

Chapter 1

1. Introduction

1.1 Background:

Geographically the study covered part of South Kordofan State (SKS) and SKS as an area of the study:

‘is delimited by the North Kordofan State and the Unity State in the north, the Upper Nile State of South Sudan in the south and the White Nile State in the northeastern covering an ‘Area of 970,470 square kilometers with a Population of 1,066,171 persons. There are 657 Basic Schools and 62 Secondary Schools. The Most important towns are: Al Muglad, Al Fula, Dubeibat, Al-Dalanj, Rashad, Abu Jebeiha, Taludi and Kadugli which is the capital of the State’. (Ministry of the Cabinet Affairs: 2008).

The population of the study was depending on farming and farm business:

‘Most people in the third world live in rural areas, and in the developing countries of Africa rural population who reside in the country-side account for 73% and most of them engaged in agriculture and the majority are poor. Hence give agriculture high priority in development has initiative appeal. Indeed it can be argued that in terms of population, employment and production agriculture is the most important sector. Agriculture in its broader term refers to human activities and whether as farming or husbandry can be defined as the rearing of livestock and cultivation of plants, fungi, and other life forms for food, fiber, and other products which governed by different climates, cultures, and technologies to sustain life.’ (UNDP report: 2002)

Many of the poor live in rural areas, dependent on agriculture and natural resources for their livelihoods. Agriculture contributes to improving rural incomes, utilizing the productive capacity of poor people's land and labour assets, and providing food for both urban and rural poor, and stimulating economic opportunities and diversification into the farming and non-farm sectors. This clearly reported by the World Bank as:

“Agriculture contributes about 40 per cent of regional GDP and employs more than 60 per cent of the labour force. The contribution of agriculture to national GDP is generally highest in Eastern, and Western and Central Africa. In Ethiopia and Somalia, for example, the agricultural sector provides more than 60 per cent of national GDP”. World Bank Report (2003)

Of all regions of the developing world, sub-Saharan Africa poses the greatest challenge for sustained improvement of rural livelihoods and agricultural productivity. Only on the country of Sudan food production actually declined over recent years. Child malnutrition has increased, and spread of poverty persists.

In South Kordofan and particularly in Delling and the surrounding localities including Dubeibat the capital of *Al Goz* locality as reported:

‘agriculture represents the main livelihood strategy’ where cotton, groundnuts (peanuts), sorghum, millet, gum Arabic, sugarcane, cassava, mangos, paw paw, bananas, sweet potatoes, sesame; *karkade* (Hibiscus) are taken care of with at least more than half the number of the livestock (17,025,000 heads of South Kordofan) are reared’. Karim Husien (2004):

A combination of thin infertile soils, uncertain, variable and unreliable rainfall, outbreak of parasitic weeds “*Alboda*”, and poorly developed markets and rural infrastructures has stalled the efforts to improve the productivity and sustainability of agro-ecosystems. In some regions of the country, conflicts, ill-advised macro-economic and agricultural policies, and/or a high incidence of malaria and fatal diseases have worsened the problem. In Sudan, the key to both sustainable and national development has declined dramatically over the years under the pressure of natural disasters and others factors such as inadequate technological inputs, rapid population growth, and lack of extension work.

Recently, a mix of the mentioned factors led to widespread of hunger and starvation in Southern, Eastern and Western Sudan. Thus, the problem of hunger and malnutrition continue to be a major factor of all well-being of the Sudanese people especially the poor. “Kordofan and particularly the Southern State suffered the effects of drought from late 1970s as well as conflicts where a number of internal displaced persons (IDPs) have come from Southern Sudan and western Sudan of Darfur region consequently affecting the livelihood mechanisms of the *region of Kordofan and specifically in the Post Conflict dry areas of AL- Goz locality of Southern Kordofan state*”. (*District records: 2008*)

Conflicts and drought have adversely impacted on people and specifically women of the area of the study and posed a significant threat to female pastoral and farmer livelihoods. The area experienced loss of human and

property, reduction in livestock numbers, limited access to water and resources, food shortage, malnutrition and diseases, closer of markets and schools, and forced migration.

Conflicts as well as drought created a strong perception of insecurity which resulted in ineffective resource utilization, reduced mobility, and increased food insecurity. Women have had to suffer the higher percentage of the said factors and undermined in their adaptive strategies as pastoralists and farmers. Women have had to suffer the higher percentage of the said factors and undermined in their adaptive strategies as pastoralists and farmers. Drought forced young women and household headed females to migrate to look for jobs, shelter and food. This forced migration made women subject to exploitation, hard labour, family break ups with very little earnings.

1.2 Statement of the Problem

As highlighted in the introduction, the study discusses key questions concerned with discovering the nature of poverty as it exists in Southern Kordofan and in *Al-Goz* areas in particular and to understand its root causes. Therefore, the main aim of the study is to identify and assess the adaptive strategies and livelihood mechanisms used by both men and women of different social and economic backgrounds during the years of drought and post conflicts from 1981 to 2010.

1.3 Objectives of the Study:

1. To understand impacts of conflicts and drought episodes on rural livelihoods of *Al Goz* area
2. To identify and assess coping mechanisms used by the residents for conflicts and droughts in *Al Goz* area
3. To examine factors interacting with gender and influencing the nature of coping strategies employed by both men and women in *Al Goz* locality.
4. To link identified modalities, strategies and lessons with regional and national ones.
5. To approach possible and reasonable strategies and interventions that could reduce the conflicts and mitigate their/crises negative impact in the area of the study.

1.4 Research questions

1. How does the demographic structure of the respondents affect the transformation and coping mechanism?
2. What type of assets do the groups under study lost and currently possess?
3. What is the real cause of the loss of assets?
4. Respective to gender roles, how conflicts and continuous drought have affected the livelihood in the area of the study?
5. As production system drastically changed, what type of activities adopted by gender to increase the incomes of the groups of the study?
6. What type of extension services provided by rural extension agents to the peoples of the locality and how sustainable?
7. What are the major problems in general in the locality and what are the solutions and lessons learnt?

1.5 The study variables

Table 1.5: Independent and dependant variables of the study

No.	Independent	Dependant
1.	Drought: Desertification	<ol style="list-style-type: none"> 1. crops quality/ quantity 2. increase in food prices 3. loss of diary animals and livestock 4. labour market 5. rapid or organized migration of people 6. loss of income
2.	Conflict: Insecurity	<ol style="list-style-type: none"> 1. food production 2. income – earning activities 3. availability of land 4. greasing area 5. water resources for (animals and humans) 6. loss of social entitlements 7. social inequality/ equality
3.	post Conflict dry areas	<ol style="list-style-type: none"> 1. nature of coping strategies employed by males and females in the area

1.6 Importance of the Study

It is prevalence in many literatures that there is a diversified range of livelihood activities employed by rural people to tackle poverty in Sudan and in Southern Kordofan State, and unless radical social, economical and scientific changes are applied the population of the said areas will continue to be affected. One of the main issues in the rationale for this study was to see the opportunity to study the history of poverty; the loss of assets and causes of losses, adoption of new coping adaptive strategies and how related to social and environmental factors that were not documented by researchers. This study also sought to establish an ample learning/training and working environment for rural farmers and other agro-businesses related people affected by both drought and conflicts who currently considered to be playing a dominant role in the rural economy. Their full potential therefore can be realised if all barriers of their participation, as seen from a wider perspective, are ironed out.

The findings of this study may add to the pool of knowledge on under-researched areas of livelihoods in Sudan by highlighting the contributions made by either men and women farmers or non-farmers in *Al Goz* locality. The results will also offer valuable insights to planners, policy-makers as well as NGOs regarding the type of projects to be considered in poor *Al Goz* locality of South Kordofan State.

This study will open up a more room for researchers to investigate the social dimension of poverty as seen in gender perspective with un-recognized female participation in social and economical activities in remote areas in *Al Goz* Locality of South Kordofan State.

1.7 Definition of some concepts:

1.7.1 Drought

The Ojos Negro Research Group came up with two types of drought definitions: (1) conceptual, and (2) operational;

“Conceptual definitions help understand the meaning of drought and its effects. For example, drought is a protracted period of deficient precipitation which causes extensive damage to crops, resulting in loss of yield.

Operational definitions help identify the drought's beginning, end, and degree of severity. To determine the beginning of drought, operational definitions specify the degree of departure from the precipitation average over some time period. This is usually accomplished by comparing the current situation with the historical average. The threshold identified as the beginning of a drought (e.g., 75% of average precipitation over a specified time period is usually established somewhat arbitrarily.” (Ojos Negro Research Group journal: 2007)

1.7.2 Conflict:

Conflict is defined as:

‘an interaction between interdependent people who perceive incompatible goals and who expect interference from other party if they attempt to achieve their goals’. (Galtung: 1996)

Also conflict is defined as;

‘Serious disputes are likely to exist as ingredients in the typical escalation of a conflict to war’. (Peter: 2003)

1.7.3 Livelihoods

Livelihood is defined as adequate stocks and flows of food and cash to meet the basic needs. In many literatures; papers and books livelihoods is defined as; ‘the capabilities, assets and activities required for a means of living. Livelihood is sustainable if it can cope with and recover from stresses and shocks, maintain and enhance its capabilities and assets, and provide sustainable opportunities for next generation’.

The term "Sustainable Livelihood" that is used here refers to:

‘a livelihood that can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.’ (Karim Hussein: 2004)

The Feinstein International Famine Centre (FIFC) of Tufts University has developed a livelihoods definition more suited for disaster settings, particularly those characterized by conflict and refers to livelihoods as:

‘The ways in which people access and mobilize resources that enable them to pursue goals necessary for their survival and longer-term, and thereby reduce the vulnerability created and exacerbated by conflict’. (FIFC: 2002)

1.7.4 Livelihood framework:

This is a recently developed approach to study poverty. Anthony Bebbington developed the framework for analyzing rural livelihoods in terms of their sustainability and their implications for rural poor. The framework argues that: the analyses of rural livelihoods need to understand them in terms of:

‘(a) people’s access to five types of capital asset; (b) the ways in which they combine and transform those assets in the building of livelihoods that as far as possible meet their material and their experiential needs; (c) the ways in which people are able to expand their asset bases through engaging with other actors through relationships governed by the logics of the state, market and civil society; and (d) the ways in which they are able to deploy and enhance their capabilities both to make living more meaningful and to change the dominant rules and relationships governing the ways in which resources are controlled, distributed and transformed in society. Particular attention is paid to the importance of social capital as an asset through which people are able to widen their access to resources and other actors’.

(Anthony Bebbington: 1999)

1.7.5 Poverty:

Poverty is a state of one who lacks a usual or socially acceptable amount of money or material possessions. Poverty is said to exist when people lack the means to satisfy their basic needs.

‘Poverty in Africa and Sudan is not an exception refers to the lack of basic human needs faced by certain segments of African society. African nations typically fall toward the bottom of any list measuring small size economic activity, such as income per capita or Gross Domestic Product (GDP) per capita, despite a wealth of natural resources’. (UNDP report: 2000)

1.7.6 Coping strategies:

People have developed behavior that helps them to function better in situation of shortage and scarcity of income that support their living. Those technical, managerial and behavioural changes are called the coping strategies.

The pattern of vulnerability (or opportunity) of individuals or households is reflected in the portfolio of assets and the activities which are undertaken to derive a livelihood. The resilience of a given social unit will depend on the success of these activities.

‘Livelihood strategies are composed of the various activities undertaken by the household to generate a living. They are the patterns of behaviour adopted by the household as a result of the mediation processes on the household assets. As an intrinsic part of the assets-activities-outcomes cycle, livelihood strategies are generally adaptive over time, responding to both opportunities and changing constraints.

Livelihood strategies have been classified according to different criteria. Rural livelihood strategies divided into three broad types according to the nature of activities undertaken: agricultural intensification and extensification, livelihood diversification, and migration’ (Scoones and Swift: 1998))

1.7.7 Gender:

Gender is a range of characteristics used to distinguish between males and females, particularly in the cases of men and women and the masculine and feminine attributes assigned to them. Depending on the context, the discriminating characteristics vary from sex to social role to gender identity.

The term gender as a concept is defined as:

‘a concept that evolved from the feminist analysis, in practice, gender evolved as a response to sex differences approaches. Gender is a relational concept that denotes the manner in which woman and man are differentiated and ordered in a given socio-cultural context’. (Ann Oakley: 1991 and 2nd edition 2003)

Gender also refers to structural relationship of differences, inequality, domination and/or practice between man and woman.

1.9.8 Sustainable development:

Development embraces wider concerns of the quality of life- educational attainment, nutritional status, access to basic freedoms and spiritual welfare. The emphasis on sustainability suggests that what is needed is a policy effort at making those developmental achievements last well in the future.

Sustainable development is a development strategy that manages all assets, natural resources, human resources as well as financial and physical assets for increasing long-term wealth and wellbeing. (David P. et al: 1997)

Sustainable development (SD) is a pattern of growth in which resource use aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. This means building communities so that all can comfortably live without consuming all resources. Living in a sustainable way means, leaving more needs like water, energy, clean air and forests, for future generations.

1.8 Organization of the study:

This study constituted of five chapters: Chapter one includes; introduction, problem statement, objectives, research questions, study variable, hypothesis and definitions of some concepts. Chapter two reviews the literature presented as; Drought manifestation and impact, Conflicts and impacts, Livelihoods and the coping strategies, Livelihoods and the coping strategies, Poverty manifestation and impacts, Agricultural extension in Dubeibat- *Al- Goz area*, the link between gender and rural development paradigms, history of drought and conflicts in the area of the study, an account of the area of the study, previous studies on livelihoods in the area and the surrounding regions. Chapter three is about the methodology and includes the area of the study, the conceptual framework, and research population, sampling procedure, data collection and data analysis procedure. Chapter four is about data analysis results and discussion, Chapter five includes the summary of the study, conclusion and recommendations then supplemented by References and Appendix

Chapter 2:

2 Literature Review:

The literature review in this study covered topics such as drought and conflicts as causes of poverty, coping strategies adopted, Current debate on the relationship between drought, conflicts and poverty, feminization of poverty, extension systems and sustainable development, the debates on the link between the rural development paradigms and gender, and the theoretical and conceptual framework are also discussed.

2.1 Drought manifestation and impact:

Drought is a weather-related natural disaster. It affects vast regions for months or years. It has an impact on food production and it reduces life expectancy and the economic performance of large regions or entire countries. It is a recurrent feature of the climate. It occurs in virtually all climatic zones, and its characteristics vary significantly among regions. Drought differs from aridity in that drought is temporary; aridity is a permanent characteristic of regions with low rainfall. It did not discriminate on the regions; north, south, east and west equally have suffered the effects of drought. It is an environmental problem that has seriously affected vast regions of Sudan. There was and still a prevalence of drought in all parts of South Kordofan State.

Drought is defined as:

“an insidious hazard of nature. It is related to a deficiency of precipitation over an extended period of time, usually for a

season or more. This deficiency results in a water shortage for some activity, group, or environmental sector. Drought is also related to the timing of precipitation. Other climatic factors such as high temperature, high wind, and low relative humidity are often associated with drought. It is more than a physical phenomenon or natural event. Its impact results from the relation between a natural event and demands on the water supply, and it is often exacerbated by human activities. The experience from droughts has underscored the vulnerability of human societies to this natural hazard.” (The Ojos Negros research group: 2008)

What are the impacts sustained in areas stricken by drought?

Drought produces a complex web of impacts that spans many sectors of the economy and reaches well beyond the area experiencing physical drought. This complexity exists because water is integral to society's ability to produce goods and provide services and as it gets short, the living of people ruins.

The literature highlighted impacts of drought in human living during the few past years as follows:

‘Drought has impacts on the human existence. Impacts are commonly referred to as direct and indirect. Direct impacts include reduced crop, rangeland, and forest productivity, increased fire hazard, reduced water levels, increased livestock and wildlife mortality rates, and damage to wildlife and fish habitat. The consequences of these direct impacts illustrate

indirect impacts. For example, a reduction in crop, rangeland, and forest productivity may result in reduced income for farmers and agribusiness, increased prices for food and timber, unemployment, reduced tax revenues because of reduced expenditures, foreclosures on bank loans to farmers and businesses, migration, and disaster relief programs.’ (The Peace Corps Center for Field Assistance and Applied Research: 2001)

The Peace Corps Center for Field Assistance and Applied Research: 2001 discussed and listed the effects of drought as economic, environmental, or social:

- **Economic Impacts:**

The economic effects/impacts are listed as:

- “- Loss of national economic growth, slowing down of economic development
- Damage to crop quality, less food production
- Increase in food prices
- Increased importation of food (higher costs)
- Insect infestation and Plant disease
- Loss from dairy and livestock production
- Unavailability of water and feed for livestock which leads to high livestock mortality rates
- Disruption of reproduction cycles (breeding delays or unfilled pregnancies)
- Increased predation and Range fires and Woodland fires

- Damage to fish habitat, loss from fishery production
- Income loss for farmers and others affected
- Unemployment from production declines
- Loss to recreational and tourism industry
- Loss of hydroelectric power and Loss of navigability of rivers and canals.” (think quest paper: 2011)

- **Environmental Impacts:**

The people of developing countries including the Sudan and in Southern Kordofan in particular are highly dependent on agriculture.

‘Agriculture and forestry are major human activities on the global landscape. Increasingly data show that many widely explored agriculture and forestry practices are having significant adverse effects on local and regional soil conditions, water quality, and biological diversity’. (Eric Clayton: 1983)

Environmental losses are the result of damages to plant and animal species, wildlife habitat, and air and water quality, forest and range fires, degradation of landscape quality, loss of biodiversity, and soil erosion. Some of these effects are short-term, conditions returning to normal following the end of the drought. Other environmental effects last for some time and may even become permanent. Wildlife habitat, for example, may be degraded through the loss of wetlands, lakes, and vegetation. However, many species eventually recover from this temporary aberration. The degradation of landscape quality, including increased soil erosion, may lead to a more

permanent loss of biological productivity. The environmental losses have seriously affected the range and pasture and consequently the production and reproduction of livestock in the area has declined.

The leading direct causes of forest loss and degradation summarized as:

‘large – scale commercial logging and timber extraction, the advancement of agricultural frontiers and subsequent use of land by subsistence farmers, conversion of forests to perennial tree plantation and other cash crops, conversion to commercial livestock production, land speculation, the cutting and gathering of wood for fuel and charcoal, large scale colonization and resettlement projects. And, the demand for land by shifting cultivators, small-scale farmers, and landless migrants accounts for a significant portion of forest conversion in some regions.’

Wendy Harcourt: 1994)

Impacts:

- Increased desertification - Damage to animal species
- Reduction and degradation of fish and wildlife habitat
- Lack of feed and drinking water
- Disease
- Increased predation.
- loss of wildlife in some areas and too many in others
- Increased stress to endangered species
- Damage to plant species
- Increased number and severity of fires
- Wind and water erosion of soils

- **Social Impacts:**

Drought has serious social impacts on the population of the affected areas. “Social impacts involve public safety, health, conflicts between water users, reduced quality of life, and inequities in the distribution of impacts and disaster relief. Many of the impacts identified as economic and environmental have social components as well. Population migration is a significant problem in many countries, often stimulated by a greater supply of food and water elsewhere. Migration is usually to urban areas within the stressed area, or to regions outside the drought area. Migration may even be to adjacent countries. When the drought has abated, the migrants seldom return home, depriving rural areas of valuable human resources. The drought migrants place increasing pressure on the social infrastructure of the urban areas, leading to increased poverty and social unrest.” Donald A. Wilhite and O.V. (2000)

In this regard the populations of the area of *Al-Goz* locality have doubled in the last 7 years due to the influx of migrants from surrounding villages and localities

Impacts:

- Food shortages
- Loss of human life from food shortages, heat, suicides, violence
- Mental and physical stress
- Water user conflicts, Political conflicts, Social unrest
- Public dissatisfaction with government regarding drought response
- Inequity in the distribution of drought relief
- Loss of cultural sites
- Reduced quality of life which leads to changes in lifestyle, - increased poverty, Population migrations

2.2 Conflicts and impact:

Conflict is a struggle between two or more forces that creates a tension that must be resolved. The traditional breakdown of conflict is: person vs. person (external), person vs. nature (external) and person vs. self (internal)

Galtung (1996) stated that:

“Conflict Viewed as a triangle with structure, attitude, and behavior as its vertices.” “Structure means the conflict situation, the parties and the conflict interest between them. Conflict arises when the parties come to have incompatible interests, values or goals. The term attitude refers to the tendency for the parties to see conflicts from their own point of views, to identify with own side, and to diminish the concerns of others. Behavior includes gestures and communications, which can convey either a hostile or conciliatory interest. The Impact of conflicts represents the following points: loss of public entitlements, loss of market/ livelihood entitlements, Loss of civil/social entitlements, Reverse entitlements/ new form of social inequity/inequality.”

