Effect of Armed Conflicts on Food Security in El fasher
Camps North Darfur State - Sudan

By

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A Thesis Submitted in Partial Fulfillment of the Requirements for
The Degree of Master of Science in Agricultural Economics

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November, 2008
DEDICATION

To my:

-Father's soul
  - Mother
  - Family
-Friends who taught me the meaning of live and help me to progress
With great respect and gratitude
I offer this effort

Amle
ACKNOWLEDGEMENT

Praise be to the Allah, the All Mighty, who granted me health and power to accomplish this work. It gives me great pleasure to express my deep thanks, sincere gratitude and appreciation to my supervisor Dr. Adam Elhag Ahmed, for his guidance of this work, I’m also grateful to the General Corporation of Radio and Television of South Darfur State for sponsoring the study, special thanks to Ibtisam Adam Ibrahim for her valuable assistance and follow up.

Special deep thanks are extended to my colleague Mohammed Osman Hassan Ibrahim for his kind help, assistance and support in data analysis and thesis typing and preparing of the manuscript.

Finally my deepest thanks are extended to the Head department Dr. Hashim Ahmed Elebaid and the staff members of the Department of Agricultural Economics, Faculty of Agriculture, U of K. and all the other individuals who helped me during the study period.
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**ABBREVIATIONS**

- **AIDS**: Acquired Immune Deficiency Syndrome
- **BMZ**: Bundesministerium Fur Wirtschaftliche Zusammenar
- **CFS**: Committee on World Food Security
- **FAO**: Food and Agriculture Organization
- **ICG**: International Crisis Group
- **IDP**: Internal Displaced People
- **ITDG**: Intermediate Technology Development Group.
- **NGOs**: Non Governmental Organization
- **SE**: State Encyclopedia
- **SMAAWI**: State Ministry of Agriculture, Animal Wealth and Irrigation
- **UN**: United Nations
- **UNICEF**: United Nations International Children's Educational Fund
- **WFS**: World Food Summit
- **MET**: Ministry of Environment and Tourism.
ABSTRACT

A study was carried out in Zamzam, Abuja and Abu shouck internal displacement Persons (IDPs) camps in North Darfur State in 2008 to assess and investigate the impacts of the armed conflict on food security with emphasis on the food availability.

The study relied mainly on primary data collected by means of a structured questionnaire and direct interviewing of people living in the camps. A simple random sampling technique was used to select seventy respondents randomly. Secondary data were also collected from related sources.

The data were subjected to descriptive statistical analysis for the socio-economic characteristics of the respondents.

The study revealed the following:

1. The conflict in Darfur forced most rural sedentary people to leave their villages and farms and move to displacements camps;

2. Food crops were drastically reduced in the area as a result of the armed conflict, because some people were unable to cultivate their farms whereas others reduced the areas under cultivation;

3. The free food aid that is provided by donors through Non-governmental Organizations reduced the prices of the local food crops and led to creation of dependency among the internal displaced people.
4. The conflict had negatively influenced educational and health infrastructure, and led to closure of markets and consequently reduced employment.

The study gave the following recommendations:
1. Restore the state of security and peace in the areas that are affected by war in the North Darfur State.
2. Adoption of volunteer returning programs for the displaced from camps to their villages and providing them with the production means and tools so as to restore their social and economic patterns that prevailed before war.
3. Provision of basic infrastructure for necessary services such as education, water, health and other related services.
4. Restoration of social relationships among the different societies in North Darfur State.
الملخص

في عام 2008، تم تقييم تأثیر توفر الموارد على الالتزام بالغذاء، حيث تعتمد البيانات على بيانات الجماعة🎴، اثارة شاملة، حيث: 1. الأوبئة AJAX CSS رد الفعل، وقد حاولت المستشارون أن يكتبوا أتراك في الأعراف، و 2. نقص في أصوت الزراعة بالمحاصيل المسلحة نتائج مزارعيها، 3. الظروف التي لائحة الإنسان قد تقدم المنظمات وراءه، 4. والصحتين، و 5. الأوقاف والأعمال الزراعية و توصيات أجيب إلی الدروس. من أهم الاختيارات، و"أ"girlfriends_To

XIV
1. إعادة الأمن والسلام في المناطق التي تأثرت بالحرب في ولاية شمال دارفور.

2. بنى برامج العودة الطوعية للنازحين من المعسكرات إلى قراهم وتزويدهم بمعينات ووسائل الإنتاج لإعادة انماطهم الاجتماعية والاقتصادية التي كانت سائدة قبل الحرب.

3. العمل على توفير البنية التحتية الأساسية للخدمات الضرورية مثل التعليم والصحة والري والماء وبعض الخدمات الأخرى ذات الصلة.

4. إعادة العلاقات الاجتماعية بين المجتمعات المختلفة في ولاية شمال دارفور.
CHAPTER ONE
INTRODUCTION

1.1 Introduction

1.1.1 Agricultural in Sudan

Sudan is a vast country with huge agricultural resources base amounting to around 200 million feddan of arable land under different ecological zones. The agricultural resource base includes forests lands, cultivable lands and pasturelands. Rainfall in Sudan declines steadily from high in the southern parts to moderately high, to poor and to no rains in the far North where desert prevails. It varies from an average of 1500 mm/year in the equatorial parts, to 700/mm year in the rich savanna belt and to 350 mm/year in the poor savanna. The variation and distribution of rainfall permits Sudan to produce variety of crops. The agricultural sector is thus considered the most important sector in Sudanese economy. It contributed in average about 39% to GDP in 2006. Farming is the main source of livelihood for the rural population and provides employment opportunities for over 70% of the labor. The agricultural land utilized amounts to around 20% of the total arable land. Three distinct farming systems exist in Sudan. These are (I) Irrigated farming system in the irrigated sub-sector represented by the number of large schemes in central Sudan, small schemes a long the White Nile, the Blue Nile and River Nile. The crop structure in the irrigated sub-sector includes cash crops such as cotton, sugar cane, groundnuts, other vegetables and cereals (ii) mechanized rain-fed farming system is practiced on wide scale along the central clay plain in the States of Gedarif, Blue Nile, Sennar, Southern parts of the
White Nile and central and north eastern parts of south Kordofan State, (iii) Traditional rain–fed farming system: it is mostly practiced in the rich and poor Savanna belts in North Kordofan, South Darfur, North Darfur and West Darfur. The crop structure under the traditional rain–fed agriculture includes millet, sorghum, sesame, groundnuts and gum Arabic as the most dominant crops as well as watermelon seeds and karkadeh (El-Dukheri, et al, 2004).

1.1.2 Food Security

1.1.2.1 Food Security Concepts

FAO (1996) during the world Food Summit defined Food Security as assuring to all human beings the physical and economic access to basic food they need. This definition implies the concepts of food availability, stability and accessibility.

The Committee on World Food Security refines this definition to be "physical and economic access to adequate food for all household members without undue risk of losing such access". This is accepting definition of household food security because it introduces the concept of vulnerability which means, the presence of factors that place people at risk of vulnerability and adequacy. Vulnerability means the presence of factors that place people at risk or becoming food insecure or malnourished including those factors that affect their ability to cope. While adequacy means the sufficiency of the quantity of food per household or per its individual members.

Food security may be caused by the unavailability of food insufficient purchasing power, in appropriate distribution, or inadequate use of food, at household level (FAO, 2000p26).
The identification of the nature and level of food security problems is a pre-requisite in developing an appropriate response for enhancing food security.

