages?
4. To what extent do households rely on their social capital to reduce their vulnerability to food shortages?

CHAPTER THREE: RESEARCH METHODS

3.1 SITE SELECTION AND DESCRIPTION

Twic County was chosen for this study because it is a food insecure area and is recovering from the adverse effects of prolonged civil conflict. The County experiences an unreliable unimodal rainfall pattern usually between May and August. Because of the unreliability of rainfall the county faces recurrent food shortages due to crop failure including livestock death. Inter-ethnic conflicts are also common due to inadequate grazing grounds for livestock due to the unreliable rainfall. There are other counties in Southern Sudan that are food insecure and have similar historical, ecological and climatic characteristics as Twic such as Gogrial, Mayom and Abyei to name a few. For this study, Twic was purposively selected as the most appropriate location due to the researcher's access to the area, financial limitations and personal security. In such a risky environment, populations draw support from their social support networks in times of hardship as a coping strategy among other strategies. Thus there was need to find out the role of social capital as a coping strategy as far as food insecurity is concerned in the area of study.

In order to get a clear picture of the research site and its population characteristics, it is important to describe its physical location and other characteristics. Twic County lies in Warrap State, which is one of the 10 administrative States of Southern Sudan. The county borders Gogrial County to the Southern and West and Leech State to the East. It shares a long northern border with Abyei County, currently controlled by the Government of Sudan (GoS). Twic County has a total population of approximately 431,927 people. The population comprises about 5% of southern Sudan's population, estimated at 8,963,229 million (OCHA-IMU, 2005: 3). The inhabitants of Twic County are the *Twic Dinka*. The county however, hosts numerous Nuer speaking internally displaced persons (IDPs) from Leech State. About 90% of the people are agro-pastoralists while the rest are nomads.

Twic has six administrative divisions (*payams*) running parallel from north to south. They are, from west to east, Akoc, Panyok, Wunrok, Turalei, Aweng and Ajak Kuac. The county has been under the administrative control of the Sudan People's Liberation Movement/Army (SPLM/A) since the war broke out in 1983. Twic is administered by the SPLM County Secretary and an SRRC County Secretary. The County headquarters are Turalei Centre, Turalei Payam (OCHA-IMU, 2005: 1).

The County lies in the flood plains agro ecological zone. It receives extensive seasonal flooding of the tributaries of the Nile. The two main rivers crossing the county, the Alal and Lol, make Twic one of the leading fish producing counties in southern Sudan. The low lying swampy areas, locally know as “toic”, are rich in fish, wild foods and also provide for grazing in the dry season. Cattle are grazed on the higher grounds in the wet season. Sorghum, the main crop, is grown in the higher grounds, while supplementary crops are grown in the lowlands (OCHA-IMU, 2005: 8). Large herds of cattle are kept and surplus crop normally contributes to restocking. Crop production is practiced by all households while fishing is an important activity due to the rivers crossing the county. Inter-ethnic conflicts over grazing grounds as well as pests attacks and poor rainfall lead to reduced crop yields and livestock production in the county. Twic has also been experiencing fluctuations in the proportion of its population facing food deficits and available information indicates that the situation is getting worse (OCHA-IMU, 2005: 8).

3.2 UNIT OF ANALYSIS AND UNIT OF OBSERVATION

According to Baker (1994:102), the social entities whose social characteristics are the focus of the study would be the unit of analysis also called units of statistical analysis. Thus the primary unit of analysis in this study was the selected villages. In order to get the required information, the units of observation were the households within the villages. The household therefore provided information about the role played by social capital in the event of food shocks.

3.3 SAMPLING PROCEDURES

The study employed various sampling techniques to select 40 respondents from among households in four villages in two “payam” (divisions) in Twic County. The “*payams*” of Wunrok and Aweng were purposively selected to keep the cost of fieldwork at manageable levels. It is worth pointing out that just like the other division in Twic County, the two “payams” selected represent the characteristics that suit the objectives of the problem under study. Furthermore, within each of the two purposively selected *payams*, two villages were selected separately for the two payams using random sampling from a sampling frame of 42 and 30 villages in Wunrok and Aweng “payam” respectively. From the four villages of Abindau and Mayen Abun in Wunrok Payam and Agor and Maper in Aweng Payam, 10 households were randomly selected for each village. This was achieved as follows, on arrival at the village; the researcher confirmed the centre of the village with the assistance of the Chief where a pen was spun. The direction shown by the

pen was followed until the boundary of the village was reached. The number of households passed along this line were counted and assigned a number from 1 to n. The first household was selected by picking a random number between 1 and the number of households counted until the required number of 10 households was reached.

In addition, the study gave emphasis to qualitative methods of social research to which key informants were interviewed. Key informants are the people with sound knowledge and competence to provide the required information. Three key informants were purposively selected, that is, using a non-probability sampling technique - and included:

- Aweng Payam Administrator.
- Wunrok Payam Administrator.
- Community Support Officer – GOAL Ireland.

The individuals listed above were hypothesized to be more knowledgeable not only in matters to do with food security, but also the capacity of Twic County to deal with food shortages. They were interviewed using a Key Informant Interview Guide as a tool of data collection that yielded mainly qualitative data.

3.4 TECHNIQUES OF DATA COLLECTION

3.4.1 Introduction

A research design is “a plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance” (Kerlinger, 1964:275). In order to understand the role of social capital in enhancement of food security, this study used triangulation method, which is, using both quantitative and qualitative methods of social investigation. This provided an overview of the existing strategies in place to counter the adverse effects of food shortages in Twic County. The study was undertaken at two levels, that is, documentary and field research. As pointed out earlier, this study utilized both qualitative and quantitative methods of social investigation. It employed the following techniques:

3.4.2 Documentary Research

This approach was intended to generate secondary data to be used to understand the question at hand at theoretical level. This involved reviewing various research reports, books, journals and articles on social capital and food insecurity reduction. Documentary

research necessarily meant visiting various libraries and resource centres in Nairobi. In particular, the researcher visited the World Bank resource centre, FAO library and the University of Nairobi libraries.

While the role of documentary research cannot be overlooked, the role of social capital in enhancement of food security can be understood better by doing a field research. This involved studying the target area (Twic County) and its population (households). This exercise provided information that helped in understanding the question at hand at a practical rather than theoretical level as is the case in documentary research.

3.4.2 Survey research

This involved administering the individual questionnaires to 40 households in the sample in the field. The survey research method was selected for the purpose of facilitating standardisation of the procedures for all respondents. This method is suitable for descriptive, explanatory and exploratory purposes, Babbie (1995:257). This technique yielded both qualitative and quantitative data.

3.4.3 Key informant interviews

This technique used a key informant interview guide as a tool of data collection to collect mainly qualitative data through in-depth interviewing of key informants. The key informants were drawn from community representatives. Due to time and resources only three key informants were interviewed.

3.5 TECHNIQUES OF DATA ANALYSIS

For the purpose of computer analysis, data were coded using a codebook i.e. conversion of measurements and attributes of variables into numerical form. Once coded, the data was entered into a computer using the Statistical Package for Social Sciences (SPSS). In this report, numeric data is presented using only descriptive statistics while the rest of the data was analysed manually. This was because there were no stated hypotheses in this study that could be tested using inferential statistics.

According to Baker (1994: 373), descriptive statistics refers to simple statistical methods, which do not support or falsify a relationship between variables but simply help in the description of data. The procedures were used to describe and analyze data thereby enabling the researcher to summarize and organize the data in an effective and

meaningful way. The procedures were applied as a way of categorizing variables by summarizing patterns in the responses of the respondents. This was done by use of percentage, frequency distribution tables and pie charts. Hence patterns of relationships were identified and variations captured.

Qualitative data was analysed manually as it is extremely varied in nature and included virtually all information that could be captured that was not numerical in nature. The qualitative component of this study assisted in filling in gaps and also provide additional information.

Information on the basic characteristics of food insecure households was generated by questions 1 to 16 in the interview schedule for households. A household, for purposes of the study, was defined as a group of individuals living under the same roof. By this definition therefore a household comprised of the household head, his/her spouse, children, nephews, nieces and other dependants living within the same house. A food insecure household in this study was operationally defined as a household where the household head has “sometimes”, “often” or “mostly” skipped entire meals in the last 12 months because there was no food. The information was generated by question 17 b) in the interview schedule for households.

Calculating the weighted sum of the different responses to questions 17 a) to f) showed the severity of the food situation experienced by the household's surveyed. The weight reflected the frequency of use of the responses by each household. The weights were made consecutive as follows “never” as 1, “rarely” is counted as 2, “sometimes” as 3, “often” as 4 and “mostly is counted as 5. Households with a total weighted sum of between 1 and 10 were considered to be of low severity, 11-20 medium severity while households with a sum of 21 to 30 were considered to be of high severity. The higher the sum of the responses the more severe a household was food-insecure. This data analysis technique enabled the researcher to answer the research question seeking to find out the extent households are food insecure in the area of study.