While SIHA group: (2008) urged that conflicts are not always bad instead, they came up with term positive conflicts:

‘Conflict does not always mean violence but it may become struggle in interests. Parties in conflict can use violent acts to articulate their right to having some of the human rights. This makes conflict as positive phenomenon as it will be an important tool in the process of social transformation. It designs the relationship between parties where there will be a just distribution of power and recourses. It will also become an alarm to governments, policy makers and nations to expose the hidden battles and therefore a solution will be worked out.’

2.3 Livelihoods and the coping strategies

Livelihoods 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 stresses and shocks 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)

While Livelihood strategies are the range and combination of activities and choices that people make in order to achieve their livelihoods goals. On the basis of their personal goals, their resource base and their understanding of the options available, different categories of households – poor and less poor – develop and pursue different livelihood strategies. These strategies include short term considerations such as ways of earning a living, coping with shocks and managing risk, as well as longer-term aspirations for children’s future and old age. Livelihood strategies can be positive, helping households become more resilient and less vulnerable, or negative when they result in the further erosion and decrease of the asset base. From the explanations above, Livelihoods comprise the capabilities, assets (including both material and social resources) and activities required for a means of living linked to survival and future well-being. Livelihood strategies are the practical means or activities through which people access food or income to buy food, while coping strategies are temporary responses to food insecurity

2.4 Current debate on relationship between drought, conflicts and poverty:

Poverty, drought and conflicts have become the biggest challenge to sustainable development. Even though debatable, Poverty is continuously cited as one of the principal factors responsible for instability in many parts of Africa.

“There is a lot of disagreement about the specific relationship between poverty and conflict. While one school of thought thinks that poverty causes conflict, the other school of thought argues that only the reverse is true. Admittedly, the relationship between poverty and conflict is blurred. I argue that poverty is both a cause and a consequence of conflict. The relationship in two-way: poverty leads to conflict and vice versa.” (Rashid D: 2003)

This proves that there a serious linkage between conflict and poverty although it may still need more investigation. In this report the concern is whether poverty caused by either conflicts or drought impact the livelihood of the affected population. So the question is, do persistent levels of poverty impact on the likelihood of an individual, household or group participating in violent conflict? This question needs a thorough investigation as poverty caused by drought and conflicts will always affect the stricken areas and population and manifests in different forms, such as;

- Effects on monetary aspects
- Education and literacy
- Health and nutrition
- Livelihood and welfare, and
- Migration and displacement.

On the same line, Anthony N. discussed the relationship between drought and conflict in the West African Sahel at a recent Wilson Center event co-sponsored by the Environmental Change and Security Program and the Africa Program saying that:

‘Since the 1960s, the West African Sahel has experienced a steady decline in annual rainfall, as well as an increase in the frequency and intensity of drought. “Life in the Sahel,” Nyong said, “is governed by rainfall.” As water becomes scarcer and demand for it increases, so too does the threat of conflict over resource allocation. (Anthony Nyong: 2005)

Nyong believes that drought, while a component of conflict, is not the cause of conflict.

“I’ve always said that Africa’s problem is not climate; it’s the straw that breaks the camel’s back.” Rather, he believes that uncontrollable climatic factors complicate Africa’s more controllable problems, such as population and poverty.” (Anthony Nyong: 2005)

For sub-Saharan Africa’s agrarian economies for example, poverty does fall from the sky, literally, in the form of (lack of) rain. When the rains don’t arrive, crops wither and die, leaving many without anything to eat or the means to purchase other basic necessities. Considering this direct link connects poverty and violence, and then when failing rains create economic hardship, war should follow. In this case, we can actually figure out whether poverty *caused* violence by isolating rainfall’s effects. This is very obvious

in Dubeibat area, when rains failed the pastoralists and farmers always make some clashes in the areas of pasture adjacent to the farms. As the farmer tries to keep the pasture for the domestic use and sometimes as a means of living (livelihood) the livestock owner fight for having their share out of it. *“In an undocumented incident over 28 people died in clashes last year 2011”*.

Drought and the resulting economic hardship turn out to matter a lot for understanding conflict in Africa. In a research work it was found that

“A 1% decline in national Gross Domestic Product (GDP) increases the likelihood of civil conflict by about 2 percentage points. So an income drop of 5%—a large but altogether common deterioration in economic conditions, especially when the rains fail—increases the risk of civil conflict in the following year to nearly 30%, up from an already-high average probability of conflict in Africa of around 20% in normal rainfall years. So we find that short-term shocks to income.” (Djankov et al: 2008)

This situation is observable in each of every African country that is war torn and Sudan is not an exceptional. Drought and wars have caused problems; for more than a decade the gross domestic product (GDP) of Sudan had not kept pace with the increasing population, a trend indicating that Sudan would have difficulty in providing adequate services for its people. Moreover, half the populations were under eighteen years of age and therefore were primarily consumers not producers. Internal migration caused by civil war and famine

created major shifts in population distribution; south Kordofan, southern Sudan, east provinces, and Darfur, producing overpopulation in areas that could provide neither services nor employment. Furthermore, Sudan has suffered a continuous "brain drain" as its finest professionals and most skilled laborers emigrated, while simultaneously there has been an influx of more than 1 million refugees, who not only lacked skills but required massive relief. Droughts in the 1970s, 1980s, and 1990s have undermined Sudan's food production, and the country would have to double its production to feed its expected population within the next generation. In the absence of a national population policy to deal with these problems, they were expected to worsen.

Moreover, throughout Sudan continuous environmental degradation accompanied the dearth of rainfall. Experts estimated that desertification caused by deforestation and drought had allowed the Sahara to advance southward at the rate of ten kilometers per year. About 7.8 million Sudanese were estimated to be at risk from famine in early 1991, according to the United Nations World Food Program and other agencies. The Save the Children Fund estimated that the famine in Darfur would cost the lives of "tens of thousands" of people in the early 1990s. Analysts believed that the lack of rainfall combined with the ravages of war would result in massive numbers of deaths from starvation in the 1990s.

2.5. Poverty manifestation and impacts:

Poverty is the state of having little or no money and few or no material possessions. It describes a wide range of circumstances associated with need, hardship and lack of resources. For some, poverty is a subjective and comparative term; for others, it is moral and evaluative; and for others, scientifically established.

People are said to be living in poverty if their income and resources are so inadequate as to preclude them from having a standard of living considered acceptable in society. Because of their poverty they may experience multiple disadvantages through unemployment, low income, poor housing, inadequate health care and barriers to education. They are often excluded and marginalized from participating in activities that are the norm for other people.

'There are three distinct components to the measurement of poverty. First, we have to specify what we mean by the standard of living. Second, we have to delineate a critical level of the standard of living below which there is poverty, by definition. Third, we need to compress information on the standards of living below the critical level into an index of poverty'. (World Bank Report: 1991)

Previously the most widely measure of poverty based on individual income level obtained through sample survey and data collection method. Whereas the person considered poor if his income level falls below the minimum level to meet his basic needs. But now poverty is more than feeling hunger or material. There is some new direction in

poverty that presented through the last few years. It works on non-income dimension of poverty. This direction assembles comparable social indicators such as education, health and access to services and infrastructure. In contrast studying between human development index and income measures of poverty has shown that countries with the same level of per capital income can have many different levels of human development.

Recently people used poverty line to assess the situation of poverty. The poverty line is the level of income below which one cannot afford to purchase all the resources one requires to live. People who have an income below the poverty line have no discretionary disposable income , by definition.

It is widely discussed how and where to set the poverty line. In practice, different countries often use different poverty lines. Globally, however, it is more common to use only one poverty line in order to compare economic welfare levels. When comparing poverty across countries, the purchasing power parity exchange rates are used. These are used because poverty levels otherwise would change with the normal exchange rates. Thus, 'living for under \$1 a day' should be understood as having a daily total consumption of goods and services comparable to the amount of goods and services that can be bought in the U.S. for \$1. Self-produced goods and public services are included in this measure.

According to UN latest definition; poverty is a human condition, characterized by the sustained or chronic deprivation of the sources capabilities, choices, security and power necessary of the enjoyment of an adequate standard of living and social right it is reported that:

“poverty indicators in the most developed countries today show that poverty prevailing in all societies whereas 81% of population live on \$2 per day and 50% live on less than \$1 per day. With a per capita income of under US\$170 (US\$1.00= 250 Sudanese Dinar), Sudan today is one of the poorest countries in the world. More than 80% Of the populations fall below the poverty datum line”. (Hannan A: 2006)

What are the causes of poverty?

There are many causes for poverty. Different scholars have different views regarding the causes of poverty. Hulme, D et al (2001) mentioned four main causes of poverty; economic, social, political and environmental:

- ‘Economic: low productivity, lack of skills. Poor economic policies, economic shocks, terms of trade, technological backwardness, globalization’
- ‘Social: discrimination (gender, age, ethnicity, caste, race, impairment), high fertility and dependency ratios, poor health and HIV/ AIDS, inequality, lack of trust/ social capital, culture of poverty’
- ‘Political: bad governance, insecurity, violent conflicts, domination by regional/ global superpowers, globalization’
- ‘Environmental: low quality natural resources, environmental degradation, disasters (flood, drought, earthquake, etc.), remoteness and lack of access, propensity for disease (the Tropics).’

The ultimate goal of development projects is sustainable improvement in the quality of life of people. The above definitions of development embody a wish to improve the living conditions and the welfare of all citizens of a society. Therefore, poverty reduction and the empowerment of the poor people to satisfy the basic human needs was the objective of this study. The basic needs were interpreted in terms:

“of minimum specified quantities of such things as food, clothing, shelter, water, and sanitation that are necessary to health, undernourishment, and the like. This narrow, physiological interpretation leaves out questions such as the precise relation between food intake and adequate nutrition, and the most effective way of providing the resources to satisfy needs”. (Streeten: 1981)

The economists defined basic needs as the satisfaction of consumers’ wants as perceived by the consumers themselves, rather than by physiologists, doctors, and other specialists. Here, rural people should be given opportunities to earn the incomes necessary to purchase the basic goods and services; the satisfaction of basic needs is a human right: freedom from want is like the right not to be tortured.

The International Labour Organisation (ILO: 1997) introduced the basic human needs as a development approach that underlined not only the means of development but the ends and thereby signaled a change in priorities and urgency to put first thing first:

“Minimum requirements for a family for private consumption; notably food, shelter and clothing, and essential services provided by and for the community at large, such as safe drinking water, sanitation, public transport, and health and education facilities”.

2.6. Agricultural extension and development strategies in Al Goz Locality and Dubeibat town and villages:

No evidence of extension services provision at the locality despite the launching of national and international strategy to support agricultural extension;

‘Intensification of national agricultural support system has been advocated as a strategy for increasing agricultural production in Sub-Saharan Africa by governments in the region and by international development agencies’. (Bindlish & Evenson: 1997)

In Africa and sub-Saharan including Sudan region, extensionists adopted the Training and visit (T&V) system for supporting peasants and small scale farmers. Here-below is a little explanations of the (T&V) and its criticism by development practitioners.

The training and visit system (T&V) system of agricultural extension has been central to above mentioned strategy. The World Bank-supported agricultural extension programs the (T&V) system that has been implemented in some thirty Sub-Saharan countries or in about three-fifths of African countries, including Sudan.

The important features of T&V extension system include; a regular pattern of visits by frontline extension workers to contact-farmers. Extension workers seek out farmers groups as their contacts. . Extension workers focus on imparting key messages to farmers on each visit, with the complexity of these messages being increased in subsequent visits. Initial messages aim at improving basic production techniques, with attention being focused on land

preparation, the timeliness of operations, crop spacing, and seed rate, the use of better seed varieties and on weeding. After the simple messages, attention shifts to more complex messages such as those relating to fertilizer use and pest control measures.

Other key features of the T&V system include the existence of a permanent cadre of subject matter specialists and regular supervision and training of extension workers and regular meetings between the frontline extension workers and the subject matter specialists. The primary duties of the frontline extension agents under the T&V system is to transfer agricultural information to farmers and to report farmers' problems to higher levels of the system, especially to supervisors and the subject matter specialists.

2.7 The link between the rural development paradigms and gender:

Poverty reduction is the ultimate measure of development effectiveness. If development paradigms have not incorporate women in the process, a big batch of the community will be poor forever. In the following paragraphs, the researcher will make some clarification on the women struggle to fight marginalization and poverty.

Gender is a concept that evolved from the feminist analysis, in practice, gender evolved as a response to sex differences approaches. Gender is a relational concept that denotes the manner in which woman and man are differentiated and ordered in a given socio-cultural context. It refers to structural relationship of differences, inequality, domination and/or practice

between man and woman. . Ann Oakley in Haralambos and Holborn explains how gender roles are culturally constructed by saying:

“Gender roles are culturally determined. In other words humans learn the behaviour that is expected of females and males within their society. Whatever the biological differences between males and females, it is the culture of the society, which exerts most influence in the creation of masculine and feminine behaviourAnn Oakley described gender in Haralambos as:

‘Gender also refers to the socially constructed roles that are learned, change over time, and vary within and between countries and cultures according to social, religious, historical and economic factors. Gender contrasts with sex, which describes a set of biological differences between men and women. Gender roles and responsibilities affect women’s and men’s ability and incentive to participate in development activities, and lead to different project impacts for men and women’. (Haralambos and Halborn: 1991)

Since the mid 1980s there has been a growing consensus that sustainable development requires an understanding of both women’s and men’s roles and responsibilities within the community and their relations to each other. This has come to be known as the Gender and Development (GAD) approach. Improving the status of women is no longer seen as just a women’s issue, but as a goal that requires the active participation of both men and women. The Gender and Development approach is based on the premise that development cooperation programs cannot succeed or the

impact be sustained if the people affected do not support them. Then comes the role of gender analysis is to examine ways in which men's and women's differing roles, responsibilities, resources and priorities may affect their project participation.

Gender analysis is an essential part of social analysis, which considers the social, economic, political and cultural relationships between men and women, and how these will be affected by and influence development activities. Mainstreaming women's needs and perspectives into all activities is one of the primary objectives of GAD. Mainstreaming acknowledges that all development operations have a gender impact and do not automatically benefit men and women equally. A project which mainstreams gender considers women's and men's needs first at the country program level, and then at each stage of the project cycle. It ensures that women and men equally participate in every aspect of the project, both as beneficiaries and decision makers.

Gender and Development moves away from the practice of adding "women only" components to projects and programs, which characterized the "Women in Development" (WID) approach. However, separate programs, projects and components for women will continue to need support, since these are often necessary to ensure that women's practical needs are met. Separate programming for women may also assist with *mainstreaming women's interests*, or be essential for advancing their status and promoting their human rights.

Gender mainstreaming is the current international approach to advancing gender equality and equity in society. At the level of national government, it involves incorporating a gender perspective into all policies, plans, programmes and projects to ensure that these impact on women and men in an equitable way.

2.7.1 Feminization of poverty:

The majority of the 1.5 billion people living on 1 dollar a day or less are women. In addition, the gap between women and men caught in the cycle of poverty has continued to widen in the past decade, a phenomenon commonly referred to as "the feminization of poverty". Worldwide, women earn on average slightly more than 50 per cent of what men earn (World Bank report: 2007). Women living in poverty are often denied access to critical resources such as credit, land and inheritance. Their labour goes unrewarded and unrecognized. Their health care and nutritional needs are not given priority, they lack sufficient access to education and support services, and their participation in decision-making at home and in the community are minimal. Caught in the cycle of poverty, women lack access to resources and services to change their situation

The United Nations Commission on the Status of Women discussed the issue of women and poverty at its fortieth session in 1996, and proposed further action to be taken by UN member states and the international community, including the mainstreaming of a gender perspective in all poverty eradication policies and programmes.

‘Among the agreed conclusions of the session were measures aimed at policies to ensure that all women have adequate economic and social protection during unemployment, ill health, maternity, child-bearing, widowhood, disability and old age; and that women, men and society share responsibilities for child and other dependent care. (United Nations Commission on the Status of Women: 1996)

2.7.2 Feminization of rural extension:

In Sudan, the rural extension work is lead by man for decades. Of recent, *Ahfad* University for women took the initiative to lead the rural extension work with a philosophy to prepare women to assume greater roles in their families and communities, and in the nation as a whole. To that end, the university enrolls women from all over Sudan and prepares them to be proactive change agents and leaders.

Civic engagement has become an integral part of *Ahfad* academic activities. The university policies promote civic engagement as part of its mission that includes undertaking community development programs to serve the needs of communities; organizing outreach programs to raise awareness and establish networks; and building partnerships with the private sector, government and civil society organizations.

The following paragraph gives a detailed account on rural extension program for *Ahfad* University for Women started in 1973 in the form of scientific field trips for students to explore the lives of rural people and learn about appropriate forms of intervention to improve their lives. In 1976, the

'rural extension course' was integrated into the curriculum of the School of Family Science. A year later, in response to the need for a contribution to improve the quality of life of poor people in rural areas, the course became a university requirement for all the schools.

The Rural Extension Program was initiated to achieve many objectives, but its main focuses are to:

- "Expose students to issues of rural life and train them to deal with these issues;
- Contribute to the improvement of the quality of life in rural communities, especially of rural women;
- Practice methods of social research in gathering and analyzing data related to the needs of rural communities; and
- Train students in the field of development and encourage them to act as agents of change." (*Student perspectives- Ahfad University: 2005*).

The work of Ahfad University is reflected on the ground where a number of female employee (supervisors and sub-ordinates) have work far and wide in the country in different relief and development projects helping both men and women.

2.8 History of drought and conflicts in the area:

The land is considered dry, arid or both when it is without moisture. Dry is the general word indicating absence of water or freedom from moisture. A drought means that there is not enough water in the soil to meet the needs for growing crops, or even grass. Drought occurs when the amount of rain is

less than the long term usual amount. Arid suggests great or intense dryness in a region or climate that attracts desertification.

It is recorded that the areas of *Al- Goz* have been experiencing a range of drought in the last 30 years. Depending on the state/district records, drought hit the area in 1984, 1990, 2006, and 2011 and reported that Drought always followed by food insecurity and at times famine. (*Al-Goz locality metrological records: 2008*)

Of recent, 2010/11 was dry where the annual rainfall didn't exceed 250 mm in all areas of the locality (district metrological records: 2010/11). This seriously affected the productions of crops, livestock and the income of the residents at large.

2.9 Reports on drought and conflicts in *AL Goz* e area/locality:

Conflicts:

It is reported by the State Commissioner (SC) of *Al Goz* locality that there are many conflicts in the area;

- “there were reports of fighting between nomads and settlers (framer and cattle herders)
- the land commission recorded a number of land disputes, especially of demarcation of farming plots
- Due to Darfur crises many people came in and resided in Dubeibat and surrounding villages
- Many families from south Sudan and South Kordofan came and lived with relatives during SPLA and government fighting at Abyei, and Higlig oil producing areas of recent. People moved to the areas of *Al- Goz* very frequent as it is well accessed/connected rail and roads and the services are not that bad.” (*Interview reports with the SC March 2012*).

2.10 Group Dynamics

This study utilizes group dynamics perspective as a Theoretical Framework. Group dynamics refers to “the study of individuals interacting in small groups.

“Dynamic implies forces which are complex and interdependent in a common field setting”. The term group dynamics refers to both the subject and the field. It describes the powerful processes that take place in groups, but group dynamics also names the "field of inquiry dedicated to advancing knowledge about the nature of groups” (Luft: 1970).

Dynamics is the study of dated quantities and the way changes in these dates affect the relations between factors and products. From the social science point of view, group dynamics refers to “an emergent, unfolding, multi-level complex of happenings that grow out of what the group respondents (including the leader) are likely and what they are up to – individually and in combination – where they are with each other to begin with and in their outside lives, how many are present, the setting of the group experience, how much time they have together and how it is arranged, and other aspects of composition, purpose and context. Cartwright & Zander (1968) explained how the groups will be formed;

“The groups are examples of people who have joined to form a social unit. These groups are real entities, rather than hypothetical examples. The groups include a number of interdependent individuals who influence one another through social interaction.

They have common features: (1) interaction among group members; (2) group structure, including roles, status, and attraction relations; (3) variations in size; (4) shared common goals; (5) cohesiveness; and (6) the tendency for these characteristics to change gradually over time. The groups represent all people in the village regardless of their race, gender, economic status or religion. Individuals in the social sphere develop meaning to situations and come together to address it through developed community strategies. According to this orientation, therefore, the social group is seen as a unit which is organizing diversity of meaning in a united, integrated and coherent framework which approximates as operational culture.”

In the study, the rural villages of Dubeibat will represent exactly what is term as a group. The researcher wants to focus on the origin and purpose of groups; group characteristics; group composition and development; advantages of groups; impact of group activities; constrains and limitations; and social interactions. The study will use group dynamics to refer to the changes that have taken place in the lives of rural people groups in each village. The study therefore explains the origin and major concepts and definitions. Development of the groups and their aims and objectives; the emergence of mixed-sex groups, their aims and objectives; and opportunities they enjoy and how the community views such development. The grouping and number of people per each group will be discussed under sampling in the next few pages.