Naturally, people tend to associate food security with either the fluctuations in food production or with changes in its prices. Actually, fluctuation in non-food production and prices, also, have considerable impact on food security. These two causes lead directly to fluctuation in output and real income within farm household, and fluctuation in employment of farm labor.

These fluctuations in real income both direct and indirect will ultimately have an impact on household food consumption of the sensitive poor households.

### 1.1.2.2 Conflict and Food Security

Food insecurity is a key problem in complex emergencies. Structural causes of food insecurity are often the root of conflict. However, to view food insecurity as trigger of conflict and violence will to be to down-play the complexity of protracted social conflicts on the other hand, the impact of conflict on food security is often striking. When violence escalates, food insecurity becomes acute for large part of the population (Kelegama 2000).

The concept of integrated food and nutrition security thus distinguishes three dimensions of food security. (BMZ 1997, 1998):

(i) Availability of food at all time (food locally sufficient or imported to be available at local market).

(ii) Access to food at all times (household have the purchasing power to buy food).
(iii) Use and utilization of food according to sufficient dietary standards.

1.1.2.3 Impact of Insecurity on Food Situation in Darfur

Causes of the war can be traced to underdevelopment of the area. The other cause is the raid of fertile lands belonging to local tribes of African origins by mobile nomadic Arab tribes trying to secure grazing grounds for their animals another reason the drought of 1980s in the area. In summary, the following inter-related factors can be given as the basic causes of this devastating war:

- Conflicts over resources between nomadic tribes and farmers: Recurrent Droughts have impoverished herds’ grazing lands and reduced the amount of surface water available for nomadic tribes in the area. Those tribes began invading farmland in search for grass and water for their herds. The result was a conflict over land and resources.

- Poor infrastructure (no asphalt roads connecting the State to other parts affects trade and other services, leading to the feeling of neglect by the citizens of the State.

- Limited investment on basic services: remoteness, lack of infrastructure and the lack of government’s encouragement to investors have contributed to less development in great Darfur States (Bairiak, 2004).

1.2 Problem Statement and Justification of the Study

The current unrest in the region has many faces and dimensions, but the core of the current conflict of Darfur is the armed movement by opposition from Darfur induced by marginalization and impoverishment of the region by the central government over the
history of the country and coincided with the armed banditry, besides the struggle for control of political power and resources. In the three years of intense fighting from 2003 to 2007 caused displacement of millions of IDPs, destruction of assets and properties, killing of innocent civilians and systematic destruction of the livelihood sources. “The human costs of the conflict are huge, ranging from violent deaths, to the destruction of livelihoods, massive populations were displaced and resulting morbidity, malnutrition and loss of life, all in a context of regional instability and intense localized insecurity that has disrupted and systematically destroyed livelihoods.

Mass movement of people to camps Livelihood of people has been seriously affected and most importantly, farming which is the main source of livelihood has also been affected. (Kofi, A. (2004)

The insecurity of region has affected operation of rural and urban markets. Significantly prices of most commodities increased because of limited mobility of market agents who used to facilitate transactions. The increase in prices with combination of increase in transport cost and cutback of supply due to closedown of some markets many traders have limited their movement and have been selective in targeting certaining markets that pose small risk to them. There is generally an increase in the cost of main items, and limited purchasing power. (El-Dukheri, etal, 2004)

1.3 Objectives of the Study

The overall objective of this study is to investigate the impact of the armed conflict on food security with emphases to food availability.
To achieve this goal there is a need to assess the effect of the armed conflict on:

1. Food availability regarding, area cultivated, cereal production, access to production inputs and access to pasture,
2. Food accessibility with regard food crops prices, employment and other income generating activities.

1.4 Research Question

The main research question of this study is: how the armed conflict affects food availability and accessibility in North of Darfur State?

1.5 Hypotheses

- Conflict in the Great Darfur Region effect the most rural people and cause displacement to the camps nears the town.
- Armed conflicts reduce the areas of food crops and production and limit the access to production inputs.
- Displacements are unable to access and utilize their sufficient basic needs (water, health and education services and nutritious food).
- Armed conflict has negatively influenced accessibility to food in North Darfur as it influences food prices, employment opportunities as well as other income generating activities.

1.6 Methodology

1.6.1 Data Source

Both primary and secondary data were used in this study; the secondary data were collected from local governmental bodies, UN agencies, and Non Governmental Organizations those operating in
North Darfur and the internet. Primary data were collected through structured questionnaire for the respondents from internal displaced people (IDPs) camps (Abu Shouk, Aboja and Zam Zam) around El Fasher, North Darfur State.

1.6.2 Sample Frame
The sample frame included selected internal displaced people (IDPs) from, (Abu Shouk, Aboga and Zam Zam) camps around El Fasher city.

1.6.3 Sample Design
In order to get a good assessment of the effect of conflicts on Food Security, a well designed sample was done by selection of respondents from the three targeted (IDPs) camps around EL Fasher city.

1.6.4 Sample Size
As known, the degree of precision increases with the increase of the sample size, but assuming that the homogeneity of population of camps a sample size of 70 displacements (respondents) were selected.

1.6.5 Data Analysis
The data was analyzed by using statistical package of social science (SPSS) in terms of descriptive statistical analysis (frequencies and percentages) for the socio-economic characteristics of the respondents.
1.7 Organization of the study

This study has been divided into five chapters:
The first one is an introduction; it describes briefly the problem, objectives, hypotheses, research methodology and the arrangement of the study. The second is a literature review about food security and the effect conflict on food security. The third is The Study Area (North of Darfur), the forth is results and discussion, and finally chapter five describes; summary, conclusions and recommendations of the study.
CHAPTER TWO
LITERATURE REVIEW

2.1 Definition of Food Security

Food security has evolved over time as an operational concept in public policy reflecting the wider recognition of the complexities of the technical and policy issues involved (FAO, 2003).

The initial focus, reflecting the global concerns expressed in the world food conference of 1974, was on the volume and stability of food supplies. Food security was defined as "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (UN, 1975).

In (1993, FAO) expanded its concept to include securing access by vulnerable people to available supplies, implying that attention should be balanced between the demand and supply sides of the food security equation: "ensuring that all people at all times have both physical and economic access to the basic food that they need" (FAO, 1983).

In 1986, the World Bank published its highly influential report "Poverty and Hunger" (WB, 1986) which focused on the widely accepted distinction between chronic food insecurity, associated with problems of continuing or structural poverty and low incomes, and transitory food insecurity, which involved periods of intensified pressure caused by natural disaster, economic collapse or conflict. A third type of food insecurity has been identified as the creeping food insecurity (Zzima, 2003).
This is the situation where a community faces slowly but surely deteriorating ecological and/or socio-economic conditions resulting in rising incidence of under-and mal–nourishment. On the basis of these distinctions, the concept of food security is further elaborated to denote: "Access of all people at all times to enough food for an active, healthy life”. The 1996 World Food Summit adopted a still more complex definition: "Food security, at the individual, household, national, regional and global levels (achieved) when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996).

This definition was broadened to incorporate food safety and nutritional balance, underscoring the importance of food composition and minor nutrients requirements needed for an active and healthy life. An important aspect of access to food is food utilization. Food utilization, as reflected in the nutritional status of an individual, is determined by the quantity and quality of dietary intake, general child care and feeding practices along with the health status and its determinants (Riely and etal, 1999).

2.1.1 Food Availability: is achieved when sufficient quantities of food are consistently available to all individuals within a country. Such food can be supplied through household production, other domestic output, commercial imports or food assistance.