Information on the perceptions of households on the factors that contribute to food shortages was generated by question 18 in the interview schedule for households. Since the information generated by this question is not numerical in nature, analysis of the data was done manually.

Calculating a weighted sum of the information generated by question 33 showed by proxy the extent the household's surveyed rely on the groups and networks dimension of social capital to reduce their vulnerability to food shortages. The weights reflected the frequency of use of the responses by each household and the strength of the household response. The weights were made consecutive, so that "very low" as 1, and "low" is counted as 2, "neither high or low" counted as 3, "highly" as 4 and "very highly" is counted as 5. The higher the sum of the responses the more the household relies on groups and networks to reduce their vulnerability to food shortages. Households with a sum of between 1 and 10 were considered by proxy to have low dependence on groups and networks, between 11 and 20 reflected medium dependence and between 21 and 30 high dependence. This data analysis technique enabled the researcher to answer the research question seeking to find out the extent households rely on the social capital dimension of groups and networks to reduce their vulnerability to food shortages.

Information on the social capital dimension of collective action was generated by questions 31 and 32 which sought to show the extent households that participated in community projects managed to reduce their vulnerability to food shocks.

3.6 FIELD EXPERIENCE

In this section, the researcher points out some of the challenges encountered when collecting field data. Firstly, the interviews were done with the cooperation of an interpreter as most of the respondents were not capable of expressing themselves in English as they mainly speak Dinka or Arabic. This was not always easy and gave no direct control over the data obtained. In some cases it was not possible to cut short some of the respondents for the open-ended questions as they were carried away and not mindful of time.

Another problem was that most respondents expected to be paid after the interview. This situation made the researcher to explain carefully what the exercise was all about and why it involved their input before starting the interview. Despite the challenges the research went well and mostly according to plan.

CHAPTER FOUR: PRESENTATION AND ANALYSIS OF FIELD DATA

The study sought to find out the basic characteristics of the sample households; the extent to which households are food insecure; basic characteristics of food insecure households; their perceptions of the causes of food shortages as well as the extent households rely on their social networks to reduce their vulnerability to food shortages in line with the research questions. This chapter specifies what was established by the researcher following the analysis of field data.

4.1 BASIC CHARACTERISTICS OF SAMPLE HOUSEHOLDS

This section descriptively presents the socio-economic data gathered from households in Wunrok and Aweng *Payams* respectively. The socio-economic parameters considered during the study comprise of gender of head of household, household size, number of children in household, domiciliary status of household and literacy levels.

4.1.1 Gender of head of household

The sample comprised of both female and male headed households as is illustrated in Table 3.

Table 3: Distribution by the gender of the head of household

Payam	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
Female	12	60	11	55	23	57.5
Male	8	40	9	45	17	42.5
Total	20	100	20	100	40	100

Source: Field Data

All villages in the two *Payams* had good representation of male and female headed households though the total females' representation (57.5%) was slightly higher than males' (42.5%). Females play a significant role as head of households. Thus, in the event of initiating a livelihoods project as a way of reducing household vulnerability to food shortages the views of both sexes would be equally important to avoid gender biases.

4.1.2 Household size

The approximate household size in the respondent' households were established as illustrated in Table 4.

Table 4: Household size of sample

Payam Household Size	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
1-5	3	15	5	25	8	20
6-10	17	85	11		28	70
11-15			4	20	4	10
Total	20	100	20	100	40	100

Source: Field Data

Seventy percent of the respondents had a household size of 6-10, 20% had a household size of 1-5 and 10% had an 11-15 household size. Thus on average the household size was 7 family members. This means that the number of people consuming food per household is actually high. Therefore, the households' are susceptible to frequent food shortages given the periodic crop failures in the region. However, this figure also suggests the potential of good human asset base in terms of labour, which can effectively be utilized to improve crop production.

4.1.3 Number of Children

In the study area it was observed that 100% of the 40 households surveyed had children ranging between 1 and 8 in number. There were 167 children in the 40 household surveyed. Aweng had the highest percentage (60%, n=101) and Wunrok had 66 (40%). The distribution is as illustrated in Table 5.

Table 5: Frequency of number of children in household

Number of Children in Household	Frequency		Total Households
	Aweng	Wunrok	
1	3	3	3
2	1	4	5
3	4	6	10
4	3	1	4
5	2	4	6
6	6	1	7
7	3	1	4
8	1		1
Total	20	20	40

Source: Field Data

4.1.4 Domiciliary status of household

The sample comprised of both host and returnee households as is illustrated in Table 6.

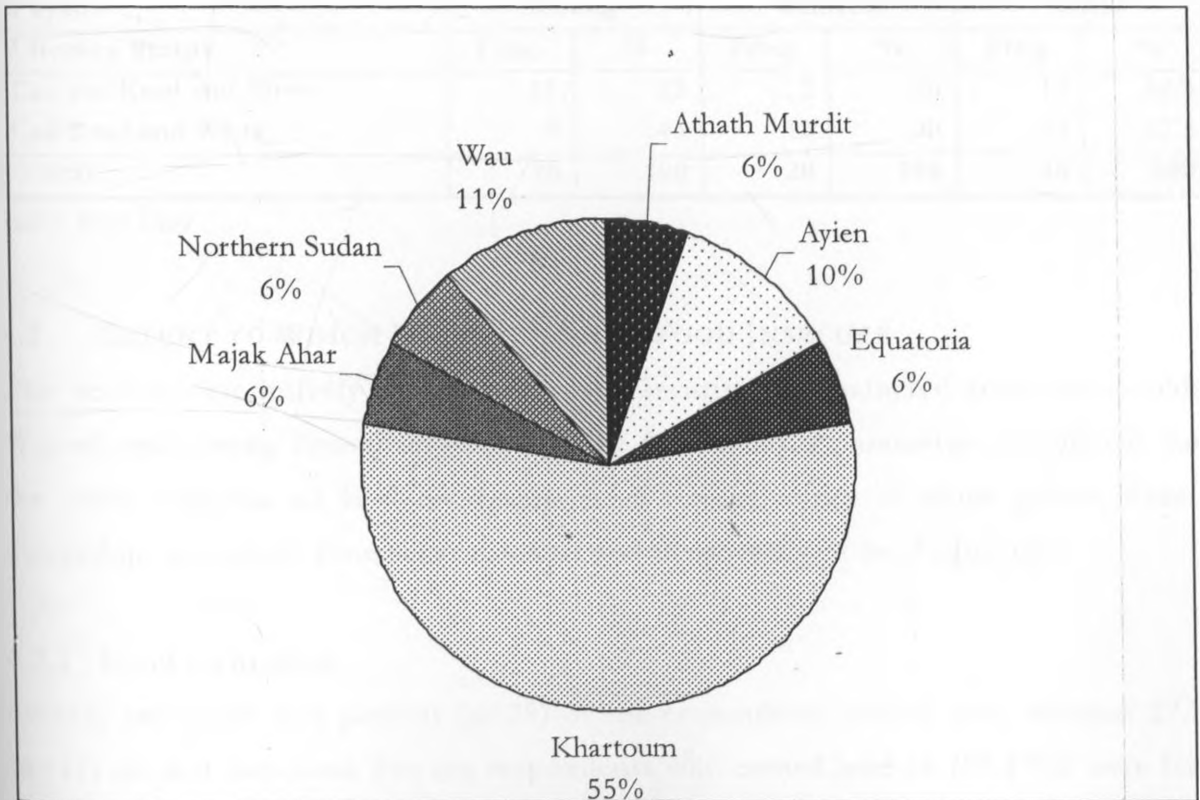
Table 6: Respondents domiciliary status

Payam	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
Returnee	13	65	9	45	22	55
Host	7	35	11	-	18	45
Total	20	100	20	100	40	100

Source: Field Data

Fifty five percent of the respondent' households were returnees and 45% were host households. This means that the population of returnee households is high. Thus, in the event of initiating a livelihoods project as a way of reducing the households' vulnerability to food shortages the views of both categories would be equally important to avoid marginalization of returnee household who by virtue of being returnees are extremely vulnerable.

Figure 3: Where returnee households were previously settled



Source: Field Data

Figure 3, illustrates where the returnees were previously settled before coming to settle in the area of study. Fifty five percentage of the returnee households were from Khartoum 10% from Ayien, 11% from Wau and 6% from Majak Ahar, Northern Sudan, Equatoria and Athath Murdit respectively.

4.1.5 Household literacy

The sample comprised of both literate and illiterate household members. The percentage of households that had a member who could read and write was 67.5%. Thirty-two point five percent (32.5%) of the households did not have a member who could read and write. This higher percentage of literate household members suggests the potential of a good human asset base as it creates a more analytical population that is willing to engage in meaningful discourse. When individuals can critically analyze society and culture, people as a whole benefit. This asset can enable household members to better understand new agricultural methods through training, which can effectively be utilized to improve crop and livestock production. Table 7 illustrates the literacy status of the respondent households.