2.11 Sustainable Livelihood Approach (SLA):

The sustainable livelihood approach can be seen as one of a number of analytical frameworks which deal with the dynamic of dimensions of poverty and well-being through establishing a typology of assets which poor individuals, households and communities deploy to maintain well-being under changing conditions. It has conceptual roots for varying traditions, including applied social science, agro-eco system/farming systems analysis and especially participatory approaches to rural development. The main distinguishing feature of the approach is the attempt to set the analysis of livelihood within a comprehensive framework which encompasses policy and institutional processes at various levels, as well as micro-level conditions and determinants of livelihood.

The operational values of the SL approach that is the approach can promote:

- “systemic analysis of poverty and its causes in a way that is holistic, realistic and manageable;
- a wider and better informed view of the opportunities for development activities and their likely impact
- placing people and the priorities they define firmly at the centre of analysis

This approach focuses on a number of principles; poverty-focused development activities should be:

- people-centered: sustainable poverty elimination will be achieved only if external support focuses on what matters to people, understand the differences between groups of people and works with them in a way that is congruent/matching with

their current livelihood strategies, social environment and ability to adapt.

- Responsive and participatory: poor people themselves must be key actors in identifying and addressing livelihood priorities. Outsiders need processes that enable them to listen and respond to the poor.
- Multi-level: poverty elimination is an enormous challenge that will only be overcome by working at multiple levels, ensuring that micro-level activity informs the development of policy and an effective enabling environment, and that macro-level structures and processes support people to build on their strengths
- Conducted in partnership: with both public and the private sectors
- Sustainable: there are four key dimensions to sustainability-economic, institutional, social and environmental. All are important – a balance must be found between them, and - Dynamic: external support must recognize the dynamic nature of livelihood strategies, respond flexibly to changes in people's situation, and develop longer-term commitments.” (Arton et al: 2005)

Also Humle, D et al (2001) described the approach as:

“At its core, livelihood analysis proposes that the way in which a household meets its present and future needs, and pursues its aspirations must be seen holistically and dynamically. By examining the full set of assets at a household's disposal the factors that shape the well-being or ill-being of its members can be understood at the micro-level in great detail or at a macro-level through sample survey of settlements and comparative aggregate analysis. This can shed light on the way in which household members, businesses, civil society, and state action interact to create, maintain or reduce poverty and vulnerability.”

The Sustainable livelihood approach is a theoretical and analytical framework for studying poverty. It is an integrated development method, which brings individual approaches together to achieve sustainable development. It involves an assessment of community assets, adaptive strategies and technologies contributing to livelihood systems, and the analysis of cross-sectoral policies and investment requirements to enhance livelihoods.



Diagram 2.11: Understanding livelihoods in conflict settings by building a shared analysis using the livelihoods conceptual framework:

The study employs a descriptive analysis because of the qualitative nature of the data. Graphs and statistical analysis, however, will be carried out on variables which could be quantified.

2.12. Previous studies on livelihoods in Sudan

2.12.1 Impact of Conflicts on Livelihoods in North Darfur- M.Sc. Thesis by Mohammed Ahmed Alshafey (2009)

M.Sc. thesis titled; Impact of Conflicts on Livelihoods in North Darfur by Mohammed Ahmed Al Shafey Mohammed Ahmed Al Shafey supervised by Dr. Alshifa Ali Mirghani- Faculty of Agricultural Studies - Sudan University of Science and Technology has discussed the livelihoods in conflicts and post conflict areas of North Darfur State. The study was an attempt to measure the impact of that conflict on livelihoods strategies, and adjustments adopted by affected people to cope with current situation, as well as, to highlight critical areas on which, future livelihoods support could focus. Study targeted (100) households selected randomly from Shangle Toobi Internal Displaced People IDP Camp in Locality of Dar-elislam – North Darfur State. The methodology applied quantitative methodology and used social survey using the questionnaire in data collection that analyzed using SPSS. Findings were scheduled in percentages and averages and illustrated with tables and graphs.

Major findings:

- as an impact of the conflict, size of household is increased by 10% (from 6 to 6.6 in average) from time before conflict, women headed households are increased (from 9% before the conflict to 33% after the conflict) due to factors of displacement
- The conflict has negatively affected the livelihood strategies in the area of study, as subsistence farming was exercised by 98% of

respondents, which has decreased to 93% after the conflict. Dependency on trade is decreased as well (from almost 100% of respondents were adapting trade before the conflict to 36% after the conflict)

- The community structure is changed, as well as the household structure, as the percentage of representation in Umda group has decreased from (37%) before the conflict to almost (1.3%) after the conflict.
- New coping strategies have adapted by people investigated, as farmers reduced the size of area they cultivate (for example, 31% of respondents used to cultivate 15 to 20 Acres before the conflict, now this size is only cultivated by 2% of respondents after the conflict)
- Specific livelihood assets are required to improve lives of respondents such as agriculture as physical asset (is raised by 96% of respondents), market and business as financial capital (raised by 60% of respondents)
- In terms of gender division of labour, majority of women (89% of respondents) exercise reproductive activities such as domestic, and few (20%) undertake productive activities such as employment

2.12.2 Darfur–Livelihoods under siege by Prof. Helen Young et al (2005)

There are series of writings on sustainable return and restoration of livelihoods in Sudan among which is the above mentioned book. The purpose of the research study was to investigate the effects of the current conflict and humanitarian crisis on the livelihoods of selected communities in Darfur, in order to refine strategic humanitarian interventions. The study focused on labour migration, livestock production and trade and on communities' links with Central and Eastern Sudan and with Libya. The book gave a background about livelihoods in Darfur, the History and Origins of the current conflict in Darfur, impact of conflict on livelihoods in Darfur, the livestock sector in the Darfur crisis, labour migration and remittances. The study used a range of qualitative field methods to collect primary data, and its analysis was based on a review of impacts on livelihood strategies, assets and goals at the local level. It included a background review of literature and liaison with partners. Field work was undertaken in Tripoli, Benghazi and Kufra in Libya and in Khartoum, Gedarif and North, West and South Darfur in Sudan.

The study concluded that there is a combination of factors causing the failure of livelihood strategies and the loss of assets such as systematic asset-stripping, production failures, market failures, failures of access to natural resources and constraints on the remittances of migrant workers. And accordingly famine appears inevitable and provisions of food aid together with other interventions can partially redress production failure. Also conflict and peoples' livelihoods are inextricably linked. Livelihoods are

integral to the causes of the conflict and the impact it has had, and therefore will be central to any lasting solutions to the conflict. Moves to find a peaceful solution must take account of livelihoods, while efforts to support livelihoods must consider the political economy of conflict and the implications for livelihoods and livelihood interventions.

The study recommended that major structural changes need to be addressed at the international, national and State levels to include processes of land restitution and compensation; livestock restitution, reconciliation and compensation; and the opening up of transport routes to provide safe passage for people, livestock and goods. Ideally, the wider processes of reconciliation should be linked with livelihood support. Extensive and detailed recommendations cover six broad areas: security, land, livestock, markets, labour migration and international humanitarian response.

Chapter 3

3. Research Methodology

3.1 The area of the research and the demographic structure

3.1.1 The area of the study:

The history of *Dubeibat* council of *Al-Goz* locality goes back to 1956 when the colonial system developed the railway that linked Khartoum the centre with Western part of the country. The colonialism constructed a railway station in Dubeibat as one of the biggest railway stations of the line that goes west and terminates in Nyala. There were many villages surrounding Dubeibat railway station that for many reasons getting services; education, health and water, transportation and livelihoods have come and resided establishing the current town of *Dubeibat* the capital of *Al-Goz* locality.

Sudan has a tropical climate. Seasonal variations are most sharply defined in the desert zones, where winter temperatures as low as 4.4 C (about 40 F) is common, particularly after sunset. Summer temperatures often exceed 43.3 C (about 110 F) in the desert zones, and rainfall is negligible. Dust storms, called *haboobs*, frequently occur. High temperatures also prevail to the South throughout the central plain regions, but the humidity is generally low. *Al-Goz* locality is of no exception, has primarily Sudanese climate with high temperature during the day time and cold dry nights with very little precipitation/ annual rainfall. The *Al-Goz* locality/ area of the study is situated in the poor savannah area where average cumulative rainfall does not exceed 300mm without even distribution and in some seasons it goes

down to less than 150mm. The rainy season occupies June, July, August and September. The soil is sandy with few patches of muddy grounds where valleys traverse the Southern West area which flow two to three times a year during heavy rains. The area is covered with savannah trees, shrubs of acacia species and some grass which are important source for grazing.

Over a period of time from 1970 to 2010, *Al-Goz* locality experienced a serious deterioration of resources, and the beginning of what is termed as desertification has appeared since 1974. The situation worsened as climate changed towards drought due to a drop in rainfall, overgrazing, deforestation and removal of greenery that led to the death of animals. The desertification and natural environment deterioration subsequently led to collapse on agricultural production and has had severe effects in the district, including widespread loss of livestock and pasture.

The location of the locality as centred to a number of other localities/states that have diverse social/ethnic, environmental and economical backgrounds increased its susceptibility and affectability by tensions around and within the surrounding localities.

Over the years, conflicts have erupted in the Southern Sudan, Darfur region and of recent in Southern Kordofan. The disputes and tensions in the mentioned regions have driven a huge number of people to the locality as the place is accessible with its railway line that passes to the western regions and the tar-mark roads that connects North Kordofan (El-Obeid) to Southern and Western Kordofan; *Kadugli* and *Al-Foala* respectively.

3.1.2 Demographic structure:

The area of the study (*AL-Goz Locality*) is inhabited by three major groups of rural populations belonged to a varying branches of Kinana and Bideiria tribes who are settling in the sandy area, Baggara groups and Hamar as nomads who move up and down between the Southern and the Northern localities herding cattle and camels respectively. The third group are the Nubian tribes who live at the foot of the Nuba Mountains. There are other tribes such as Zaghawa, Fur, Masabaat, and Hawsa who came for trading and some of them were pushed in the town of *Dubeibat* due to conflicts and drought in Darfur and West Africa and settled in the area performing different livelihood activities. Depending on estimate from the legislative council of South Kordofan State;

‘the total population of the locality is 47,435 persons. Gender disaggregated as (25,141) - 53% females and (22,294) - 47% males. This most recent estimates of July 2011 structuring the figure 47,435 persons as 0-14 years: 43% (male 50.5% and female 49.5%), 15-64 years: 55% (male 50% and 50% female), and 65 years and over: 2% (male 53% and female 47%) with annual population growth rate of 2.55%’. (District records: 2011)

Nidaa Al Sudan a National Organizations working on relief, early recovery and development with a major focus on livelihoods in *Al-Goz* locality did an assessment for a number of households (HHs) to see exactly how many people per a household (HH). The study revealed that;

‘There are at least 6.5 persons per HH. With a total population of 47,435, this means that there is around 7,298 household in *Al-GoZ* area. The study also found that there is a small percentage of female headed household in the area and the majority of the population lives in and around town of *Dubeibat*’. (*Nidaa AL Sudan* Org. annual report: 2011)

3.2 Conceptual Framework:

This research is to investigate the dynamics of livelihoods of both men and women in a post conflict dry area of Al Goz locality - South Kordofan. As this study is dealing with human subjects, a combination of qualitative and quantitative research methodology is used.

A Participatory Learning Approach (PLA) with its many techniques and tools specifically the Sustainable Livelihoods Approach (SLA) adopted. A combination of information gathering tools; questionnaires, Key informants interviews, household questionnaires, focal group discussions, and critical observations of vulnerable population/respondents were interrelated. How information gathering tools mentioned interrelate was assessed in data collection and analysis section.

The process of getting information was through an assessment of each individual subject of the research alone as well as in/within members of his/her village/ area of the study to get first hand information, which is largely unavailable or not documented by other researchers in literature. Document, articles, reports, references, etc incorporated in the study for secondary data.

The study limited itself to small-scale farmers and off farming communities (settlers, Nomads, IDPs) in Dubeibat town and surrounding villages of *Al-Goza* Locality - Southern Kordofan State who have been in existence for at least the last (7) seven years. The populations of study have suffered repeated crises of drought and conflicts. The residents of drought affected areas lived for several years together and performed the same agricultural and other livelihood activities.

The study grouped them together for easy follow up and monitoring. Each group/village made of members of at least six families, i.e. the smallest structure of a small village in the rural areas of the locality.

The study focused primarily on subjects who experienced (or likely to experience) poverty for extended period of time of (7) years and the process that keeps them poor. *Al-Goz* area and population have been chosen for the study for the following reasons:-

- The outdoor involvement of both men and women in the agro-economic activities.
- The socio-economic variables that was/ is undergoing, such as drought, famine, migration and accommodation of internally displaced people.
- The ignorance- that there is no involvement of local or international agencies to help improve the standard of living of the poor people.

3.3 Sampling:

Purposeful sampling and/or random samplings used where necessary, to draw the subjects using a recognized statistical format- national statistical registry. The subjects covered in the study are government officials, NGOs, farmers and farming groups, traders, labourers and members from women associations and groups.

In qualitative research methodology the selection of subjects has to suit the purpose of the study as it discusses the key questions concerned with discovering the nature of poverty as it exists in *Al-Goz* area and assesses the adaptive strategies and livelihood mechanisms used by both men and women of different social and economic backgrounds, for this reason Borg describes this type of sampling procedure as purposeful sampling.

“The purposeful sampling is not designed to achieve population validity. The intent is to achieve an in-depth understanding of selected individuals, not to select the sample that will represent accurately a defined population”. (Borg: 1996)

Quantitative sampling refers to the process of selecting a sample from a defined population with the intent that the sample accurately represents that population. Borg defines random sampling as:

“A simple random sampling means a group of individuals drawn by a procedure in which all the individuals in the defined population have an equal and independent chance of being selected as a member of the sample.” (Borg: 1996)

3.4 Data Collection:

For this study, Data have been collected by combination of two methods; qualitative and quantitative methods supplementing each other targeting the following respondents:

- People of Al Goz locality of farmers, pastoralists, traders, labourers.
- Key figure of native administration bodies
- Senior government officials
- Women activists
- Social activists
- NGOs and CSOs, and youth (both boys and girls)

Different tools used to get data; the qualitative data was collected using interviews, focal group discussions, and observations and questionnaires administered to collect the quantitative data detailed following data collection below:

3.4.1 Qualitative Data:

- Focal group discussions (FGDs): the FGD is formed of a 6 people of one sex or mixed-sex representing a village selected through purposeful sampling from around 10 villages in the area. Those villages were severely affected by drought, conflicts and near the main tarred roads for easy movement. Each village (one group) consists of 6 members of farmer, herders, labourers and officials. The total number of respondents of the 6 FGD is 60 people. (*Sampling diagram attached*).
- Interviews; 20 respondents interviewed one or two members from the (10) selected villages, bearing in mind the aspect of gender. The respondents were; the commissioner, researchers in conflicts social and cultural issues, senior officials from Agriculture, animal and forestry,

social affairs, finance, education departments and key figures from the community representing - (8 f and 12 M). (*A List of interviewees attached*).

- Observations; many visits were undertaken to *Dubeibat* town and surrounding villages. The researcher witnessed and documented how the respondents earn their living and performed livelihoods and social activities in different parts of the locality – (*documentary photos are pasted*)

3.4.2 The quantitative data

- Questionnaires supplemented with open ended questions to get narrative responses of the interviewee to get quantitative data. The questions in this section were designed in a way to back up the questionnaire with an in-depth information and knowledge. The researcher used a purposeful sampling for drawing/interviewing 150 respondents (75 males and 75 females- key figures and/or female headed family) from farmers and non-farmer people representing 2% of the total population of *Al Goz* locality, i.e. 47,435 people. 10 villages were purposeful selected of the total village 54 of the locality. The subjects interviewed, also purposefully selected, were those who experienced (or likely to experience) poverty for extended period of time of (7) years or more. All respondents are from Kordofan region and are coming from the designated above mentioned 10 villages but not necessarily right now living in their original village as per below sampling table. (*A copy of the questionnaire at the appendices*).

Below diagram is detailing sampling procedures, selection criteria, number of villages or group discussions and respondents' gender disaggregated by (male and/or females):

3.4.3 Sampling Procedures

Table 3.4.3: Sampling procedures; selection criteria, number of villages and number of respondents

No.	Town/ Hay/ Village/ IDP camp/ nomadic group	Reason of choice: 10 villages/settlements were highly affected by drought and conflicts, nearby the roads and easy to access, highly populated and respondents seem to be more cooperative, plus:	No. respondents by gender					
			questionnaire		FGDs (6 members each)		interviews with Key informants	
			F	M	F	M	F	M
1	Shag Elsileek	Farmers and cattle herders	5	5	0	6	0	1
2	Habob	Burnt up in the mid nineties	10	10	4	2	1	1
3	Hay Umbada	Accommodating displaced people of South Kordofan	10	10	3	3	2	1
4	Assouq + Hay Dawood	Accommodating displaced people from Darfur	10	10	1	5	2	2
5	Shaga Hillat ElUmda	Representing native administration and pastoralists	5	5	0	6	0	1
6	Dubeibat Awlad Unis	Farmers , vegetable traders and many are doing official work	5	5	6	0	1	1
7	Um Ghoghaya +	Farmers and sheep herders	10	10	0	6	0	1
8	Shag Elforot	farmers and cattle herders	5	5	0	6	0	1
9	Korkora Walad Baggar + Umsieda	There was fighting and some moved to Hay salim/Dubeibat to contain the problem	5	5	0	6	0	2
10	Hilat Musabaat + Soug Elhagiz	Accommodating people from war zones and nomads who lost their herds	10	10	3	3	2	1
	Total		75	75	17	43	8	12

3.4.3 Methods of Data Analysis

The study employs a descriptive analysis because of the qualitative nature of the data. Graphs and statistical analysis, however, will be carried out on variables which could be quantified. The qualitative data analysis will be described as:

"[Qualitative] data analysis is the process of bringing order, structure and meaning to the mass of collected data. It is a messy, ambiguous, time-consuming, creative, and fascinating process. It does not proceed in a linear fashion; it is not neat. Qualitative data analysis is a search for general statements about relationships among categories of data." (Marshall and Rossman, 1990)

For the analysis of this report, a thematic analysis is to be used in qualitative data. A thematic analysis is whereby the researcher reads the interviews, draws themes and ideas that are of crucial importance then the discussion is consequently constructed from the themes that were drawn from the stories. Other approaches used in the literature will be used in the analysis if necessary. SPSS is to be used for analyzing the data that were collected by questionnaires.

The research used a combination of qualitative and quantitative methodology for data analysis and presentation. Qualitative data from interviews, focal group discussion and open-ended questions need to be processed to give structure and meaning to the mass of collected data. Qualitative data analysis is a search for general statements about relationships among categories of data. The study

employed a qualitative descriptive analysis because of the presence of qualitative nature of the data guided by the research questions already set up in chapter one. Statistical analysis and graphs, however, carried out on quantified variables that were gathered using questionnaires. The sustainable livelihood approach and problem tree analysis were adopted for the analysis of gathered data as clearly discussed in chapter 4.

Chapter 4

4. Data Presentation, Analysis, Results and Discussion

4.1 Demographic Structure

The demographic components of this study covered age, gender, education, marital status, family members, residence and occupation. The components were set to answer the research question; **how does the demographic structure of the respondents affect the transformation and coping mechanism?** All seven demographic components were analyzed and discussed in the following paragraphs.

