UNIVERSITY OF NAIROBI

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AN ASSESSMENT OF COMMUNITY BASED DROUGHT CYCLE MANAGEMENT AS A STRATEGY FOR DISASTER RISK REDUCTION: THE CASE OF COMMUNITY DROUGHT CYCLE MANAGEMENT IN WAJIR COUNTY.

BY

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DECLARATION

I the undersigned declare that this research paper is my original work and that it has not been submitted in any other college or institution of higher learning for award of academic credit.

Signature ---------- Date……

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This research paper has been submitted with my approval as the Supervisor

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ABSTRACT

Drought is a slow-onset, creeping natural hazard that is a normal part of climate for virtually all regions of the world. Importantly, drought results in serious economic, social, and environmental impacts (Wilhite, 2000). Drought onset and its end are often difficult phenomenon to determine and so is its severity. Drought severity is dependent not only on the duration, intensity and spatial extent of a specific drought episode, but also on the demands made by human activities and vegetation on a specific region's water supply. The impacts of drought are largely non - structural and spread over a larger geographical area than are damages from other natural hazards.

The recurrence of severe drought is a cause of human suffering and a major blockage to pro-poor livestock development in sub-Saharan Africa, particularly in pastoral and agro pastoral systems. In Kenya, the frequency and severity of drought has been on the increase due to climate change. The Arid and semi-Arid Lands (ASALs), especially Northern Kenya (Isiolo, Marsabit, Mandera and Samburu) are the most vulnerable (Cordaid and IIRR; 2011). It is in this background that the International Institute of Rural Reconstruction (IIRR) facilitated the documentation of regional best practices in drought management in 2004. These culminated in a production of the widely used Drought Cycle Management (DCM) toolkit for greater horn Africa. The Kenya Drought Cycle Management (KDCMP) implemented between 2005-2007 by ten agencies with the sole aim of piloting DCM concept at community levels.

This study was designed to investigate the extent to which DCM is succeeding in mitigating against drought in Wajir county since its piloting. The study aimed at finding out the challenges DCM is faced with at the same time establish the best

practices in the DCM project. The specific objectives of the study were to establish the various strategies used in community managed disaster risk reduction on drought; to evaluate the appropriateness of CDCM to the people of Wajir county; to establish the level of acceptance of the program by the people of Wajir County and to establish the social and economic gains that come with the adoption of the CDCM.

The main theories that guided this study were the Bordieu's theory of cultural, social, and symbolic capital within a community and the Community empowerment model. The study used a purely descriptive design in which members of all the ten groups in the pilot participating in the CDCM were interviewed .At the same time the CDCM program officers and the county officials was interviewed as key informants.

All the household heads for 10 participating households were interviewed. Among the key findings are that of the various coping strategies used 100 percent of the respondents opted to move their animals and families to other places in search of pasture during drought. On the other hand 87 percent reported to have opted to sell the weak animals in the market while 45 percent slaughtered the weak animals for domestic consumption. It was also clear that 11 percent were of the view that CDCM contributed greatly in meeting their economic needs, 16 percent said to some extent, 17 percent said fairly so, 28 percent had not seen any changes while 28 percent saw none at all. On the effect of CDCM on their relations, 65 percent were of the opinion that their participation in the CDCM programme had very much improved their relationship, 21 percent said to some extent, 6 percent said fairly so, 7 percent had not seen any effects and 1 percent said none at all. It is also clear that 6 percent were of the view that their participation in the CDCM program had very much led to the increase of their livestock, 17 percent said to some extent, 30 percent said fairly so, 33

percent had not seen any effect and 14 percent said none at all. Finally on rating it came out clear that clear that 29 percent rated CDCM as the best, 9 percent rated it as better, 12 percent rated it as fair, 30 percent said it was not any better, 20 percent said it was the worst.

CHAPTER ONE: INTRODUCTION

1.1Background of the study

Drought is a slow-onset, creeping natural hazard that is a normal part of climate for virtually all regions of the world. Importantly, drought results in serious economic, social, and environmental impacts (Wilhite, 2000). Drought onset and its end are often difficult phenomenon to determine and so is its severity. Drought severity is dependent not only on the duration, intensity and spatial extent of a specific drought episode, but also on the demands made by human activities and vegetation on a specific region's water supply. The impacts of drought are largely non - structural and spread over a larger geographical area than are damages from other natural hazards. The non-structural characteristic of drought impacts has certainly hindered the development of accurate, reliable, and timely estimates of severity and, ultimately, the formulation of drought preparedness plans by most governments. Drought risk is a product of a region's exposure to the natural hazard and its vulnerability to extended periods of water shortage, (Wilhite, 2000).

Globally, the last forty years have been characterized by a lot of disasters. Recent Studies have shown that two natural disasters that has posed the greatest threat to peoples' livelihoods and socio-economic development globally and Africa are droughts and floods. The incidence of drought during the period 1970-2006 accounted for 20% of the natural disasters that hit the continent and affected over 80% of the population that was afflicted by these calamities (UNISDR 2007).

Prolonged drought in African countries has severely affected their economic development and contributed to wide spread malnutrition, famine, loss of life, migration and social conflicts. For instance, the 2006 incidence of drought in the Horn of Africa was particularly damaging with 18.0 million people in five (5) countries suffering food shortages in Ethiopia, Eritrea, Djibouti, Somalia and Northern/Eastern Kenya.

The drought induced social conflicts, displacement of communities and cross border movement of people has continued to plague these countries and their neighbours including northern Kenya and the Sudan (UNISDR, 2007).

The past practices however have largely focused on interventions after drought with little investment in strengthening the communities' capacities to manage risks on their own. Existing drought constituency plans, especially in Northern Kenya and southern Ethiopia are usually adhoc with little local level inputs and largely top down based on government 's departmental level staffs' perception of the community needs. There is need to reverse this approach and focus on constituency plans that originate from the local population, and inbuilt into district and national level drought disaster plans. This would in turn fit into regional and international strategies and policies thereby integrating the planning systems into coherent strategic plans that would in future be community driven ecosystem based which will consequently create higher impact,(Wamugi,2011).

Currently, Drought Risk Mitigation measures have already been linked to existing International and regional strategies like the hyogo framework for action 2005-2015 and the programme of action for the implementation of the Africa regional strategy for disaster risk reduction(2006-2015).there have been some efforts at international, regional and national levels to address the challenges of increasing drought risks, but more needs to be done to improve on aspects like drought monitoring, predictions, early warning and disaster preparedness programmes.

Governments have the primary responsibility for sustainable development and appropriate disaster risk reduction policy. Drought related policies and plans should emphasize risk reduction (prevention, mitigation and preparedness) rather than relying on drought relief. Due to increasing global interdependence, there is need for all actors to at least share information and where appropriate act in tandem with government strategies where they exist or facilitate improvement of such strategies.(Wamugi,2011).

Wajir County is therefore the largest county in the republic of Kenya after Turkana County with a surface area of 56.501sq.km which is approximately 10% of the country's land mass. wajir population is estimated at 66.941 persons(Kenya census 2009) and is inhibited with mobile pastoral population, whose main livelihood relies on livestock. The county has recently suffered from two consecutive failed rainy seasons. In June 2011, the county will be rated by arid land drought assessment report

as at emergency level. These problems have led to a situation that makes arid land inhabitants in the horn of Africa to be reliant on emergency response repeatedly due to lack of preparedness, this calls for a more pro-active approach in addressing disaster risk reduction issues. The study therefore will seek to investigate how the local community in ASAL especially those living in Wajir County reduce and manage drought related disaster which eventually disturb the ecosystem, livelihoods destroyed, displace people, leading to economic losses.

1.2 Problem statement

The recurrence of severe drought is a cause of human suffering and a major blockage to pro-poor livestock development in sub-Saharan Africa, particularly in pastoral and agro pastoral systems. Drought kills millions of animals, and reduces millions of people to destitution and reliance on food relief. But drought also affects the reliability of supply of livestock to markets and is a disincentive for investments in livestock improvement. Significantly, this may exacerbate conflicts and may play a part in environmental degradation. In Kenya, the cost of drought in 1999/2001 will be estimated at Kshs 22.5 billion, which included emergency relief, livestock losses and the cost of operating the early warning systems. This prolonged drought in the continent has severely affected peoples economic development and contributed to wide spread malnutrition, food crisis, famine, loss of life, migration and social conflicts (UNDP, 2008).

In Kenya, the frequency and severity of drought has been on the increase due to climate change. The Arid and semi-Arid Lands (ASALs), especially Northern Kenya (Isiolo, Marsabit, Mandera and Samburu) are the most vulnerable (Cordaid and IIRR; 2011). It is in this background that the International Institute of Rural Reconstruction (IIRR) facilitated the documentation of regional best practices in drought management in 2004. These culminated in a production of the widely used Drought Cycle Management (DCM) toolkit for greater horn Africa. The Kenya Drought Cycle Management (KDCMP) implemented between 2005-2007 by ten agencies with the sole aim of piloting DCM concept at community levels. It is in these background that this study was designed to find out the extent to which DCM is succeeding in mitigating against drought in Wajir county since its piloting. The study aimed at finding out the challenges DCM is faced with at the same time establish the best

practices in the DCM project.

1.3 Research questions

This study was guided by the following questions:

1. What are the various strategies used in Community Managed Disaster risk reduction on drought?
2. How appropriate is this intervention to the local people?
3. What is the level of acceptance of the intervention by the local people?

1.4 Objectives of the study

1.4.1 Broad Objectives

The broad objective of the study was to establish the extent to which Community Drought Cycle Management has succeeded in wajir county

1.4.2 Specific objective

1. To establish the various strategies used in community managed disaster risk reduction on drought in Wajir county.
2. To evaluate the appropriateness of CDCM to the people of Wajir county.
3. To establish the level of acceptance of the program by the people of Wajir County
4. Establish the the social and economic gains that come with the adoption of the CDCM.

1.5 Scope of the study

Malkagufu district in Wajir north is chosen as the study area as it is worse hit by drought given that the inhabitants are mainly mobile pastoralists whose main livelihood relies on livestock. The task will be to examine how the pastoralists cope with the harsh climatic condition and investigate how the pastoralists together with the identified committees in the area manage and reduce drought risk. The researcher expects that the findings would be replicated in other divisions within the County. The area chosen would also ensure that costs on traveling for both researcher and his assistants would be manageable.

This study aims at documenting in details the DCM process in Wajir. The study shall crtically examine the various strategies used in CDCM and in doing so examine its

appropriateness to the local people. The aim is to see how well the program components adress the needs and priorities of households or other units in the target population. This means looking at the parts of a program from the viewpoint of the user or supposed beneficiaries. Users, actual or potential, may fall into a number of different groups and will be classified using their social and economic characteristics such age, gender, level of education, main occupation and social status. The user's response shall be best captured in terms of what he/she has gained and lost in the process of adopting CDCM.

At the same time a rating scale shall be used to guage the level of acceptance of CDCM by the local people. The aim here is to allow the respondent to compare selected components of CDCM with those used before.

1.6 Definition of terms

Capacities-refers to individual and collective strength and resources that can be enhanced, mobilized, and accessed, to allow individuals and communities to shape their future by reducing disaster risk. This includes prevention, mitigation, and survivability of the individual and readiness of the community.

Capacity building-efforts aimed to develop human skills or societal infrastactures within a community that are needed to reduce the level of risk.

Community-Can be taken as a group that may share one or more things in common such as living in the same environment, or place or residence, disaster risk exposure, having been affected by a disaster. Common problems, concerns, hopes and ways of behavior may also be shared. Although the community is not a homogenous unit but a dynamic mix of different groups, interests and attitudes, the sharing of common things gives a certain sense of belonging to each other.