2.1.2 Food Access: is ensured when households and all individuals within them have adequate resources to obtain appropriate foods for a nutritious diet. Access depends upon income available to the
household, on the distribution of income within the household and on the price of food.

2.1.3 Food Utilization: is the proper biological use of food, requiring a diet providing sufficient energy and essential nutrients, potable water, and adequate sanitation. Effective food utilization depends in large measure on knowledge within the household of food storage and processing techniques, basic principles of nutrition and proper child care. (FAO, 1995)

2.2 The State of Food Security in the World

About 850 million people in the world are undernourished this number has hardly changed since the 1990-92 base period for the World Food Summit and Millennium Development Goal commitments on reducing hunger by half by 2015. Of particular concern are hunger hotspots, marked by the widespread persistence and prevalence of food insecurity, especially in protracted crises. As of May 2006, 39 countries in the world were experiencing serious food emergencies and required external assistance for dealing with critical food insecurity: 25 in Africa, 11 in Asia and Near East, 2 in Latin America and 1 in Europe. Table (1.2) clearly indicates the importance of human agency in inducing crises, either directly (through wars and civil strife) or through interaction with natural hazards that would otherwise have been of minor importance. (Pingali, etal, 2005)
Table 1.2: Food Emergencies, 2005

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<td>2</td>
<td>1</td>
<td>39</td>
</tr>
</tbody>
</table>

(Source: (FAO, 2005)

2.3 Food Security and Protracted Crisis

Over the past two decades, the number of food emergencies has risen from an average of 15 per year in the 1980s to more than 30 per year from 2000 and forth. Major human induced food emergencies persisting for several years are known as protracted emergencies. The vast majority of protracted crises are in Africa, where the average number of crises has tripled over the last two decades. These crises are fueled mainly by armed conflict, often compounded by drought, floods and the effects of the AIDS pandemic. The impact of food production and food security has been catastrophic for million of people who are driven from their homes, unable to work their fields, cut off from markets for their produce and from commercial supplies of seed, fertilizer and credit. (CFS, 1995).

Protracted crises have several implications for food security interventions (Committee on World Food Security (CFS, 1995).

- Demands for assistance due to conflict-induced emergencies have increased and the frequency of natural disasters is also growing.
The interaction between man-made and natural disasters compounds crisis and raises practical assessment problems e.g. security.

- The nature and scale of humanitarian assistance is changing as countries link the development of disaster risk management, preparedness emergency response and transition to sustainable development strategies.

- Complex emergencies require extensive planning, for situations that stretch into the longer term and are uneven across time and space.

2.4 South Asia and Sub-Saharan Africa are the Regions most affected by Chronic Food Insecurity

African food security has declined in the 1980s due to rapid population growth, economic stagnation, and civil strife. The combination of growing population and lagging food production in sub-Saharan Africa points to an impending crisis for the region. During the decade of the 1990s, the food gap in Africa is expected to expand more than quadruple (four times) to 50 million tons of grain equivalent, an amount far beyond either the ability of African nations to import or developed countries to supply through food aid.

While the trends in South Asia are not as disquieting, food insecurity will remain a significant problem. Crop yields are increasing at a slower rate than over the past three decades. By the year 2025, the cereal food gap alone in Asia is expected to be 255 million tons.

Basic economic statistics and more complex indexes including measures of nutritional status can be used to evaluate the food
security status of a population. At the simplest level, per capita income growth, per capita food production, the percentage of total household income spent on basic foods, and the percentage of the population falling below the country's poverty line are useful indicators. For example, a six year decline in per capita income in several African countries is indicative of growing food insecurity. Similarly, per capita food production declined in twenty-six African countries, without any significant growth in the industrial or service sector to compensate for production, employment and revenue losses. Among the poorest Asian households, sixty to seventy percent of income is spent to purchase basic foods (FAO, 1995).

FAO has prepared a food security index. It derives from four measures:

- The proportion of the population, on average during the course of the year, who do not have enough food to maintain body-weight and support light activity;
- The magnitude of the food gap of this undernourished group from the national average requirements for dietary energy;
- An estimate of the extent of risk associated with facing temporary annual shortfalls in dietary energy supplies; and
- The effects of cereal food aid shipments.

Food Insecurity today has a devastating impact on families and on the countries in which they live. Where the food insecure make up a substantial portion of the total population, as they do in some parts of South Asia and in Africa, the impact can overwhelm a country's development opportunities. Food insecure people are, by definition,
unable to lead healthy and fully productive lives. They drain the social service budgets of the poorest developing countries, and they lack the simple physical energy needed to contribute fully to their own livelihood. (FAO, 1995)

The most pernicious impact of food insecurity, however, is its serious effect (toll) on children. Severe malnutrition results in very high infant and child mortality and, for those children who survive, there are many life-long medical complications, including mental retardation. Recent research has also demonstrated that even mild-to-moderate malnutrition significantly raises the risk of mortality in children. Since this mild-to-moderate malnutrition is so much more common in the poorest countries, this means it is prominent in total child mortality. (FAO, 1995)

2.5 Causes of Food Insecurity

Many factors interact to create food-insecure situations: chronic poverty, low agricultural productivity, high rates of population growth, civil conflict, poor infrastructure, ecological constraints, inappropriate economic policies, limited arable land and even cultural practices developed over many years. These are not discrete, independent factors, but related elements of the food security equation. The chief cause of food insecurity is chronic poverty: persistent lack of economic opportunity either to produce adequate food or to exchange labor for the income to purchase adequate food. In some countries, such poverty results from the unequal distribution of economic opportunities and benefits due to political exploitation or poor economic policies. In others, poverty results from pervasive failure of the national economy to grow and as a result to generate
broad based opportunities to produce food or income. A related major factor affecting food security is the underlying dynamic of population growth. Approximately 100 million people will be added to the world population every year for the foreseeable future. By the year 2025, the population will total 8.5 billion, of whom 7 billion will live in developing countries. Sub-Saharan Africa will grow from 500 million today to 1.2 billion by 2025 United Nations International Children's Educational Fund (UNICEF). Although global rates of under nutrition are falling, rapid growth of population in some countries and regions inflates the number of malnourished, and weakness the capacity of these countries to become food self-reliant through domestic production and commercial imports. The United Nations Children's Fund (UNICEF) reported that the annual number of births is declining in Latin America; births will peak in Asia in the mid-1990s (the year 2000 for South Asia) and then begin to fall. However, in Africa the annual number of births will continue to rise well into the next century. Agricultural output is another major factor in the world hunger equation. In Africa, for example, food production increased by 33% in the 1980s, but per-capita output of food actually declined as population growth outstripped increased food production. A related factor contributing to food insecurity is poor infrastructure. Improved on-farm productivity will not increase food security if farm production is unable to make it to market. Farm-to-market roads, for example, may be poor to non-existent, hampering distribution and access to food. Sufficient and well-functioning infrastructure is essential to facilitate exchange and access to markets. (FAO, 1995).
Inappropriate policies which result in disincentives to local production and efficient marketing are another cause of food insecurity. Often local farmers have no incentive to invest in sound agricultural or environmental practices because of price controls, insecure land tenure and/or overly centralized government structures which stifle local initiative. Private food distribution may be discouraged by excessive regulations and by unfair competition from subsidized and inefficient government-run prostates. Food insecurity can be exacerbated by disease, poor water and sanitation systems, inadequate nutritional knowledge, and cultural conditions which affect consumption patterns. The integration of food security initiatives with other health and education programs can effectively address many of these problems. UNICEF recently estimated that child nutrition could be enhanced as well or better through prevention of diarrhea disease as through supplementary feedings. Civil war and ethnic conflicts also threaten food security by cutting off whole segments of a country's population from food supplies and disrupting traditional agriculture. Chronic food shortages in the Horn of Africa have been exacerbated by civil conflict. (FAO, 1995)

2.6 Food Insecurity in Emergencies
All countries confront natural disasters at one time or another. All countries experience some form of political conflict. However, food insecure countries are particularly vulnerable. The sense that they will not be able to feed themselves and their children is one of the most important "tripping mechanisms" in inducing families to leave their homes and become refugees or internally displaced. In Africa,
the number of refugees and internally displaced has risen from one million in the early 1970s to over twelve million now.