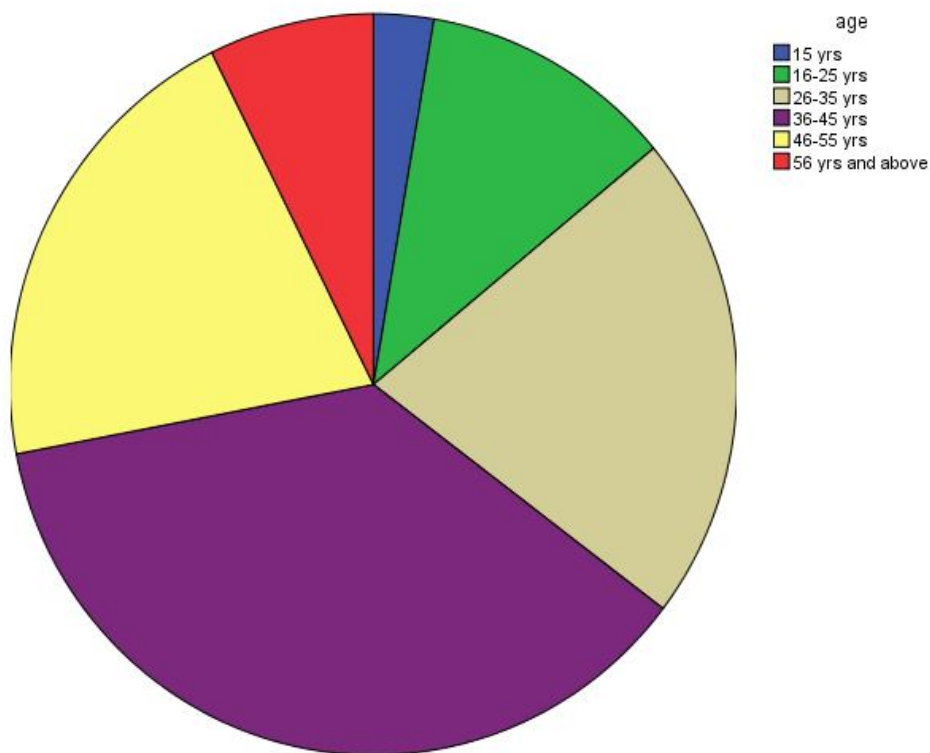
4.1.1 Age

Data presented in table 4.1.1 and the graph 4.1.1 shows that 36.7% of the interviewees were in the age group (36-45 years old. 116 respondents of the total interviewed people in the questionnaires are people aged between 26 and 55 years and with only 4 respondents aged 15 years old. This shows that the background, experience and maturity of the respondents well matched their capability to respond to the administered questionnaire

Table 4.1.1: frequencies distribution and percentage of respondents by age

	Frequency	Percent	Valid %
15 yrs	4	2.7	2.7
16-25 yrs	17	11.3	11.3
26-35 yrs	32	21.3	21.3
36-45 yrs	55	36.7	36.7
46-55 yrs	31	20.7	20.7
56 yrs& above	11	7.3	7.3
Total	150	100	100

Source: *Field Survey 2014*



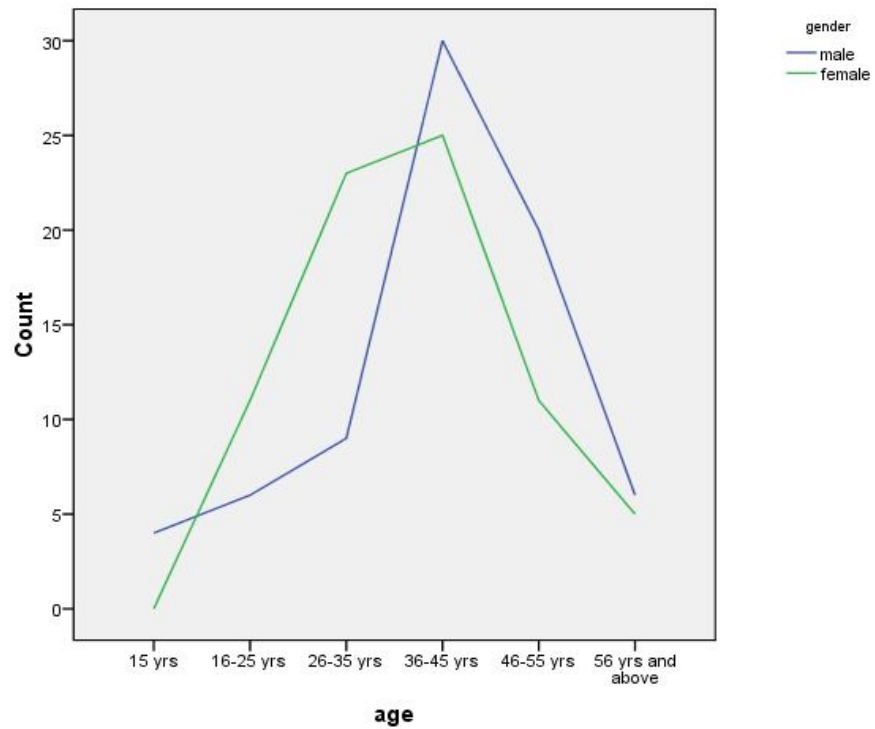
Graph 4.1.1: frequencies distribution and percentage of respondents by age group -
Source: *Field survey 2014*

4.1.2 Gender

Table 4.1.2: frequencies distribution age * gender Cross-tabulation

Age group	Male	female	total
15 yrs	4	0	4
16-25 yrs	6	11	17
26-35 yrs	9	23	32
36-45 yrs	30	25	55
46-55 yrs	20	11	31
56yrs & above	6	5	11
Total	75	75	150

Source: *survey at Al Goz locality 2014*



Graph 4.1.2: Frequency distribution age * gender Cross-tabulation- Source: survey at Al Goz locality 2014

The cross tabulation of age and gender shows that there were 135 respondents (70 F and 65 M) with the age ranges between 16 to 55 years old who represent active economic driving forces in terms of productions as well as consumption at the locality.

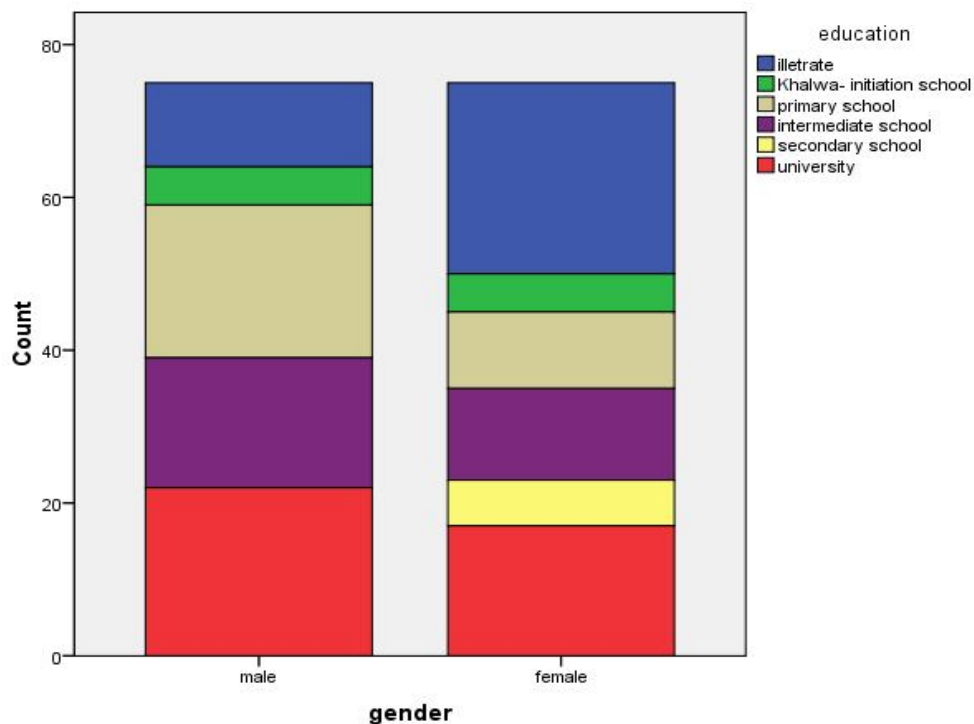
4.1.3 Education

Table 4.1.3: Frequencies distribution and percentage of respondents by educational level

Educational level	frequency			Percent
	Total	Male	female	
Illiterate	36	11	25	24
<i>Khalwa</i> - initiation school	10	5	5	6.7
primary school	30	20	10	20
intermediate school	29	17	12	19.3
secondary school	6	0	6	4
University	39	22	17	26
Total	150	75	75	100

Source: survey at Al Goz locality 2014

The study revealed that there is a good number of respondents 39 were university graduates representing 26% whereas 36 respondents representing 24% who did not attend to school.



Graph 4.1.3: gender * education Cross-tabulation- Source: survey at Al Goz locality 2014

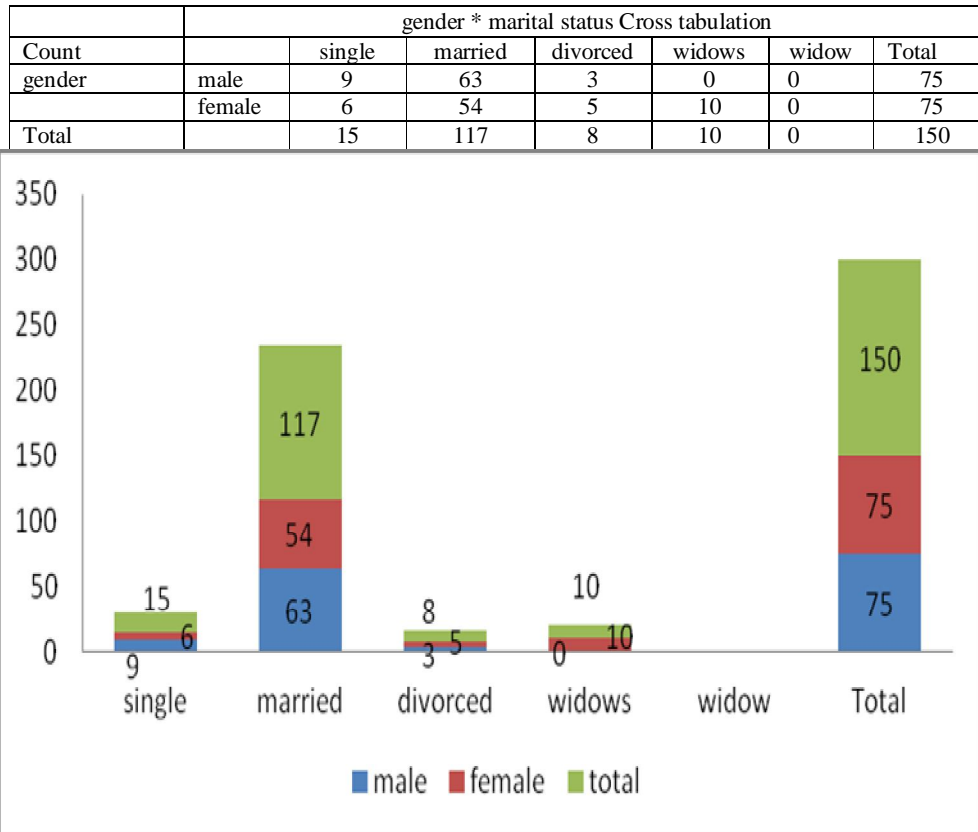
In terms of Education, male were always having the bigger share as shown in graph 4.1.3 cross tabulation of gender * education, except at the illiterate category where the number of illiterate women (25) is more than doubling the number of men at the same category. This illustrates that females were always disadvantaged and not seemed to be a target of education in the locality.

4.1.4 Marital Status

Table 4.1.4: Statistics and Frequencies distribution and percentage of respondents by marital status

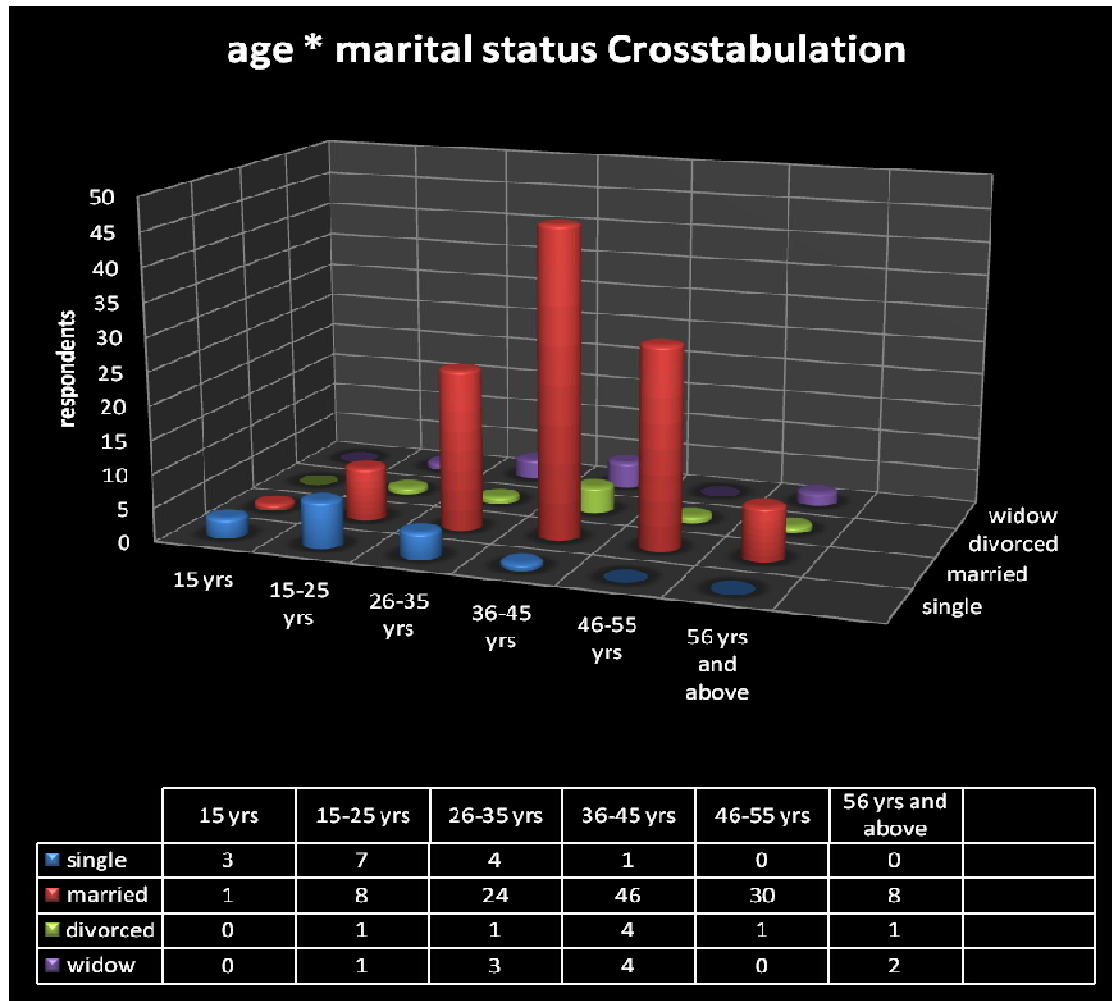
Statistics			marital status					
marital status					Frequency	Percent	Valid Percent	Cumulative Percent
N	Valid	150	Valid	Single	15	10	10	10
	Missing	0		Married	117	78	78	88
Mean		2.09		Divorced	8	5.3	5.3	93.3
Median		2		Widow	10	6.7	6.7	100
Mode		2		Total	150	100	100	
Std. Deviation		0.644						
Sum		313						

The table 4.1.4: Statistics and Frequencies distribution and percentage of respondents by marital status shows that the frequency of married respondents is 117. Married respondents are 117 of both men and women representing 78% of the total respondents of the questionnaire.



Graph 4.1.4.1 cross tabulation of gender and marital status - Source: Survey 2014

The Graph 4.1.4.1 Cross tabulation of gender and marital status shows that there are only 10% singles (15 respondents) and remaining 90% of the target population were married, widows or divorced. This tells that all respondents are shouldering the burden of supporting their families and are more than overwhelmed with the impacts of drought and conflicts.



Graph 4.1.4.2 cross tabulation of age and marital status - Source: Survey 2014

The Graph 4.1.4.2 cross tabulation of age and marital status shows that there 15 respondents were single, 117 married in age of maturity from (16-25 to 56 year and above). There was only one young respondent claiming to be 15yrs. that response 15 years old married young man- for sure is misleading information because of ignorance.

4.1.5 Family Members

Table 4.1.5: distribution and frequencies of respondents by the size of family

Family members			
No	Frequency	Percent	Valid Percent
1-2 member	17	11.3	11.3
3-4 member	26	17.3	17.3
5-6 member	53	35.3	35.3
7-8 member	23	15.3	15.3
more than 9 member	31	20.7	20.7
Total	150	100	100

Source: Field Survey 2014

The Size of Household (HH) is a considerable factor in determining the productivity and wellbeing of the family. Depending on responses of the questionnaires, the below diagram illustrated the number of people per one family. Majority of the respondents (53%) of the (HH) is having (5-6) members which, in coincidence with the estimates of *Nidaa Alsudan* Organisation for the household in 2012.

4.1.6 Residence

Table 4.1.6: distribution and frequencies of respondents by residence

Statistics			residence				
residence			Variables	Frequency	Percent	Valid Percent	Cumulative Percent
N	Valid	150	village on in town	144	96	96	96
	Missing	0	IDP with the HC	2	1.3	1.3	97.3
Mean		1.07	IDP in the camp	3	2	2	99.3
Median		1	Nomad	1	0.7	0.7	100
Mode		1	Total	150	100	100	
Std. Deviation		0.386					
Sum		161					

Source: survey 2014

The Table 4.1.6: distribution and frequencies of respondents by residence shows that only 6 respondents of the questionnaires were (5) internally displaced persons (IDPs) and (1) nomad.

Table 4.1.6: Distribution and frequencies of respondents by residence V gender cross tabulation

Residence	Distribution		Gender	
Variable	Frequency	Percent	male	female
Town or village	144	96	72	72
IDP with the HC	2	1.33	2	0
IDP in the camp	3	2	1	2
Nomad	1	0.67	0	1
Total	150	100	75	75

Source: survey 2014

The statistics in the table gender* residence cross tabulation showed that 96% of the respondents (72 males and 72 females) are from villages around Dubeibat of Al Goz locality. Only 2 male were internally displaced people (IDPs) living with hosting community and 3 (IDPs) camping secretly nearby the town of Dubeibat as the locality is banning IDP camp settlement for political reasons.

4.1.7 Occupation

Table 4.1.7: distribution and frequencies of respondents by occupation * gender Cross tabulation

occupation * gender Cross tabulation				
Occupation	variables	gender		Total
		male	female	
	officer	25	25	50
	technician	8	1	9
	labour	5	4	9
	farmer	33	43	76
	pastoralist	4	2	6
Total		75	75	150

Sources: Survey 2014

The **table 4.1.7:** occupation * gender Cross tabulation shows that the occupation of both male and females respondents was being the farmer (43 F and 33 M) and the second best score was the officer (25 F and 25 M) with a limited number of pastoralists with only 6 (2 F and 4M). It obviously seen that, there was career gender stereotyping where 8 male of a total of 9 respondents appeared in the technician variable. This illustrates the disparity between male and female attitudes toward working as technician and blacksmith.

The discussion on the demographic components; age, gender, education, marital status, family members, and residence answered how the transformation and coping mechanism were affected by the crises. The above components have great impact on the occupation and livelihood activities of the respondents and consequently directed their coping mechanisms to survive the shocks of the crises. The crises and impacts further discussed and analyzed in the following paragraphs/pages.

2.2 Livelihood assets and Strategies

This section discussed types of crises and livelihood strategies adopted by respondents (male and females) in thirty years (1981-2010). The 230 respondents; 150 questionnaires, 20 interviewees, and 60 respondents in 6 focal group discussions were asked some questions about crises, impacts of crises, productive members in the family and main source of income. The study of the above mentioned variables is made in a comparative way between the two different periods of time; (1981- 1995) and (1996-2010) to answer main research questions: What type of assets the groups under study lost and currently possess? What is the real cause of the loss of assets and how that impacted on the wellbeing and coping mechanisms of the respondents? The research discussed the questions into two points: crises and impact in the following account:

4.2.1 Crises

The crises over the two periods (1981-1995) and (1996-2010) were too many and categorized by the 230 respondents 150 questionnaires, 20 interviews and 60 respondents from 6 focal group discussions in; climate change/ little or no rain, famine and/or starvation, socio-economic changes including tribal inflicts and fighting, migration/ displacement, and socio-political changes. Respondents were requested to give their views on a variable that is most likely to be the harshest on their life and living pattern.

Respondents mentioned many types of crises that they had to experience over the period of the study as summarized:

- There was little and no rain (1979-1980), (1990-1992), and (2010).

- Invasion of desert locust and other farm pests and diseases (1982), 1990, 1991, 1994, and 1996.
- There were veld fires and villages burnt up by stray fires 1988 - *hilat Harin*, 1996- *Haboob* village (*those were big villages in the administrative unit of Dubeibat of Al Goz localiy*).
- There was serious drought and desertification 1984 and 1994
- There was a complete loss of animal herds and death of livestock; 1981, 1983, 1984, 1990, 1994, and 2009.
- There were many starvations and famine 1982, 1984, and 2010 – in some occasions were termed by Government as food gabs and food in-security in 1984, 1985, 1990, 1992, 1994, 2007, and 2010
- Many tribal disputes for varying reason and rebels conflicts, fighting and wars, e.g. 1983- Southern Sudan SPLA fighting, 1986 Toloshi war, 1996 Yousif Kowa fighting, and 2003 Darfur conflicts and impact.
- There was too much rain and flooding 1988
- The district inhibited with fatal diseases (malaria, meningitis, cholera, etc.) 1982 Cholera, 1985 meningitis, and malaria which was an everyday disease for both settlers and nomads.
- Migration and displacement of 1984 famine and desertification, 1986, 1989 and 1996 South Kordofan fighting and wars, 2004 and 2005 Darfur crises have had varying impacts on the residents of the locality.

Table 4.2.1: distribution and frequencies of respondents by types and effects of crises

Variables	Frequencies of respondents types and effects of crises	
	First term (1981- 1995)	Second term (1996- 2010)
climatic change / little or no rain	150	150
famine and/or starvation	150	150
socio-economic changes/ fighting	150	150
migration/ displacement	150	150
socio-political changes	150	150

Source: field survey 2014

Reference to responses of all interviewed respondents all answered that crises in different categories; climate change / little or no rain, famine and/or starvation, socio-economic changes including tribal inflicts and fighting, migration/ displacement, and socio-political changes have hit the locality and impacted on their livelihoods. The cross-tabulation of the responses of crises in the first and second periods (1981-1995) and (1996-2010) revealed that all respondents were in full agreement that the locality experienced a range of varying types of crises.