Community capacity assessment-identifies the strengths and resources present in individuals, households and community to cope with, withstand, prevent, prepare for, mitigate or quickly recover from, a disaster. Coping means managing resource in adverse situations.

Community hazard assessment-defines the threats and understands the nature and behavior of particular hazards. the assessment brings out information on the characteristics of hazards, specifically warning signs and signals, forewarning ,speed of onset, frequency ,period of occurrence and duration.

Community managed disaster risk reduction-a condition whereby a community systematically manages its disaster risk reduction measures towards becoming a safer and resilient community, people living in one geographical area, who are exposed to hazards and disasters. However, they may have different perceptions of, and exposure to, risk. Groups within the locality will have a stake in risk measures.

Disaster-the serious disruption of the functioning of society causing widespread human, material or environmental losses, which exceed the ability of the affected communities to cope using their own resources, disaster occur when the negative effects of the hazards are not well managed.

Disaster risk reduction-a framework and tool that determines the degree of risk and describes measures to increase capacities and reduce hazard impact on the elements at risk so that disaster will be avoided.

Drought cycle management (DCM) explained.

Drought cycle management (DCM) is an approach based upon the Disaster Risk Reduction principles that have been developed to battle the negative effects of drought. "Drought cycle management realizes that droughts are a normal, inevitable part of the climate of the drylands. It recognizes that a drought will occur anyway and the question is not if, but when. Drought cycle management uses the periods between droughts to prepare for the next one, to minimize its impact when it hits." It explicitly seeks to reinforce ex-ante and ex-post coping capacity and thereby reduce vulnerability. DCM strategies typically focus on trying to strengthen livelihoods through ex-ante measures, such as improving water conservation, improving livestock management (access to veterinary services, improvement of trade systems, etc), creating "insurance" systems at the community level. They also seek to ensure that food stocks are in place when droughts are expected (during the alert state), to provide emergency aid when a drought hits and support the reconstruction of livelihoods after drought periods (CORDAID, 2004).

The DCM model stresses the need for a continuum between development, relief and rehabilitation activities in ASALs. The model recognises four stages in the drought cycle as depicted in figure 1 below.

The **normal stage** is a period in which sufficient rain falls. During this stage mitigation activities, such as community development, contingency planning, capacity building and infrastructural development, take place.

The second stage is the **alert and alarm stage**. This is stage when the first signs of a forthcoming drought become visible. During this period activities will be focused on preparing for the drought. These might include building up food strategic stocks, water conservation measures, preparing human health and veterinary services and supplementary feeding of livestock.

In the **relief stage** the drought is at its peak causing food and water shortages and resulting in hunger and possibly deaths among people and livestock. Emergency relief is delivered in order to save lives.

Finally, after the emergency, the **recovery stage** involves reconstruction. Typical measures include the restocking of herds, rehabilitation of dams, capacity building, infrastructural development and natural resource management interventions.

Figure 1: DCM

Source: CORDAID

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter deals with the review of the related literature on establishing the Community Managed Disaster Risk Reduction the case of drought cycle management among pastoralists community. The review dealt with the factors identified for investigation in the study namely adopted strategies, community capacity, drought effects, famine relief, drought coping and characteristics of pastoralists' household. The last part of this chapter gives the theoretical basis upon which this study was anchored. Social capital network and conflict theories are discussed in relation to the topic at hand.

2.2 A review of global drought trends

Droughts continue to have significant impacts on both developed and developing countries. The latter still suffer from droughts the most. Ever increasing exploitation of water resources and associated water scarcity coupled with the growing concern that future climate change will exacerbate the frequency, severity, and duration of drought events and associated impacts explains the increasing attention that individual countries are paying to drought-related issues (Wilhite 2005).

Since drought is a global phenomenon, it is useful, from a global development perspective, to understand the pattern of various drought-related characteristics and impacts worldwide. Such characteristics should reflect multiple aspects of drought, ranging from quantification of drought hazard and vulnerability of water resources systems - to measures of preparedness to face future droughts. One good way of presenting despite significant drought research, studies that deal with the global picture of drought patterns and impacts are limited. Even fewer studies deal with global mapping of drought-related indicators.

Peel et al. (2004, 2005) conducted an analysis of precipitation and runoff periods (runs) of consecutive years below the median for 3,863 precipitation and 1,236 runoff stations worldwide. Run lengths were found to be similar across all continents and climates except North Africa, which showed a tendency towards longer run lengths. Run lengths for precipitation and runoff at the same location will be found to be

similar.

Run magnitude for both precipitation and runoff will be found to be related to inter-annual variability, and run magnitude of runoff will be larger than that of precipitation due to a higher coefficient of variability of runoff. Diverse materials related to droughts is through mapping, whereby various drought-related indicators can be plotted at a country resolution, river basin or a regular grid – depending on the type of indicator and information available.

2.3 A review of Droughts in Africa

Many parts of the Horn of Africa (HOA) continue to suffer under a precarious security situation coupled with susceptibility to harsh climatic conditions. Sporadic violence and prolonged drought conditions continue to strain the coping mechanisms of millions of people in the region. An estimated 19.8 million people are in need of emergency assistance in the HOA. The humanitarian situation remains critical in parts of Ethiopia, Somalia and Kenya.

High or extreme food insecurity remains a concern in lowland pastoral and agro-pastoral areas of central and southern Somalia, Djibouti, south-eastern Ethiopia, most northern districts of Kenya and the Karamoja region of Kenya. Despite the near to normal October to December 2008 rains, food security in these countries is not expected to improve significantly from January to March 2009 due to, among other factors, significant asset losses, including the death of livestock, and increased food prices. By contrast, food security in most of the region's cropping highlands has gradually improved over 2008 due to near-normal March to May and July to September rains.

The impact of these trends further presents severe implications for an estimated 15 to 18 million pastoralists within the HOA, perceived as among the most vulnerable of the affected groups. Livestock diseases have compounded pastoralists' plight, as has continued cattle rustling across the borders of Kenya, Ethiopia, Sudan and Kenya. Cross-border clashes have had a profound impact on the food production and nutritional campaigns in affected areas.

2.4 Droughts in Kenya

Droughts are predictable, slow-onset phenomena, the management of which requires a very different skill-set and mind-set to disaster response. Drought early warning and response is a particular specialism that has far more in common with sustainable development than with disaster response. In an ideal world droughts should never become disasters.

If drought management will be to become a sub-set of disaster management, it is likely to get overshadowed by the more high-profile work that's needed when disasters strike. This is particularly probable as drought largely affects the ASALs, which are still recovering from decades of marginalisation and under-development and need continued special attention and focus. The crucial part of drought management is ensuring that action is undertaken during the 'normal' or 'alert' stages of the drought cycle (i.e. when there is no 'disaster'). This requires a shift in thinking and practice, and until this is achieved we will continue to have drought emergencies.

The current crisis in Kenya has highlighted the need for new thinking on drought management in the ASALs, as well as an urgent need for increased co-ordination and coherence in long-term and short-term efforts to promote resilience. Looking at the innovative approach being proposed by the Kenyan Government in creating the National Drought Management Authority (NDMA) and its associated National Drought and Disaster Contingency Fund (NDDCF).

This approach views drought as very different from rapid onset disasters, the management of which has far more in common with sustainable development than with disaster response. The NDMA has just been approved and will need political will and the efforts of all stakeholders to make sure that it is established as quickly and effectively as possible, while ensuring it stays true to its original intention of bringing new thinking to tackling drought in the drylands. It also requires the urgent approval of the Sessional paper on the National Policy for the Sustainable Development of Northern Kenya and other Arid Lands to provide a complete policy framework for the approach

2.5 Drought Risk Reduction programs In Kenya

In Kenya, when introducing a package of short-term drought relief measures in May 2008, the government simultaneously established a task force to draw up a national emergency and long-term drought management policy. This will be done in recognition of the fact that Kenya is an arid country where dry years are the norm. Declaring drought too frequently is expensive for the government, can create dependency among aid recipients, and can promote resource degradation through inappropriate assistance. The Task Force convened several consultations until the endorsement of the national drought policy by the government in 2012. Kenya's drought policy is concerned with developing an efficient, equitable and sustainable approach to drought management. The policy aims to shift responsibility for managing drought risk from government to the farmer, with financial assistance and food security interventions only being considered in the event of an extreme or "disaster" drought being declared. The thrust of the policy is a move away from regular financial assistance to large numbers of private-tenure and communal-tenure farmers to measures that support the on-farm management of risk. The Government's involvement with drought will move beyond an exclusive focus on emergency drought programmes to a broader, longer-term perspective. (Sources: 2nd African Drought Risk and Development Forum Report, Nairobi, October, 2006; Republic of Kenya, National Drought Policy and Strategy, 1997).

After nearly a decade of being revised, the Kenya National Disaster Preparedness and Management Policy has been approved by Cabinet in April 2011. This makes Kenya the only country in the Greater Horn of Africa with an approved Disaster Risk Reduction policy. It also further demonstrates a clear commitment of the Government of Kenya to implement the five priorities of the Hyogo Framework for Action (HFA), particularly priority 1 "Ensure that disaster risk reduction (DRR) is a national and local priority with a strong institutional basis for implementation".

The Disaster Preparedness and Management Policy recognizes the vulnerability of Kenyans to at least 20 different hazards, including drought, floods and landslides. Available statistics demonstrate the challenges posed by both natural and human induced hazards to economic growth of Kenya. According to the Kenya Bureau of Statistics between the years 2000 to 2005, 65.7 per cent of households in Kenya

experienced at least one type of disaster.

As additional evidence a preliminary analysis conducted in December 2011 from the recently created Kenya national disaster loss database reveals that more than 50 percent of the population in Kenya is affected by drought while 18 percent are affected by floods. The establishment of the national disaster loss database is an initiative of UNISDR to support the Kenya national platform for DRR.

It is based on a methodology and software tool called "Disaster Inventory System" (in its Spanish original name DesInventar "Sistema de Inventario de Desastres") and includes historical data on all hazards and their related losses, detailed by province and county, which have occurred in a given country over a time period of 20 to 30 years.

2.6 Analysis of pastoralism in Kenya

African pastoral societies are characterized by a cultural and economic orientation towards livestock (cattle, sheep, goats and camels). Any surpluses generated by the pastoral system tend to be reinvested in livestock with a view to herd maximization for cultural and economic reasons. Larger herds guarantee subsistence and income, confer status and may provide insurance against the impact of drought. Even educated members of pastoral ethnic groups, who no longer depend upon pastoral production for their livelihoods, tend often to continue investing in livestock (sometimes as absentee owners). In good times there is a surplus of animals. The extent to which these are marketed depends on regional and inter-ethnic variation, interacting with the availability of and access to markets. There is a trend towards greater marketing of stock, but the historic involvement of pastoralists in livestock markets should not be overlooked (Kerven 1992).

A key feature of African pastoralism is mobility, with herds being able to move to distant grazing along traditional migration routes or in time of emergency to areas where grazing or browse is available. As human populations increase and common property rangeland is taken by individuals (agriculture) and governments (national parks and game reserves) for other uses increasingly different pastoral ethnic groups find themselves competing for grazing resources, inevitably resulting into conflicts.

The marginal nature of pastoral environments (extreme variability and unreliability of rainfall, scarcity and seasonal variability of vegetation) and vulnerability to drought mean that mobility of people and livestock is essential. Herd growth is therefore opportunistic (tracking grazing availability) and livestock numbers increase during good years. Occasional crashes in the livestock population are inevitable in the face of drought and herd reconstitution post-drought can be a long, slow process depending upon the numbers of breeding stock which survive droughts. During drought pastoralists are particularly vulnerable to fluctuations in terms of trade between livestock and grain products as livestock prices plummet during drought and grain prices increase (Toulmin 1995).