The demand for emergency food aid has grown dramatically. Between 1989 and 1993, world-wide emergency food needs have doubled from $1.1 billion to $2.5 billion per year, according to the World Food Program (WFP). One of the reasons for this phenomenon is the increase in protracted emergencies. "Complex disasters" are placing continuing burden on relief agencies: e.g., Sudan since 1983, Angola since 1989, and Somalia since 1991. In 1992, NIS and Eastern Europe became new recipients of U.S. food aid, and now constitute a large share of total aid (22% this year). Additional short-term needs tied to civil strife in Bosnia, Rwanda, Haiti, and elsewhere will likely continue to place growing demands on food resources. (FAO, 1995)

2.7 Food Insecurity Today

Global agriculture currently produces ample calories and nutrients to provide the entire world's people healthy and productive lives. However, food is not distributed equally to regions, countries, households and individuals. A substantial share of the world's supply of calories and nutrients is allocated to diets rich in animal protein. At the same time, many families have insufficient food to meet their basic needs and must be considered chronically food insecure.

Food aid can help meet a fraction of the needs of the poor. However, improved access to food--through increased agricultural productivity and incomes--is essential to meet the food needs of the world's growing population. Agricultural productivity includes measures
across the entire spectrum of the food system which reduces food costs in real terms and increase incomes.

If historical patterns hold, rising incomes will result in increased effective demand for food, and, in turn, increased production. In a world where there are already many food insecure people, this process will create additional uncertainty about food supplies for the poor, especially if food prices also rise. However, it also means there is real potential for expanding the incomes of the poor if ways can be found to improve their productivity both on and off the farm. (FAO, 1995)

2.8 The Impact of Food Insecurity

For the more than 800 million people who do not get enough regular, healthy food, ill health and a shorter life expectancy are real risks. Children, and especially very young children, who suffer from food insecurity, will be less developed than children of the same age who have had sufficient food. They will most likely be shorter and weigh less, and be less able physically and intellectually, because of poor nutrition. (FAO, 1995).

2.9. The Consequences of Food Insecurity

2.9.1 Poverty

Poor people lack access to sufficient resources to produce or buy quality food. Poor farmers may have very small farms, use less effective farming techniques, and/or be unable to afford fertilizers and labour-saving equipment, all of which limit food production. Often they cannot grow enough food for themselves, let alone generate income by selling excess to others. Without economic
resources and a political voice, poor farmers may be forced on to less productive land possibly causing further environmental deterioration. Addressing poverty is critical to ensuring that all people have sufficient food. (CFS, 2005)

2.9.2 Health

Without sufficient calories and nutrients, the body slows down, making it difficult to undertake the work needed to produce food. Without good health, the body is also less able to make use of the food that is available. A hungry mother will give birth to an underweight baby, who then faces a future of stunted growth, frequent illness, and learning disabilities and reduced resistance to disease. Contaminated food and water can cause illness, nutrient loss and often death in children. The HIV/AIDS pandemic has reduced food production in many affected countries as productive adults become ill or die. Lacking the labor, resources and know-how to grow staples and commercial crops, many households have shifted to cultivating survival foods or even leaving their fields, further reducing the food supply. Addressing health issues will improve utilization and availability of food. (CFS, 2005)

2.9.3 Water and the Environment

Food production requires massive amounts of water. It takes one cubic meter (1000 liters) of water to produce one kilogram of wheat and 3,000 liters of water to produce one kilogram of rice. Producing sufficient food is directly related to having sufficient water. Irrigation can ensure an adequate and reliable supply of water which increases yields of most crops by 100% to 400%. Although only 17% of global cropland is irrigated, that 17% produces 40% of the
world's food. Increasing irrigation efficiency and limiting environment damage through stalinization or reduced soil fertility are important for ongoing food availability. Where water is scarce and the environment fragile, achieving food security may depend on what has been called 'virtual water', that is, importing food from countries with an abundance of water. This may be a more efficient use of a scarce resource. (CFS, 2005)

2.9.4 Gender Equity

Women play a vital role in providing food and nutrition for their families through their roles as food producers, processors, traders and income earners. Yet women's lower social and economic status limits their access to education, training, land ownership, decision making and credit and consequently their ability to improve their access to and use of food. Food utilization can be enhanced by improving women's knowledge of nutrition and food safety and the prevention of illnesses. Increasing women's involvement in decision making and their access to land and credit will in turn improve food security as women invest in fertilizers and better seeds, labour-saving tools, irrigation and land care. (2005, 1995)

2.9.5 Disasters and Conflicts

Droughts, floods, cyclones and pests can quickly wipe out large quantities of food as it grows or when it is in storage for later use. Likewise, seeds can be destroyed by such environmental dangers. Conflict can also reduce or destroy food in production or storage as farmers flee to safety or become involved in the fighting. Previously productive land may be contaminated with explosive debris and need to be cleared before it can again be used for food production. Stored
food, seeds and breeding livestock may be eaten or destroyed by soldiers, leading to long-term food shortages. Government spending needs to priorities food security in the aftermath of conflict (CFS, 2005)

2.9.6 Population and Urbanization

Population growth increases the demand for food. With most productive land already in use, there is pressure for this land to become more productive. Poor harvests and higher costs lead many poor farmers to migrate to cities to look for work. Expanding cities spread out across productive land, pushing food production further and further away from consumers. This increases the cost of all the activities associated with producing and transporting food, and decreases the food security of the poor in cities. (CFS, 2005)

2.9.7 Trade

Many poor countries can produce staples more cheaply than rich nations but barriers to trade, such as distance from markets, quarantine regulations and tariffs make it difficult for them to compete in export markets against highly subsidized farmers in rich countries. This deprives poor farmers of income and entire countries of the agricultural base they need to develop other sectors of the economy. In addition, trade imbalances prevent poor countries from importing agricultural products that could enhance their food security (CFS, 2005)
CHAPTER THREE
THE STUDY AREA (NORTH OF DARFUR STATE)

3.1 Location

Northern Darfur is one of three states that constitute western Sudan. It falls between latitudes 22 and 27 north and longitudes 12 and 20 east. Its area is 192, 000 km² and it borders Chad and Libya with a population of 1.5 million (1993 census), which grows at the rate of 3.14 annually. (Bairiak, 2004.)

Figure 3.1: The Human Situation in Northern Darfur Intermediate Technology Development Group (ITDG, 2004)
Source: (Bairiak, 2004)

3.2 Administration

North Darfur State is divided into six localities: El Fasher, Millet, Kebkabiya, Kutum, Um Keddada and Tawila, Each locality consists of a number of Administrative Units ranging from five to seven.
3.3 Area and Human Population

El Fasher cites in North Darfur, located between Latitude 13° 38’ N, longitude 25° 20’E; it is the capital of North Darfur State beside it's a trading center for livestock and grains. The distance from El Fasher to Nyala and kutum equal to 190 and 100 km² respectively, the unpaved roads connect Elfasher with the other selected locations. In addition, Elfasher is connected with Khartoum by airport.