4.2.2 Impacts

Respondents believed crises; drought and conflicts had serious impact on human, livestock, assets and living status over the two periods. The impacts grouped and summarized as:

- Death of humans; child mortality, mother mortality, death of elderly, and the death of combatants as well as death of hungry people.

- Social disorders; (separations, divorce, family breakdown, displacement, migrations)
- Economical loses; reduction in farm production, death of livestock, loss of properties, complete destruction of infra-structure
- Ecological destructions; little or no rain, drought, desertification, Veld fires outbreak, flooding,
- Socio-political changes; new generations for change; new admin units, new political parties, tribal conflicts, fighting and wars, etc.

Table 4.2.2: distribution and frequencies of respondents by on how crises (drought and conflicts) have negative impact

Variables	Frequencies of respondents on how crises (drought and conflicts) have negative impact	
	First term (1981- 1995)	Second term (1996- 2010)
death of humans	150	150
social disorders	150	150
economical loses	150	150
ecological destructions	150	150
socio-political changes	150	149

Source: survey 2014

A comparative study on the impact of crises on the residents of *Al Goz* locality have been carried out by thrashing responses over the two periods and found that 100% of respondents in first period and 99% of the second have ticked all mentioned crises/variable that affirmed, crises have seriously affected the assets and living standard of population of the study.

Impacts of crises have also been discussed under a number of factors; of productive family members, main source of income, trading, farming both crop and livestock, and precious belongings as in following accounts:

4.2.2.1 Productive Family Members

Productive family members are those who contributed actively in all economical and social activities. The questionnaires examined who in charge of the family in the two periods (1981-1995) and (1996-2010).

Table 4.2.2.1: Distribution and frequencies of respondents by Productive family members

Variables	Productive family members in first term of the study		Productive family members in second term of the study	
	Frequency	Percent	Frequency	Percent
male/s	77	51.3	13	8.7
female/s	17	11.3	3	2.0
male/s and female/s	44	29.3	12	8.0
all family members including children	12	8.0	122	81.3
Total	150	100.0	150	100.0

Source: *survey at Al Goz locality 2014*

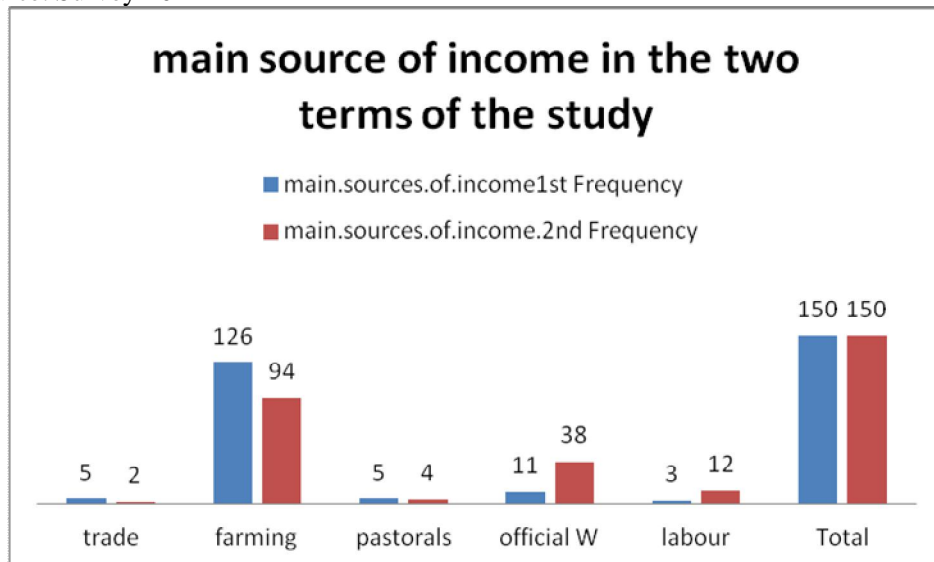
Out of the 150 respondents, the frequencies and graph below showed that males were always dominant in supporting and heading the family in the early eighties (77) and a mixture of males/females are the second (44), and women/females alone were only 17 respondents in the first period (1981-1995). The second period (1996-2010) and due to hardship of the drought and conflicts the family had to go in productive activities to maintain itself and it is found that the variable; all family members including children, had got the maximum responses 122 of the total 150 responses. This meant that adults male and females and children were grouped to work and find a solution to satisfy their family basic needs.

4.2.2.2 Main Source of Income

Table 4.2.2.2: Distribution and frequencies of respondents by % of main source of income in 2 periods

Variables	main.sources.of.income1st Frequency	main.sources.of.income.2nd Frequency
Trade	5	2
Farming	126	94
Pastorals	5	4
Official work	11	38
Labour	3	12
Total	150	150

Source: Survey 2014



Graph 4.2.2.2: comparison between % of main source of income in first and second periods--- Source: Survey 2014

The table 4.2.2.2 It appeared that farming was the main choice for almost all respondents as there're 126 of 150 in the first period and 96 of 150 respondents in the second. The only new thing is that after crises impacted on the livelihoods, residents adopted new strategies for survival and the official work became a priority 38 after farming and a few people went for labour work–12 in the second period (1996- 2010) as compared to 11 and 3 in the first period.

4.2.2.3 Trading

Table 4.2.2.3: Distribution and frequencies of respondents by trading in 2 periods Statistics:

	in case of trading 1 st period	In case of trading 1 st period	In case of trading 2 nd period	In case of trading 2 nd period			i in case of trading 1 st period	In case of trading 2 nd period
variables	Frequency	Percent	Frequency	Percent	N	Valid	150	150
none	136	90.7	131	86.7		Missing	0	0
petty trading	9	6	13	9.3	Mean		1.127	2.17
mobile trading	5	3.3	6	4	Median		1	2
Total	150	100	150	100	Mode		1	2
					Std. Devn		0.422	0.469

The study found that residents were not encouraged to do trading over 86% respondents in the two periods answered no trading activities taking place even the few percentages 6% and 9.3% were for petty trading and largely newcomers in town with experience from the areas of origin. Trading in *Al Goz* locality was very insignificant less than 0.5.

4.2.2.4 Farming

Farming as termed as Agricultural production of crops and vegetable as understood by the respondents was a major means of living for most of the population of Al Goz locality. It was the main choice for almost all respondents as there were 84% in the first period and 64% in the second who chose to pick crop production as a mean source of income.

4.2.2.4.1 Crop and Vegetable Production

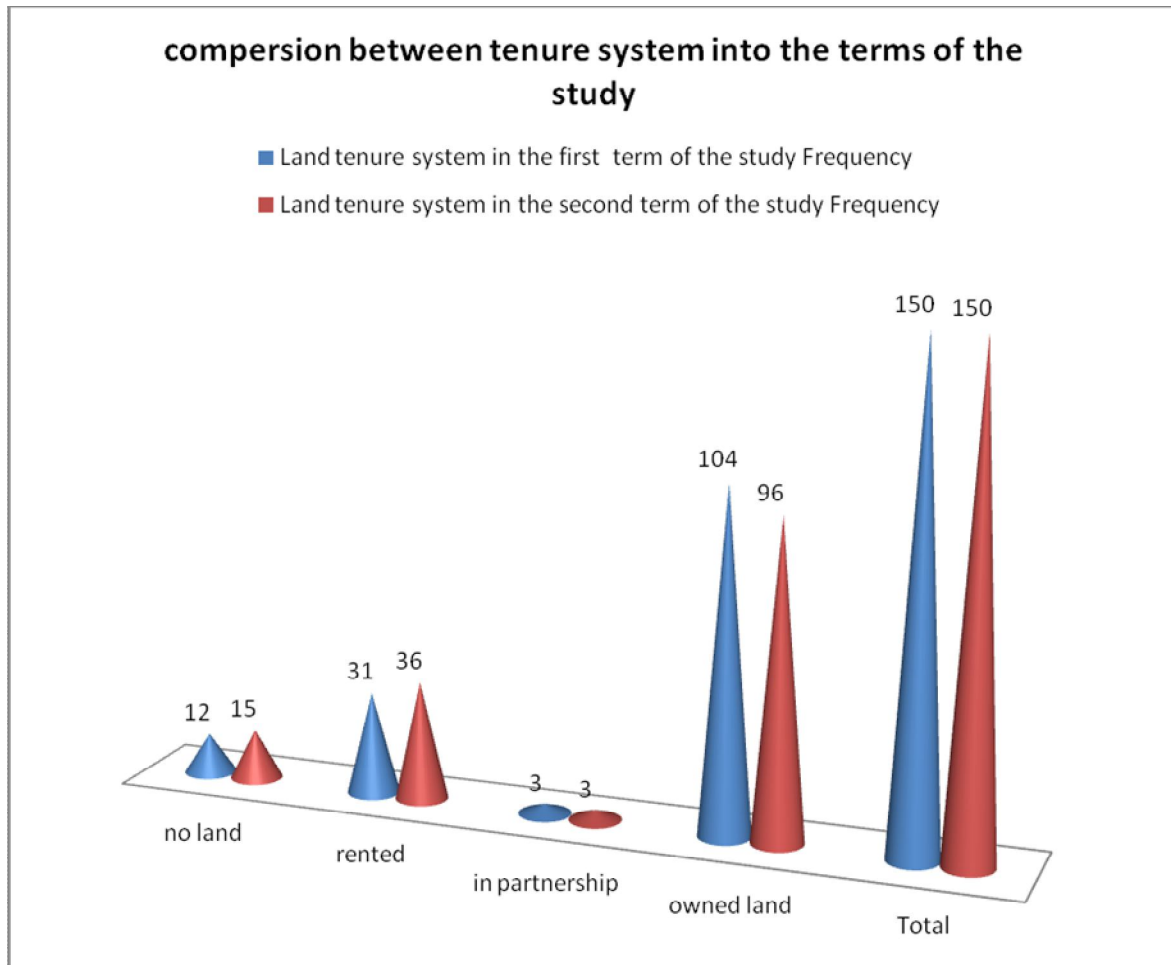
1. Land tenure

Table 4.2.2.4.1.1: Distribution and frequencies of respondents by land ownership in two periods

Variables	frequencies	
	Land tenure system in the first term of the study	Land tenure system in the second term of the study
no land	12	15
rented	31	36
in partnership	3	3
owned land	104	96
Total	150	150

Source: Survey 2014

Most respondents were holding land title deeds; as it appears in the **Table 4.2.2.4.1.1:** Distribution and frequencies of respondents by land ownership in two periods. 104 respondents owned land in the first period of (1981-1995) and the number reduced to 96 in the second period of the study (1996-2010)



Graph 4.2.2.4.1.1: a comparison on land ownership in the two periods of the study --Source: Survey 2014

The graph **4.2.2.4.1.1:** a comparison on land ownership in the two periods of the study shows that most respondents were holding land title deeds; 104 respondents owned land in the first period of (1981-1995) and the number reduced to 96 in the second period of the study (1996-2010).

A few respondents were having no access to land 12 in the first and 15 in the second period. Some farmers got to rent land for farming 31 and 35 respondents in the two periods respectively, those farmers were likely to be displaced or migrated to Al Goz locality from neighboring localities or States after the drought of 1984 and/or South Kordofan and Darfur crises.

4.2.2.4.1.2 Living in/off the farm

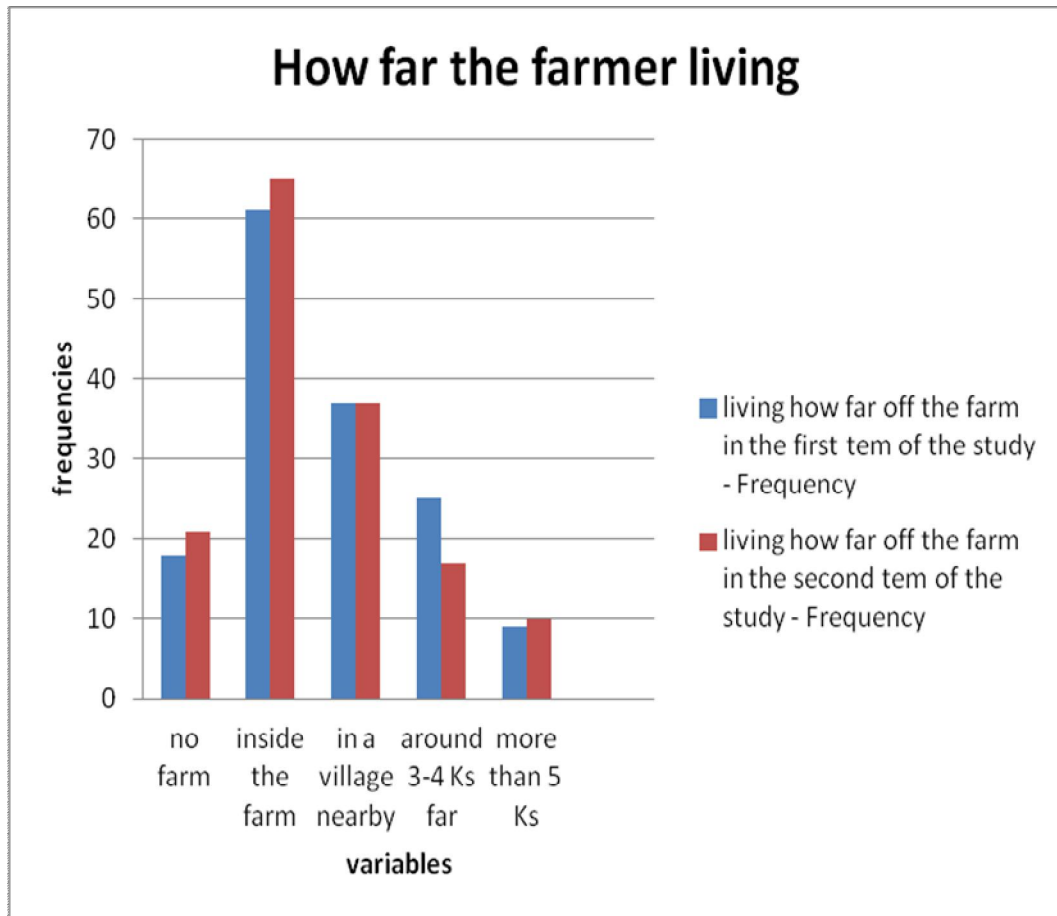
This test examined how far the farmer was living off his/her farm. The nearer the residence of the farmer, the maximum input in the farming processes and more production is gained. the test designed in the residence variable was; no farm, inside the farm, in a village or twon nearby, around 3-4 Ks, and living more than 5 Ks off the farm.

4.2.2.4.1.2: Distribution and frequencies of respondents by Living in/off the farm in 2 periods

	living how far off the farm in the first tem of the study	living how far off the farm in the second tem of the study
variables	Frequency	Frequency
no farm	18	10
inside the farm	61	21
in a village nearby	37	65
around 3-4 Ks far	25	37
more than 5 Ks	9	17
Total	150	150

Source: survey 2014

The **4.2.2.4.1.2:** Distribution and frequencies of respondents by Living in/off the farm in 2 periods shows that to monitor of agricultural processes and maximize farming production, many farmers opted to live in the farm 61 and 21 respondents in the two periods (1981-1995) and (1996-2010) respectively



Graph 4.2.2.4.1.2: cross tabulation of distribution and frequencies of respondents by Living in/off the farm in 2 periods

Source: Survey 2014

The graph 4.2.2.4.1.2: cross tabulation of distribution and frequencies of respondents by Living in/off the farm in 2 periods shows that only those who have arrived to the loccality late 80s and 90s were to live very far off farm (more than 5 Ks) 9 and 17 respondents in the first and second periods respectively.

4.2.2.4.1.3 Areas ploughed

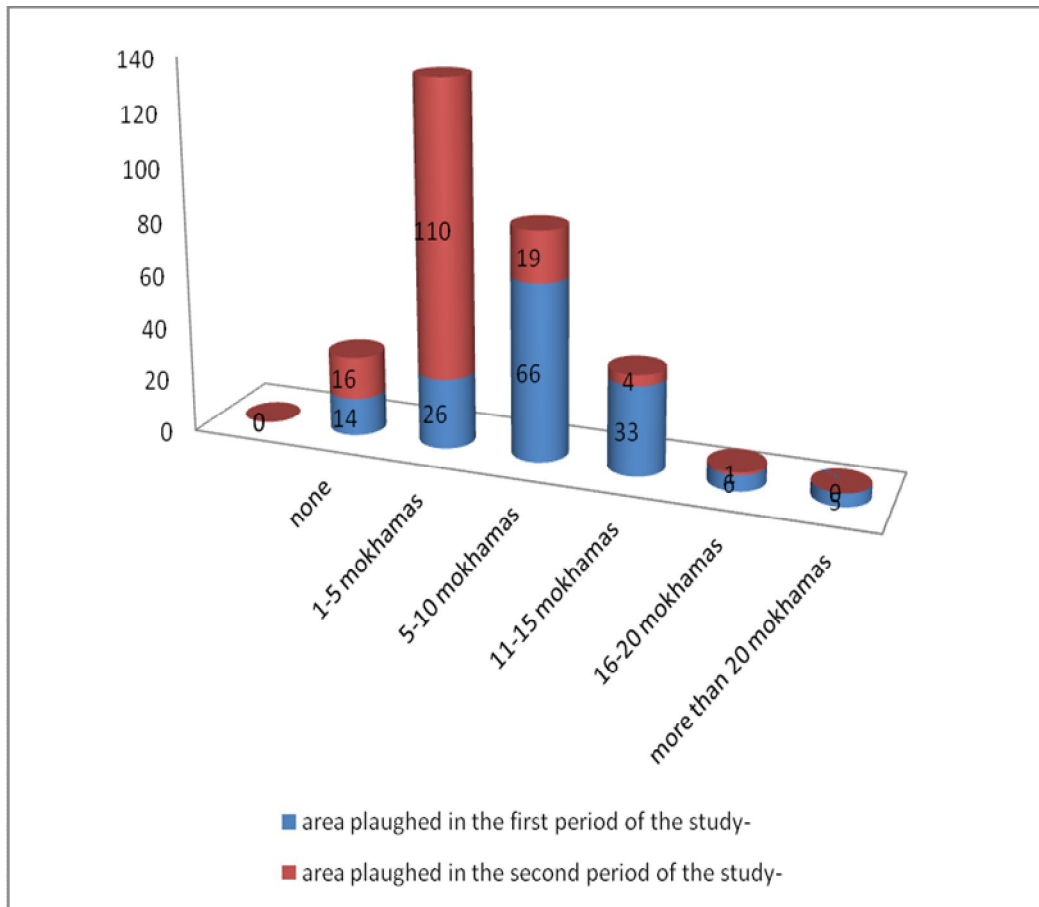
This section tested how big or small cultivation area ploughed by respondent farmer and how the size of ploughed land is affected by the crises in the time scope of the study. variable were taken as none, 1 to 5, 6- 10, 11- 15, 16-20, and more than 20 Mokhamas. Descriptive statistics of the first term showed that 26 respondents used 1-5 Mokhamas, 66 ploughed 6-10, 33 ploughed 11-15, 6 ploughd 6, and 5 ploughed mone than 20 Mokhamas.

Table 4.2.2.4.1.3: Distribution and frequencies of respondents by area ploughed in 2 periods

Variables	area ploughed in the first period of the study	area ploughed in the second period of the study
	Frequency	Frequency
none	14	16
1-5 mokhamas	26	110
5-10 mokhamas	66	19
11-15 mokhamas	33	4
16-20 mokhamas	6	1
more than 20 mokhamas	5	0
Total	150	150

Source: Survey 214

The table 4.2.2.4.1.3: Distribution and frequencies of respondents by area ploughed in the two periods shows that 5 respondents are growing crops in land more than 20 mokhamas. The frequencies of respondents' ploughed large areas in the first period of the study (1981-1995) are bigger than that of the second period (1996-2010).



Graph 4.2.2.4.1.3: Distribution and frequencies of respondents by area ploughed in 2 periods
 Source: Survey 2014

The graph 4.2.2.4.1.3: Distribution and frequencies of respondents by area ploughed in 2 periods in the contrary, shows that 110 respondents ploughed 1-5 Mokhamas, 19 ploughed 6-10, 4 ploughed 11-15, 1 ploughed 16-20, and no one was in the category of more than 20 mokhamas. this explains that the size of the farm per respondent is much more bigger in the first period than in the second. Despite the fact that farming is a major economic contributor for the families in the two periods, the crises forced residents of *Al Goz* locality to shrink farm size and rely may be on other livelihood mechanisms.