Table 7: Respondents' literacy status of households

Payam	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
Can not Read and Write	11	55	2	10	13	32.5
Can Read and Write	9	45	18	90	27	67.5
Total	20	100	20	100	40	100

Source: Field Data

4.2 EXTENT TO WHICH HOUSEHOLD ARE FOOD INSECURE

This section descriptively presents the food security data gathered from households in Wunrok and Aweng *Payams* respectively. The food security parameters considered during the study comprise of land ownership, land acreage, types of crops grown, livestock ownership, household food security status and the severity of food insecurity.

4.2.1 Land ownership

Seventy two point five percent (n=29) of the respondents owned land, whereas 27.50% (n=11) did not own land. For the respondents who owned land 16 (55.17%) were female and 13 (44.83%) were male headed households. Of the eleven respondents did not own land, 7 were female (67.73%) and 4 male (36.30%) headed households. The relationship

between land owners and gender revealed that there were some discrepancies between the two groups as shown in Table 8.

Table 8: Respondents' land ownership

Payam Acreage Owned	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
None	1	5	10	50	11	27.5
1	2	10	7	35	9	22.5
2	8	40	1	5	9	22.5
3	6	30	1	5	7	17.5
4	3	15	1	5	4	10
Total	20	100	20	100	40	100

Source: Field Data

In the study area it was observed that the acreage of land owned ranged between 0 to 4 acres. Ten percent of the respondents owned 4 acres, 17.5% - 3 acres, 22.50% - 2 and 1 acre respectively. Wunrok had the highest percentage (50%, n=10) of households without land and Aweng had the highest percentage (15%, n=3) of households with 4 acres of land.

4.3.2 Crops grown

One of the coping mechanisms used by the respondents is that of growing crops as a way of reducing vulnerability to food shortages. Twenty eight (70%) out of the 40 respondents practised farming. They also specified the different crops they grow on their farms as reflected in Table 9.

Table 9: Types of crops grown

No. of respondents who mentioned (Multiple responses) n=28	Aweng		Wunrok		Total	
	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.
Beans	4	5.48%	0	0.00%	4	5.48%
Groundnuts	3	4.11%	5	6.85%	8	10.96%
Maize	16	21.92%	4	5.48%	20	27.40%
Okra	3	4.11%	2	2.74%	5	6.85%
Pumpkin	4	5.48%	1	1.37%	5	6.85%
Simsim	1	1.37%	4	5.48%	5	6.85%
Sorghum	19	26.03%	7	9.59%	26	35.62%
Total	50	68.49%	23	31.51%	73	100.00%

Source: Field Data

Comparing the two *Payams*, it was observed that more respondents' grew crops in Aweng (68.49%) than Wunrok (31.51%). The two most common crops grown in Aweng were sorghum (26.03%) and maize (21.92%) respectively.

4.3.3 Livestock ownership

In the study area livestock ownership is considered as a component of farming diversification strategy as well as for cultural functions (e.g. payment of dowry, sacrifices and celebrations). The study explored the types of livestock reared by the households in Aweng and Wunrok. Respondents were asked to specify the number of livestock they owned. Tables 10 and 11 illustrate the distribution of respondents by the type of livestock in Aweng and Wunrok respectively.

Table 10: Distribution by the number and type of livestock owned in Aweng Payam

	Cattle		Chickens		Donkeys		Goats		Sheep	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
None	5	25.00	4	20.00	16	80.00	2	10.00	8	40.00
1-5	8	40.00	10	50.00	4	20.00	13	65.00	10	50.00
6-10	7	35.00	3	15.00			4	20.00	2	10.00
11-15			2	10.00			1	5.00		
16-20			1	5.00						
>20										
Total	20	100	20	100	20	100	20	100	20	100

Source: Field Data

It was established that in Aweng, 15 (75%) respondents out of 20 owned cattle; Sixteen (16) out of 20 respondents owned chicken. Only 4 respondents in Aweng owned donkeys and 18 (90%) out of 20 of the respondents' reared goats. Twelve (60%) of the respondents' owned sheep.

Table 11: Distribution by the number and type of livestock owned in Wunrok Payam

	Cattle		Chickens		Donkeys		Goats		Sheep	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
None	10	50.00	12	60.00	20	100.00	9	45.00	17	85.00
1-5	5	25.00	8	40.00			6	30.00	2	10.00
6-10							3	15.00	1	5.00
11-15							1	5.00		
16-20								0.00		
>20	5	25.00					1	5.00		
Total	20	100	20	100	20	100	20	100	20	100

Source: Field Data

It was established that in Wunrok, 10 (50%) respondents out of 20 owned cattle in Wunrok. Only 8 owned chicken in Wunrok. None of the respondents in Wunrok owned donkeys. Eleven (55%) reared goats and 3 (15%) of the respondents' owned sheep.

The above findings show that 62.5% of respondents owned livestock (n=40) meaning that 37.5% do not own livestock. It is this group that does not own livestock that should be of great concern. The households could come together to form self help groups so as to assist each other to own and increase the number of livestock which can then later be sold as an income generating activity. This could go a long way in alleviating the effects of food shortages.

4.3.4 Households food security status

A food insecure household in this study was operationally defined as a household where the household head had "sometimes", "often" or "mostly" skipped entire meals in the last 12 months because there was no food. The data generated was calculated from question 17 b) in the interview schedule for households.

Fifty seven point five percent (57.5%) of the respondent households (n=23) were food insecure and 42.5% were food secure (n=17). This means that the number of food insecure households is high in the area of study. This is illustrated in Table 12.

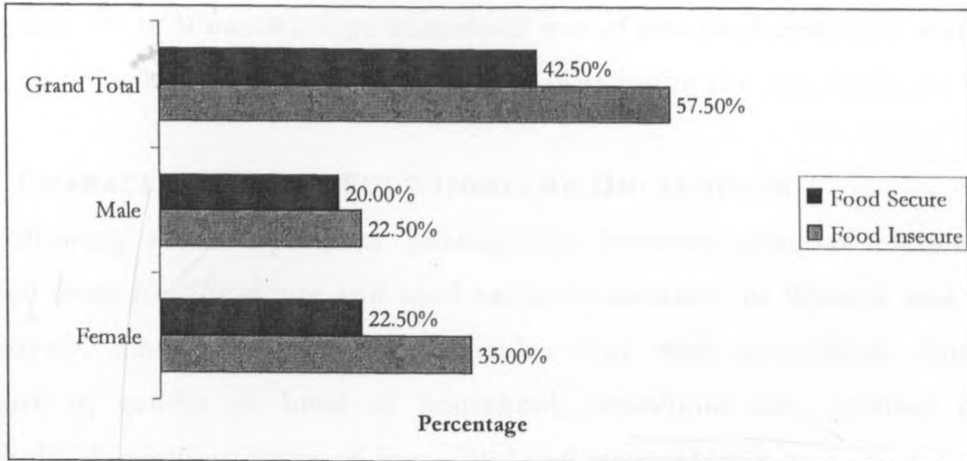
Table 12: Household food security status

Payam	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
Household Food Security Status						
Food secure	14	70	3	15	17	42.5
Food insecure	6	30	17	85	23	57.5
Total	20	100	20	100	40	100

Source: Field Data

Figure 4, relates the food security status of respondent households' by gender. Out of the 23 food insecure households', 35% (n=14) were female headed and 22.5 % (n=9) were male headed. The relationship between the food security status of female and male headed households' revealed that there were some discrepancies between the two groups. However, when initiating livelihoods projects to reduce household vulnerability to food shortages it would be important to avoid marginalization of either female or male headed households as they are both extremely vulnerable.

Figure 4: Relationship of food security status by gender



Source: Field Data

4.3.5 Severity of food insecurity

The problems of calculating the severity of the food insecure households is well known and was recognised in this study. However, some estimation was required to find out the extent of the severity of the food insecurity status of the 40 households. This was done by calculating the weighted sum of the different responses by households to questions 17 a) to f) revealed the severity of the food situation experienced by the household's in the study area. The responses were weighted to reflect the frequency of use of the responses by each household. The weights were made consecutive as follows "never" as 1, "rarely" was counted as 2, "sometimes" as 3, "often" as 4 and "mostly as 5. Households with a total weighted sum of between 1 and 10 were considered to be of low severity, 11-20 medium severity while households with a sum of 21 to 30 were considered to be of high severity. The estimated severity of food insecure households was as shown in Table 13.

Table 13: Respondents' severity to food insecurity

Payam Food Insecure HH by Severity	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
High	2	10	1	5	3	7.5
Medium	18	90	18	90	36	90
Low			1	5	1	2.5
Total	20	100	20	100	40	100

Source: Field Data

The majority of the respondents in both *Payams* were of medium food insecurity category (90% in Aweng and 90% in Wunrok). Others were of high food insecurity status (10% in Aweng and 5% in Wunrok). One household was of low food insecurity status in Wunrok. This is an indication of the overly poor food situation in the two *Payams* of 90%.

4.3 CHARACTERISTICS OF FOOD INSECURE HOUSEHOLDS

The following section presents relationships between selected socio-economic data gathered from food insecure and food secure households in Wunrok and Aweng *Payams* respectively. The socio-economic variables that were considered during the study comprise of gender of head of household, household size, number of children in household, domiciliary status of household and literacy levels.