A low human population density and the mobile nature of the population imply high costs for provision of services and infrastructure by the government. The remote nature of pastoral areas also implies high marketing costs for livestock and livestock products and high prices for grain and consumer goods.

2.7 The Economics of Pastoralism

Pastoralists keep animals for several reasons. For instance, animals are kept because they are a form of productive capital; they provide for subsistence (milk, meat and blood), provide transport (cattle, donkeys and camels), status and serve as an important store of wealth and insurance. As a form of insurance they may be imperfect as they are subject to the impact of drought and diseases. However, in the absence of alternatives, particularly financial markets and institutions, they are the only form of insurance available to many pastoral households.

In some cases capital/wealth is consumed directly (slaughter) but more often animals are sold to realize cash for grain purchases, and other necessities of life. The store of capital/wealth in animals is also reflected in social institutions such as marriage and inheritance. The largest transfer of livestock a male is likely to make in his lifetime is for bride wealth at marriage. Livestock are therefore a source of prestige and a means for partaking in complex networks of social obligations and reciprocity that mitigates risk (particularly for poorer households) (Hogg 1997).

The positive features of pastoralism include: Its flexibility and ability to adapt to changing climatic circumstances; Self-sufficiency and independence (during times of adequate moisture); Low costs of production; Low demand of government services (outside drought/famine); Low requirement for outside regulation and the use of land unsuitable for agriculture (Coppock, 1994) Because pastoral households prefer to consume milk for subsistence this has an important impact on herd structures with a predominance of females rather than beef animals (bulls and steers). O'Leary (1984) reported that the Rendille of Marsabit District (Kenya) keep a predominance of female animals in the adult herd/flock: 72% for camels, 79% of cattle, and 77% for sheep and goats. Pastoral herds and flocks are designed to produce milk, and high rates of reproduction, and to recover rapidly from shocks to the system (drought and disease). Off take rates are therefore often low at around 5% per annum (Coppock 1994). This is in part caused by herd structure but also because there is a tendency to accumulate stock because they have potentially high returns (growth rates) although these returns are variable and subject to occasional shocks. It is also generally believed that those households entering a drought with high stock numbers are better able to survive the impact of the event and to recover more rapidly from it than their counterparts.

The extent to which there is potential to increase the off take from pastoral herds is dependent upon existing patterns of stock marketing, pastoralists' strategies to cope with drought, their needs for cash and the availability of alternative forms of investment. In general, in Kenya and Ethiopia, the market requires male cattle, goats and sheep for meat, and these are the animals that pastoralists are willing to sell. Herders only dispose of females when they are suffering severe economic and social stress (usually during drought). Male animals in the herd are sold or exchanged according to the need for cash. To some extent, most households are integrated into the market. In the past, none but the wealthiest herders had access to alternative saving instruments or investment opportunities and have therefore been less willing to market stock during periods of plenty once immediate cash needs are met. They have therefore tended to cling to their risky form of self-insurance.

Sandford (1983) observed little supply response from pastoralists to changes in prices for livestock and explained this by suggesting that in an environment where there is

little opportunity to purchase consumer goods there is little demand for cash other than for essentials such as schooling and taxes. The reasons for this limited price responsiveness will be not clear (they had not been investigated/researched) and may have been related to other income streams (milk) or to the social benefits of maximizing herd size as well as a shortage of alternative investment opportunities. In general, pastoralists are more likely to value livestock as a source of income in kind (milk, reproduction and blood) rather than of cash. Under these circumstances these income-generating assets will be held until income generating value falls below salvage value (during drought) particularly where there are limited alternative investments. This may partly explain the limited supply response of pastoralists to favorable market conditions (high prices).

It is widely thought, though difficult to demonstrate in a quantified manner, that drought impacts on pastoralists are worse than formerly for meteorological or ecological drought (Benson and Clay, 1998). This is often expressed as the increased vulnerability of pastoralists to drought. The ecological impact of climatic conditions over a year or run of years is dependent on features of the pastoral production system: these include the mix of grazing and water resources accessible to the pastoral system. The mix of resources available may be more or less able to support successful responses to reduced rainfall (e.g. areas with a mix of grazing in different ecological or altitude zones will offer more support than areas of more uniform resources).

At the socio-economic level, vulnerability to drought is a complex of multiple circular causalities. Care must be taken to distinguish indicators of increased vulnerability from its assumed underlying causes, but vulnerability itself contributes to those causes. Studies such as those by Ellis et al. (1989) and Oba (1997) have identified some of the characteristics, which tend to produce increased vulnerability and those that support drought resilience. Amongst the former are: sedentarization, relatively lower livestock to human population ratios, reduced access to dry season and drought ranges, high densities of livestock and human populations.

Amongst the latter are: continued access to large ranches, freedom of movement, relatively higher ratios of livestock to human populations, relatively low overall stocking densities. Other socio-economic factors favoring resilience include the

degree of integration of the pastoral system in wider land-use systems (such as links to ranching or feed-lot systems with capacity to absorb animals or provide feed), or links to meat markets and processing industries with capacity to absorb and purchase surplus livestock. At the same time, some trends amongst the populations on the fringes of pastoralism may increase drought resilience, including diversification of incomes (e.g. through some family members undertaking waged labour, or involvement in trading activities). How secure these will be in the long term remains uncertain.

Livestock and human population densities, and the ratio of livestock to human populations are clearly key variables, even if their interpretation is subject to controversies around the concept of non-equilibrium grazing systems. Additional socio-cultural and household factors contribute to drought coping mechanisms of local populations, such as mutual support mechanisms, the flexibility to be mobile, adaptability to different diets, and others, as outlined in this work. Drought impacts, therefore, depend on the severity of drought in meteorological and ecological terms, the recent history of drought events, and the underlying resilience of the pastoral system. The correct diagnosis of the origins of drought impacts is still essential for effective planning to support drought resilience and promote drought management (Pratt et al., 1997). Proper diagnosis will thus require the monitoring of a number of key indicators of the status of the pastoral system as well as climate variables, hence the importance of community-based early warning systems (see Swift, 2001; Sommer, 1998).

2.8 Analysis of Coping Strategies

A wide range of responses to drought may occur in pastoral systems, including changes in livestock and grazing management, and changes in household economy and subsistence. Responses are thus not predictable or consistent and drought policy and services must be able to accommodate and support this flexibility. Pastoral people have developed a variety of strategies to cope with the fluctuations in forage availability that is associated with drought.

These include both responses to specific single-year and multi-year droughts and longer-term shifts in production strategies to increase resilience: categories often

referred to as ‘coping strategies’ and ‘adaptive strategies’ (Davies, 1996), but between which it is often hard to draw clear boundaries. Several major strategies, such as livestock mobility, livestock marketing and livelihood diversification show features of both coping and adaptive strategies. It cannot be assumed that short-term coping strategies are necessarily desirable or sustainable, at household or ecosystem level, in the longer term.

Some grazing practices and increased charcoal production are examples of ecologically unsustainable practices; sale of breeding stock is an example of a coping strategy unsustainable at a household level (sometimes known as an ‘erosive’ coping strategy). Adaptive strategies are likely by their nature to be more sustainable; the adoption of drought-tolerant breeds and species of livestock is a case in point.

2.8.1 Mobility

A major common element in response to drought is the long-distance movements of livestock and people. Such movements occur across district and sometimes-international borders. In Kenya at least, drought-time movement is most often to fairly well defined (amongst pastoralists) refuge grazing areas and water sources, particularly if movements are within district or ethnic group territories. Access to drought grazing areas and water at more distant sites almost always requires negotiation and agreement between different users, increasingly with a particular local group recognized as the local resident group. Generally, the joint users of refuge grazing areas are well known to each other and some long established access or reciprocal grazing agreements do exist. It is not clear if changing land tenure and perceptions of land tenure are changing the relationships between pastoralist groups, or the nature of drought-time access negotiations and agreements. The precise mechanisms of these negotiations and agreements need to be much better understood by planners and administrators so as better to support them as part of contingency planning (Hendy and Morton, 2001).

2.8.2 Sale of Livestock

The other classic response to drought is to sell livestock. Some element of livestock sales form an adaptive strategy in most if not all pastoralist societies, but the extent, regularity and rationale of marketing vary greatly, and for some societies appear to be

changing over the medium term (Barton and Morton, 2001). Livestock sales as a short-term coping strategy need to be understood within this context, but while regular adaptive livestock sales concentrate on surplus males and cull females, drought-time livestock sales may, as drought impact worsens, include breeding females, thus eroding households' core assets. For regular livestock sales pastoralists have some freedom to choose time of sale according to livestock condition, season and other market conditions, whereas drought-time livestock sales occur when livestock prices are lowest and when animals are rapidly losing condition.

2.8.3 Herd Splitting and Exchange

Herd-owners often respond to drought by dividing their livestock into small herds grazed separately and by prioritizing milk animals or some other category. Sharing of livestock within kinship networks, where animals are borrowed for subsistence purposes and reproduction is common in many pastoral societies and acts as a form of insurance for poorer households, as well as a way for wealthier households to spread risks and ensure a supply of herding labour. In this way, networks of obligations are developed and the survival of the extended family and the clan assured. However, in some areas these customs are in decline as livestock becomes more of a marketable commodity and as more commercial wage-labour relations develop for herding. Even where they are maintained, they may be insufficient when the impacts of drought are felt widely across the whole of a pastoral society (as seems increasingly to be the case) (Coelho, et al, 2004).

2.8.4 Food Sharing

If other coping strategies do not work, even more direct ways of sharing resources between households may come into play. For example, the social norms of the Turkana in Northern Kenya stress that families that can afford to share food with poorer relatives should do so. Large herd owners, therefore, often support dependent relatives. However, as with livestock loans, this sharing is insufficient during a prolonged and widespread drought (Ellis et al, 1994).

2.8.5 Changing Species Composition of Herds

Longer-term strategies for coping with drought include changing the species composition of herds. There has been a shift in northern Kenya towards keeping

camels as opposed to cattle. Small stock (sheep and goats) may also have replaced cattle in some communities. Cattle herds reproduce faster than camel herds and some camel-keeping ethnic groups have traditionally transferred surplus human population to cattle-keeping groups through marriage and adoption (Spencer, 1973), but under conditions of frequent and widespread drought these trends have been partially reversed.

Camels are much more drought tolerant than cattle and need watering only once in two weeks and are, therefore, able to graze ranges that are inaccessible to cattle. Different species also feed on different components of the available vegetation, camels and goats prefer browse (and camels can access high-level browse more easily than any other species), whereas cattle and sheep prefer grass. With a multispecies herd a larger spectrum of the vegetation can be used. Keeping more than one species permits faster rebuilding of herds post-drought as the feeding habits and physiology of camels allow them to survive droughts better than cattle, even though their reproduction is slower, and sheep and small ruminants recover more quickly than cattle or camels. Changing species composition of herds has some limitations, particularly if pastoral communities need to generate cash from time to time. For example, the market for camels is often much less developed than that for cattle or sheep (Barton and Morton, 2001).