3.4 Soil

There are two main soil types in North Darfur State:

1/ Sandy soil: Stabilized sandy soil covers most of the district; this soil has been described by Lebon as being brownish red at the surface darker red about 30 cm below and pale yellowish further down (Hydromaster, 2005).

2. Clay soils: The clay soils in North Darfur State., is divided into two categories.

a.) Depression clay: Non cracking, alkaline and calcareous.

b.) Alluvia: A long water courses composed of sand, loams and clay. Their genesis is tuff and detritus of Jebalmara.

3.5 Agricultural Problems

Traditional rain fed agriculture in the study area suffers from environmental, economical and social problems that hinder its development. These include: low and variable rainfall, plant pests and diseases, decline in soil fertility, desertification, shortage of agricultural labor , shortage of seed, means of transportation, low prices of agricultural outputs, lack of agricultural credit, instability
and conflict, shortage of drinking water, illiteracy, and insufficient agricultural extension.

1. Rainfall

Regarding the rainfall problem agriculture in the area suffers recurrently from delayed rainfall or its shortage or dry spell or all of these three problems mentioned above together in one season. (UN, 2004) stated that North Darfur received well-distributed rainfall in 2003 however, long dry spell in August and September contributed to pest infestations that damaged the millet crop in Elfasher and Millet localities. The lack of rainfall and dry spells cause repeating of seeding e.g. in agricultural season 2001/02, seeding was repeated 2 to 3 times due to shortage of rain (SMAAWI, 2003). The highest quantities and continuity of rainfall on the other hand some times create a problem to the agricultural production in the study area which causes sweep of cultivated land and intensive growth of weeds which force the farmers to weed the farms many times which makes weeding becomes difficult and costly. The high quantities and continuity of rainfall also cause sluice of agricultural land which has negative impact on plant nutrition (SMAAWI, 2003).

2. Seeds

The Agricultural Activities in the study area suffer occasionally from lack of seeds especially Millet seed due to the past season failure in addition to seed varieties problems (SMAAWI, 1995). Lack of food, some times coupled by absence of stored stock and relief, forced farmers to eat their seed and leave their farms to work as rent labor in the farms of others to secure their food (SCF, 2000). In agricultural
season 1994/95, for example the farmers ate their seeds to the above mentioned reasons (SMAAWI, 1994).

3. Plant Pests and Diseases

Spread of agricultural pests such as rats, locust, bugs, birds ….etc and plant diseases constitute an important constraint to increase agricultural production in the study area [Hassaballa (1985), Elfeel (1998), Amin (2002)) and Hydrometer (2005)]. Rats for example restricted millet germination in North Dafur State in agricultural season 1999/0 which caused reduction in the total cultivated area by over 38%. The spread of water melon bug in the same season caused water melon cultivation failure (SMAAWI, 2004).

4. Soil Fertility

One of the traditional agricultural production constraints is soil fertility decline. (ITDG, 2000) stated that the decline in soil fertility is caused by the sand movement, deforestation, and low and variable rainfall rates. Pests' damages are the major constraints to agricultural production in North Darfur State.

5. Labour

Shortage of agricultural labor sometimes during the agricultural season especially during weeding and harvesting periods, due to the fall of rain in almost the same date in all parts of the regions restricted labor movement and caused its scarcity (SMAAWI, 1994). Also, male migration and agricultural labor affected negatively the agricultural production in the area and create labor scarcity and increased labor cost (SMAAW, 1994).
Education or more precisely schooling time also forbids students from participation in farming tasks and has negative impact on the agricultural production in the region

6. Transportation

The traditional rainfed agriculture in the area suffers lack of good means of transportation and rough roads due to sand dunes and other problems to transfer products or to move the farmers themselves to and from their farms even to the services centers such as schools, hospitals ….etc (ITDG, 2000).

7. Price

Farmers in the region also complain from low agricultural products prices (MET, 2000). Usually, farmers sell their products at harvesting at relatively low prices then after some months the crop prices rise

8. Credit

Lack of agricultural finance due to the risk in rainfed agriculture and frequently low production affected negatively the ability of the farmers to repay bank loans and constituted considerable constraints to agricultural development in the area (SMAAWI, 1994). Difficult financing conditions on the other hand limited agricultural production in the regions (SMAAWI, 2004).

9. Insecurity

The study area is suffering from war and tribal conflicts leading to armed robbery. Darfur political conflict affected negatively crops productivity and production and caused farmers migration and dependence on relief food instead of production (SMAAWI, 2004)
10. Drinking Water

There are farms in the study area which are completely deserted e.g. farms in some areas suffer from lack of drinking water for the farmers and their animals in spite of good fertile and high agricultural productive soil. Farmers moved to the areas with more drinking water but with less agricultural productive soil (SMAAWI, 2004).

11. Illiteracy

Education has positive impact on the process of development. (Amin, 2002) The rural areas of North Darfur State suffer from the spread of illiteracy which is estimated at about 60% (SE, 1999).

12. Agricultural Extension

Agricultural extension and training are important to agricultural development. The State suffers from insufficient agricultural extension services (SMAAWI, 2004) with a consequent lack of unawareness of farmers about fertilization, modern intermediate technology... etc to improve agricultural activities.

13. Tools

Lack of good quality and durable agricultural tools is a problem facing agricultural production in the region (ITDG, 2000).

14. Desertification

Wind coupled by dust at the beginning of agricultural season affected the crops establishment by drying up the seedlings or covering seedling with sand. In addition wind in the middle of agricultural season which breaks down plants is another problem of agriculture in the study area [SMAAWI, (2003) and SCF, (2002)].
3.6 Economic Activities

Farming constitutes the main livelihood source for over 80% of North Darfur State people. Crop production and livestock raising are the two main activities. Traditionally, the two activities have been organized and regulated by the Native Administration when it was strong and capable of exercising its power. Competition over resources, pasture and water has been often resulted in conflicts, sometimes very serious within the same tribe or between tribes. This is true for tribes of Arabic origin and non-Arabic origin as well. The Native Administration often contains such conflicts at the local level, based on agreed upon codes and norms.

Over the last five decades, the whole region especially the northern part has experienced a series of drought episodes, namely in the late 60s early 70s, the serious being in mid 80s (1983/84famine) and early 90s. These droughts induced behavioral changes in the way people deal with the immediate environment as a coping strategy. Over-cultivation over grazing and mass destruction of tree cover are among the consequences of human miss-use of the natural resource that have provided good livelihood throughout the history conflicts have been more often and more acute, compounded by the weakening of the Native Administration and limited presence of formal judiciary and power systems that enact formal laws and codes. Migration to urban centers and mechanized/irrigated schemes in central Sudan has been a prominent practice and way of getting along with the declining spread of poverty has been recognized. This is compounded by the limited development efforts in region. (SMAAWI, 2004)
3.7 Food Crops

Millet, the main preferred staple food in Darfur, is grown all over the three states, while sorghum is mainly concentrated in Southern and Western Darfur. (El-Dukheri, et al., 2004)

3.6.1 Cash Crops

a.) Groundnut

Groundnuts are grown in small areas south of Fashir besides other crops.

b.) Tobacco

Tobacco is the main source of livelihood for people of Tawilla, Korma and Fashir its production depends on residual moisture along the valleys as well as various water harvesting techniques. With the exception of Shangal Tobai, production was below average in the region. Insecurity and the resulting population movement have affected labor availability at the most critical period of tobacco production. The displaced from some areas also occupied tobacco farms.

c). Other Cash Crops

Other crops like sesame, okra, melon seeds, tomato and kerkede (hibiscus) are also cultivated. Production of these crops was affected by multiple of factors: insecurity, pests and low rains.