4.3.1 Gender of head of household and food security levels

The relationship between gender of head of household and food security levels is reflected in Table 14. The table indicates that, out of the 40 households surveyed, 23 (i.e. 57.5%) were female headed households' and 17 (42.5%) were male headed households. Twenty-three households (i.e. 57.5%) were food insecure and 17 (i.e. 42.5%) were food secure.

Table 14: Relationship between gender of head of household and food security

Gender of head of household	Food security levels				Total	
	Food secure		Food insecure		Freq.	%
	Freq.	%	Freq.	%		
Female	9	52.9%	14	60.9%	23	57.5%
Male	8	47.1%	9	39.1%	17	42.5%
Total	17	100.0%	23	100.0%	40	100.0%

Source: Field Data

Out of the 23 food insecure households surveyed, 14 (60.9%) were female headed compared to 9 (i.e. 52.9%) for the food secure households. Nine (39.1%) male headed households were food insecure compared to 8 (i.e. 47.1%) food secure households. The relationship between gender of head of household and food security levels revealed that there were some discrepancies between the two groups. It was observed that most of the food insecure households were female headed. There is need, therefore, to empower women by avoiding marginalization when initiating livelihood projects so as to improve their livelihood status and in turn their food security situation.

4.3.2 Household size and food security levels

Table 15 highlights the respondent's household size and food security levels. Out of the 40 households surveyed, 8 (i.e. 20%) had a family size of 1 to 5 members, 28 had a family size of 6 to 10 members and 4 had a family size of 11-15 members.

Table 15: Relationship between household size and food security

Household Size	Food security levels				Total	
	Food secure		Food insecure			
	Freq.	%	Freq.	%	Freq.	%
1-5	3	18%	5	22%	8	20%
6-10	14	82%	14	61%	28	70%
11-15	0	0%	4	17%	4	10%
Total	17	100%	23	100%	40	100%

Source: Field Data

Fourteen (i.e. 61%) out of the 23 food insecure households had a household size of 6-10 members compared to 14 (i.e. 82%) of the food secure households. Five (i.e. 22%) had a household size of 1-5 members compared to 3 (i.e. 18%) of the food secure households and 4 (i.e. 17%) had a household size of 11-15 members compared to none (i.e. 0%) for food secure households. It was observed that the food insecure households had larger household sizes compared to the food secure households. This could be a contributing factor to their food insecurity as there are more people requiring food. Therefore the families are susceptible to frequent food shortages.

4.3.3 Number of children and food security

The number of children in the households surveyed was also tabulated as shown in Table 16.

Table 16: Relationship between number of children and food security

Number of children	Food security levels				Total	
	Food secure		Food insecure			
	Freq.	%	Freq.	%	Freq.	%
0-3	5	29.4%	13	56.5%	18	45.0%
4-6	9	52.9%	8	34.8%	17	42.5%
7-9	3	17.6%	2	8.7%	5	12.5%
Total	17	100.0%	23	100.0%	40	100.0%

Source: Field Data

Table 10 indicates that out of the 40 households, 13 (i.e. 56.5%) food insecure households had between none and 3 children compared to 5 (i.e. 29.4%) for food secure households. Eight (i.e. 34.8%) had 4-6 children compared to 9 (i.e. 18%) of the food secure households and 2 (i.e. 8.7%) had 7-9 children compared to 3 (i.e. 17.6%) for food secure households. Thus, some differences were noticed between the food security levels of households and the number of children between food secure and food insecure households. It was established, therefore that there is no clear relationship between food security levels and the number of children in a household.

4.3.4 Domiciliary status of household and food security

The relationship between domiciliary status and food security levels was established, as shown in Table 17.

Table 17: Relationship between domiciliary status and food security

Returnee	Food security levels				Total	
	Food secure		Food insecure		Freq.	%
	Freq.	%	Freq.	%		
No	9	22.5%	13	32.5%	22	55%
Yes	8	20.0%	10	25.0%	18	45%
Total	17	42.5%	23	57.5%	40	100%

Source: Field Data

Table 17 relates respondents' domiciliary status and food security levels. The table indicates that out of the 40 households' surveyed, 17 (i.e. 42.5%) were food secure whereas 23 (i.e. 57.5%) were food insecure. Of the food secure households 9 (i.e. 52.9%) were non-returnees while 8 (47.1%) were returnees.

The table further indicates that of the food insecure households, 13 (i.e. 56.5%) were non-returnees compared to 9 (22.5%) for food secure households. For the returnees, 10 (25.0%) were food insecure compared to 8 (i.e. 20.0%) for the food secure households. It was established, therefore that, there is no marked relationship between domiciliary status and household food security levels. The implication for the moment is that being a returnee may not necessarily contribute to a household being food secure or insecure.

4.3.5 Household literacy and food security

The relationship between household literacy and food security levels is reflected in Table 18. The table indicates that, out of the 40 households surveyed, 23 (i.e. 57.5%) were food insecure and 17 (42.5%) food secure.

Table 18: Relationship between the number of household members who can read and write and food security

Household members who can read and write	Food security levels				Total	
	Food secure		Food insecure		Freq.	%
	Freq.	%	Freq.	%		
0-3	16	94%	19	83%	35	88%
4-6	1	6%	3	13%	4	10%
7-9	0	0%	0	0%	0	0%
10+	0	0%	1	4%	1	3%
Total	17	100%	23	100%	40	100%

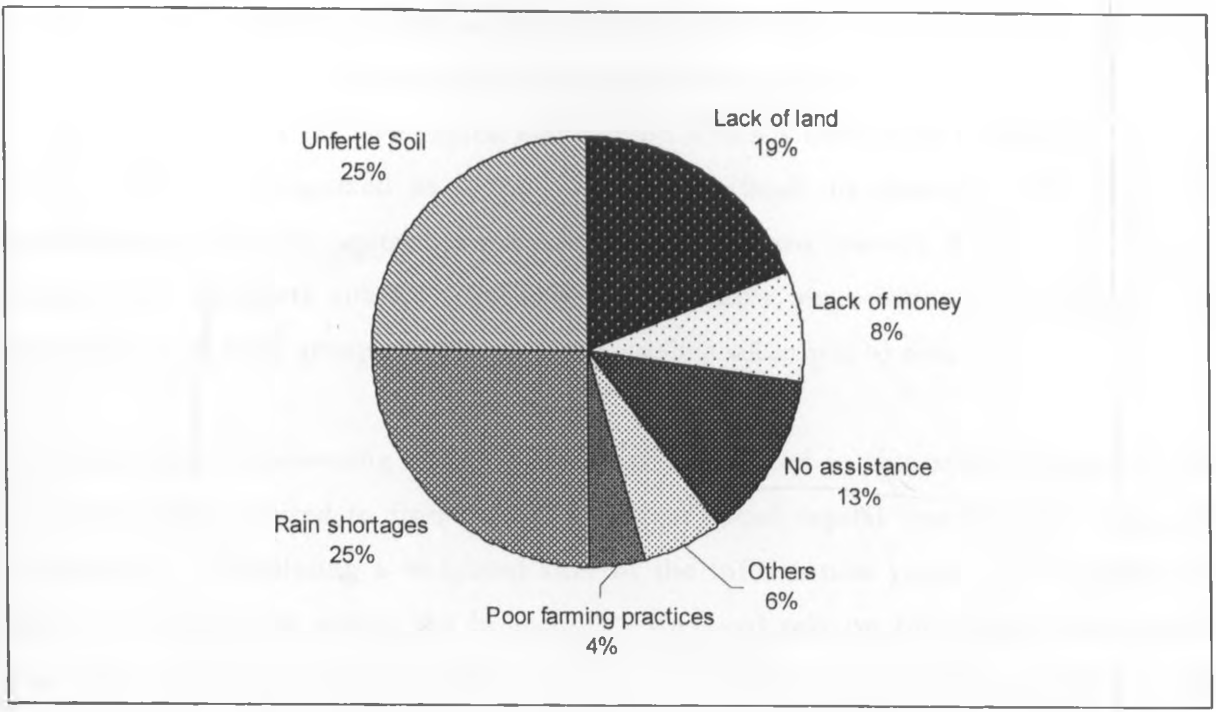
Source: Field Data

Comparing the two categories, it was observed that 19 (i.e. 83%) of food insecure households had between 0-3 members who could read and write, 3 households (i.e. 13%) between 4-6 members and 1 household (i.e. 4%) had 10 members who could read and write. The food secure households had 16 (i.e. 94%) who could read and write and 1 household (i.e. 6%) between 4-6 members. Thus, there were no marked differences noticed between the food secure and food insecure households and the number of household members who could read and write. It was established, therefore that there is no clear relationship between food security levels literacy of household members.

4.4 PERCEPTIONS OF FACTORS CAUSING FOOD SHORTAGES

When asked to give their opinion on what they thought were the causes of food shortages in the study area, 39 out of 40 of the respondents' gave their views and this is graphically illustrated in Figure 5.