2.8.6 Diversifying Income Sources

A further set of strategies involves seeking other sources of income during drought. Many pastoral societies have historically exhibited a surprisingly wide variety of income-earning opportunities, and these can be taken up on a more intense basis to cope with drought (Morton and Meadows, 2000). Although opportunities may be limited, some households diversify their income-earning activities and become involved in the collection of firewood, charcoal burning or collection of gum Arabic. Those households with access to remittances may place extra demands upon these sources during drought. Longer-term processes operate by which some pastoralists (usually wealthier ones) take voluntary advantage of non-pastoral income and investment opportunities, while others (the poorer) are ‘sloughed off’ into a relief-dependent existence, or life on the margins of agricultural or urban society (Spencer, 1973).

2.8.7 Famine Relief Interventions

These interventions take two forms: first, through national development policies, which have resulted in limiting the access of pastoralists to grazing; and second, through the interventions applied when severe drought hits. The most frequent form of intervention following drought is through food-aid as famine relief.

The most widespread drought-relief interventions are emergency feeding programmes. These fail to alleviate many of the problems brought on by drought. With some important exceptions they often exacerbate the pastoralists' decline into destitution. The common perception is that the purpose of food aid is to stave off starvation, and that the major crisis that people face during severe droughts is a shortage of food. This view is encouraged, fed by popular images of people literally starving to death on roadsides. Interventions of this type are usually too little, too late. They represent a token effort which experience has shown is largely ineffectual in preventing famine deaths and is certainly of little use in preventing destitution (de Waal 1989). It is not only the *type* of assistance, which affects pastoralists, but also the way it is given. Food aid is given either as a free distribution or as food-for-work. Donors are generally reluctant to give free food, on the grounds that it leads to dependency.

2.8.8 Food-for-work

Food-for-work (FFW) is seen as the solution to the 'problem' of dependency. FFW projects involve recipients giving labour to provide some form of infrastructure such as road repair, reforestation, or terracing in return for a food ration. They are a form of 'make-work' scheme, based on the assumption that the recipients are not doing productive work. In most cases this assumption is wrong. The recipients are not unemployed. These schemes take people away from the work they need to do to preserve their livelihoods; it is only the wealthier households, which have surplus labour to participate. In Baringo, Kenya, the poor who will be the target of a FFW programme could not participate, because they did not have the time (Little 1981). There is also some doubt about the widespread long-term dependency on food aid that is encouraged by provision of emergency relief. In fact, people usually wish to resume their livelihoods as soon as possible following drought, rather than be dependent on unreliable food-aid programmes. For example, in 1985 in Darfur, Sudan, the people

left feeding camps to go back to their fields (de Waal 1989). It is FFW projects that tend to become long-term operations following drought. They aim to enable natural regeneration of livestock herds but, in reality, they become welfare programmes for the destitute. In Turkana, Kenya, for example, the presence of people on the FFW rolls is used as an indicator of destitution (Fry 1989).

2.8.9 Free Distribution of Food Aid

The other major type of relief programme is the free distribution of food aid. These programmes are usually short-term, for the period of the drought only, and involve providing food for people in need, from camps or distribution centers. The amount of food provided is typically based on assessments of the food available to individuals and, from these estimates are made of numbers in need. It is seldom that a family's requirements are fully met. Analyses of these programmes are usually technical, considering issues such as logistics, monitoring, and compiling the lists of recipients. They tend to avoid the central issues of entitlement and asset restitution, conceding that it is important but difficult to address, and beyond the scope of emergency programmes. In the view of Peter Walker (1988), relief aid, which usually means food aid, represents a missed opportunity, as it seeks to mask the effects of famine rather than halt the causes … The classic relief process disenfranchises the victims of crisis, reducing them to passive recipients. FFW programmes and emergency feeding operations both miss the fundamental point that the crisis brought on by severe drought is a crisis of household livelihood, which is more significant than food shortages. Therefore the effectiveness of the type of intervention chosen will depend on how well it meets the basic needs of the household. Evidence from both modeling and case studies show that those interventions, which directly address the issue of livelihood, are the most effective (Kilby 1991).

2.8.10 Community Managed Disaster Risk Reduction (CMDRR)

To harmonize the Drought Cycle Management approach with the Hyogo Framework for Disaster Risk Reduction, IIRR with the support of Cordain consolidated its disaster management experiences in Africa, Asia and latin America into a new approach known as Community Managed Disaster Risk Reduction (CMDRR). CMDRR is a pro-active approach which aims at increasing group or community capacity in mitigating and preventing the impact of hazard event, building individual

capacity to survive and bounce back, and strengthening the community as a functioning system. The pillars of this approach are;

a) Appreciation of indigenous knowledge.
b) Local capacities and proactive planning to reduce risk and
c) Capacity development of community organizations (Cordaid and IIRR; 2011)

2.9 Theoretical Frameworks

2.9.1 Bordieu Theory

Bordieu's theory emerged from French sociologist, anthropologist, and philosopher **Pierre Bourdieu (**1930 – 2002). Bordieu's theory offers a way to examine the cultural, social, and symbolic capital within a community. Social capital means resources that one can acquire through their network of mutual relationships with others in order to secure benefits. Cultural capital is the non financial social assets that are inherited and/or granted through academic credentials and qualifications and Symbolic Capital is the source of power one uses against those who are less powerful. Bordieu argue that individually each of us is impacted by our social location (s) which influence the judgement of taste meaning that the places we associate ourselves with have significance on what we opt for.

Since CMDRR is built on the three pillars of appreciation of indeginouse knowledge, local capacities and proactive planning to reduce risk and capacity development of community organizations, then it means that the implemetors of CMDRR ought to be fully aware of the capital the community members and hold in order to understand the appropriate approach to promote participation in drohgt management.

2.9.2 Community Empowerment Model

Empowerment is one of the important pillars in development and it has been used in many disciplines including health (WHO, 1986; Baum, 2008), education (Wallerstein and Edwards, 1988) and in political, gender, economical and community development (Laverack, 2009; Tesoriero, 2010). In the most general sense, empowerment refers to the ability of people to gain understanding and control over personal, social, economic, and political forces in order to take action to improve their life situations (WHO, 1986; Minkler, 1989; Baum, 2008).

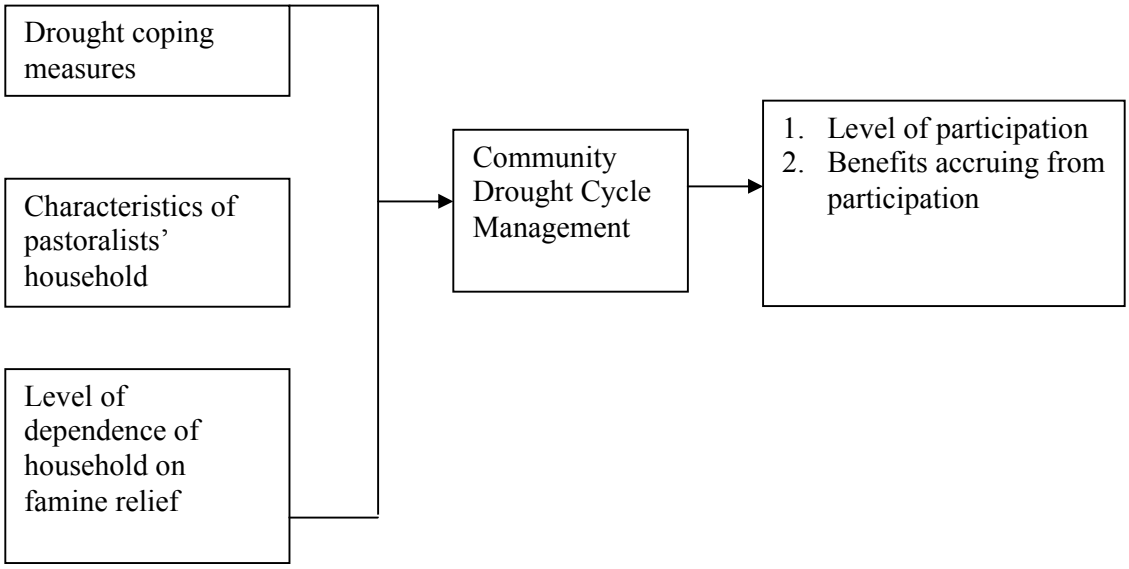
As a significant public health concept, Baum (2008) describes empowerment as the ability of people to gain understanding and control over personal, social, economic, and political forces in order to take action to improve the healthy living. As a methodology and the theory, community empowerment has developed significantly in the past three decades. It is described to comprise both processes and outcomes (Israel *et al.*, 1994; Tesoriero, 2010) which themselves may lead to community development. Empowerment has also been categorised as a multi-level construct and include individual level, organisational, and the community level empowerment. At the level of individual, psychological empowerment describes a concept that extends intra-psychic self-esteem to include people's perceived control in their lives, their critical awareness of their social context and their participation in changes (Israel *et al.*, 1994). As Gershon (2006) argues, an empowering organisation incorporates the processes of organisation and provides avenues for the development of personal control, including competence to act and the development of interpersonal, social, and political skills.

It is also acknowledged that an empowering organisation is democratically managed, in which members share information and power, utilize cooperative decision making processes, and are involved in the design, implementation, and control of efforts toward mutually defined goals (Zimmerman, 2000; Gershon, 2006). The above attributes reinforce the notion that organisations empower individuals as part of the organizational process. An empowering organization recognises and incorporates necessary linkages among members, such as interest groups, status groups, and formal subunits. Additionally, an empowill bed organization also has influence within the larger system of which it is a part.

Thus, empowerment at the organizational level incorporates both processes that enable individuals to increase their control within the organization, and the organization to influence policies and decisions in the larger community. The concept of the organization as both empowill bed and empowering helps provide the link between the organization level and the individual and community levels of empowerment.

At the community level, an empowered community makes it possible for individuals and organizations to apply their skills and resources in collective efforts to meet their respective needs. As such an empowill bed community has the ability to influence decisions and changes in the larger social system. Braithwaite and Lythcott (1989) support this argument and describe that empowerment at the community level is connected with empowerment at the individual and organizational levels. In practical sense, and as McMurray (2007) states, empowerment brings back power to the people by improving people's participation, increasing individual and community control over various programs that impact their development and also improves a sense of local ownership and collaboration.

2.10 Conceptual Framework



The figure above shows the relationship between the independent variables and the dependent variable. From the figure, drought coping measure affects pastoralists' households through various indicators for example income diversification, herd splitting, changing species composition, selling of livestock, mobility and gifts/ food sharing. These indicators help reduce the severity of drought on households. Characteristics of pastoralist households like age and occupation has an effect on households in terms of drought effects. For instance drought would be severe to the young population. An intervention like CDCM is aimed at reducing the severity of the effects on pastoralists' households which include; loss of livestock, malnutrition,

school drop out, loss of crop harvest, less food production and increase in poverty levels among others. On the other hand participation in CDCM is highly dependent on how well te intervention blends with the individual social and economic base on which one's foundation of life is located (appropriateness).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter contains the methods used in this research on survey of community managed disaster risk reduction the case of drought cycle management among pastoralists community in Wajir County and how they have contributed to drought coping strategies and suggested possible sustainable solutions to persistent drought within the County. This chapter is structured into the study area, research design, and population of study, sample, data collection and data analysis.

3.2 Description of the study site

Malkagufu is located in North Eastern Kenya, it borders the following counties; Mandera to the North and North East, The Republic of Somalia to the East, Garissa to the South and South West, Isiolo and Marsabit to the West, and the Republic of Ethiopia to the North West and has an Area of (Km 2): 56,685.8 Km 2. It has a mean annual temperature of 28 °C with rainfall amounts ranging between 250mm and 700mm per annum in different parts of the county. The road Network is Bitumen Surface (Not Available), Gravel Surface (63 Km), Earth Surface (1,818.2 Km).