3.6.2. Livestock

Livestock selling and related employment are the main sources of income for people in pastoral zones of Darfur. Condition of livestock is determined by pasture conditions, water availability, disease
prevalence, market prices and marketing opportunities. (Bairiak, 2004)
CHAPTER FOUR
RESULTS AND DISCUSSION

These results were obtained from the field survey which was executed in the camps, of (Abu Shouk, Abuja and Zam Zam) around El Fasher City in North Darfur State.

4.1 Socio-Economic Characteristics

This chapter discusses the socio-economics and demographic characteristics of the respondents in displacements camps in North Darfur State.

4.1.1 Distribution of the Respondents According to Gender

As shown in table 4.1 about 66% of respondents were female and about 34% of them were male which reveals the movement of male to other safety areas searching for better revenue and leaving their families in camps, because they left their villages and cultivated areas for the absence of security.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>66</td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.2 Distribution of Respondents by Age

Table 4.2 shows the distribution of respondents by age which reveals about 74% of them lie in the productive age.
Table 4.2: Distribution of Respondents by Age

<table>
<thead>
<tr>
<th>Distribution of Respondent by Age</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 – 29</td>
<td>1.4</td>
</tr>
<tr>
<td>30- 39</td>
<td>44.3</td>
</tr>
<tr>
<td>40- 49</td>
<td>28.6</td>
</tr>
<tr>
<td>50- 59</td>
<td>18.6</td>
</tr>
<tr>
<td>60 – 69</td>
<td>5.7</td>
</tr>
<tr>
<td>70- and more</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.3 Distribution of Respondents According to the Marital Status

About 73% of respondents were married, and 14% of them were unmarried and the rest were distributed among single, divorced and widowed. This table 4.3 illustrates the social status of the respondents and their stability in form of households before war, so they entered the camps in the same constitution for the insecurity effect, also their main economical activities (farming) was stopped which negatively affect the food security situation as a whole.
Table 4.3: Distribution of Respondents According to the Marital Status

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>72.9</td>
</tr>
<tr>
<td>Single</td>
<td>14.3</td>
</tr>
<tr>
<td>Divorce</td>
<td>4.3</td>
</tr>
<tr>
<td>Widowed</td>
<td>8.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.4 Distribution of Respondents by Educational Level
As illustrated in table 4.4 about 44% of the people living in the camps were illiterate and about 34% of them were Khalwa, that reflects the poor education services in the area which indicated that the effect of conflict on destruction of the educational infrastructure and in turn on food security for the instability of situation.

Table 4.4: Distribution of the Respondents by Educational level

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>44.3</td>
</tr>
<tr>
<td>Khalwa</td>
<td>34.3</td>
</tr>
<tr>
<td>Basic</td>
<td>8.6</td>
</tr>
<tr>
<td>Secondary</td>
<td>11.4</td>
</tr>
<tr>
<td>University</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)
4.1.5 Reasons of Living in Displacement Camps

Conflict in Darfur forced about 81% of respondents to leave their home and farm to stay in camps due. This result indicates the majority of population is now consumers rather than producers. They dependent on food aid from government as well as from NOGs. {Moreover, cereal crops production and availability is expected to be reduced and hence prices will rise. It could be concluded that conflict in Darfur has negative impact on food production, availability and accessibility by respondents,} (Table 4.5).

Table 4.5: Distribution of Respondents According to the Reasons for Living in Displacements’ Camps

<table>
<thead>
<tr>
<th>Reasons For Living in Displacements’ Camps</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because of insecurity</td>
<td>81.4</td>
</tr>
<tr>
<td>Other Personal Reasons (heath, education, ect)</td>
<td>18.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.6 Sources of Drinking Water

The majority of the respondents depend on hand pumps as a source of drinking water that introduced by Non Governmental Organizations (NGO), most of respondents suffer from pumping water especially women because they exerted more effort to get the required amount of it,( Table 4.6).
4.1.7 Water Availability Constraints

Three main constraints were reported by the respondents concerning water availability namely, unavailability of sufficient amount of drinking water, poor quality of water and the long distance and amount of time required which reveal the suffering of the displacements from drinking water in the camps. (Table 4.7)

Table 4.6: Sources of Drinking Water

<table>
<thead>
<tr>
<th>Source of Drinking Water</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>public standpipe</td>
<td>24.3</td>
</tr>
<tr>
<td>Hand pumps</td>
<td>68.6</td>
</tr>
<tr>
<td>Water container</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

<table>
<thead>
<tr>
<th>Water Availability Constraints</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient amounts of water</td>
<td>84.3</td>
</tr>
<tr>
<td>Long distance and amount of time to collect water</td>
<td>8.6</td>
</tr>
<tr>
<td>Low quality of the water</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)
4.1.8 Health Services

NGOs play an important role in providing health services to respondents in terms of clinics that established near camps with small contribution from other sources, (Table 4.8).

Table 4.8: Health Services

<table>
<thead>
<tr>
<th>Sources</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>5.7</td>
</tr>
<tr>
<td>Government clinic</td>
<td>2.9</td>
</tr>
<tr>
<td>NGOs</td>
<td>58.6</td>
</tr>
<tr>
<td>traditional practice</td>
<td>2.9</td>
</tr>
<tr>
<td>NGOs +traditional clinic</td>
<td>10.0</td>
</tr>
<tr>
<td>government clinic +private clinic</td>
<td>10.0</td>
</tr>
<tr>
<td>hospital + government clinic</td>
<td>4.3</td>
</tr>
<tr>
<td>NGOs+ private clinic</td>
<td>5.7</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.9 The Available Types of Toilet

The types of toilet that found in camps reflect the problems of the sanitation that lead to easy transformation of the diseases and causes epidemic illness, so about 90% of respondents mentioned that they own traditional latrine, and only 10% of them have improved latrine, (Table 4.9).
Table 4.9: The Available Types of Toilet

<table>
<thead>
<tr>
<th>Types of Toilet</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional latrine</td>
<td>90.0</td>
</tr>
<tr>
<td>Improved latrine</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.10 The Number of Households Share Per one Toilet

One of the serious problems that occurred in camps was the number of households share for one toilet which indicate the poor services that introduced in the camps and crowded of the households in the available toilet, as mentioned by the respondents about 69% of them five or more households share one toilet and 20% from two to four households, (Table 4.10).

Table 4.10 The Number of Households Share per one Toilet

<table>
<thead>
<tr>
<th>Number of Households Share Toilet</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>One household only</td>
<td>11</td>
</tr>
<tr>
<td>Two to 4 households</td>
<td>20.0</td>
</tr>
<tr>
<td>Five or more households</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.11 The Cultivated Crops

From Table 4.11 conflicts in Darfur have a direct impact on food production and hence on food availability, as about 61 percent of the respondents were unable to cultivate their farms as a result of insecurity.
Table 4.11: Distribution of Respondents According to the Cultivated Crops

<table>
<thead>
<tr>
<th>Cultivated Crops</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not cultivated</td>
<td>61.4</td>
</tr>
<tr>
<td>cultivated crops</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.12 Impact of Current Conflict on Agriculture

As depicted in Table 4.12, 44% of the respondents were not able to cultivate their agricultural area, while 56% have decreased their cultivated area as a result of the current conflict in Darfur, hence the domestic food crops will be reduced, and negatively affect both food availability and accessibility by the IDPs as well as the rest of the population in Darfur.