Figure 5: Respondents' opinion on the causes of food shortages



Source: Field Data

The findings show that the respondents had varied opinions on the causes of food shortages. However, in Aweng Payam, rain shortages (25%) and unfertile soils (25%) play an important role whereas in Wunrok lack of land (16.67%) was most important followed by lack of money (8.33%) and lack of assistance (8.33%). Other responses included “no help from husband”, “husband too far” and “conditions where there is no food”. Figure 5, graphically illustrates respondents' opinion on the causes of food shortages in Aweng and Wunrok.

4.5 EFFECT OF SOCIAL CAPITAL ON VULNERABILITY TO FOOD SHORTAGES

This section descriptively presents the social capital dimension data gathered from households in Wunrok and Aweng *Payams* respectively. The social capital parameter considered during the study was on the extent to which the household's surveyed rely on their groups and networks dimension of social capital to reduce their vulnerability to food shortages and comprise of household social capital levels, participation in food-for-work projects, support by institutions in the event of food shortages as well as household livelihood strategies.

4.5.1 Household social capital levels

Social capital has been defined as the “features of social organization, such as trust, norms and networks that can improve the efficiency of society by coordinating actions” (Putnam,1993:61) Of the five capital assets upon which a household’s livelihood is based, social capital is recognized as being the most difficult to measure. Empirically, the measurement of social capital has proved difficult for two reasons. First, social capital is dynamic and therefore subject to change and secondly, expectations of assistance from relatives, community groups etc may not materialize when put to test.

The challenge of measuring social capital was recognised in this study. However, some estimation was required to find out the levels of social capital that existed amongst the households. Calculating a weighted sum of the information generated by question 33 showed by proxy the extent the household’s surveyed rely on the groups and networks dimension of social capital to reduce their vulnerability to food shortages. The weights reflected the frequency of use of the responses by each household and the strength of the household response. The weights were made consecutive, so that “very low” as 1, and “low” is counted as 2, “neither high or low” counted as 3, “highly” as 4 and “very highly” is counted as 5. The higher the sum of the responses the more the household relies on groups and networks to reduce their vulnerability to food shortages. Households with a sum of between 1 and 10 were considered by proxy to have low dependence on groups and networks, between 11 and 20 reflected medium dependence and between 21 and 30 high dependence.

Table 19 highlights respondents’ levels of social capital on groups and networks. The sample exhibited varying levels dependence on groups and networks though none showed a “very high” level. The majority (95%) showed “low” dependence levels. Others were “high” (2.5%) and “very low” (2.5%). This implies that the majority (95%) of the households’ interviewed by and large had low dependence on their groups and networks to reduce their vulnerability to food shortages. This overall low dependence could be attributed to lack of trust in groups and networks as a result of the prolonged conflict in the study area.

Table 19: Dependence on social networks to reduce vulnerability to food shortages

Payam	Aweng		Wunrok		Total	
	Freq.	%	Freq.	%	Freq.	%
Levels of household dependence on social networks to reduce vulnerability to food shortages						
Very High						
High		0.00	1	5.00	1	2.50
Low	20	100.00	18	90.00	38	95.00
Very Low		0.00	1	5.00	1	2.50
Total	20	100	20	100	40	100

Source: Field Data

4.5.2 Participation in food-for-work projects

When asked to on whether any member of the household has participated in a food-for-work (FFW) project to benefit the community during the last 12 months, out of the 40 households in the two *payams* 19 (48 %) had members who had participated in FFW activities in the study area. The activities the household members engaged in are illustrated in Table 20.

Table 20: Participation in FFW Activities

FFW Activity	Aweng		Wunrok		Total	
	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.
Government work		0.00%	1	5.26%	1	5.26%
In the army		0.00%	1	5.26%	1	5.26%
Labour		0.00%	7	36.84%	7	36.84%
Market cleaning	1	5.26%		0.00%	1	5.26%
Market construction	1	5.26%		0.00%	1	5.26%
Polio vaccination		0.00%	1	5.26%	1	5.26%
Road rehabilitation	6	31.58%	1	5.26%	7	36.84%
Total	8	42.11%	11	57.89%	19	100.00%

Source: Field Data

Comparing the two *payams*, Wunrok had a higher percentage of members participating in FFW activities (57.89%) while Aweng had 42.11%. There is relatively a good sense of community engagement in communal activities in the County and this could be capitalised on and strengthened by supporting agencies to improve the food situation in the study area through food security initiatives.

4.5.3 Support by institutions in the event of food shortages

Respondents were also involved in a rating exercise to determine the level of support by institution to their household in the event of food shortages. Respondents were told to rate these institutions on a scale of 1 to 5 where 1 referred to the institution that gave most support as 1 (Very High) and 5 (Very Low). The % frequency of the total count of the ratings for each listed institution by each respondent was then computed. The findings are reflected in Table 21.

Table 21: Respondents' rating of institutions

Respondents' rating of institutions providing support in the event of food shortages (multiple responses n=40)		Very highly (1)	Highly (2)	Neither high or low (3)	Low (4)	Very low (5)	Grand Total
Close relatives	Count	2	7	19	9	3	40
	% Freq. of Total	0.5%	1.8%	4.8%	2.3%	0.8%	10.0%
Com. self-help groups	Count	3	5	20	10	2	40
	% Freq. of Total	0.8%	1.3%	5.0%	2.5%	0.5%	10.0%
Distant relatives	Count	5	5	15	8	7	40
	% Freq. of Total	1.3%	1.3%	3.8%	2.0%	1.8%	10.0%
Friends and neighbors	Count	13	11	10	5	1	40
	% Freq. of Total	3.3%	2.8%	2.5%	1.3%	0.3%	10.0%
International NGOs	Count	1	3	23	8	5	40
	% Freq. of Total	0.3%	0.8%	5.8%	2.0%	1.3%	10.0%
Local NGOs	Count	1	4	26	4	5	40
	% Freq. of Total	0.3%	1.0%	6.5%	1.0%	1.3%	10.0%
Religious groups	Count	0	2	16	11	11	40
	% Freq. of Total	0.0%	0.5%	4.0%	2.8%	2.8%	10.0%
The Government	Count	1	3	11	15	10	40
	% Freq. of Total	0.3%	0.8%	2.8%	3.8%	2.5%	10.0%
Those that are better off in the community	Count	1	3	19	9	8	40
	% Freq. of Total	0.3%	0.8%	4.8%	2.3%	2.0%	10.0%
Traders	Count	0	0	25	8	7	40
	% Freq. of Total	0.0%	0.0%	6.3%	2.0%	1.8%	10.0%
Grand Total	Count	27	43	184	87	59	400
	% Freq. of Total	6.8%	10.8%	46.0%	21.8%	14.8%	100.0%

Source: Field data

It was established that respondents could easily seek help from their friends and neighbours 3.3% (Very Highly) and 2.8% (Highly). The higher rating of friends and neighbours shows that the social fabric in Twic County is still vibrant. Local NGO's were rated as "neither high or low" representing 6.5%, religious groups - 2.8% and the government - 3.8%, this shows that they are not fully empowered to play their role in Twic County as a social resource.

4.5.4 Livelihood strategies

The households' main income-earning strategies in the study area were explored and analysed. Livelihood strategies has been defined as the overarching term used to denote the range and combination of activities and choices that people make or undertake in order to achieve their livelihood goals (including productive activities, investment strategies, reproductive choices, etc.) (DFID, 1999:23). Table 22 illustrates livelihood strategies pursued by households in Aweng and Wunrok *Payams*.

Table 22: Livelihood strategies pursued by households in Aweng and Wunrok

No. of respondents who mentioned (Multiple responses)	Aweng		Wunrok		Total	
	Freq.	% Freq.	Freq.	% Freq.	Freq.	% Freq.
Farming	16	20.78%	18	23.38%	34	44.16%
Fishing	10	12.99%		0.00%	10	12.99%
Labour	1	1.30%	8	10.39%	9	11.69%
Livestock rearing	9	11.69%	1	1.30%	10	12.99%
Trading	3	3.90%	11	14.29%	14	18.18%
Grand Total	39	50.65%	38	49.35%	77	100.00%

Source: Field Data

Between the two *payams*, it was observed that, 34 (44.16%) respondents out of 40 pursued farming as a livelihood strategy. Ten (12.99%) out of 40 respondents pursued fishing, 9 (11.69%) labour, livestock rearing 10 (12.99%) and trading 14 (18.18%). All five strategies are important, though from the analysis above more emphasis needs to be placed on farming initiatives so as to improve to increase food production in the area. This in turn will contribute in improving the food situation in Twic County.

4.6 Description of Relationships between Selected Variables

The following section highlights relationships between selected variables using cross-tabulations namely: returnee household and land ownership, returnee household and food security levels, returnee household and reliance on group and networks, gender of head of household and food security, gender of head of household and reliance on group and networks, gender of head of household and food for work activities and household food security levels and food assistance from relatives. These cross-tabulations are a step further in establishing whether a given variable influences another across the sampled population of the study and the implication as far as social capital and food insecurity is concerned.