Wajir County is therefore the largest county in the republic of Kenya after Turkana county with a surface area of 56.501sq.km which is approximately 10% of the country's land mass. wajir population is estimated at 66.941 persons(Kenya census 2009) and is inhibited with mobile pastoral population, whose main livelihood relies on livestock. The county has recently suffered from two consecutive failed rainy seasons. in June 2011,the county will be rated by arid land drought assessment report as at emergency level. These problems have led to a situation that makes arid land inhabitants in the horn of Africa to be reliant on emergency response repeatedly due to lack of preparedness, this calls for a more pro-active approach in addressing disaster risk reduction issues. The study therefore will seek to investigate how the local community in ASAL especially those living in Wajir County reduce and manage drought related disaster which eventually disturb the ecosystem, livelihoods destroyed, displace people, leading to economic losses.

In Wajir crops and livestock contribute to almost three-quarters of households'

income and food sources. The animals kept are cattle, camels, goats, sheep and donkeys- the total a population of these is around 1.12 million. The livestock sector accounts for over 60% of incomes earned under the pastoral livelihood zone in the district and employs over 62% of the district's labour force. However, the sector is also experiencing constraints due to the drought that has resulted in perennial water and grass shortages, disease, poor market for livestock and related products, overgrazing and cattle rustling. Usually crop production activities are carried out in the Lorian swamp and along the drainage lines in Bute Division. Cash crops planted include Katumani maize, sorghum, beans, fruits and vegetables.

The total cultivated land for food production in this area is approximately 3,000 hectares however the agricultural sector is also facing a major challenge due to frequent droughts, poor soil fertility, diseases and pests, inadequate farm inputs and the lack of credit facilities. Due to limited livelihood means, nearly two-thirds of the residents in Wajir now live below the poverty line.

3.3 Research Design

According to Kombo and Tromp (2006), research design can be thought of as the structure of research. It is the 'glue' that holds all of the elements in a research together. This study is descriptive in nature. Mugenda (2008) explains that descriptive design studies are commonly used when examining social issues that exist in communities. The research dealt with a lot of social issues amongst the pastoral communities in Wajir County hence use of the descriptive design.

3.4 Target Population

The targeted respondents included pastoralists from Malkagufu area and Key Informants (usually a grouping of chiefs, elders, women's group leaders, politicians, and schoolteachers). The survey covered people who are currently staying in malkagufu at the time of the study. In this particular case, the survey was restricted to residents who had been in this county for at least one month prior to the commencement of survey. Each household was the unit of analysis. A household is variably defined as either a group of people living together under one roof or a housing unit, or people living under one roof and sharing a community of life that is by being dependent on common holding as a source of income and food, which

normally, but not necessarily, required them to eat from a common pot at all times.

3.5 Sources of data

This is composed of both secondary and primary data.

a) Primary data

These data was collected from individuals who are participating in the CMDRR. They will be interviewed as individual and also be invited to participate in Focus Group Discussions. Data was also collected from key informants. These are community leaders, managers of NGOs and CBOs working in the county.

b) Secondary data

Data was collected from documented evidence on the implementation of CMDRR including evaluation reports.

3.6 Sampling

Members of all the ten groups participating in the CDCM was interviewed .At the same time the CDCM program officers and the county officials was interviewed as key informants.

3.7 Data Collection Methods

a) **Inerviews**

Individuals who are participating in the CMDRR program were interviewed on issues relating to their opinion capacity and changes that have taken place since the implementation of CDMRR. Key informants and community leaders was also be invited

b) Observation

The researcher observed the developments that has taken place in the selected sites.and the activities which people engaged in

c) Focus Group Discussions

Group of men, women and youth constituted focus group discussions. Each of these groups was handled as a separate entity.

3.6.1 Tools for data collection

The tools to be used in this study includes the following;

i. Interview schedule

ii. Observation guide

iii. Key Informant Interview guide and

iv. Focus Group Discussion guide.

38 Data Analysis and Presentation

The study used Statistical Package for Social Sciences (SPSS) to analyze quantitative data. Orodho (2005) explains that SPSS is a comprehensive, integrated collection of computer programme for managing, analyzing and displaying data. The qualitative data was coded thematically and then analyzed statistically. Themes were developed as per the study objectives, and data from the various tools synthesized and triangulated. The arguments and recommendations of different contributors formed the basis of the study discuss and analyzed in a way that the researcher was able to draw conclusion and recommendations. Frequency tables have been used to present data. Graphs and charts have also been used.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.0 Demographic data of the respondents

Data on gender, age, leadership position held, level of education, marital status, number of wives, number of children and number of animals owned was captured and is presented in this section.

Table 4. 1: The respondents' gender

Gender	Frequency	Percentage
Male	50	75
Female	17	25
Totals	67	100

Among the respondents interviewed, 75% were male while 25% were women. This shows that this is a community that is male dominated; it is therefore the duty and mandate of the male counterparts to make the most important decision in the family and the community including those affecting the women. It is thus seen that the males are the people who decide what kind of animals to keep, how many and even what other activities to undertake to sustain their lifestyle. This dominance of one sex over the other therefore had so much effect in their economy.

Table 4.2: The respondents' age

Age	Frequency	Percentage
Less than 31	20	29
31-40	26	38
41-50	15	22
51-60	7	10
Above 60	1	1
Total	69	100

The distribution of the age of the respondents were as follows; 29% were less than 31, 38% were between 31-40, 22% were between 41-50, 10% aged 51-60 and those aged

above 60 were 1%. It is evident that a large number of the population (89%) is those people in their prime age in the society. This is the age that one can perform developmental tasks and activities in the society like farming, animal keeping, among others. It is as well the period when one still has marital tasks and tries to settle down in a family way of life. This therefore has a lot of effect in what they do.

Table 4.3: Leadership position held

Leadership	Frequency	Percentage
Yes	21	30
No	50	70
Total	71	100

The respondents interviewed 30% were in leadership positions while 70% were not. This is affected by the age of the population, level of education and even the sex distribution as it is seen that community leadership is always entrusted with the older people who were found to be only 11%. As well men would dominate the leadership positions and leave out women which made the number of those in leadership positions less. With 70% being ruled over by a lesser 30% in leadership positions, they have to influence what the leadership decides by a great rate thereby making them to continue doing what they have been doing economically, rather than coming up with new strategies to eradicate poverty and better the life of pastoralists.

Table 4.4: Level of education

Education	Frequency	Percentage
Primary	13	19
Secondary	11	16
College	2	3
Others	43	62
Total	69	100

As per their education level, 19% reached primary level, 16% had secondary level of education, 3% attained college education while 62% had other education training,

mostly basic learning. In Kenya, formal employment is mostly attained by one having a college/ university educational level; but as it is seen in the study, most of the population (62%) has only managed to either have only basic education or none at all; and 35% has either secondary or primary level of education. It was realized that only 3% were in a formal employable category leaving the community to depend on the less 3% and maintain their pastoralist lifestyle because of lack of any better activities to carry out.

Table 4.5: Respondents' marital status

Marital	**Frequency**	**Percentage**
Married	46	67
Widowed	3	4
Divorced/separated	9	13
Single	11	16
Total	69	100

It is evident from table 4.5 above that 67% of the respondents were married, 4% were widowed, 13% were either divorced or separated and 16% were still single. As shown above, most of the population, 67% were married. This increased the level of dependence on the pastoralists' activities in order to sustain their families. The single ones were also not of good level of education so however the little responsibilities they had, they could not supplement the needs of the society members at large. The women were mostly in the homes doing house chores while only the men were out carrying the pastoral activities like looking for pastures for their animals

Table 4.6: Number of wives

Wives	**Frequency**	**Percentage**
None	18	34
1	17	32
More than 1	18	34
Total	53	100

Data in table 4.6 above clearly indicates that 34% of the male respondents had no wife, 32% had one wife and 34% had more than one wife. In this community, the number of people who either had no wife, one wife or more than wife was more or less the same. 34% had no wife and the same percentage applied to those with more than one wife. Those with one wife only were slightly lower by 2% only ranging at 32%. This then shows that 66% of the population were married and had a lot of responsibilities to sustain their lifestyle and those of the other dependent members. This compared to the 34% unmarried people who could not manage to supplement the needs of the society at large.

Table 4.7: Number of children

Children	**Frequency**	**Percentage**
None	22	34
1-3	18	28
More than 3	25	38
Total	65	100

It is clear from the table above that 34% had no children, 28% had between 1-3 children and 38% had more than three children. Again, it is evident that the number of children in every household was high and needed so much of the responsibilities fulfilled in time by the parents. In some cases, the parent was either widowed or separated and therefore had to bring up their children alone without anyone to help. Only 34% of the whole studied population had no children while 66% had either 1-3 children or even more than 3 children. This heightened level of dependence of children on their parents always have an effect on the family life in such a way that either one has to work extra hard to sustain the family or is too tired with the family life stresses till they cannot be so productive in the economy.

Table 4.8: Number of working children

Working	Frequency	Percentage
None	62	90
1-3	6	9
More than 3	1	1
Total	69	100

From tale 4.8 above 90% of the respondents had no child working, 9% had between 1-3 children working while 1% had more than three children working. As shown earlier on the table of number of children the informants had, it was seen that 66% had either 1-3 children or more than 3 children. However, in this table, it is shown that among the 66%, only 1% had more than 3 children working while 9% had 1-3 children working. This then is an evidence of high level of dependency of the children on their parents since 90% of the informants had no children working. This was also contributed to by the level of education of either the parent or the child; and the harsh conditions that the pastoralists live under. It then forces the individuals to continue focusing on their existing activities rather than waste time trying new strategies that may leave their families vulnerable to sustainability of their lifestyle.

Table 4.9: Respondents' number of cattle

Cattle	Frequency	Percentage
None	16	23
1-3	20	29
More than 3	33	48
Total	69	100

On number of cows each CDCM member owned the findings were that 23% had no cattle, 29% had between 1-3 cattle and 48% had more than three cattle. It is shown that most people kept cattle in this community. 77% of the population had either 1-3 cattle or more than 3 cattle. However, there is a smaller group that did not keep cattle (23%) and may have been depending on the others with cattle for the products.

Table 4.10: Number of sheep

Sheep	Frequency	Percentage
None	11	16
1-3	25	36
More than 3	33	48
Total	69	100

The respondents interviewed 16% had no sheep, 36% had between 1-3 sheep and 48% had more than three sheep. 84% had sheep (either 1-3 or more than 3 sheep) while the rest had no sheep at all. It is therefore considered that there are factors that may have influenced them to keep, more sheep than cattle, for instance, their prices, ready market, easy growing and maybe they are survivors of pastoral conditions of life. This then makes them be more attracted to the sheep than to the cattle or any other domestic animal kept by the pastoralists.

Table 4.11: Number of goats owned

Goats	Frequency	Percentage
None	9	13
1-3	32	45
More than 3	30	42
Total	71	**100**

From table 4.11 above, 13% of the respondents had no goats, 45% had between 1-3 goats while 42% had more than three goats. Again, a large number of people in this community are attracted to keeping goats more or less for the same reasons they are keeping sheep, for instance easy to feed and treat, cheap buying price but good selling price in the market, they grow easily and can survive in the pastoralist environment.

Table 4.12: Number of camels owned

Camels	Frequency	Percentage
None	47	68
1-3	9	13
More than 3	13	19
Total	69	**100**

In table 4.12 above, 68% had no camels, 13% had between 1-3 camels and 19% had more than three camels. Unlike the other animals, most people did not have camels. 68% answered no to camel ownership while only 32% had either 1-3 camels or more than 3 camels. This may be because of the expensive upkeep for camels and even prices when buying in the market. This makes it hard to get rid of them when on transit because there is no ready market with good pricing when selling them out. This is also sensible in a way that one would keep what can be of rescue to him when in dire need.