4.2.2.4.1.4 farm implements used

Table 4.2.2.4.1.4: Distribution and frequencies of respondents by Farm implements used in 2 periods

Variables	Farm implements used in the first period of the study	Farm implements used in the second period of the study
	Frequency	Frequency
none	12	14
traditional farming tools	135	135
modern farming machine and tools	2	0
traditional and modern farming equipment	1	1
Total	150	150

Source: Survey 2014

The questionnaire requested information from respondents regarding farm equipment used in the two periods and how that is affected by the crises. variables were set up as; none, traditional farming tools, modern farm machines, and combination of traditional and modern farm implements. the **4.2.2.4.1.4:** Distribution and frequencies of respondents by Farm implements used in the two periods showed that respondents (135 in each of the two periods) which 90% of respondents were entirely depending traditional farming equipment such as axes, digging hoes, spades, shovels and rakes Mattocks, pickaxes, ploughs and rototillers, etc as detailed in the table only two respondents used a combination of traditional and modern farm implements.

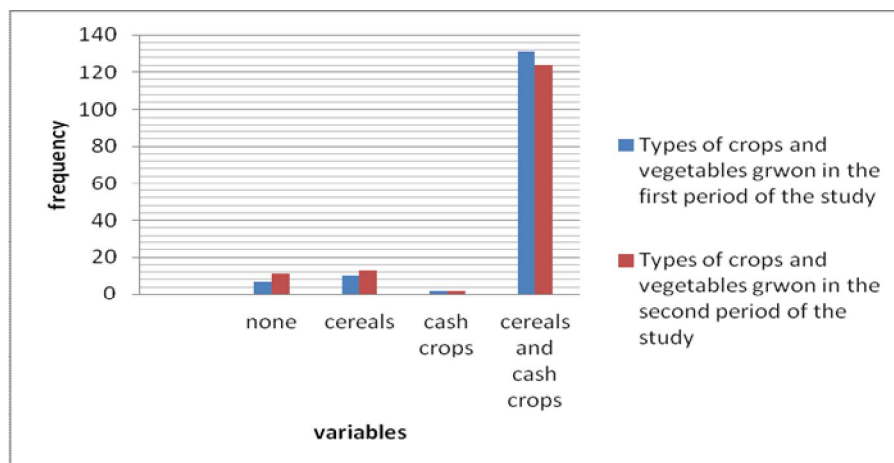
4.2.2.4.1.5 Types of crops and vegetables grwon

The questionnaire focused on types of crops grown by the respondent farmers using variables; none, cereals such as millet and sorghum, cash crops that represent ground nuts, sesame, beans, hibiscus, okra and other vegetables, and a combination of cereals and cash crops.

Table 4.2.2.4.1.5: Distribution and frequencies of respondents by Types of crops and vegetables grwon in 2 periods

Variables	Types of crops and vegetables grwon in the first period of the study		Types of crops and vegetables grwon in the second period of the study	
	Frequency	Percent	Frequency	Percent
none	7	4.7	11	7.3
cereals	10	6.7	13	8.7
cash crops	2	1.3	2	1.3
cereals and cash crops	131	87.3	124	82.7
Total	150	100.0	150	100.0

Source: Survey 2014



Graph 4.2.2.4.1.5: Distribution and frequencies of respondents by Types of crops and vegetables grwon in 2 periods

Table 4.2.2.4.1.5 and graph Graph 4.2.2.4.1.5: Distribution and frequencies of respondents by Types of crops and vegetables grwon in 2 periods show that

types of crops grown by respondents did not vary much in the two periods. 131 and 124 respondents of the two periods were growing cereals and cash crops. This tells that the majority of farmers ought to grow cereals; millet, sorghum, maize and vegetables as staple food and cash crops; ground nuts, sesame, and hibiscus for getting cash to supplement in family basic needs.

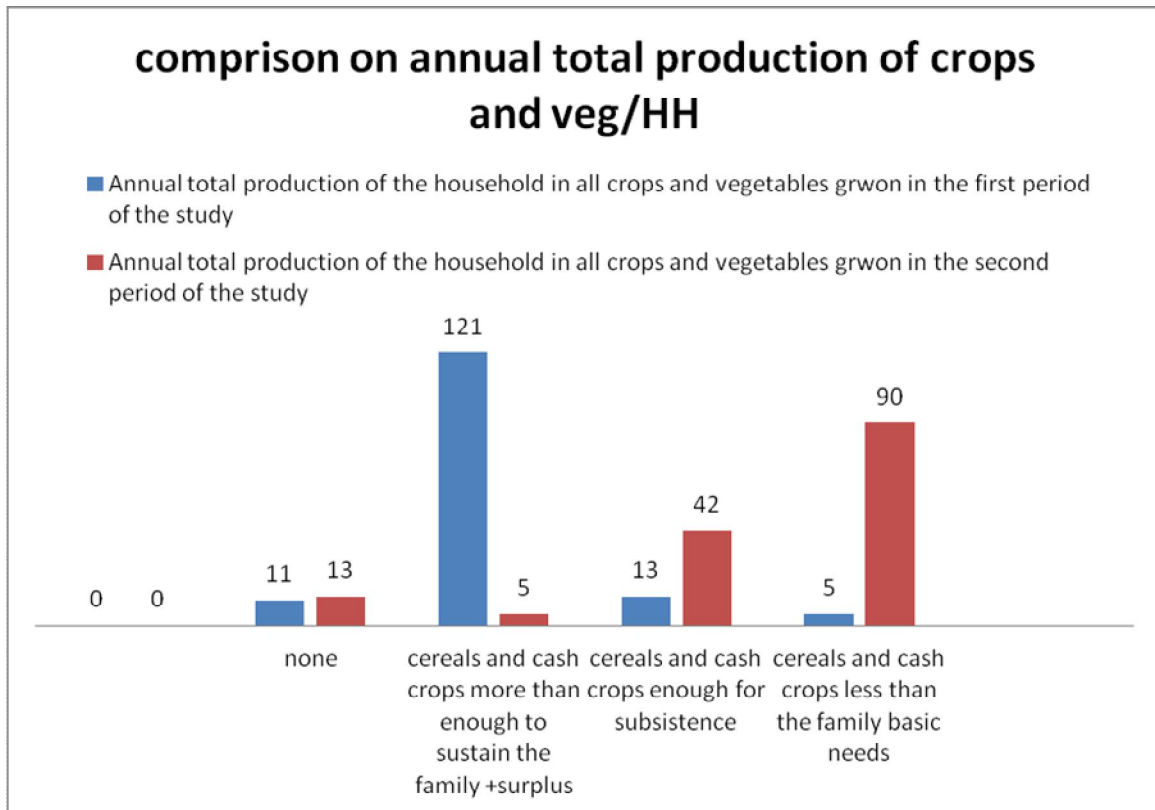
4.2.2.4.1.6 Annual total production of the household in all crops and vegetables

The annual total production of crops and vegetables examined under the following variables; none, cereals and cash crops more than enough to sustain the family + surplus, cereals and cash crops enough for subsistence, and cereals and cash crops less than the family basic needs.

Table 4.2.2.4.1.6: Distribution and frequencies of respondents by Annual total production of the household in all crops and vegetables grown in 2 periods

Variables	Annual total production of the household in all crops and vegetables grown in the first period of the study		Annual total production of the household in all crops and vegetables grown in the second period of the study	
	Frequency	Percent	Frequency	Percent
none	11	7.3	13	8.7
cereals and cash crops more than enough to sustain the family +surplus	121	80.7	5	3.3
cereals and cash crops enough for subsistence	13	8.7	42	28.0
cereals and cash crops less than the family basic needs	5	3.3	90	60.0
Total	150	100.0	150	100.0

Source: Survey 2014



Graph 4.2.2.4.1.6: Distribution and frequencies of respondents by Annual total production of the household in all crops and vegetables grwon in 2 periods

This section tells exactly how people have been affected by conflicts and waves of drought in the district of the study. In the first period (1981 -1995), with exception to the years of the famine 1983-1984, crops productivity was more than satisfactory for the family. Table 4.2.2.4.6: and graph 4.2.2.4.6 Distribution and frequencies of respondents by Annual total production of the household in all crops and vegetables grwon in 2 periods show that 121 respondents over 80% were producing cereals and cash crops more than enough to sustain the family + surplus and only 5 respondents 3.33% were having that privilege in the second period of (1996- 2010). It is very clear how tough the situation was on the farmers' lives as there were 90 respondents producing cereals and cash crops less than the family basic needs in second term.

4.2.2.4.1.7 Livelihood assets and Strategies

The analysis of farming was in terms of land tenure, residence in and/or off the farm, area ploughed, crops and vegetables produced and annual total production of crops and vegetables per family in the two periods (1981- 1995) and (1996-2010).

Table 4.2.2.4.1.7: Descriptive statistics of Livelihood assets and Strategies affected by crises in two sets of the study

✓ **1981-1995**

		Land tenure 1st	Living how far off farm 1st	Area ploughed 1st	Farm implements 1 st	Crops&vegetables produced 1st	Annual total production of family in all crops/veg. 1st
N	Valid	150	150	150	150	150	150
	Missing	0	0	0	0	0	0
Mean		3.33	2.67	3.04	1.95	3.71	2.08
Median		4	2	3	2	4	2
Mode		4	2	3	2	4	2
Std. Deviation		1.06	1.12	1.11	0.34	0.79	0.54
Sum		499	400	456	292	557	312

✓ **1996-2010**

		Land tenure 2nd	Living how far off the farm 2nd	Area ploughed 2 nd	Farm implements 2 nd	Crops &vegetables produced 2nd	Annual total production of family in all crops/veg. 2nd
N	Valid	150	150	150	150	150	150
	Missing	0	0	0	0	0	0
Mean		3.2	2.53	2.09	1.92	3.59	3.39
Median		4	2	2	2	4	4
Mode		4	2	2	2	4	4
Std. Deviation		1.12	1.08	0.63	0.34	0.93	0.91
Sum		480	380	314	288	539	509

Source: Survey 2014

Table 4.2.2.4.1.7: Descriptive statistics of Livelihood assets and Strategies affected by crises in two periods of the study shows that reactions of all respondents to questions of effects of drought and conflicts were negative where the standard deviation ranges between +1 and 0.54 except in the farm implements where it seems the responses given tended towards the zero point in the standard deviation measurement in the two periods and therefore shows no even spread of data.

4.2.2.4.2 Animal Husbandry.

The residents of *Al Goz* locality were largely agro-pastoralists who grow crops and keep livestock. Animal husbandary represents a major contributor to the wellbeing of their community. the research questioned how this sector been affected by drought and conflicts in two sets of periods (1981-1995) and (1996-2010). The questionnaire tested a number of variables, (horses, donkey and moals), goats, sheep, cows, camels, and precious belongings. Each variable then later discussed separately in the two periods, i.e. the production/loss of goats, for example, in the first period was examined and compared to that of the second periods.

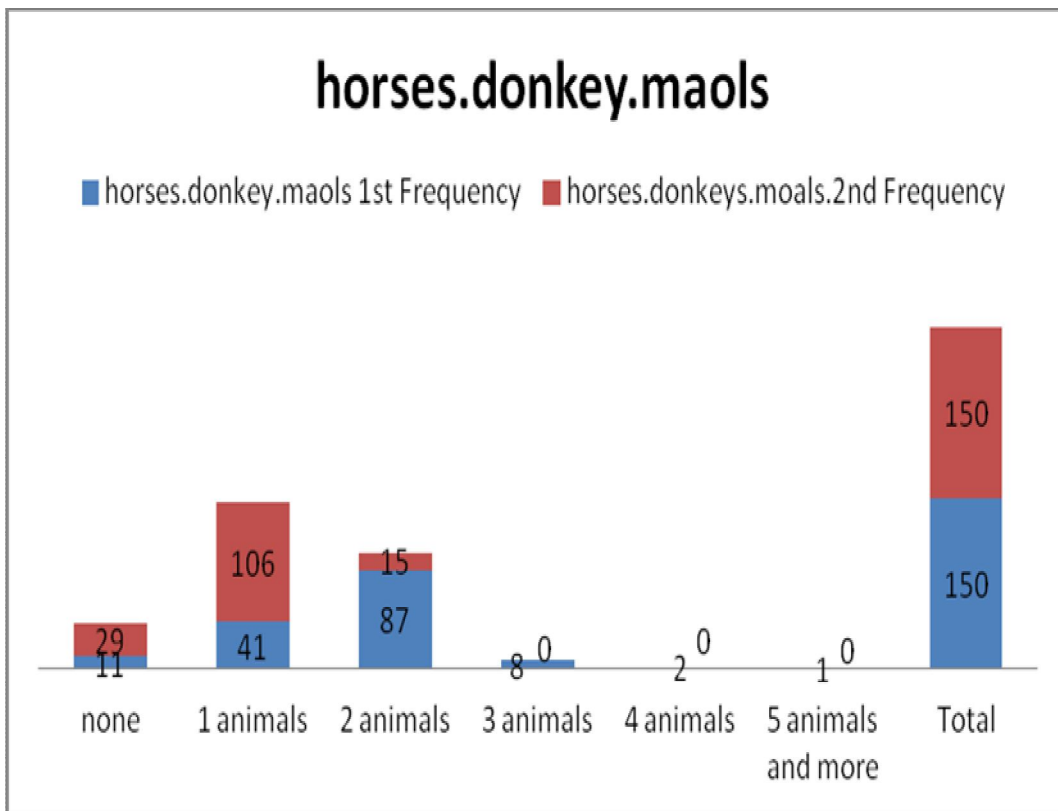
4.2.2.4.2.1 Horses, donkeys and moals

The questionnaires started by checking on animals used for transportation and tracking of farm implements such as horses, donkeys and moals. Respondents were asked to list how may animals they owned in each period of the study (1981-1996) and (1996- 2010).

Table 4.2.2.4.2.1: Distribution and frequencies of respondents by animals used for transportation and tracking of farm implements in 2 periods

Variables	animals used for transportation and tracking of farm implements in the first period of the study		animals used for transportation and tracking of farm implements in the second period of the study	
	Frequency	Percent	Frequency	Percent
none	11	7.3	29	19.3
1 animal	41	27.3	106	70.7
2 animals	87	58.0	15	10.0
3 animals	8	5.3	0	0.0
4 animals	2	1.3	0	0.0
5 animals and more	1	0.7	0	0.0
Total	150	100.0	150	100.0

source: Survey 2014

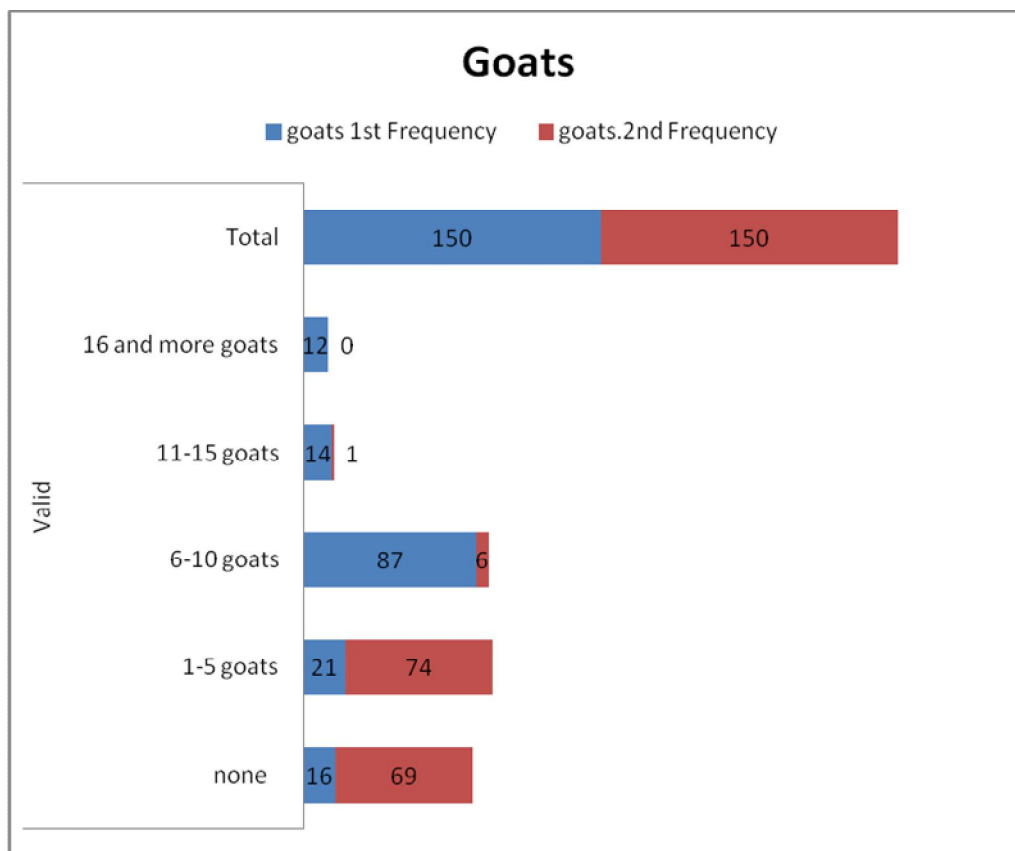


Graph 4.2.2.4.2.1 Distribution and frequencies of respondents by animals used for transportation and tracking of farm implements in 2 periods. Source: Survey 2014

The study found that respondents were having animals in the first term (blue) in below graph as compared to a few number animals in the second term (brown). There were 93% of respondents who were using animals ranging from 1 to 5 per household in the first period compared to that of 81% of respondents on the second period and even though those who were using animals in the second period were always having 1 or 2 animals maximum. this proves that due to drought the number of animals used by household reduced drastically.

4.2.2.4.2.2 Goats

Goats were taken as a factor that governs the impact of crises on 150 selected respondents. Variables; none, 1-5 goats, 6-10 goats, 11-15 goats, and 16 and more goats were used to examine the impact on goats production in the two periods (1981-1995) and (1996- 2010).



Graph 4.2.2.4.2.2 Distribution and frequencies of respondents by number of goats owned in 2 periods

The study reflected that 124 respondents of the first period were having goats compared to only 81 respondents of the second term. The number of goats owned by households, 11- to- 16 and more goats, in the first period for 36 respondents was bigger than that of second period where only one (1) respondent had the same number of goats. Below graphs gives more details on goats numbers per household.

4.2.2.4.2.3 Sheep

The questionnaire examined how the crises impacted on herding of sheep owned by a farmer through variables of; none, less than 25 sheep, 26-50 sheep, 51-75 sheep, more than 76 sheep. Sheep rearing was not across every family priority as a livelihood mechanism only a few people, in fact males, in the district were shepherds.

Table 4.2.2.4.2.3: Distribution and frequencies of respondents by number of sheep owned in 2 periods

Variables	number of sheep owned in the first period of the study		number of sheep owned in the second period of the study	
	Frequency	Percent	Frequency	Percent
none	105	70.0	139	92.7
less than 25 sheep	15	10.0	10	6.7
26-50 sheep	20	13.3	1	0.7
51-75 sheep	5	3.3	0	0.0
more than 76 sheep	5	3.3	0	0.0
Total	150	100.0	150	100.0

source: Survey 2014

Rearing of sheep is considered as wealth and prestige rather than a means for survival. That is why a total of 105 and 139 responses were negative (none) in the two periods (1981-1995) and (1996-2010) respectively. Even though, the crises have negatively impacted on the production of sheep, as illustrated in the graph below a total of 40 respondents of the first period were owning sheep with varying numbers per family compared to only 11 responses in the second period. This justifies that drought and conflicts have negatively impacted on sheep production by reducing the number of sheep owners as well as number of sheep per HH owned.

4.2.2.4.2.4 Cows

the study examined animal production of cows as a measurement of the impact of the drought and conflicts in the two periods (1981-1995) and (1996-2010) per following variable: none, 1-15, 16-30, 31-45, and 46 and more cows. Due to climatic conditions, the threat attached to having such wealth, and the culture of the residents of *Al Goz* locality, a few respondents viewed as cattle headers. Cows need plenty of forage, concentrated feeds, medications and lots activities to help maintain the herd.

Table 4.2.2.4.2.4: Distribution and frequencies of respondents by number of cows owned in 2 periods

Variables	number of cows owned in the first period of the study		number of cows owned in the second period of the study	
	Frequency	Percent	Frequency	Percent
none	91	60.7	136	90.7
less than 15 cow	28	18.7	13	8.7
16-30 cows	23	15.3	1	0.7
31-45 cows	5	3.3	0	0.0
more than 46 cows	3	2.0	0	0.0
Total	150	100.0	150	100.0

Source: Survey 2014

Since rearing of cattle demands that much, people avoided keeping cows (14 respondents owning cows in the second compared to 59 in the first period). 9 % the graphs tells that only 9% of the respondents were keeping cows in the second period compared to 39% of all respondents in the first period.

4.2.2.4.2.5 Camels

Table 4.2.2.4.2.5: Distribution and frequencies of respondents by number of camels owned in 2 periods

Variable	number of camels owned in the first period of the study		number of camels owned in the second period of the study	
	Frequency	Percent	Frequency	Percent
none	143	95.3	150	100.0
one camel	3	2.0	0	0
two camels	3	2.0	0	0
4 camels and more	1	0.7	0	0
Total	150	100.0	150	100.0

Source: survey 2014

Despite the fact that Al Goz is a sandy semi-arid land, keeping camels, was restricted to the use of camels for tracking farm implements, transportation and using of the camel for drawing/ rotating the oil extractor machine. All the 150 respondents in the second period were not using camels and only 7 in the first period owned a few camels. The graph gives more clarification of the effect of drought and conflicts on camel herding.