4.6.1 Returnee household and land ownership

Out of the 40 households' surveyed reflected in Table 23, 29 households (i.e.72.5%) owned land out of this, 11 (i.e. 37.9%) were returnee households and 18 (i.e. 62.1%) were the host community. Thus, there were some discrepancies in the relationship between returnee and host community households owning land. Thus, therefore, there is need for the County administration to ensure that returnees are also given to land to enable them to pursue a livelihood so that they are not excluded from pursuing meaningful activities to pre-empt any conflict between the two groups over the use of land as a natural resource base.

Table 23: Relationship between returnee households and land ownership

Returnee Household	Own Land		Total
	No	Yes	
No	4	18	22
Yes	7	11	18
Total	11	29	40

Source: Field Data

4.6.2 Returnee household and reliance on group and networks

The relationship between returnee household and reliance on group and networks was also established, as shown in Table 24.

Table 24: Relationship between returnee household and reliance on group and networks

Levels of household dependence on social networks to reduce vulnerability to food shortages	Returnee		Total
	No	Yes	
High	0	1	1
Low	22	16	38
Very low	0	1	1
Total	22	18	40

Source: Field Data

Table 24 indicates that 40 of the respondents' had varying levels of dependence on social networks to reduce vulnerability to food shortages ranging from high, low and very low. The majority of the households' 38 (i.e. 95%) comprising of 22 (i.e. 57.8%) non-returnee and 16 (42.2%) returnee showed "low" dependence levels. Others were "high" 1 (i.e. 2.5%) and "very low" 1 (i.e. 2.5%) both respondents were returnee households'. Thus regardless of whether the households are non-returnees or returnees, the household levels

of household dependence on social networks to reduce vulnerability to food shortages is low which therefore contributes to their vulnerability.

4.6.3 Gender of head of household and reliance on group and networks

The relationship between gender of household and reliance on group and social networks was also established, as shown in Table 25.

Table 25: Relationship between gender of head household and reliance on group and social networks

Levels of household dependence on social networks to reduce vulnerability to food shortages	Gender		Total
	Female	Male	
High	1	0	1
Low	22	16	38
Very low	0	1	1
Total	23	17	40

Source: Field Data

Table 25 indicates that 40 of the respondents' had varying levels of dependence on social networks to reduce vulnerability to food shortages ranging from high, low and very low. The majority of the households' 38 (i.e. 95%) comprising of 22 (i.e. 57.8%) female and 16 (42.2%) male showed "low" dependence levels. Others were "high" 1 (i.e. 2.5%) and "very low" 1 (i.e. 2.5%) both female and male households' respectively. Thus, regardless of whether the households are female or male headed, the levels of household dependence on social networks to reduce their vulnerability to food shortages in Twic County is low which therefore contributes to their vulnerability.

4.6.4 Gender of head of household and food for work activities

Table 26 relates gender of head of household and participation in food for work activities. The table indicates out of the 40 household respondents', 19 (47.5%) had participated in food for work activities i.e. 8 (42%) female and 11 (58%) were male.

Table 26: Relationship between gender of head of household and participation in food for work activities

Gender	Food for work activities		Total
	No	Yes	
Female	15	8	23
Male	6	11	17
Total	21	19	40

Source: Field Data

Thus, there was a discrepancy in the relationship between the two groups. Thus, therefore, there is need for the development agencies need to ensure that female headed households are encouraged in food for work activities as a coping strategy during periods of food crises.

4.6.5 Household food security levels and food assistance from relatives

The relationship between whether a household could get assistance relatives if they needed food urgently and household food security levels was also established, as shown in Table 27.

Table 27: Relationship between household food security levels and food assistance from relatives

Household food security levels	Food from relatives		Total
	No	Yes	
Food secure	4	13	17
Food insecure	11	12	23
Total	15	25	40

Source: Field Data

Table 27 indicates that 40 of the respondents' 15 (i.e. 37.5%) could not get food assistance from their relatives whereas 25 (i.e. 62.5%) could get assistance. Of the households that could get assistance, 13 (i.e. 52%) were food secure and 12 (48%). Thus, regardless of whether the household is food secure or food insecure, the two groups are able to get food assistance from relatives. This positive household social capital attribute can exploited as social resource that needs to be strengthened

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study was undertaken in an attempt to gain more insight on the role of social capital in enhancement of food security. In order to specify this, the study was guided by three questions: what are the basic characteristics of households, to what extent are households' food insecure and what are their perceptions of factors that contribute to food shortages, to what extent do households rely on their social capital to reduce their vulnerability to food shortages. Many issues have been discussed in this study and in this section the summary will be drawn by answering the research questions. This section also provides the conclusion of the study and appropriate policy recommendations that aim at promoting and supporting more effective use of social capital as a coping strategy in food insecure situations. Finally areas for further research are mentioned.

5.1 SUMMARY OF FINDINGS

5.1.1 Extent of Household food insecurity

Concerning household food insecurity, the study highlighted that 57.5% (n=23) of the respondent households surveyed were food insecure and 42.5% (n=17) were food secure. This was based on a household where the household head had "sometimes", "often" or "mostly" skipped entire meals in the last 12 months because there was no food.

In the study area, it was established that 72.5% (n=29) of the respondents owned land, whereas 27.50% (n=11) did not own land. Ownership of land is a natural resource from which resource flows useful for livelihoods are derived. Twenty eight (70%) out of the 40 respondents practised farming with sorghum representing 35.62% of crops grown.

It was also established that 62.5% of the households' owned livestock. For many smallholder farmers, livestock are the only ready source of cash to buy inputs for crop production - seeds, fertilizers and pesticides. Livestock income also goes towards buying things the farmers cannot make for themselves. And that includes paying for school fees, medicine and taxes. Income from cropping is highly seasonal. In contrast, small stock, with their high rates of reproduction and growth, can provide a regular source of income from sales. Larger animals such as cattle are a capital reserve, built up in good times to be used when crops are poor or when the family is facing large expenses such as the cost of a wedding in the form of dowry.

It was further established that 67.5% of the households' had a member who could read and write. This asset can enable household members to better understand new agricultural methods through training, which can effectively be utilized to improve crop and livestock production.

Traditionally in Southern Sudan, only men cultivate the land, but in order to help communities survive, it would be important to encourage women to take control of their lives by working on the land. To contribute towards reducing the food insecurity situation, households could be supported with seeds and tools through the formation of groups (women groups, trade and agriculture associations as well as community-based organisations). This will develop social support networks that will enable households reduce their livelihood vulnerability.

5.1.2 Characteristics of food insecure households and perceptions of factors that contribute to food shortages

Taking into consideration the socio-economic characteristics of the food insecure households, it was established that 60.9% (n=23) of the food insecure households were female headed compared to 52.9% (n=9). The high percentage of female headed households could be among the factors that contribute to the vulnerability to food shortages in the study area.

In the study area, it was also found that 61% (n=14) of the food insecure households had a household size of 6-10 members. The large household size (the average household size was 7 family members) could be an additional factor contributing to their food insecurity as there are more mouths to feed. This therefore makes the families more susceptible to frequent food shortages.

In relation to the number of children and food insecurity, it was established that 56.5% (n= 13) of the food insecure households had between none and 3 children compared to 29.4% (n=5) for food secure households. Thirty-four point four percent (n=8) had 4-6 children compared to 18% (n=9) of the food secure households and 8.7% (n=2) had 7-9 children compared to 17.6% (n=3) for food secure households. Thus, some differences were noticed between the food security levels of households and the number of children between food secure and food insecure households. It was established, therefore that there is no clear relationship between food security levels and the number of children in a household.

With reference to the domiciliary status of the households, 56.5% (n=13) of the food insecure households were non-returnees compared to 22.5% (n=9) for food secure households. For the returnees, 25.0% (n=10) were food insecure compared to 20.0% (n=8) for the food secure households. It was established, therefore that, there is no marked relationship between domiciliary status and household food security levels. The implication for the moment is that being a returnee may not necessarily contribute to a household being food secure or insecure.

It was established that 83% (n=19) of the food insecure households had between 0-3 members who could read and write, 13% (n=3) households had between 4-6 members and 4% (n=1) had 10 and above members who could read and write. The food secure households had 94% (n=16) who could read and write and 6% (n=1) between 4-6 members. Thus, there were no marked differences noticed between the food secure and food insecure households and the number of household members who could read and write. It was established, therefore that there is no clear relationship between food security levels literacy of household members.

It was found that respondents' had varied opinions on the causes of food shortages namely rain shortages (25%), unfertile soils (25%) and lack of land (16.67%).

5.1.3 Extent to which households rely on their social capital to reduce their vulnerability to food shortages

Finally, the study explored the dependence of households' on social networks to reduce vulnerability to food shortages. It was found that 95% of the households' interviewed by and large had low dependence on their groups and networks to reduce their vulnerability to food shortages. This overall low dependence could be attributed to lack of trust in groups and networks as a result of the prolonged civil conflict in the study area.