Table 4.12 Impact of Conflict on Agriculture

<table>
<thead>
<tr>
<th>Impact of conflict on agriculture</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced the acreage</td>
<td>55.7</td>
</tr>
<tr>
<td>Agricultural Activities were ceased</td>
<td>44.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.13 The Cultivated Area

As shown in Table 4.13 about 61% of displaced farmers are unable to cultivate any area, of those who cultivate land about 30% of them cultivate an area ranging between 1-5 feddan and only 9% grown an area ranging between 6-10 feddan, that indicate the effect of conflict on decreasing the cultivated areas. This decrement in cultivated area has a negative effect on food stability.
Table 4.13: The Cultivated Area

<table>
<thead>
<tr>
<th>Range</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>61.4</td>
</tr>
<tr>
<td>1-5</td>
<td>30.0</td>
</tr>
<tr>
<td>6-10</td>
<td>8.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.14 Distribution of the Respondents According to Animal Ownership

The salient features of conflict obviously revealed in livestock ownership, so about 61% of the respondents lost their animals, even the available owned animals were in small numbers which may lead to inaccessibility of the respondents to the animal protein as one of the important nutrient component. (Table 4.14)

Table 4.14: Distribution of the Respondents According to Animal ownership

<table>
<thead>
<tr>
<th>Animal ownership</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not owning animals</td>
<td>61.4</td>
</tr>
<tr>
<td>Sheep</td>
<td>7.1</td>
</tr>
<tr>
<td>Goats</td>
<td>8.6</td>
</tr>
<tr>
<td>Camels</td>
<td>4.3</td>
</tr>
<tr>
<td>Donkey</td>
<td>5.7</td>
</tr>
<tr>
<td>sheep+ Goats</td>
<td>8.6</td>
</tr>
<tr>
<td>cattle + Goats</td>
<td>4.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)
4.1.15 Animal Rearing Constraints

Table 4.15 reveals that 64% of respondents mentioned that insecurity to reach open pasture is the main constraints for animal rearing in Darfur. Animal rearing become difficult and economically infeasible. Animal owner are unable to reach free pasture as a result of insecurity factor. Moreover, livestock merchants were hesitated to take cash for buying livestock.

Table 4.15: Animal Rearing Constraints

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>lack of money to buy or to keep animal</td>
<td>5.7</td>
</tr>
<tr>
<td>lack of animal feed pasture</td>
<td>5.7</td>
</tr>
<tr>
<td>lack of shelter to keep animal</td>
<td>27.1</td>
</tr>
<tr>
<td>insecurity to access pastures</td>
<td>61.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.16 Income Sources

Agricultural production and livestock rearing represent main sources of income for the majority of population in Darfur State. As a result of current conflict in Darfur, farmers are unable to reach and cultivate their farmers; and these pastorals are unable to reach the open pasture hence most of them have change their basic activities to other marginal activities such as sales of food aid and casual labor (Table 4.16).
Table 4.16: Distribution of Respondents According to the Source of Income

<table>
<thead>
<tr>
<th>Sources</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales of cereals</td>
<td>5.7</td>
</tr>
<tr>
<td>Sales of animal and animal products</td>
<td>1.4</td>
</tr>
<tr>
<td>Sales of food aid</td>
<td>14.3</td>
</tr>
<tr>
<td>Sales of handicraft</td>
<td>4.3</td>
</tr>
<tr>
<td>Help from family/relatives</td>
<td>4.3</td>
</tr>
<tr>
<td>Causal labor</td>
<td>12.9</td>
</tr>
<tr>
<td>Government employment</td>
<td>4.3</td>
</tr>
<tr>
<td>Sales of food aid + wage of casual labor</td>
<td>45.7</td>
</tr>
<tr>
<td>Sale of food aid + handicraft</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.17 The Main Constraints to Generate Income

The insecurity pushed the internal displaced to reside in camps and consequently affected directly the accessibility to their basic income generating sources like farms and open pastures for livestock, and this in turn affect the food security by decreasing the supply of grains and animals in markets which obliged the displaced people to depend on food aid. (Table 4.17) shows that closures of market represent 85% of the factors that constrain Farmers Income.
Table 4.17: The Main Constraints to Generate Income

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insecurity to move (to field, livestock, market)</td>
<td>61.4</td>
</tr>
<tr>
<td>Lack of Manpower in the Household</td>
<td>1.4</td>
</tr>
<tr>
<td>Closure of market</td>
<td>27.1</td>
</tr>
<tr>
<td>Low agricultural productivity</td>
<td>7.1</td>
</tr>
<tr>
<td>Sickness or health problem</td>
<td>2.9</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.18 Distribution of the Respondents According to Borrowing

Table 4.18 shows that 71.4% of respondents borrow, as most of the IDPs lost their possessions and savings, and also they are unable to access to their income sources, though they forced to borrow from different sources, to satisfy their basic needs such as food ingredient and drugs.

Table 4.18 Distribution of the Respondents According to Borrowing

<table>
<thead>
<tr>
<th>Borrowing</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>28.6</td>
</tr>
<tr>
<td>Yes</td>
<td>71.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)
4.1.19 the Effect of Food Aid on Local Production

Table 4.19 explain the effect of the free food aid which provided by donors on the local production, about 73% of the IDPs mentioned that the decrement of IDPs local production prices because displacements sell some of their food aid in the market so as to buy other components of food which do not introduced buy the NGOs, and about 24% of them mentioned that food aid has no effect on the local production. The last opinion practically not valid because any quantity if brought to certain district. It directly affects the quantity of supply and the local production.

Table 4.19: The Effect of Food aid on Local Production

<table>
<thead>
<tr>
<th>Effect of food aid</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>decrease prices of local production</td>
<td>72.9</td>
</tr>
<tr>
<td>No affect on production</td>
<td>24.3</td>
</tr>
<tr>
<td>help to increase production</td>
<td>2.9</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.20 The Impact of Current Conflict on Food Crops Production

As shown earlier conflict reduced the cultivated food crops area and consequently food production, about 56% of respondents agreed that they reduced food crops production. Moreover, about 34% of respondents agreed that the distribution of food aid has negatively influence local production and lead to creation of dependency on food aid while 10 percent of respondents mentioned that conflict is
the main reasons that lead to incidences of poverty in the area. (Table 4.20)

Table 4.20: The Impact of Current Conflict on Production

<table>
<thead>
<tr>
<th>Impact of current conflict on Production</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affect local production</td>
<td>55.7</td>
</tr>
<tr>
<td>Lead to poverty</td>
<td>10.0</td>
</tr>
<tr>
<td>Create dependency on food aid</td>
<td>34.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.1.21 Crops production Constraints

As shown in Table 4.12 from all the constraints that hindered the crops production, the insecurity in fields is the dominant one that reflects the severe effect on food security in Darfur State as it hinders the farmers from cultivating their farms.