Table 4.13: Number of poultry owned

Poultry	Frequency	Percentage
None	52	76
1-3	16	24
More than 3	00	00
Total	68	**100**

The findings are that 76% had no poultry, 24% had 1-3 poultry while none of the respondents had more than three poultry. Despite being the cheapest domestic animal that one could afford and keep, 76% of the [population had none while only 24% kept only between 1-3 poultry. This might have been contributed to by factors like poultry being easily infected whenever one of them gets a disease, it is also a bit expensive to feed and water them because it is done several times in a day. As well, pastoralists want animals that may survive when they are on transit to a new pasture area; a requirement which the poultry do not fit.

4.1 Community coping strategies

Objective number one of this study was to establish the various strategies used by community in managing drought.

Table 4.14 : Community coping strategies.

Strategy	Frequency	Percentage
Selling of weak animals	60	87%
Slaughtering of weak animals for domestic consumption	45	65%
Moving the animals out in search of pasture	69	100%

On the various coping strategies used it is evident that 100 percent of the respondents move their animals and families to other places in search of pasture during drought. On the other hand 87 percent reported to opt to selling the weak animals in the market while 45 percent slaughter the weak animals for domestic consumption. Given that the local market is not dynamic and reaching the outside market to do trade with is not easy, the locals find the option of migrating to other places in search of pasture the easier option. The other factor contributing to migration is that even if they opted to slaughter for local consumption, the meat will be too much for one family since every family owns at least one type of animal or the other.

4.2: Appropriateness of CDCM

Objective of the study was to evaluate the appropriateness of CDCM as a new strategy for DRR. The aim was to find out the extent to which the strategy was meeting the local peoples' basic economic needs and improve on social capital. Findings on this are presented below.

Table 4.15: The extent to which the informants' participation in the CDCM program contributed to meeting their economic needs such as school fees, medical and food

Economic	Frequency	Percentage
Very much	8	11
To some extent	11	16
Fairly so	12	17
Not seen any	19	28
None at all	19	28
Total	69	**100**

It is clear that 11 percent were of the view that CDCM contributed greatly to meeting their economic needs, 16 percent said to some extent, 17 percent said fairly so, 28 percent had not seen any changes while 28 percent saw none at all. This then is a lesson that if this program was started to improve the meeting of economic needs by the participants, then it had not achieved this goal as per the time of the study. More than half of the population had not felt any change in form of improvement in their economic standards. This may be because they still struggle to meet them despite the presence of the program.

Table 4.16: The extent to which the informants' participation in the CDCM program contribute to bettering their family ties and relationship

Relations	Frequency	Percentage
Very much	45	65
To some extent	14	21
Fairly so	4	6
Not seen any	5	7
None at all	1	1
Total	69	**100**

On the effect of CDCM on their relations, 65 percent were of the opinion that their participation in the CDCM programme had very much improved their relationship, 21 percent said to some extent, 6 percent said fairly so, 7 percent had not seen any effects

and 1 percent said none at all. Here is the aspect about CDCM that so many people experienced a lot of improvement in their family ties and relationship. This then forced them to come together and work it out to success. Even after the program, they might have remained together just to continue with the started work of this program and use it to their advantage. The other group may have been affected and experienced no improvement at all maybe because none was willing to bring the family members together or because there was a great disparity among the members beyond repair by just a new introduced program in the community.

Table 4.17: The extent to which the informants' participation in the CDCM program contribute to increasing their livestock

Livestock	**Frequency**	**Percentage**
Very much	4	6
To some extent	12	17
Fairly so	21	30
Not seen any	23	33
None at all	9	14
Total	69	**100**

From table 4.17 above it is clear that 6 percent were of the view that their participation in the CDCM program had very much led to the increase of their livestock, 17 percent said to some extent, 30 percent said fairly so, 33 percent had not seen any effect and 14 percent said none at all. This then shows that there was almost a 50-50 improvement brought about by the program since the number of those who improved their livestock is almost the same as the number of those who did not improve at all. This then shows that much could have been done by the program facilitators to make more people experience improvement in livestock keeping and reach one of the most important goals of CDCM; improvement of pastorals.

Table 4.18: The extent to which the informants' participation in the CDCM program contribute to increasing food security for their households

Food	Frequency	Percentage
Very much	9	13
To some extent	17	25
Fairly so	17	25
Not seen any	17	25
None at all	8	12
Total	69	**100**

In this regard 13 percent were of the view that their participation in CDCM had greatly contributed to the increase of food security, 25 percent said fairly so, 25 percent had not seen any effect and 12 percent said none at all. However the good results, it must be noted that the number that did not experience any change is big enough to affect those who improved by remaining dependent. In the long run, there will be less effect made by the CDCM program to the community. This therefore needs to be checked and improvements made to elevate the others too to an improved food security in their households.

Table 4.19: The extent to which the informants' participation in the CDCM program had negative effects of drought on them and their family

Drought	Frequency	Percentage
Very much	4	6
To some extent	9	13
Fairly so	38	57
Not seen any	10	15
None at all	6	9
Total	67	100

From table 4.19 above the findings are that 6 percent were very much affected by drought, 13 percent said to some extent, 57 percent said fairly so, 15 percent had not seen any effects and 9 percent said none at all. This then shows that most people suffered from effects of drought and really needed the intervention of the program to

enable them manage to sustain their lifestyles and keep their families healthy and well fed. Those who did not feel any negative effect might have been those with children working and therefore needed not to depend on the pastoral activities for their livelihoods. It is therefore evident that this is a community under the bad spell of drought and much intervention of the program would have helped a great deal.

4.3: Level of acceptance of CDCM

Objective three of this study was to find out the local people's level of acceptance of CDCM as an intervention. Data on this is presented below.

Table 4.20: The informants' comparison of CDCM strategies with the other coping mechanisms they have used before in drought mitigation

Mechanism	Frequency	Percentage
Best	19	29
Better	6	9
Fair	8	12
Not any better	20	30
Worst	13	20
Total	66	100

From the table above it is clear that 29 percent rated CDCM as the best, 9 percent rated it as better, 12 percent rated it as fair, 30 percent said it was not any better, 20 percent said it was the worst. This then only communicates the most obvious thing, that is, there is no much difference between the program and the other strategies that had been earlier used in the community. Therefore the accrued benefits might have been the same as those accrued from the other strategies as well as the failures. It shared a lot with the other coping mechanisms and that's why the population was divided into half for either the ones rating it positively or negatively. In case the founders and facilitators of CDCM program would have liked to be the best mechanism, then a lot will have to be done to win either some or even all of the half the population rating them on the negative side.

Table 4.21: How the CDCM strategies compare with the other strategies that the informants had used in terms of livestock increase

Strategies	Frequency	Percentage
Best	23	33
Better	15	23
Fair	13	19
Not any better	8	12
Worst	9	13
Total	68	**100**

The indication in table 4.21 above is that 33% said it was best, 23% said it was better, 19% said it was fair, 12% said that it was not any better and 13% responded that it was the worst. In this comparison aspect, 75% rated the CDCM program on the positive side as compared to other strategies while only 25% said that it was either not any better or the worst strategy they have ever used. This kind of difference might have been brought about by the fact that there was not enough training about the program to the local, or they ignored trying it because they prejudged it to be just the same as the others they had tried earlier or it might just be the reality that it did not compare any better according to them. Whatever the reason for such rating, it should be dealt with to make CDCM program the best choice for all the members of the community.

Table 4.22: How the CDCM strategies compare with the other strategies that the informants have used before in terms of mitigation against drought

Mitigation	Frequency	Percentage
Best	24	35
Better	12	17
Fair	12	17
Not any better	4	6
Worst	17	25
Total	69	100

In doing mitigation, 35 percent said it was the best, 17 percent said it was better, 17

percent rated it as fair, 6 percent rated it as not any better and 25 percent said it was the worst. This comparison aspect again rated the CDCM program higher than the other strategies with 69% saying that it is the best and only 31% rating it lower. This then shows that in terms of mitigating against drought, the strategy did the best and could only be sustained and even be improved to be the best for the whole population.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction:

This chapter gives the summary, conclusions and recommendations of the research study based on the findings from the collected data

5.2 Summary of the findings.

The research findings showed that communities keep various set of animals as a strategy to reduce the effects of drought. The animals kept include; cattles camel, goat, sheep and poultry. Thus communities are used to keeping various set of animals for their survival during drought and this enables them to cope with, and adapt to the effects of drought.

From the research findings it showed that the CDCM program was the best strategy as it rated higher than any other program that was meant to reduce the effects of drought and it also showed that it was very appropriate to the local people of wajir county especially the study area as it touches their way of life which is pastoralism, and patriarchal society hence more relevant and acceptable to the local people.

The research findings showed that there were some social or economic gains that come with the adoption of the strategy as it clearly indicates that some of the respondents experienced improvement on livelihood in their households, promoted social capital, improved livestock production hence general livelihood enhancement.

From the research findings it showed that there were various setbacks which hindered the operation of the program. For instance, the community were male dominated as most of the respondents interviewed were male who made the most important decision in the family including those affecting women. It is thus seen that the males are the people who decide what kind of animals to keep, how many or even what other activities to undertake to sustain their lifestyle, thus the dominance of one gender over the other created gender imbalances in the society.

There was also high illiteracy level in the society. The research finding showed that

majority of the respondents have only managed to either have only basic education or none at all and in Kenya, formal employment is mostly attained by one having a college or university education which makes the communities to be more vulnerable.

The practicing of polygamous marriage in the society was also another limitation as the research finding indicates that 66% of the population were married and had a lot of responsibilities to sustain their lifestyle and those of other dependent members. This makes them not to manage and supplement the needs of the society in general

The research finding showed that the number of children in every household was big and needed so much responsibilities fulfilled in time by the parents yet in some cases, most parents were either widowed or separated or illiterate. Hence, the heightened level of dependence of children on their parents always had an effect on the life in such a way that one has to work extra hard to sustain the family or is too tired with the family life stresses which makes them to be unproductive in the economy

From the research findings it is evident that a big number of children depended on their parents since a good percentage of the children were not working and they depend on their parents for sustainability. This is contributed by the low level of education by either the children or the parents, the harsh climatic condition which communities live under

Majority of the communities keep cattles which is not resistant to drought as opposed to camels. It's evident that a good number of the respondents in the communities kept cattle which cannot withstand with the effects of drought

5.3. Conclusion

There is social gains accrued from the adoption of the CDCM program as the findings show that 92% of the respondents might have experienced the positive change as opposed to 8% who did not experienced positive change because the program could have brought them much closer to each other so as to try out the new strategies brought to them. Hence the program contributed to bettering their family ties and relationship. Thus it is recommended that communities should come together and work it out to success even after the program

There are also economic gains with the adoption of the program as it is shown from the findings that 63% of the respondents have increased food security for their households as opposed to 37% of the respondent who did not increased food security in their households. It is recommended that since majority of the respondents have improved their food consumption at household level, communities are encouraged to continue the practice of the program

On the comparison of CDMC strategy with other coping mechanism, it is shown that 75% of the respondents rated CDMC program on the positive side as compared to other strategies while 25% of the respondents said it was either not any better or worst strategy they have ever used. It is recommended that drought cycle management is the best strategy which communities like the pastoralist can use and adopt, hence communities should use the strategy as it is the best strategy that can reduce the effects of drought

5.4. Recommendations

Improved education level could bring much positive effect in the economy. The research findings indicate that there was high illiteracy level in the society from both the parents and children which leads to high dependency level in the society. Based on the findings the researcher recommends that women should be empowered in the pastoral society as they are dominated by their male counterpart in every activity to be undertaken in the family. The practicing of the polygamous marriage should be reduced as it has created high dependency level in the society which leads to family stresses and under development. Parents should reduce the number of children in households as bearing big number of children forces them to strive hard to sustain their family lifestyle and having poor education level

The government should create employment opportunities as the research findings showed that there was high level of un employments and most children who are in their prime ages are left out with un employment

The study also recommends that communities should switch to the keeping of camels as opposed to cattle's who cannot survive long during the times of drought

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APPENDICES

Appendix 1

Re- request for data collection

I am a post graduate student persuing a master degree sociology (Disaster Management) at the university of Nairobi. I am required to submit as part of my research work assessment, a project on CMDRR, a case of DCM a mong pastoralist community in Wajir County. To achieve this, I have selected your village to participate in the study. I kindly, request you to fill the attached questionnaire to generate data required for this study.this information will be purely used for academic purposes and will be treated in confidential

Appendix 1: Pastoralists Interview Schedule

Name of the Location……

Indicate the Survey area (village) ……

Date of interview…….