Social capital is a social resource that needs to be strengthened in Twic County, especially regarding issues to address the food insecurity situation as demonstrated by the findings of this study. Through social capital, groups and organizations can link individuals from different families or groups towards common activities for various purposes including livestock keeping and crop farming in order to have more income, increased wellbeing, reduced vulnerability, improved food insecurity and more sustainable use of the natural resource base.

5.2 CONCLUSION

According to the study, a combination of factors affects the ability of households to secure their livelihoods and by extension their food needs. These include low level of agricultural productivity and production due to a number of constraints including: lack government support, lack of seed and other tools, lack of veterinary services, low cultivated area and climatic factors.

Low diversification of crop production, with most people depending on sorghum, is an additional factor increasing the vulnerability levels. However, there is a high potential to develop the agricultural sector because most areas are endowed with suitable soils while the use of ox-ploughs is very limited, which is partly the reason why the cultivated area is mostly less than one acre.

Household aspirations to improve household food availability reflect the community food security priorities in Twic County. These include increasing cultivated areas and improving the cultivation tools as well as improving soil fertility. Recovery and development partners need to incorporate the community's aspirations in their programs to achieve food security in Twic County.

There is a sense of relatively good social capital levels through community engagement in communal activities in Twic County i.e. exhibited through some respondents participating in market cleaning and construction, polio immunization as well as road rehabilitation. This may need to be exploited so as to improve food security in Twic County. This has an implication on social capital needed to initiate and sustain long-term development.

Many development programs often work through or involve existing group's i.e. women's, youth, religious etc. Whether providing the group with microfinance or extension services; increasing the group's access to and control over land, water, livestock, and livestock products; or improving the group's employment opportunities, these programs aim to go beyond the direct benefits that they deliver and become an instrument for empowering groups through social capital.

To recapitulate, social capital refers to networks, social relationships, or connections among individuals in a community, such as civic associations, social organizations, or family and kinship ties. It is a concept that has come to take centre stage in development,

especially in grassroots participation and empowerment efforts and in reaching the poor. In Twic County, international organizations, governments, and nongovernmental organizations (NGOs) should enthusiastically embrace the concept as an alternative to government or market-based approaches. Working through groups will reduce the cost of delivering services to many individuals, making the outreach of programs more cost-effective.

5.3 POLICY RECOMMENDATIONS

Food insecurity, as a household-level issue, can be addressed by a wide range of alternative policies and combinations of policies and programs. Policies for food security should aim at attaining required food consumption levels and reducing the risk of the poor losing access to food. Access to food and purchasing power are central, and both transitory (e.g. seasonal) and chronic food insecurity problems are of concern.

It is recommended that the Government of Southern Sudan (GoSS) Ministry of Agriculture and Forestry, the Ministry of Animal Resources, international organizations, and nongovernmental organizations (NGOs) ensure effective access to field services relevant to the communities' social, economic and productive crop and livestock systems utilizing the communities' social capital.

It is through social capital that networks linking together organizations from various sectors of society (i.e. NGOs, grassroots organizations, government agencies, private firms) can allow for the combination of resources and different types of knowledge to find solutions to the food insecurity problems. The two ministries should ensure that these networks, public-private cross-sector linkages and mutually supportive and complementary relations towards reducing the food insecurity situation are established. With the aim of improving food availability, access, use and utilization for the community in Twic County and Southern Sudan.

A deliberate attempt should be made to train both male and female headed households on crop and animal husbandry as well as gender equality.

5.4 SUGGESTED AREAS FOR FURTHER RESEARCH

Following the signing of the Comprehensive Peace Agreement (CPA), an analysis of returnees' and host community perceptions about sustainable livelihood initiatives should also be carried out in order to understand and incorporate their opinions and realities in development plans.

An evaluation of other coping mechanisms such as fishing, labour, and remittances among others should be carried out in order to find out their impact on livelihood security in Twic County.

Finally, exploration of livestock and crop species which may impact positively on the livelihood of the people, particularly female-headed households, would also be an interesting area of study.

REFERENCES

- Agarwal, Bina (1990) "Social Security and the Family; Coping with Seasonality and Calamity in Rural India." Journal of Peasant Studies Vol. 17 Issue 3: 341-412
- Ashley, Caroline and Diana Carney (1999) Sustainable Livelihoods: Lessons from Early Experience London: DFID
- Australian Bureau of Statistics [ABS] (2002) Social Capital and Social Wellbeing. Canberra: ABS
- Babbie, Earl (1995) The Practice of Social Research. Wordsworth Publishing Company: New York
- Baker, Therese (1994) Doing Social Work. Toronto: McGraw Hill Inc.
- Blaikie, Piers, Terry Cannon, Ian Davis and Ben Wisner (2004) At Risk: Natural Hazards, People's Vulnerability and Disasters. 2nd ed. London and New York: Routledge
- Cannon, Terry (1990) "Hazards Need Not a Disaster Make: Rural Vulnerability and the Causes of Natural Disaster" Institute of Social Science The Hague 21 November 1990
- Chambers, Robert and Gordon Conway (1992) Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. IDS Discussion Paper No. 296. Brighton: IDS
- Cuny, Frank (1983) Disasters and Development. New York: Oxford University Press
- Davis, Ian and Michael Wall (1999) Christian Perspective in Disaster Management Middlesex: Tearfund
- Deng, Luka (2002) Confronting Civil War: A Comparative Study of Household Asset Management in Southern Sudan. IDS Discussion Paper 381. Brighton: IDS
- DFID [Department for International Development] (1999) Sustainable Livelihoods Guidance Sheets: Framework London: DFID
- Food and Agricultural Organization [FAO] (2007), "Crop Prospects and Food Situation" Report by FAO, May 2007
- Food and Agricultural Organization [FAO] (2004) The State of Food Insecurity in the World 2004: Monitoring Progress towards the World Food Summit and Millennium Development Goals. Rome: FAO
- Food and Agricultural Organization [FAO] (2004) The State of Food Insecurity in the World 2004: Monitoring Progress towards the World Food Summit and Millennium Development Goals. Rome: FAO
- GOAL Ireland (2007), "Findings of a Multi-indicator, Nutrition, Health, WatSan and Mortality Survey: Twic County Warrap State, Southern Sudan" Un-published Report by GOAL Ireland Southern Sudan Programme.
- Granovetter, Mark (1973). "The Strength of Weak Ties", In: American Journal of Sociology. Vol. 78, Issue 6, May 1973, pp. 1360-1380

- Grootaert, Christiaan, Deepa Narayan, Veronica Jones and Michael Woolcock (2004) Measuring Social Capital: An Integrated Questionnaire Washington D.C.: The World Bank
- Hefferman, Claire and Federica Misturelli (2000) The Delivery of Veterinary Services to the Poor: Preliminary Findings in Kenya. Nairobi: DFID Publishers.
- Herlocker, Dennis (1999) Rangeland Resources in Eastern Africa: Their Ecology and Development. Nairobi: GTZ Publishers
- Kawachi, Ichiro, Bruce Kennedy, Kimberly Lochner and Deborah Prothrow-Stith (1997) "Social Capital, Income Inequality and Mortality" In: American Journal of Public Health. Vol. 87:1491-1498
- Kerlinger, Fred (1964) Foundations of Behavioral Research: Educational and Psychological Inquiry New York: Holt, Rinehart and Winston, Inc.
- Meikle, Sheila, Tamsin Ramasut and Julian Walker (2001) Sustainable Urban Livelihoods: Concepts and Implications For Policy Development Planning Unit Working Paper No. 112. London: University College London
- Mugenda, Olive and Abel Mugenda (1999) Research Methods: Quantitative and Qualitative Approaches. Nairobi: Act Press
- Mukherjee, Nilanjana, Joan Hardjono and Elizabeth Carriere (2002) People, Poverty and Livelihoods: Links for Sustainable Poverty Reduction in Indonesia Jakarta: DFID and the World Bank
- OCHA-IMU Sudan [United Nations Office for the Coordination of Humanitarian Affairs-Sudan - Information Management Unit for Sudan] (2004), Draft Criteria for Selecting Geographical Priority Areas Nairobi: OCHA-Information Management Unit for Sudan.
- OCHA-IMU Sudan [United Nations Office for the Coordination of Humanitarian Affairs-Sudan - Information Management Unit for Sudan] (2005), Sudan Transition and Recovery Database: Twic County. Nairobi: OCHA-Information Management Unit for Sudan.
- Pantoja, Enrique (1999) Exploring the Concept of Social Capital and its relevance for Community based Development: The Case of Mining Areas in Orissa, India Social Capital Initiative Paper Series, Working Paper No. 18, Washington DC: The World Bank
- Putman, Richard (1993) Making Democracy Work: Civic Traditions in Modern Italy. Chichester: Princeton University Press
- Seavey, Dorie and Ashley Sullivan (2001) Household Food Security Study Summaries. Food Security Institute, Center on Hunger and Poverty, Heller Graduate School, Waltham, MA: Brandeis University
- Singleton Royce (Jr.), Bruce Straits, Margret Straits and Ronald McAllister (1988) Approaches to Social Research New York and Oxford: Oxford University Press