Table 4.21: Crops production Constraints

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insecurity in the fields</td>
<td>61.4</td>
</tr>
<tr>
<td>Shortage of labor</td>
<td>17.1</td>
</tr>
<tr>
<td>Water shortage</td>
<td>8.6</td>
</tr>
<tr>
<td>Pests, weeds,</td>
<td>7.1</td>
</tr>
<tr>
<td>Shortage of improved seed</td>
<td>5.7</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)
4.1.22 The Impact of Current Conflict on Employment in Rural Areas

About 71% of the displacements declared that there were no opportunities of employment in the villages in rural areas as a result of insecurity that caused the destruction of infrastructure of education, health services and closure of markets leading to reduction and loss of the opportunities that available before war. (Table 4.22)

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO,</td>
<td>71.4</td>
</tr>
<tr>
<td>Yes,</td>
<td>28.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2000)

4.1.23 the Impact of Current Conflict on the Infrastructure in North Darfur State

Table 4.23 illustrates the negative impact of conflict on the infrastructure of the State, where about 61% of the displacements explained that the work has been stopped in the vital establishing projects, while about 20% of them mentioned that the destruction of the already established buildings such as schools and hospitals, whereas about 19% of displacements showed that the provided services in camps are inadequate. Also the roads and transportation is affected by conflicts and hindered the link between Darfur villages and cities as well as the markets which incur the mutual benefits among the Darfur people.
Table 4.23: The Impact of Current Conflict on the Infrastructure of the North Darfur State

<table>
<thead>
<tr>
<th>Impact</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work stopped in establishment of Infrastructure</td>
<td>61.4</td>
</tr>
<tr>
<td>Destruction of established infrastructure of hospital, school, etc</td>
<td>20.0</td>
</tr>
<tr>
<td>Low level of the services offered in camps</td>
<td>18.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)

4.2.1 Millet and Sorghum Harvested Areas before and during Conflict (1998/99-2006/07) in North Darfur State

Millet and Sorghum represent the main basic food crops in Darfur. The trend analysis (figure 4.1, 4.2) shows that Millet and Sorghum harvested areas have a declining trend, as area decreased by 13.631 and 4.8929 Thousand feddan annually for millet and sorghum respectively the period. It could be noted that Millet area is under the trend line for the years after the outbreak of the civil war in Great Darfur, indicating that this reduction in millet and sorghum area could be attributed to the armed conflict which in turn influenced cereal crops production and productivity and hence food availability.
Figure 4.1: Millet Harvested Area Trend in North Darfur State
(000fed) From 1999-2006/07
Source: (SMAAWI, 1998 & 2007)

\[ y = -13.631x + 186.71 \]

Figure 4.2: Sorghum Harvested Area Trend in North Darfur
(000fed) From 1999-2006/07
Source: (SMAAWI, 1998 & 2007)

\[ y = -4.8929x + 62.893 \]
4.2.2 Millet and Sorghum Production before and during Conflicts (1998/99-2006/07) in North Darfur State

Conflicts affected directly the rural areas and forced their residence to migrate to the cities and displaced camps, and consequently affected negatively the production of the main grain crops, (millet and sorghum).

Figures 4.3, 4.4 showed a decreasing production trend for millet and sorghum in North Darfur State, respectively. The Figures reveal that millet and sorghum decreased by 3.3095 and 0.75 thousand m.T annually for each, respectively.
Figure 4.3: Millet Production trends in North Darfur (000 ton) from 1999/0-2007

: Source: (SMAAWI, 1998 & 2007)

Figure 4.4: Sorghum production Trend in North Darfur

: Source: (SMAAWI, 1998 & 2007)
4.2.3 Millet and Sorghum Prices before and during Conflict in North Darfur State (1998/99-2000/07)

Millet and sorghum as a cereal crops are preferred as food source, because they represent the main basic food for Darfur people, as depicted in figure 4.5 the effect of conflict on the prices of the two crops, the lower and stable prices of millet and sorghum from 1998-2002 before war, and started to increase with the beginning of the war in 2003. The prices continued in rising till it reached the highest level in 2005 due to the decline in local production. From 2005 and forth the prices were started in declining for the availability of the abundant quantities of food aids which provided by different countries through the different foreign and home organizations, which lead to reduction in local production and create dependency on food aids among the IDPs.

![Figure 4.5: Comparison of Millet and Sorghum prices before and during conflict from 1998/99-2006/07 in North Darfur State](image)

Source: (SMAAWI, 1998 & 2007)
4.2.4 The Impact of Current Conflict on Purchasing Power

As shown in table 4.24 all the IDPS mentioned that their purchasing power was declined. This decrease in purchasing could be attributed to the absence of income generating activities and the loss of savings as the result of conflict.

**Table 4.24: The Impact of Conflict on Purchasing Power**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decline in purchasing power</td>
<td>100</td>
</tr>
<tr>
<td>Increase in purchasing power</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: (field survey, 2008)
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary

A study was carried out in Zamzam, Abuja and Abu Shouck IDPs camps in North Darfur State in 2008 to assess and to investigate the impacts of the armed conflict on food security with emphases on the food availability. The importance of the study stems from, the fact that conflict is affecting directly the societies of the rural areas and forced them to migrate from their villages and lived in camps as displacements, and consequently, affected the food security in North Darfur State.

The study relied mainly on primary data collected by means of a structured questionnaire and direct interviewing of people living in the camps. Simple random sampling technique was used to select seventy respondents randomly. Secondary data were collected from local government Associations, UN agencies, non governmental organizations, papers, Journals, research and previous studies. The data were subjected to descriptive statistical analysis for the socio-economic characteristics of the respondents.

The results showed that the conflict affected the societies of the rural areas in terms of displacements in camps, the difficulty to access market, limited movement of producers and traders due to insecurity, the decrease of respondents purchasing power, insufficient quantities of available drinking water in the camps, decrement in cultivated area, loss of livestock, inaccessibility to basic income
generating sources like farms and open pastures for livestock in turn affect the food security by decreasing the supply of grains and animals in markets in addition to the effect of the free food aid that provided by donors on the local production prices.

5.2 Conclusions

Based on results obtained from the study, the following conclusions could be made:-

1. Conflict in Darfur forced the most rural sedentary to leave their villages and farms and move to displacements camps.

2. Food crops were drastically reduced in the area as a result of the armed conflict, because some people were unable to cultivate their farms whereas others reduced the areas under cultivation.

3. Food crops prices showed an increasing trend while the IDPs purchasing power was declined as farmers lost their animal and reduced or even ceased the agricultural production as a consequence of the current conflict.

4. Limitation of the employment opportunities in rural areas as a result of insecurity that lead to destruction of education, health infrastructure, and closure of markets.

5. The IDPs faced many problems concerning the drinking water such as its insufficiency, poor quality, long distance and amount of time reacquired to reach the water sources.

6. The insecurity pushed the IDPs to reside in camps and consequent affect their accessibility to the basic income generating sources like farms and open pastures for livestock, in
turn affected the food security by decreasing the supply of grains and animals in markets.

7. The free food aid that is provided by donors through NGOs reduced the prices of the local food crops and led to creation of dependency among the internal displaced people.

8. The conflict had negatively influenced educational and health infrastructure, and led to closure of markets, and consequently reduced employment.

9. The nongovernmental organizations played an important role to alleviate the impacts of the conflict consequences by providing the IDPs with humantrain aids such as relief, health services (clinics, toilets), shelters and water pumps.

5.3 Recommendations

1. Restore the state of security and peace in the areas that are affected by war in the North Darfur State.

2. Adoption of volunteer returning programs for the displaced from camps to their villages and providing them with the production means and tools so as to restore their social and economic patterns that prevailed before war.

3. Provision of basic infrastructure for necessary services such as education, water, health and other related services.

4. The government and national communities and tribal leaders are advised to take full responsibility towards ending the war by recalling Armed movements to fulfill the peace and commitments and execution all the agreements items to build the confidence

5. Among all the parts.
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=1&q=Sudan+transition+and+recovery+data+base+north+Darfur+state+version+2 &spell=1.
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