Name of the interviewee……

1. 1. Personal Characteristics of Pastoralist Household

a. Kindly indicate your gender

   Male [ ] Female [ ]

b. Age

   Less than 31 years [] 31-40 [] 41-50 [] 51-60 [] Above 60 []

c. Please state your main occupation.

   ……

   ……

d. Do you hold any leadership position? Yes [] No []

e. If YES state the

   position……..,……..

f. What is your level of education?

   Primary [] Secondary [] College [] University []

Other……..

g. What is your marital status?

Married [] Widowed [] Divorced/ separated []

i. If married man, how many wives do you have?……

ii. How many children do you have?……

iii. How many of your children are working?……

h. How many of these animals do you have in your household

Type of livestock	**Number**
Cattle	
Sheep	
Goats	
Camel	
Poultry	

i. Which other assets does the household own?

……

……..

2.1 Rating CDCM

2.1.1 Appropraiteness of CDCM

(i) To what extent would you say your participation in the CDCM program contributed to meeting your economic need such as school fees, medical and food?

a) Very much []

b) To some extent []

c) Fairly so []

d) I have not seen any improvement []

c) There is no improvement at all []

(ii) To what extent would you say your participation in the CDCM program has contributed to bettering your family ties and relationship?

a) Very much []

b) To some extent []

c) Fairly so []

d) I have not seen any improvement []

c) There is no improvement at all []

(iii) To what extent would you say your participation in the CDCM program has contributed to bettering increasing your livestock?

a) Very much []

b) To some extent []

c) Fairly so []

d) I have not seen any improvement []

c) There is no improvement at all []

(iv) To what extent would you say your participation in the CDCM program has contributed to increasing food security for your household?

a) Very much []

b) To some extent []

c) Fairly so []

d) I have not seen any improvement []

c) There is no improvement at all []

(v) To what extent would you say your participation in the CDCM program has negative effects of drought on you and your family ?

a) Very much []

b) To some extent []

c) Fairly so []

d) I have not seen any improvement []

c) There is no improvement at all []

2.1.2 Comparison

(i) How do you compare CDCM strategies with the other coping mechanisms you have used before in drought mitigation?

a) CDCM is the best

b) CDCM is better

c) CDCM is fair

d) CDCM is not any better

d) CDCM is the worst

(ii) In term of livestock increase, how does the CDCM strategies copare with the other strategies you have used before?

a) CDCM is the best

b) CDCM is better

c) CDCM is fair

d) CDCM is not any better

d) CDCM is the worst

(ii) In term of mitigating agaist drought, how does the CDCM strategies copare with the other strategies you have used before?

a) CDCM is the best

b) CDCM is better

c) CDCM is fair

d) CDCM is not any better

d) CDCM is the worst

Appendix 2: Key Informants Questionnaire

1. Personal Characteristics of Informants

a) Name……

b) Kindly indicate your gender

Male [] Female []

c) Position/Rank……..

d) How many years have lived in this county?

Below 10 years [] 10 – 20 years [] Over 20 years []

e) What is your level of education?

Primary [] Secondary [] College [] University []

2. Level of Disaster Risk Reduction and Drought Coping Measures:

a) What would you say are the major changes (negative or positive) that have taken place in this communit since the introduction of CDCM?

ECONOMIC CHANGES

……

……

……

……

……

SOCIAL CHANGES

……

……

……

……

……

……

……

3. Level of Dependence of household on Famine Relief

a) During times of drought, do pastoralists in this county depend on famine relief assistance?

Yes [] No []

b) If yes, which type?

Relief food [] Food for work [] Free distributed food []

c) How would you rate the level of dependency of households on famine relief in

this district?

Very High (5) [] High (4) [] Moderate (3)

Low (2) [] Very Low (1) []

Thank You Very Much for Your Cooperation

Appendix 3. Focus Group Discussion Guide

1. What is your perception of drought, poverty, vulnerability
2. Suggest the most effective actions for communities, individuals or families, government agencies and other institution for poverty lessen the effects of drought.

a) Communities

b) Individuals or families

c) Government agencies

d) Other institution for poverty

3. What are the major changes that have taken place in this community since the introduction of CDCM?
4. What components/elements of CDCM would you like retained and why?
5. What components/elements of CDCM would you like drppped and why?
6. Suggest the most effective actions for communities, individuals or families, government agencies and other institution to improve the CDCM program.

a) Communities

b) Individuals or families

c) Government agencies

d) Other institution

e)

Thank you very much for your responses

Appendix 4: PARTICIPATORY DISASTER RISK ASSESSMENTS AT MALKAGUFU LOCATION

1 Background

Malkagufu location is situated in Buna division of Buna district. It is subdivided into two sub locations namely Masalale and Fulo. It was first settled as a centre in 1997. It borders Eldas to south, Buna to the North, Lakole to the west and Batalu to the East. The inhabitants are mainly pastoral drop outs who originally hailed from Buna, Eldas and Batalu after they lost their livestock to raids from Ethiopia.

The total population is 4,285 persons (338HHs).

The physical facilities in the area include one ill-equipped dispensary, one day primary school, nine shallow wells, one low yielding borehole, one water pan, several kiosks and shops and one mosque.

The primary school has 269 pupils and 9 teachers while Fulo sub-location recently started a primary school that currently has no structures.

The local dispensary has one small structure, one nurse, one CHEW and 6 TBAs.

Currently 70% of the population is on Relief food aid.

Livestock contributes 20% of the community's livelihood income while about 10% of the population relies on casual work and self employment.

Through community discussion the following were identified as the hazards in the area

i. Environmental destruction,
ii. Predators
iii. Drug abuse (Miraa)
iv. Drought
v. Diseases.

The participants using proportional pilling further identified the top two main hazards as drought and human disease. Later community members were divided into two groups and were assigned the task of conducting a PDRA process for drought and disease.

1.2 Objective of the field practicum

To carry out a Participatory Disaster Risk Assessment (PDRA) exercise in Malkagufu location of Buna Division, Buna district and generate Community Development and Contingency plans with full participation of community members and also to document community perceptions.

1.3 Methodology

Community mobilization was carried out prior to village visit and during the field practicum.

Mission statement of the team was given to the community representatives thereafter in depth.

The following tools were used:

1 Participatory group introduction and brainstorming.
2 Proportion pilling and simple ranking.
3 Hazard force tree.
4 Focus group discussions.
5 Social and resource maps.
6 Use of local materials and symbols.

Figure 1 proportional piling

Figure 2 Hazard Force Tre

3. DROUGHT

3.1 Hazard Assessment

Characteristics		**Analytical description of hazard**	**Exposure Characteristics**	
			How will it affect me?	How will it affect my Community
Cause/Origin	□1 Natural			□

	□□ Rainfall failure □□ Land degradation □□ Soil erosion □□ Population increase		□ □ □ □ □ □	□ □ □ □ □
Force	□1 High temperature □□ Disease outbreak		□ □	
Warning Signs & Signals	□□ Trees shed flowers (acacia sp.) □□ High temperatures □□ Migration of animals □□ Scarcity of food, water and pasture		□ □ □	
Forewarning	4 month			
Spread of Onset	Slow			
Frequency	Once in every two years			
Period of occurrence	Mid April to June and from October to January			
Duration	6 to 9 month			

3.2 Vulnerability Assessment

Hazard profile	**Element at risk**		**Location of element at risk**	**Level Vulnerability**			**Reason of level of vulnerability**
	Human			**Hig**	**Mediu**	**Lo**	

	element			h	m	w	
	0- 5 years	F	Homestead	**V**			□1 Lack of nutritious feed □□ Limited parental care
	0-5 years	M	Homestead	**V**			□□ Lack of nutritious feed □□ Limited parental care
	5-18 years	F	Homestead		**V**		□1 They are family dependent □□ Work load □□ The gender keeps them vulnerable because they are at risk of attacks e.g. rape
	5-18 years	M	Homestead, schooling and herding	**V**			□□ Scarcity of food and water □□ Work load □□ Unemployment
	18-45 years	F	Homestead	**V**			□1 Lack of income □□ competition for resources □□ work load
	18-45 years	M	Homestead and herding		**V**		□□ Migration to areas where there is pasture □□ Social stress increases (breadwinners)
	45-60 years	F	Homestead	**V**			□1 Loss of livelihoods

							□□ Lack income
	45-60 years	M	Homestead and herding	**V**			□1 Family Bread earner
	Elderly		Homestead	**V**			□□ Lack of good food diet □□ Social stress □□ lack of mobility strength
	Disables		Homestead	**V**			□□ Lack of good food diet □□ Lack self-care □□ Lack mobility strength □□ Social stress
	No -human element`						
	Livestock						
	Shoats			**V**			□□ weak and high competition of pasture and water
	Cattle			**V**			□̃1 weak needs a lot feed
	Camel				**V**		□11 can adapt to drought and hardship
	Farm			**V**			□1□ high heat □1□ purely dependent on rain
	Critical facilities						□1□
	Boreholes		homestead	**V**			□1□ High over use □1□ Cost of maintenance is high because frequent

							breakdown
	Hospitals		Homesteads	**V**			□1□ Diseases outbreak □1□ High needs of drugs
	Schools		homesteads	**V**			□1□ High drop outs □□ Limited feeding program

3.2.1 Summary of Vulnerability Assessment:

Children under 5 years for both sexes, male between 5-18years, females between 18-45 years and both male and females over 45 to 60 years, elders and physically challenged are highly vulnerable. Females of between 5-18 and males between 18-45 years are at medium vulnerability levels.

Shoats, Cattle and farm are highly vulnerable to drought as compared to camel which is medium vulnerable.

3.3 Capacities Addressing Hazard

	Capacities		
	Existing	**Required**	**Gaps**
Hazard mitigation measures	□1 Migration in search of water and pasture	□□ Security for the livestock □□ resource sharing on pasture and water within the community	□1 poor conflict resolution □□ lack resource committee
	□□ Prayer	□□ spiritual guidance	□□ read more Quran
	□□ Temporary storage facilities for both animal and human feeds	□□ Proper storage facilities used to store fodder and human □□ Establishment of strategic fodder and	□11 Lack of permanent storage facilities □1□ Limited livelihood

		Food Storage Facilities. □˜1 Promote alternative source of Livelihoods	
	□1□ Boreholes and shallow wells construction and rehabilitations	□1□ Enhance resources management systems for water and other natural resource. □1□ Drilling of 2 contingency well in the location only used during the drought □1□ Drilling 1 for human used in the town □1□ Piping system for the settlements □1□ Rehabilitation of the current borehole □1□ Increase the number of shallow wells	□□˜ Limited source of water (number of shallow wells and boreholes) □□1 Limited to access spare part s for the borehole.