- United Nations (2006) Work Plan for Sudan: Mid-Year Review. Khartoum: United Nations
- United Nations International Strategy for Disaster Reduction (UN ISDR) (2002) Living With Risk: A Global Review of Disaster Reduction Initiatives Geneva: UN ISDR
- UNDP-DMTP [Disaster Management Training Programme] (2004) Drought and Famine. 2nd ed. London: Disaster Management Training Programme
- Unruh, Jon (2004), Post-conflict Land Tenure: Using a Sustainable Livelihoods Approach. LSP Working Paper 18. Rome: FAO
- Woolcock, Michael (1998) "Social Capital and Economic Development: Towards a Theoretical Synthesis and Policy Framework" In: Theory and Society 27:151-208

INTERNET SOURCES

- Elamin, Eltighani; Siegfried Bauer and Abdullah Osman (2003) "Commercialization and Food Security, can they go together for the Sudanese Agrarian Economy." A paper presented during the Economic Research Forum 10th Annual Conference in December 2003 in Marrakesh, Morocco.
http://www.erf.org.eg/tenthconf/Sectoral_Presented/Eltighani&Osman.pdf
(Accessed May 2006)
- Food and Agricultural Organization [FAO] (2003) Trade Reforms and Food Security: Conceptualizing the Linkages Rome: FAO
<http://www.fao.org/DOCREP/005/Y4671E/y4671e00.htm#Contents>
(Accessed December 2006)
- Food and Agricultural Organization [FAO] (1999) "International Code of Conduct on the Human Right to Adequate Food" Rome: FAO
<http://www.fao.org/legal/RTF/statemts/vidar03.pdf> (Accessed May 2006)
- Forum for Food Security in Southern Africa [FFSSA] (2004) "Achieving Food Security in Southern Africa: Policy Issues and Options", FFSSA Synthesis Paper, Forum for Food Security in Southern Africa,
<http://www.odi.org.uk/food-security-forum> (Accessed October 2006)
- Guvele, Cesar, Luka Deng, Anne Itto and Brian D'Silva (2003) "Food Security Analysis" An analysis paper presented at the Rumbek strategy meeting, February 12, 2003.
http://www.usaid.gov/locations/sub-saharan_africa/sudan/sudan_isp_a3.pdf
(Accessed December 2005)
- Pelling, Mark (2003) "Social Capital, Hazards and Adaptation Strategies for the Vulnerable" A paper presented at an international seminar organised by Tyndall Centre, FIELD, IIED and CSERGE Zuckerman Institute for Connective Environmental Research, University of East Anglia, 7th - 9th September 2003 (Accessed May 2006)
- Sigot, Asenath (1998) "Food Security in Sub-Saharan Africa: the Role of Governmental and Non-Governmental Organizations." A paper presented at the HUGG International Symposium: Food Security and Governance in Africa.
http://www.toda.org/conferences/durban_conference/durban_papers/sigot_.html
(Accessed September 2005)
- The World Bank (2000) "What is Social Capital?" PovertyNet
<http://www.worldbank.org/poverty/scapital/whatsc.htm> (Accessed November 2006)
- Tofte, Amalie (2004) "War and Cattle: Livelihood Strategies and Perceptions of Wealth and Poverty in Southern Sudan." MSc Thesis. Norway: Agricultural University of Norway.
<http://www.umb.no/noragric/publications/msctheses/Theses-fulltext/2004-ds/Tofte-Amalie.pdf> (Accessed December 2005)

ANNEX 1: INTERVIEW SCHEDULE FOR HOUSEHOLDS

INTRODUCTION

Greetings! My names are Elvis Lumbasio. Currently, I am pursuing a Master's degree in Sociology specializing in Disaster Management. Hence, I am conducting a study to find out the role of social capital in enhancement of food security. Therefore, I would like to collect information about the above mentioned subject. Your cooperation through answering a questionnaire administered to you will be very much appreciated and helpful. I promise you that the information collected from you will be treated with total confidentiality.

A. Background Information

1. Payam _____
2. Village _____
3. Gender of head of household. Male [] Female []
4. Household size _____
5. Number of children in household _____
6. Is this a returnee household? Yes [] No []
7. If yes, where were you residing previously? _____
8. How many members in your household can read and write? _____

B. Food Security

9. Do you own any land? _____
10. If yes how many acres is it? _____
11. Do you farm on your land? _____
12. If yes, what type of crops do you grow?

13. For each of the crops grown how many sacks did you harvest in the last season?

14. What did you do with your harvest? Eat at home [] Sell [] Give away []

15. Do you own animals? Yes [] No []

16. If yes, how many animals do you own?

Number Owned	Types of Livestock					
	Cattle	Goats	Sheep	Donkeys	Chickens	Others

17. Please use the following codes for responses to question 17 a) to f)

1. Never 2. Rarely (only 1 to 6 times in a year) 3. Sometimes (only a few times in the year – 6 to 12 times) 4. Often (a few times most months) 5. Mostly (this happens a lot)

a) In the last 12 months how often did you yourself not eat for an entire day?

b) In the last 12 months how often did the household head skip entire meals because there was no food?

c) In the last 12 months how often did children (under 5 years) not eat for an entire day because there was no food?

d) In the past 12 months how often did food stored in your home run out and there was no money to buy more that day?

e) In the past 12 months how often did you worry about where food would come from?

f) In the past 12 months how often did you have to sell your own things in order to get food?

g) If yes, what did you sell to get food? 1. Farming equipment 2. Labour 3. Bicycle 4. Livestock 5. Other

18. In your opinion, what are the causes of food shortages in your village? List the causes.

19. What needs to be done to improve food availability in your community?

C. Social Capital

20. Has your household ever received any assistance from anyone outside the household?

Yes [] No []

21. If yes, what type of assistance was it?

22. If your household had a problem and needed food urgently, would you be able to get it from your relatives? Yes [] No []

23. How many people could you ask for this help for food? _____

24. If someone in your household fell ill or was injured and you needed help with work, would you be able to get it from people in your community? Yes [] No []

25. How many people can you ask for this kind of help with work? _____

26. In the past 12 months has your household received assistance from the Government or aid agencies? Yes [] No []

27. If yes, which type of assistance did you receive?

28. How many times in the last 12 months has your household received food aid?

29. How much food aid did you receive each time?

30. If yes what did you do with this food?

31. In the last 12 months has any member of your household participated in a food-for-work project to benefit the community? Yes [] No []

32. If yes, specify which ones.

33. How would you rate the listed institutions in terms of providing support to your household in the event of food shortages?

- | |
|------------------------|
| 1. Very low |
| 2. Low |
| 3. Neither high or low |
| 4. Highly |
| 5. Very highly |

a) Close relatives	
b) Distant relatives	
c) International NGOs	
d) Friends and neighbours	
e) Those that are better off in the community	
f) The Government	
g) Community self-help groups	
h) Local NGOs	
i) Religious groups	
j) Traders	

34. Are there any problems that you encounter when you seek access to any of the above mentioned institutions? Yes [] No []

35. If yes, please specify which ones.

D. Livelihood Activities

36. What are the main income-earning activities carried out by members of your household? *List activities.*

37. Is it necessary for you diversify income-earning activities? Yes [] No []

38. If yes, explain why.

39. Are there any income-earning activities which any member(s) of your household would like to do or would like to expand, but cannot? Yes [] No []

40. If yes, which activities are they? What prevents you from starting or expanding these activities?

THANK YOU

ANNEX 2: INTERVIEW GUIDE FOR KEY INFORMANTS

Greetings! My names are Elvis Lumbasio. Currently, I am pursuing a Master's degree in Sociology specializing in Disaster Management. Hence, I am conducting a study to find out the role of social capital in enhancement of food security. Therefore, I would like to collect information about the above mentioned subject. Your cooperation through answering a questionnaire administered to you will be very much appreciated and helpful. I promise you that the information collected from you will be treated with total confidentiality.

1. Gender Male [] Female []

2. Occupation _____

3. Age _____

4. In your opinion, to what extent are households food insecure in Twic County?

5. What do you think are the factors that contribute to household food shortages in Twic County?

6. How would you rate the listed institutions in terms of providing support to households in the event of food shortages?

	1. Very low
	2. Low
	3. Neither high or low
	4. Highly
	5. Very highly
a) Close relatives	
b) Distant relatives	
c) International NGOs	
d) Friends and neighbours	
e) Those that are better off in the community	
f) The Government	

g) Community self-help groups	
h) Local NGOs	
i) Religious groups	
j) Traders	

7. In your opinion, which institution in the list above plays the most important role in assisting household when they experience food shortages?

8. In your opinion, how can the Government and other organisations help in reducing food shortages in Twic County?

9. In the past 12 months what activities did members in your community participate in so as to do some work for the benefit of the community?

10. Which livelihood activities would you encourage households to pursue in order to increase their income?

11. In your opinion do you feel that the community has the ability to make important decisions that can change the course of their lives in regard to food issues? If yes, what are the decisions?

THANK YOU