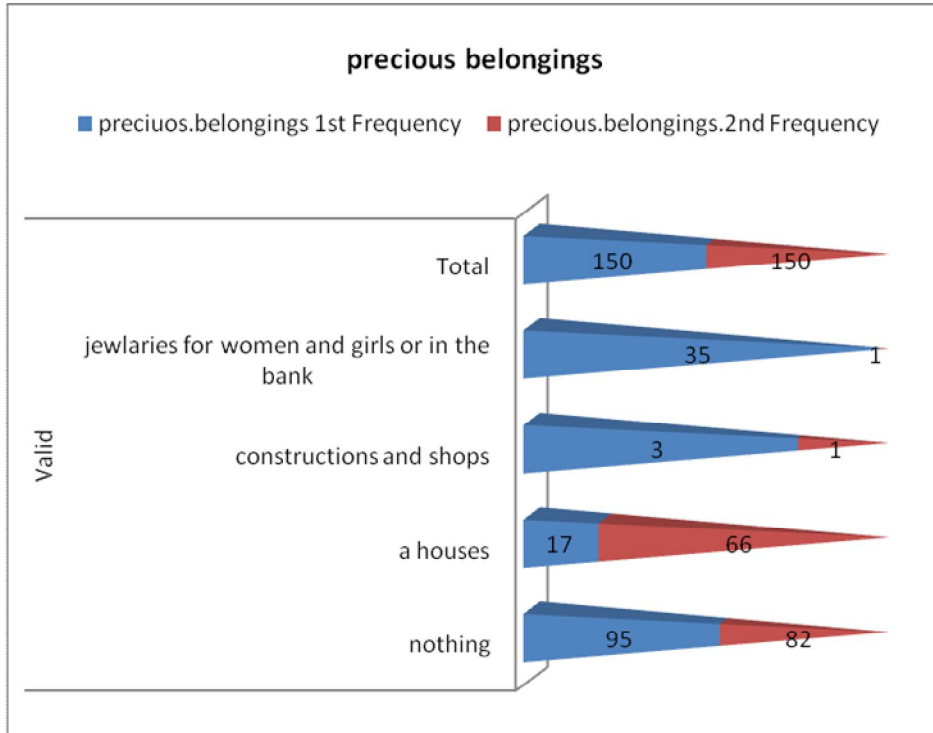
4.2.2.5 Precious Belongings

The test was on how luxury stuff in the house is also been affected with changes in living style and competing circumstances. Respondents were asked to give account on their belonging in the two periods; (1981-1995) and (1996-2010) using variables of; nothing, a houses, constructions and shops, and jewelries for women and girls or in the bank.

Table 4.2.2.5: Distribution and frequencies of respondents by having precious belongings in the 2 periods of the study

Variables	frequencies of precious belongings per respondent in the first period	frequencies of precious belongings per respondent in the 2 nd period
nothing	95	82
a houses	17	66
constructions and shops	3	1
jewelries for women and girls or in the bank	35	1
Total	150	150

Source: Survey 2014



Graph 4.2.2.5: Distribution and frequencies of respondents by having precious belongings in the 2 periods of the study

The variable ‘nothing’ tells that respondents became destitute and lost everything, was very obvious in the responses (63% and 55%) in the two periods respectively. Women are so hit as all jewelries and gold were sold out or stripped during times of famine and/or wars. There is a new trend transformation that residents were to having proper settlement as seen in variable “a house”. The residents managed to secure a permanent residing venue for their family (66 respondents in the second period compared to 17 in the first). The diagram below gives more reading on the effects of hardship circumstances on residence of the area of the study. In the interviews, also respondents talked of having donkey carts as valuable assets for the family livelihoods.

A summary of effects of crises on Animal Husbandry in the two periods

Table 4.2.2.4.2: Descriptive Statistics summarizing Animal Husbandry in two periods

Statistics first period (1981-1995)							
		Horses, donkey & maols	goats	sheep	cows	camels	precious belongings
N	Valid	150	150	150	150	150	150
	Missing	0	0	0	0	0	0
Mean		2.68	2.9	1.6	1.67	1.087	2.09
Median		3	3	1	1	1	1
Mode		3	3	1	1	1	1
Std. Deviation		0.8	0.99	1.06	0.99	0.45	1.66
Sum		402	435	240	251	163	313
Statistics second period (1996-2010)							
		Horses, donkey & maols	goats	sheep	cows	camels	precious belongings
N	Valid	150	150	150	150	150	150
	Missing	0	0	0	0	0	0
Mean		2.68	2.9	1.6	1.67	1.09	1
Median		3	3	1	1	1	1.663
Mode		3	3	1	1	1	313
Std. Deviation		0.8	0.99	1.06	0.99	0.45	0.588
Sum		402	435	240	251	163	222

Table 4.2.2.4.2: Descriptive Statistics of Animal Husbandry in the two periods (1981- 19950) AND (1996- 20100 shown even distribution of all 150 responses except for the precious belongings in the first term where the responses tend to deviate of the normal distribution path which goes back to the fact that jewelry and gold were possessed by female respondents /categories only, and were put (not intentionally, in the lower part of the list in the SPSS table. this was not the case in the second term as very few women and girls possess precious belongings.

4.3 Gender Roles and Division of Labour

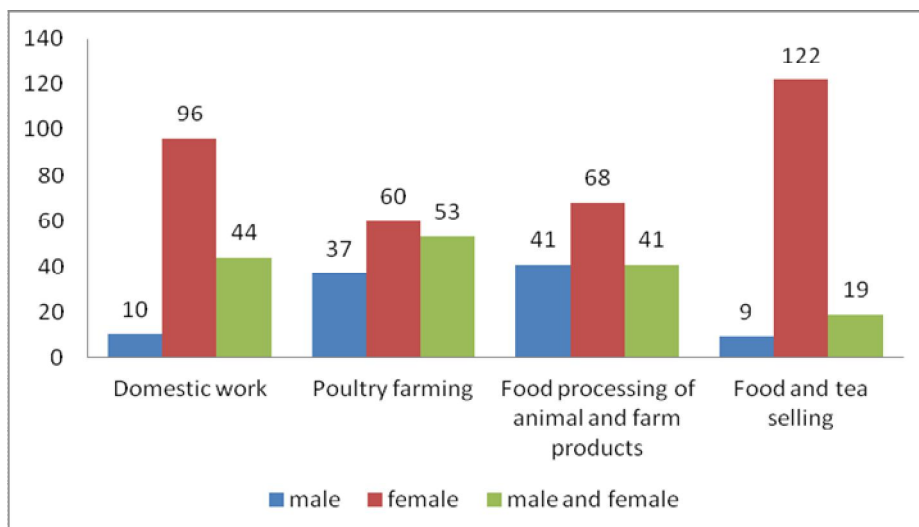
Two periods of time before and after inception of famine were used to investigate the general norms of respondents. The investigation was to answer two major research questions; **Respective to gender roles, how conflicts and continuous drought have affected the livelihood in the area of the study? And, as production system drastically changed, what type of activities adopted by gender to increase the incomes of the groups of the study.**

4.3.1 Gender division of labour- female livelihood activities

Table 4.3.1: Distribution and frequencies of respondents by labour division- female livelihood activities in the 2 periods of the study

variables	Domestic work	Poultry farming	Food processing of animal and farm products	Food and tea selling
male	10	37	41	9
female	96	60	68	122
male and female	44	53	41	19
Total	150	150	150	150

Source: Survey 2014



Graph 4.3.1: Distribution and frequencies of respondents by labour division- female livelihood activities in the 2 periods of the study

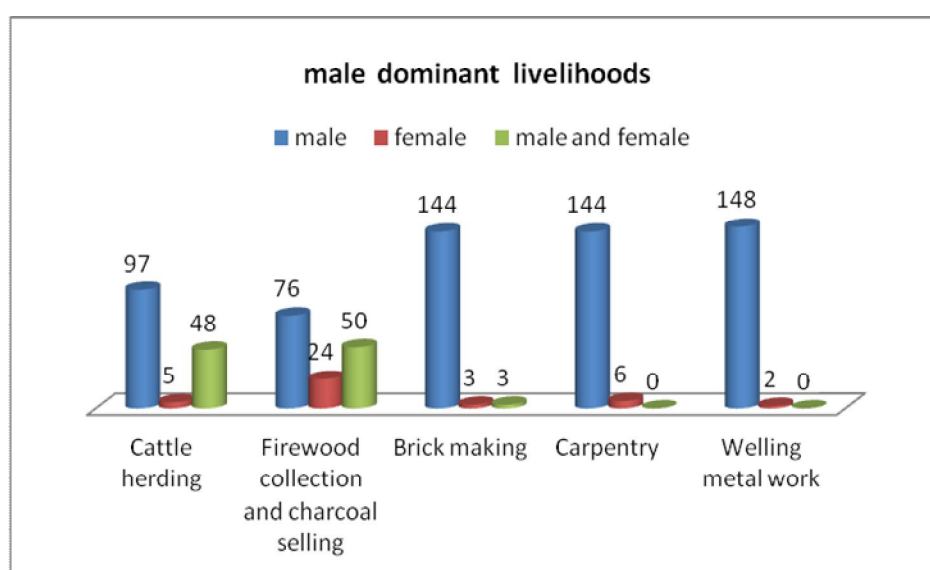
The respondents also discussed types of adopted activities by gender. It is found that there was a lot of gender stereotyping. Females were much linked to rearing of kids, domestic work, poultry farming/keeping food processing, and food and tea selling when the economic situation of the family deteriorated.

4.3.2 Gender division of labour- male dominant livelihood activities

Table 4.3.2: Distribution and frequencies of respondents by labour division- male dominant livelihood activities in the 2 periods of the study

variable	Cattle herding	Firewood collection and charcoal selling	Brick making	Carpentry	Welling metal work
male	97	76	144	144	148
female	5	24	3	6	2
male and female	48	50	3	0	0
Total	150	150	150	150	150

Source: Survey 2014



Graph 4.3.2: Distribution and frequencies of respondents by labour division- male dominant livelihood activities in the 2 periods of the study

The table and graph 4.3.2 Distribution and frequencies of respondents by labour division- female livelihood activities in the 2 periods of the study show that Males were associated with herding of cattle, firewood collection and selling, brick making, carpentry, welding & metal work, and casual labour.

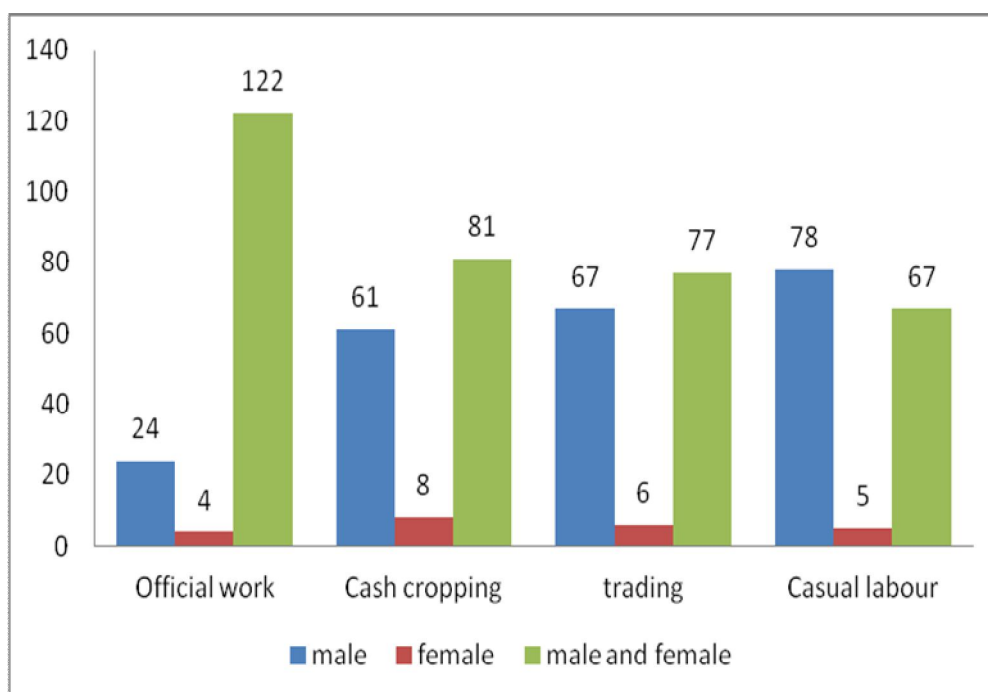
4.3.2 Gender division of labour- mixed sex livelihood activities

Table 4.3.3: Distribution and frequencies of respondents by labour division- mixes sex livelihood activities in the 2 periods of the study

Mixed gender work

variable	Official work	Cash cropping	trading	Casual labour
male	24	61	67	78
female	4	8	6	5
male and female	122	81	77	67
Total	150	150	150	150

Source: Survey 2014



Graph 4.3.3: Distribution and frequencies of respondents by labour division- mixes sex livelihood activities in the 2 periods of the study

The table and graph 4.3.3: Distribution and frequencies of respondents by labour division- mixes sex livelihood activities in the 2 periods of the study showed that there were some livelihood activities; official work, cash cropping, trading and casual labour became options for mixed sexes (both male and female).

Summary to respondents perception and division of labour

Table 4.3: distribution and frequencies of respondents' perception to gender roles

Gender	Variables and Frequency/gender of each variable													
	Rearing of kids & elderly	Cash cropping	Cattle herding	Poultry farming	Firewood-charcoal collection	Food processing	Brick making	carpentry	Wellington metal	trading	Official work	Casual labour	Food & tea selling	Rearing of kids
Male	10	6	61	98	37	76	41	144	144	148	67	24	78	9
Female	96	53	8	5	60	24	68	3	0	0	6	4	5	122
male/female	44	91	81	47	53	50	41	3	6	2	77	122	67	19
Total	150	150	150	150	150	150	150	150	150	150	150	150	150	150

The respondents also discussed types of adopted activities by gender. As discussed in previous paragraphs Gender division of labour, table 4.3: distribution and frequencies of respondents' perception to gender roles shows that there was a lot of gender stereotyping. Females were much linked to rearing of kids, domestic work, poultry farming/keeping food processing, and food and tea selling when the economic situation of the family deteriorated. Due to trainings and awareness raising sessions implemented by humanitarian organizations and agricultural extension personnel the image these days have changed to some extent to favour females.

4.4. Gender Roles:

Table 4.4: distribution and frequencies of respondents' perception to gender roles

Terms of the study	answers	Variables/ Frequencies of responses									
		Total active Females more than that of Men	Different jobs assigned to Female and Male	Men own wealth, land, and agric inputs	Female do unpaid work	Female load of work is more than Male	women are property of Men	Education & capacity building do not target women	Female participation in development is not clear	Financial rewards of work not of importance to female	Female banned of decision making.
1st (1981 - 1995)	True	56	99	139	136	73	90	91	126	100	108
	False	94	51	11	14	77	60	59	24	50	42
	Total	150	150	150	150	150	150	150	150	150	150
2nd (1996 - 2010)	True	119	87	82	103	84	32	17	49	30	29
	False	31	63	68	47	66	118	133	101	120	121
	Total	150	150	150	150	150	150	150	150	150	150

Source: survey 2014

To understand people perception to gender roles over the two periods (1981-1995) and (1996-2010), the study further investigated how respondents perceive types of duties and livelihood activities performed by each gender and how that have changed according to timeframes of crises.

A simple test is made to identify the responses of respondents by (True or False) responding to 10 statements; Total number of active females is than males, males and females are assigned for different types of jobs/work, Men and boy have authority and property (constructions, farms and livestock), Women and girls were assigned for unpaid labour such as child care and house work, Women load of work is greater than men, Women are men's property, Education, capacity building and economical empowerment are programmes targeting men only, Women participation in decision making is not important, Financial rewards for women's work is insignificant, and Women are banned to participate in decision making.

The study found that a lot of positive change in the perception of both male and female to new gender roles has taken place in the community. After crises (second term of the study), the study shown that women have no boundaries any longer to any type of job as detailed in **table 4.4:** distribution and frequencies of respondents' perception to gender roles. This tells that respondents have learnt the hard way- by trial and error, and managed to cope with new tough living situations.

4.5 Extension Service in the Locality

The 230 respondents; 150 Questionnaires, (10 FGDs X 6 members) and 20 interviews touched on major problems in the locality including extension services. The study revealed that there was very little extension work in the district in the last 30 years. The extension services were concentrated in the big town of Dubeibat and surrounding villages. the extension work focused on provision of technical packages; seeds tools distributions, awareness raising and capacity building in farming processes techniques, soil management, seed dressing, fertilization, forestry, environmental science, fodder and pasture, animal husbandry, resistant and early maturing varieties, water harvest, and establishing and supporting of farmers' cooperation associations.

The expansion in extension services was blocked by many factors; security, transportation, funding, and manpower. That is why the services were concentrated on traditional extension approached e.g. farm visit, supporting of powerful figures, giving more roam for cash crops, and ignoring the social work.

4.6A Problem tree Analysis discussing the Crises and impacts

Reference to **Table 1.5**: Independent and dependant variables of the study, the study proposed a number of variables (Independent and dependent):

- Conflicts and insecurity led to; reduction and/or in food production, income – earning activities, area and availability of land, greasing area, water resources for (animals and humans), social entitlements, social inequality/ equality
- Drought and desertification led to: lowering of crops quality/ quantity, increase in food prices, loss of diary animals and livestock, problem in labour market, increase in rapid or organized migration of people, and loss of income
- post conflict/ drought changed the nature of coping strategies employed by males and females in the area

This section gives details on Analysis of Crises and impact on the livelihood activities and coping mechanism adopted by the 230 respondents of the study; 150 questionnaires, 20 interviewees, and 60 respondents in 6 focal group discussions. This is in relation to dependent and independent variables stated in page 6; **Table 1.5**: Independent and dependant variables of the study. The diagram shows that many causes of crises (drought and conflicts) and return crises have adversely affected respondents' living standards in many ways. During the course of the study timeframe, respondents and affected population have managed to cope with the shocks and devised new strategies for survival as detailed in the following **diagram 4.6: a problem tree** below:

Dependant and independent variables discussed in a problem tree

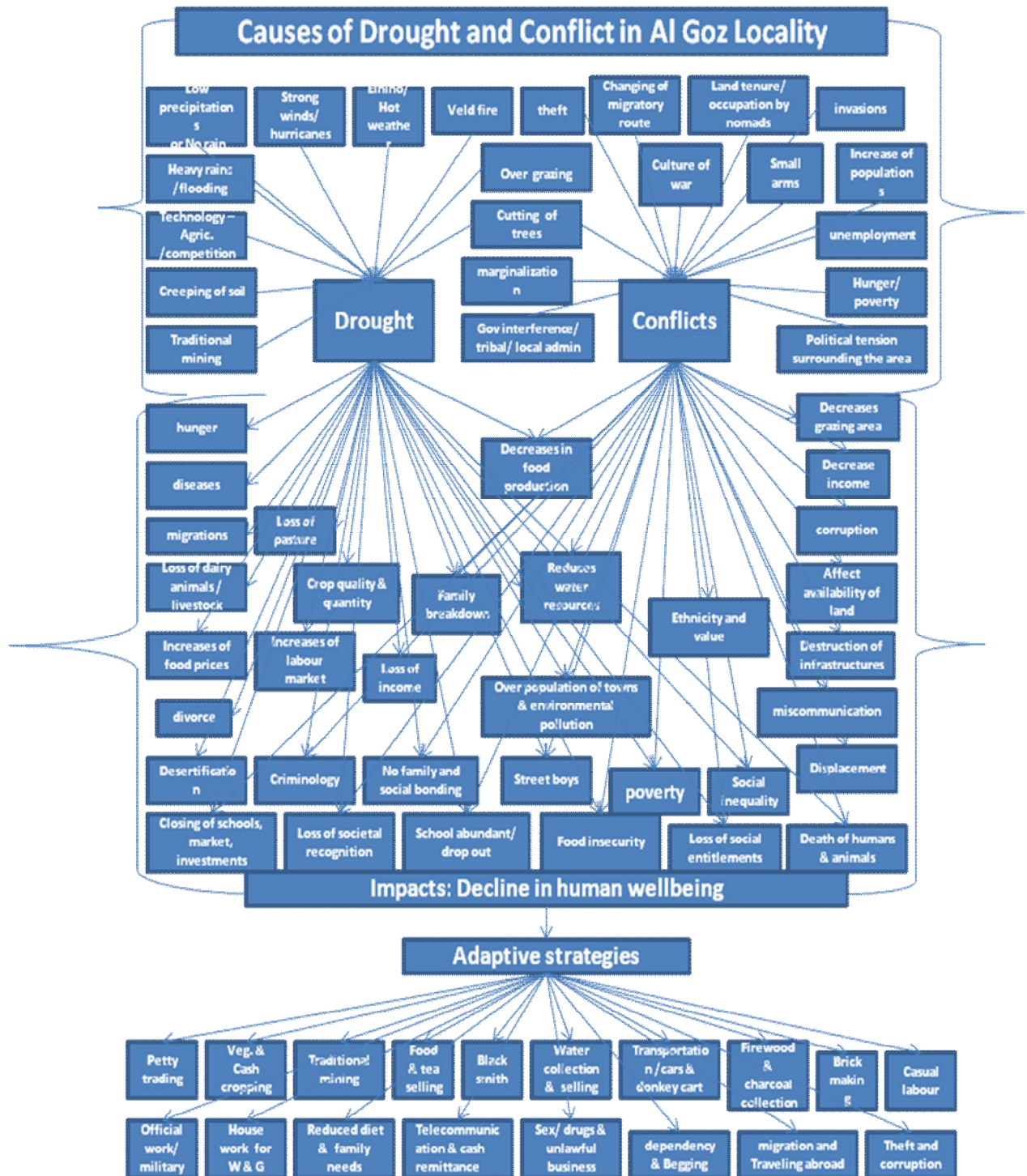


Diagram4.6: A tree problem discussing the dependant and independent variables
Source: Field Survey 2014