3.4 Capacities Addressing Vulnerability

Elements at Capacities Risk	**Elements at risk**	**Capacity**		
Individual Survivability	**Before hazard**	**Existing**	**Required**	**Gaps**
	0-5 years F	Parental care	□1 Adequate parental care □1 Adequate supplementary feeding	Lack of income limit livelihood sources

	0-5 years	Parental	□□ Adequate parental care □□ Adequate supplementary feeding	□□ Lack of income □□ Limit livelihood sources
	5-18 years F	Herding homestead	□1 Parental care □□ Schooling	□□ Inadequate parental care □□ Limited support to pursue higher education □□ Lack of awareness on importance of education
	5-18 years M	Herding homestead	□□ Parental care □□ Schooling	□□ Inadequate parental care □□ Limited support to pursue higher education □1 Lack of awareness on importance of education
	18-45 years F	Homestead collection and sale firewood	□1 Vocational training □□ Parental care	□□ Limited access to credit facilities □□ Lack of proper education
	18-45 years M	Remittance from relative casual labor migration	□11 Bread winner for the family □1□ Herding □1□ Stay hunger for long □1□ Migration in search of jobs or looking for pasture	□1□ Vocational training □1□ Support market access
	45-60 years F	Labor	□1□ Herding	□1 Vocational training

			□1□ Homestead	
	45-60 years M	Labor	□1□ Dependent on livestock as livelihood	□□ Lack of alternative sources of livelihood
	Elderly	Reliance on acquired wealth Dependence on children and relatives Remittances	□□1 Social weal fare	□□□ Prove social welfare as source of income

3.5 Capacities Addressing Vulnerability

Element at risk	**Time element**	**Capacities**		
		Existing	**Required**	**Gaps**
		Temporary storage of fodder during raining	storage facilities to preserve fodder used during	□1 Lack of fund □□ Lack of knowledge
		Increase in water availability /accessibility	□□□ drilling of 2 contingency boreholes used during drought □□□ piping system for existing	□□□ Construction of sallow wells and a committee to guide on usage □□□ Underground water for preservation □□□ No proper

			boreholes □□□ increase number of shallow wells □□□ desilting of the pan	maintenance operation of the boreholes □□ No water users association trained on managements
	During hazard	Migration to look for pasture and water	Security	Scarcity of both water and pasture.
		Food aid	Increase in food aid distribution Supplementary feeding for children and elderly	High dependency Children feeding program

3.6 Community Disaster Risk Analysis

Hazard Profile

Drought is Natural Disaster caused by Land degradation, population increase &Rainfall Failure. It is characterized by high temperature which leads to diseases Outbreaks of human and animal. Some of warning signs and signals include trees shed flowers, migration of animals, high temperature and delay in rainfall onset. Forewarning is four months from the last rains Speed of on set is Slow and it occurs once every two years. It occurs from April to December and for six to nine months

Element at risk	**Hazard**	**Vulnerability**		**Degree of risk**		
	mitigation capacity gaps	Survivability capacity gaps	Readiness capacity gaps	High	medium	Low
0-5 yr F/M	□ □	Inadequate Parental Care	□ □	H		

	□ □ □	limit health facilities and drugs	□ □ □			
5-18yrs F/M	□ □	□1 Inadequate Nutrition □□ Dependency on Food Aid □□ Limited Education Facilities & Personnel	□ □ □ □ □	H		
18-45yr M/F		□□□ Limited support to pursue higher education □□□ Lack of awareness on importance of education □□□		H		
45-60		□□□ Lack of alternative sources of livelihood			M	
Elderly		□□□ Special food aid		H		

Summary of Community Disaster Risk Analysis

Children under the age of 5yrs for both male and female sexes, females of ages, 5-18, male ages,5-18 and 18-45 of both males and females of ages and over 60yrs are at High Risk of drought effects in Malkagufu community. While Males of ages 18-45

years are classified as at medium risk.

Recommendations

Mitigation

48 Establishment of strategic fodder and Food Storage Facilities.

49 Enhance water and other natural resources management systems

50 Promote alternative source of Livelihoods

Survivability;

51 Provide Food Aid to Vulnerable hose hold and school feeding

52 Improve Healthcare

53 Increase Education Facilities and Personnel

Readiness

1 Establish Storage Facilities

2 Strengthen natural resources management institutions

3 Increase number of shallow wells

4 Drilling of contingency boreholes

3.7 Strategic Selection Matrix

MEASURES Based on recommendation after risk analysis	**Strategies Different options for achieving the recommended measures**	**Selection score**					**Selected options**
		Urgency	Importance	practicability	Cost (Ksh)	Ranking (1-5)	
	□1 Creation of CMDRR management	V	V	V	90,000	4	X

	committees						
	□1 Formation and Strengthening of Community Resource Management committees (WUA, CGLMC etc.)						
	□□□ Establishment of strategic fodder Storage Facilities.	V	V	V	250,000	2	V
	□□□ Enhance water availability(water trucking, fuel subsidy and servicing of strategic boreholes)	V	V	V	4M	4	V
	□□□ Promote alternative source of Livelihoods	V	V	V	4.5M	3	X
	□□̃ Provide Food Aid to Vulnerable hose hold and school feeding	V	V	V	3M	5	V
	□□1 Improve Healthcare by Increase Access	V	V	V	1.5M	4	V

	to Health Care Services						
	□□□ Increase number of shallow wells	X	V	V	300,000	3	X
PME and Learning Measures	□1 Strength monthly drought monitoring tools	V	V	V	750,000	3	X

3.8 Contingency Plan

Intervention sector action	**Objective**	**Activities**	**Time**	**Target**	**Resource**	**System for development**	**Roles and responsibility**
Building storage facilities	Establishment of strategic fodder Storage Facilities.	Procurement of materials ear mark site for the building Building storage facilities	3 months	120 households in the town.	350,000	Strengthening the existing village committees through capacity building.	**Community:** Labor and land. **NGOs/GOK:** □□ Procurements of materials, □□ Delivery and handing over. □□ Hiring of mason.
Provision of food aid	Provide Food Aid to 170 Vulnerabl	Community Mobilization Targeting& registration of	6 months	1020 persons	3M	Strengthen and working with the	**Community:** □1 Offloading and storage □□

	e household s for 6 months	beneficiaries. Food distribution				local relief committees	Facilitate distribution Targeting and registration of the vulnerable household **NGOs/GOK** 1 Dispatch of food stuff from the main warehouse to the FDP. Hiring of field monitors. M & E
Provision of water	Enhance water availability	Fuel subsidy Water trucking Repair of gensets	5 months	4285 persons 3010 shoats 100 cattle 80 camel	4M	Work with WUA	**<u>Community:</u>** 1 Identification of water trucking points. Mgt of fuel subsidy **<u>NGOs & GOK</u>** 1 Delivery of

							fuel at strategic boreholes. □□ Hiring of water trucking tanks □□ Repair and servicing of strategic boreholes.
Provision of medical service	Improve Healthcare Services	Equip the health facility Supplementary feeding programme	6 months	4000 persons	1M	Work with Facility staffs, CHEW and CHW.	**Community**: □1 Source of information of cases of sick persons. □□ Identify malnourished children and PLMs. **NGOs/GOK** □1 Provision of personnel and drugs. □□ Supplementary feeds.

3.9 Emergency Profiling Matrix

Situation required extra ordinary action	Livelihood probability ratio (1 -5)	Possible humanitarian aid consequence	Potential scale	General assumption on local mechanism	Projected gaps
Drought	5	Death of livestock Death of human beings Migration Diseases outbreak No income Family disintegration Malnutrition	4285 population of Malkagufu are likely to be affected About 3010 shoats,100 cattle and 80 camel are likely to be affected 100% of crop farming are likely to affected Area coverage of 350 km square are likely to be affected	About 80 people are likely to cope using remittance and the children assistance 20% of the livestock are remain in homestead fed as zero grazing on grains 80% of livestock migrate to look for good pasture and water	Giving 10 kgs of of relief food per person per month Drill contingency borehole in the grazing land used by livestock during drought Trained 5% of the population on drought management

3.10 Development Plan

Objective	Activities and target	When	Resource and provider	Responsibility	Expected change /result

Creation of CMDRR management committees	□1 Community mobilisation and sensitisation □□ Selection and verification of CMDCs □□ Training CMDCs	Jan 2013	Funds WASDA, NDMA, Community.	WASDA, NDMA, Community.	□1 Functional CMDRR committee
Formation and Strengthening of Community Resource Management committees (WUA, CGLMC etc.)	□1 Selection and verification □□ Training of water users association	Jan 2013	Funds Community, MOW, WASDA.	Community, MOW, WASDA	□1 Good community resource management. □□ Reduced livestock death. □□ Reduced natural resource conflict.
Establishment of strategic fodder Storage Facilities.	□1 Procurement of materials □□ ear mark site for the building □□ Building storage facilities	April 2013	Funds Community, MOA,MOL, WASDA	Community, MOA,MOL , WASDA	□1 Permanent storage facilities. □□ Readily accessible and cheap fodder. □□ Reduced livestock death.
Enhance water availability(drilling 2	□1 Hydrological survey □□ Drilling of the 2 contingency borehole	July 2013	Funds CDF,WASDA,MOW	CDF,WASDA,MOW	□1 Accessibility of water for

boreholes- at Bute wayama and El bur ido ,rehabilitation of current boreholes)	□□ Equipping the boreholes				both livestock and human at the grazing land. □□ Increased water supply to the town. □□ Reduced livestock death.
Promote alternative source of Livelihoods for 200 households.	□1 Formation of production groups(subsistence farmers) □□ Capacity building the group □□ Provision of farming inputs.	March 2013	Funds. Community, MOA,WASDA,CDF	Community, MOA,WASDA,CDF	□□ Increased food production. □□ Reduced aid dependency
Provide Food Aid to 170 Vulnerable households for 6 months	□□ Community Mobilization □□ Targeting& registration of beneficiaries. □□ Food distribution	March 2013	Fund Community, WASDA, GOK.	Community, WASDA, GOK.	□1 Reduced food insecurity
Improve Healthcare Services	□□ Equip the health facility □□ Train community health works □□ Boost the number	March 2013	Funds Community, WASDA, MOH, IRK.	Community, WASDA, MOH, IRK.	□1 Reduced human death □□ Reduced malnutrition

	of trained personnel. □□ Supplementary feeding programme				□□ Increased community knowledge about heath
Strengthen monthly drought awareness, early warning system and monitoring.	□1 Conduct monthly survey □□ Publish monthly drought bulleting.	June 2013	Funds NDMA.	NDMA	□1 Increased community knowledge on drought.

4. **CHALLENGES**

Challenges	**How it was addressed**
□□ Language barrier between some facilitators and participants	Some facilitators were able to translate (Borana, Somali, English and Kiswahili)
□1 Time constraints	Good management of time (taking lunch and praying at the venue)
□□ Long distance from Wajir to Community	Move early to the field, packed snacks
□□ Community expectations still high even after explanations	Dialogues with the community
□□ Community social beliefs on the roles of women triggered less	Dialogues with the community Equal representation of both genders

participation from women	
□□ Community's inability to generate information on some topics.	Further probing,
□□ High illiteracy among community members	More involvement of literate members of the community (teachers, school leavers and the local Chief)