4.7 Reflection on the Analytical framework (SLA) adopted

By using the sustainable livelihoods Approach (SLA)¹, respondents explored the linkages between strategies, goals, assets and processes, Institutions and Policies PIPs. For example, livelihood strategies are the different ways a household pursues its prioritized short, medium and long term goals. These goals are in part determined by the assets available to the household. The assets or resources available to the household may be either directly owned or otherwise accessed by the household as explained in the sustainable livelihood framework below:

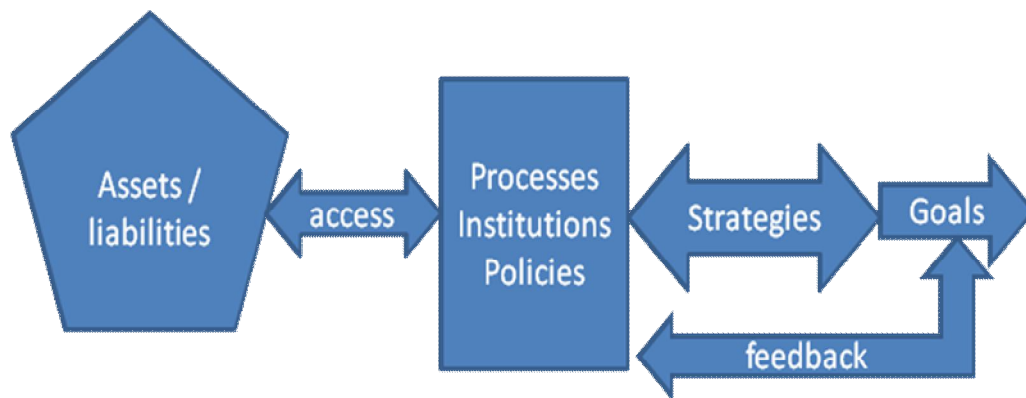


Diagram 4.7: Analytical framework Sustainable Livelihood Approach (SLA)

The (SLA) approach comprised assets and liabilities; financial, physical, human, social, and natural asset, processes, Institutions and Policies (PIPs), and strategies that governed the livelihoods of *Al Goz* residents.

The 230 respondents of the study; 150 questionnaires, 20 interviewees, and 60 respondents in 6 focal group discussions were tested and their responses analyzed in the four components of the Sustainable Livelihood Approach below.

¹ SLA analytical framework – adopted by Tufts University in Darfur livelihoods for analysis of the gathered information from *Al Goz* locality

Table 4.7: Examples of sustainable livelihood approach (SLA) components of the study

Assets	PIPs	Strategies	- Goals
<ul style="list-style-type: none"> - Seeds and appropriate agricultural tools - Access to land & water supply - Skills/knowledge - Labour – either within the family or paid daily - Access to credit – either seed credit or monetary - Herbicides/pesticides for improved crops - Bank support or family cash support – either in kind or SDGs; for crops and livestock - Storage capacity for cereals and seeds - Livestock and carrying capacity - Social networks 	<ul style="list-style-type: none"> - Security - Market access –for both crops and livestock - Access to transportation - Veterinary care - for animal health - Bank support 	<ul style="list-style-type: none"> - Crop cultivation – including millet, sorghum and maize, vegetable crops and cash crops - Livestock raising including poultry for consumption and sale - Firewood and charcoal collection and sale - Fodder cultivation and sale - Grass cultivation and sale - Casual labour - Small enterprise – including pot making, brick making, carpentry, handicrafts, blacksmithing, cash remittance – mobile phones, show centers - sport - Provision of transport for good/water using donkey carts - migration, immigration and in-kind bartering 	<ul style="list-style-type: none"> - Food for family, personal consumption - Income generation for cash - Crops/goods/services for sale – both wholesale and retail - Education - Health care service costs - Rent payments - Dowry payment - Skills building - Improve standard of living-maintain or improve social status - Savings/investments – for price maximization; toward next year’s inputs or to purchase livestock

Table 4.7: Examples of sustainable livelihood approach (SLA) components of the study gave detail account on respondents’ contributions/understanding of the components of the SLA; assets, policies, institutions and processes, strategies and goals that will guide their well being and improvement of living of all residents of Al Goz locality.

✓ **How conflicts & drought impacted the performance of study groups:**

A discussion on how SLA components integrated and interacted to promote/hinder livelihoods activities for the 230 respondents of the study; 150 questionnaires, 20 interviewees, and 60 respondents in 6 focal group discussions both men and women of *Al Goz* locality revealed that all SLA components have been affected by Conflicts and drought and impacted on community as detailed in the following table:

Table 4.7.1: Impact of drought and conflicts on respondents of the study:

Assets and PIPs	Assets and PIPs affected by Conflicts and drought and impacted on community
Financial <ul style="list-style-type: none"> - Cash - Credit - Precious belongings 	Loss of cash Decreased access to credit/banking Selling and bartering of precious belongings Selling of land and constructions
Physical <ul style="list-style-type: none"> - Seeds - Farm Tools - Farm chemicals - Livestock 	Amount and access to seeds decreased Amount and access to farm tools and equipment reduced Amount and access to fertilizers, pesticides and fumigants reduced Livestock (looted and/or died) productivity and numbers decreased
Human <ul style="list-style-type: none"> - Labour 	Despite government control IDPs increased and increased casual labour Women had to go for double role (caregivers and breadwinners) Child labour increased Migration and immigration increased
Social <ul style="list-style-type: none"> - Social networks 	Populations cut off Markets and service delivery institutions. Social traditional systems weakened by IDPs, refugees and immigrants Family bonding decreased Dependency and reliance on aid increased Theft and corruption increased

<p>Natural</p> <ul style="list-style-type: none"> - Land - Water and water supply 	<p>Access to land for farming and grazing is limited Areas ploughed decreased Forestry products limited Drinking water for both humans and animals is limited Boreholes dried and rivers and <i>wadis</i> weathered, Gum Arabic trees weathered</p>
<p>Policies</p> <ul style="list-style-type: none"> - Admin. policies for land access - Customs and taxes on farms and animals 	<p>Blocked land ownership and use especially for women Featured tribalism and favoured some residence over other in housing and farming Affected farm productivity People abandoned farming and shifted to other petty trading activities</p>
<p>Institutions</p> <ul style="list-style-type: none"> - Markets - Veterinary services - Basic social networks and services 	<p>Drought and conflicts have weakened either access or availability of services of all institutions in <i>Al Goz</i> locality and surrounding villages, town and States.</p>
<p>Processes</p> <ul style="list-style-type: none"> - Insecurity - Drought and floods - Grazing areas and migratory routes 	<p>Insecurity decreases access to land, water, and services; decreased services for rural areas Farmers are concerned/affected by both too much water and too little Concern over pastoralists entering farm areas either deliberately or un-intentional during milky stages and destroying crops,</p>

Table 4.7.1: Impact of drought and conflicts on respondents of the study explained that strategies are influenced by the availability of assets and prevailing policies, institutions and process. For example, the provision of fertilizers and extension services (an institution) influences the subsequent quality and amount of crop produced, while taxation (a policy) influences the financial revenues or capital flowing back to the household following sales of agricultural production. Hence the feedback loop is useful for understanding how the PIPs influence access to assets, and also the final value or quality of farmer’s assets (value chain).

4.8 Major Problems in the Locality:

150 Questionnaires, (10 FGDs X 6 members) and 20 interviews touched on major problems in the locality; the 230 respondents came up with the following account to answer the research question: What are the major problems in the locality and what are the solutions and lessons learnt?

The study summarized a number of issues that emerged from crises (conflicts and drought) and that require a lot of attention to pave the way for better living for the whole society under question. A sequence of in-security, changes in the native administration, more fighting and conflicts have made destruction of houses, farms, more displacement, school abandonment and increased school dropout, increased immoral behaviour and sexual assault and sexual crimes, and increase crimes.

Due to climate change; little and/or no rain affected farmers productivity, increased prices, labour competition, services and natural resources depletion that led to famine, poverty, over populated big villages and towns, increased diseases manifestation, death of elderly and infants, family breakdown, and street boys. The respondents sought intervention of Government and NGO and UN organisation for relief and development.

Effects of drought and conflicts on the livelihoods of gender of *Al-Goz* area is dealt with in the deliberations and discussion on two variables; types of crises and impact of crises the standard deviation is the measure to be used to identify the link. After administration of questionnaires, interviews and group discussions, all respondents 100% agreed that the major livelihood activities before and during the early years of the study (1981-1990) was agriculture (crop and animal production). Crises; drought intensification and eruption of disputes and conflicts in the area caused:

- Death of humans; child mortality, mother mortality, death of elderly, and the death of combatants as well as hungry people.
- Social disorders; (separations, divorce, family breakdown, displacement, migrations)
- Economical loses; reduction in farm production, death of livestock, loss of properties
- Ecological destructions; little or no rain, drought, desertification, Veld fires outbreak, flooding,
- Socio-political changes; new generations for change; new admin units, new political parties, tribal conflicts, fighting and wars, etc.

✓ The nature of the coping strategies employed by gender in *Al-Goz* area was affected by the crises (conflicts and drought) as people were depending on farming and pastoral way of living had to adapted to new ways of living such as: Petty trading, vegetable and cash cropping, traditional mining, food & tea selling cooking and selling, metal work and black smith, water collection and selling, transportation using Visto/Atos/ cars and donkey carts, firewood and charcoal collection and selling, brick making and construction work, casual

labour, official work including- military, house work for women and girls, reduced diet & family needs, telecommunication and cash remittance centers, sex work, drugs and unlawful business, dependency and Begging, migration and immigration, and in many occasions theft and corruption as well detailed the problem tree- discussing dependant and independent variables on pg 87.

Chapter 5

5 Summary of Findings, Conclusion and Recommendations

5.1 Summary of Finding

- 116 respondents of the total interviewees were aged between 26 and 55 years and with only 4 respondents who were 15 years old.
- 26% of the respondents were university graduates whereas 26% who did not attend to school.
- The percentage of illiterate women 17% is more than doubling that of men 7% at the same category.
- 10% singles of the respondents and the remaining 90% of the target population were married, widows and/or divorced.
- The average in both male and females respondents were farmer (43 F and 33 M) and the second best score officers (25 F and 25 M) with a limited number of pastoralists only 6 (2 F and 4 M).
- Males were always dominant in supporting and heading the family in the early eighties 77 and a mixture of males/females are the second best score 44 but females alone were only 17 respondents in the first period (1981-1995). The second period (1996-2010) and due to crises (drought and conflicts) the whole family had to go in productive activities to maintain itself.
- Agricultural production of crops and vegetable was a major means of living for most of the population of *Al Goz* locality. It was the main choice for 84% in the first period and 64% respondents in the second.

- 86% respondents in the two periods answered no trading activities were taking place and even the few respondents - percentage 6% and 9.3% in the two first and second periods *respectively* were not 100% traders.
- 104 respondents owned land in the first period of (1981-1995) and the number decreased to 96 in the second period of the study (1996-2010)
- 230 respondents 150 questionnaire, 20 interviewees, and the 60 group members of the 10 group discussion agreed in one answer that the crises in the two periods (1981-1995) and (1996-2010) have effects on; climate change / little or no rain, famine and/or starvation, socio-economic changes including fighting, migration/ displacement, and socio-political changes; and consequently impacted on human, livestock and assets; death of humans, social disorders, economical loses, ecological destructions, and the socio-political changes over the two periods.
- It was found that males were always dominant in supporting and heading the family in the early eighties 51.3% and a mixture of males/females were the second best score 29.3% but women/females alone were only 11.3% and the remaining 08% were representing all family members in the first period (1981-1995).
- The second period (1996-2010) it was seen that all family members including children are working for family support, had got the maximum responses 81.3%.
- Farming was the main choice for almost all respondents as there're 84% in the first period and 64% of respondents in the second.

- Official work became a priority after farming, and a few people went for labour work in the second period (1996- 2010).
- Most respondents were holding land title deeds in the two periods of the study and a few were having no access to land (12 in the first and 15 in the second period).
- 31 and 35 respondents got to rent land for farming in the two periods respectively.
- 41% and 43% of respondents lived inside and 25% first and 25% around the farm in the two periods (1981-1995) and (1996-2010) respectively
- New comers to the locality were to live far off farms representing 6% and 7% of respondents of the first and second periods respectively.
- The size of farm/ number of *Mukhamas* ploughed by respondent in the second period shranked from that of the in the first period
- farmers have not improved their working tools, the responses in the two periods showed that
- 90% of respondents (135 in each of the two periods) were basically depending on traditional farming equipment such as axes, digging hoes, spades, shovels and rakes Mattocks, pickaxes, ploughs and rototillers, etc.
- The investigation revealed that 87 % and 83% of respondents of the two periods were growing cereals as well as cash crops in order to meet their family basis needs.

- The annual total production of crops and vegetables; 121 respondents over 80% were producing cereals and cash crops more than enough to sustain the family +surplus and only 5 respondents 3.33% were having that privilege in the period of (1996- 2010).
- 90 respondents producing cereals and cash crops less than the family basic needs in the second period.
- There were 92.7% of respondents who used animals for transportation and tracking of farm implements that were ranging from 1 to 5 animals per household in the first period compared to 81% of respondents on the second period. Even though those who got animals in the second period were always having 1 to 2 animals maximum.
- The study reflected that 83% of respondents of the first period were having goats compared to only 54% of respondents of the second term.
- The number of goats owned by households, (11- to- 16 and more goats), in the first period equaling 36 responses was bigger than that of second period where only 1 respondent who had that same number (11- to – 16 and more goats).
- The crises have negatively impacted on the production of sheep as well, a total of 40 respondents in the first period were having sheep with varying numbers per (HH) compared to only 11 respondents with limited number of sheep in the second period that entailed reduction in sheep production.
- 9% in the second compared to 39% in the first period were herding cattle

- All respondents in the second period were not using camels and only 4.5% in the first period owned a few.
- The study found that females were much linked to rearing of kids, domestic work, poultry farming/keeping, food processing, and food and tea selling. when the economic situation of the family deteriorated, official work, trading and cash cropping became options for mixed sexes (male /female), and males were always associated with herding of cattle, firewood collection and selling, brick making, carpentry, welding & metal work, and casual labour.
- The study revealed that a lot of change in the perception of both male and female to new gender roles has taken place in the community and therefore many women have taken the lead in conventionally called men jobs such mechanics and medicine and engineering.
- The opened ended questions of the questionnaires as well as the focal group discussions revealed that there was very little extension work in the district in the last 30 years and expansion in extension services was blocked by factors such as security, transportation, funding, and manpower.
- The study summarized a number of issues that emerged from crises (conflicts and drought) and a lot of attention needed to pave the way for better living for the whole society under question. the sequence of issues of in-security, changes in the native administration, more fighting and conflicts made destruction of houses, farms, more displacement, school abandonment and increased school dropout, increased immoral behaviour and sexual assault and other crimes. Due to climate change; little and/or no rain farmers

productivity is affected, prices of goods and services increased, more labour competition, natural resources depleted that led to famine, poverty which in turn increased population of big villages and abundant towns, increased diseases manifestation, death of elderly and infants, family breakdown, and street boys.

5.2 Conclusions

The study concluded that crises; drought and conflicts have negatively impacted on the livelihoods of the people of South Kordofan and in particular *Al Goz* locality. As all 230 respondents were either farmers or pastoralist, their means of living were greatly affected in all dimensions

Many environmental, social and economic impacts were applicable to residents of *Al Goz* during the timeframe of the study. On one hand, the impact of drought occurred in agriculture and related sectors, because of the reliance of these sectors on rainfall, surface and groundwater supplies. The economic impact of drought touched the yields in crop and livestock production; drought is associated with insect infestations, plant disease, and wind erosion. Wind erosion made desertification spread in a vast rate (*over 5 kilometers a year in Dubeibat as stated by the agricultural department of Dubeibat*). The incidence of forest and range fires as well as village fire breaks increased substantially during extended periods of droughts, which in turn placed both human and livestock populations at higher levels of risk. Drought as well as widening of farm land in low fertile soil led to reduction in food security, hunger and famine that caused death of hundreds of people due to malnutrition and related diseases.

On the other hand, the impact of conflicts happened in the death and displacement of human beings, killing of livestock, and destruction of infrastructure. Wars in South Sudan, before separation, West Sudan – Darfur Crises, and Nuba Mountains disputes and fighting together with many of the tribal conflicts in and around the locality led to insecurity, fear and forced movements. The introduction of animal trailed implements and farm machineries widened ploughed areas and prevented animal herds of movement that increased tensions between farmers and pastoralists. Many boys, men and children have lost their lives in the popular police phenomenon that was adopted by the government and convinced its followers to give out their lives and souls for Islam – *Gihad*.

Displacement and migration increased pressure on the limited resources and services. The displaced people have got the biggest share of the economic activities as in all cases they have got more experience/knowledge and skills than the natives. Due to economic and social pressures, malnutrition, societal destructions, migration, displacement and poverty led many kids to have low educational performance and a good number left school to join the working force to uplift their families off impoverished situation and ending up their future education and anticipated prosperous life.

Deterioration of natural resources and competition on services due to displacement and migration, increased unemployment especially for un-skilled people of the locality which led to immigration of many productive persons to Arabian countries and other civilized countries leading to more susceptibility and loss of lives.

women suffered a lot during drought and conflicts, they had to sell out all belongings (jewelries, house furniture, et) to feed their children and other household members including those with special needs. Due to environmental degradation and reduction of forestry production especially charcoal and firewood, female headed families and young girls had to move far distances to secure cooking fuel and accordingly risking their lives as they experienced sexuals assaults and in extreme being raped.

Gender plays an important role in determining the livelihood strategy adopted; with men sometimes viewed as better equipped to find work and make relations, while women were more likely to stay at home doing domestic work and looking after children. Crises have impacted on gender roles and accordingly defined labour division and changed careers. This is supported by injustice attainments of education, accumulated experiences, access to information, practices, training and awarenss raising, economic and social pressures, friction and exposure, adoption of new farming techniques, and social cohesion.

5.3 Recommendations

- Household and community oriented recommendations

1. under carefully controlled situations, IDPs, ex-combatants and other crises affected people can be supported by construction materials for proper settlement
2. improve inputs for crop and livestock production and processing of by-products to promote better livelihood opportunities for *Al Goz* residents
3. Support capacity building and skills training aiming at self-employment accompanied by literacy classes and business management to affected people to promote commercial activities, income generating activities on the basis of micro-finance best practices.
4. Incorporate education for increased awareness among the largely illiterate rural males and females, this would no doubt enable them to appreciate the benefits and the economical value of activities and helps advance their rights as individuals

- Government oriented recommendation

5. Review of social and cultural practices and relations with view to identify the in-built gender based constrains which are challenging the biases in gender relations to create awareness on the importance of livelihoods.
6. Prevailing legislation and institutions that help women to have right to and control over access to information. This means of information should target women through women's groups/ women organizations to help them play a role in private and public spheres.

7. support natural resources management system and improve cooperative methods with all stakeholders and beneficiaries; individuals, communities, agencies and government institutions

5 Charity and developmental organizations oriented recommendations

8. introduction of rural development programmes that address gender discrimination in wages, access and participation in livelihoods activities covering all livelihood assets
9. mainstreaming gender equity in programmes for rural employment and promote gender sensitive activities that link both male and female farmers using proper value-chain modalities
10. Empowerment of charitable and developmental Community Based Organizations (CBOs) through effective participation, capacity building, and networking, and funding.
11. promotion of micro-finance investment programmes for destitute where they are

6 Research

12. Further assessment of potential practices of livelihood activities should be done using available resources to improve cultivation and grazing co-existence in South Kordofan and particularly in Al Goz locality
13. More researching efforts on livelihoods of the whole Sudan aiming at building sustainable and viable future for the coming generations with focus on the livelihoods assets and in particular the human capital.
14. Further research on the nature and quality of government policies and Acts on the dynamics, division of labour between men and women, and women's relative participation in decision making and governance.

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