STUDY ON DISASTER RISK MANAGEMENT AND ENVIRONMENT FOR THE KARAMOJA SUBREGION

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Disclaimer:

This report was written by Mathias K. Magunda (PhD)

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<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ACTED</td>
<td>Agency for Technical Cooperation and Development</td>
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<td>ADPC</td>
<td>Asian Disaster Preparedness Center, Bangkok, Thailand</td>
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<td>CAP</td>
<td>Community Action Plans</td>
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<td>CBDM</td>
<td>Community Based Disaster Management</td>
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<td>C&amp;D</td>
<td>Cooperation and Development (Italian NGO)</td>
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<td>CMDRR</td>
<td>Community Managed Disaster Risk Reduction</td>
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<td>DC</td>
<td>District Council</td>
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<td>DDMC</td>
<td>District Disaster Management Committee</td>
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<td>DEWS</td>
<td>Drought Early warning System</td>
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<tr>
<td>DPO</td>
<td>District Production Officer/ Coordinator</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EWS</td>
<td>Early Warning System</td>
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<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<td>FSWC</td>
<td>Food Security Working Committee</td>
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<td>FSWG</td>
<td>Food Sector Working Group</td>
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<tr>
<td>IFRC</td>
<td>International Federation Red Cross</td>
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<td>IGA</td>
<td>Income Generating Activities</td>
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<td>IK</td>
<td>Indigenous Knowledge</td>
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<td>IIRR</td>
<td>International Institute of Rural Reconstruction</td>
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<td>IMPC</td>
<td>Inter-Ministerial Policy Committee</td>
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<td>ISDR</td>
<td>International Strategy for Disaster Reduction</td>
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<td>KDA</td>
<td>Karamoja Development Agency</td>
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<tr>
<td>KADP</td>
<td>Karamoja Agro-Pastoral Program</td>
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<td>KIDDPP</td>
<td>Karamoja Integrated Disarmament and Development Plan</td>
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<td>MADEFO</td>
<td>Matheniko Development Forum</td>
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<tr>
<td>MAPS</td>
<td>Mitigation Action Plans</td>
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<td>NEMA</td>
<td>National Environment Management Authority</td>
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<td>OPM</td>
<td>Office of Prime Minister</td>
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<td>PTSD</td>
<td>Post Traumatic Stress Disorder</td>
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<td>PZFC</td>
<td>Pastoral Zone Field Schools</td>
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<td>SALDO</td>
<td>Semi-Arid Lands Development Options</td>
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<td>SSD</td>
<td>Social Services and Development</td>
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<td>SWG</td>
<td>Sector Working Group</td>
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<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<td>WFP</td>
<td>World Food Programme</td>
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Glossary of terms:
Basic terms used in disaster risk reduction and environment management

Climate change: The climate of a place or region is changed if over an extended period (typically decades or longer) there is statistically significant change in measurements of either the mean state or variability of the climate for that place or region.

Capacity: A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster.

Coping capacity: The means by which people or organizations use available resources and abilities to face adverse consequences that could lead to disaster.

In general, this involves managing resources, both in normal times as well as during crisis or adverse conditions. The strengthening of coping capabilities usually builds resilience to withstand the effects of natural and human induced hazards.

Disaster: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environment losses which exceed the ability of the affected community or society to cope using its own resources.

A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Disaster risk Management: The systematic process that integrates risk identification, mitigation and transfer, as well as disaster preparedness, emergency response and rehabilitation or reconstruction to lessen the impacts of hazards.

Disaster risk reduction (DRR): The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Early warning: The provision of timely and effective information through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.

Early warning systems consist of three elements (i) forecasting and prediction of impending events, (ii) processing and dissemination of warnings to political authorities and population, and (iii) undertaking appropriate reaction to warnings.
**Ecosystem**: A complex set of relationships of living organisms functioning as a unit and interacting with their physical environment.

*The boundaries of what could be called an ecosystem are somewhat arbitrary, depending on the focus of interest or study. The extent of an ecosystem may range from very small scales to, ultimately, the entire Earth (IPCC, 2001).*

**Environment degradation**: The reduction of the capacity of the environment to meet social and ecological objectives, and needs.

*Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards.*

**Hazard**: A potentially damaging physical event, phenomenon, or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

*Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological and biological) or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity, frequency and probability.*

**Hazard analysis**: Identification, studies and monitoring of any hazard to determine its potential, origin, characteristic and behavior.

**Land-use planning**: Branch of physical and socio-economic planning that determines the means and assesses the values or limitations of various options in which land is to be utilized, with the corresponding effects on different segments of the population or interests of a community taken into account in resulting decisions.

*Land-use planning involves studies and mapping, analysis of environmental and hazard data, formulation of alternative land-use decisions and design of a long-range-plan for different geographical and administrative scales.*

*Land-use planning can help to mitigate disasters and reduce risks by discouraging high-density settlements and construction of key installations in hazard-prone areas, control of population density and expansion, and in the siting of service routes for transport, power, water, sewage and other critical facilities.*

**Mitigation**: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

**Natural hazards**: Natural processes or phenomena occurring in the biosphere that may constitute a damaging event.
Natural hazards can be classified by origin namely: geological, hydro meteorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

**Preparedness**: Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

**Prevention**: Activities to provide outright avoidance of the adverse impact of hazards and means to minimize related environmental, technological and biological disasters.

Depending on social and technical feasibility and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education, related to disaster risk reduction changing attitudes and behaviour contribute to promoting a “culture of prevention”.

**Recovery**: Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community while encouraging and facilitating necessary adjustments to reduce disaster risk.

Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.

**Resilience / resilient**: The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.

**Risk**: The probability of harmful consequences, or expected loses (deaths, injuries, property, livelihoods, economic activities disrupted or environment damage) resulting from interactions between natural or human-induced hazards and vulnerable conditions.

Conventionally, risk is expressed by the notation
Risk = Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability.

**Risk assessment/analysis**: A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the
physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios.

**Structural / non structural measures:** Structural measures refer to any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant and protective structures and infrastructure.

Non-structural measures refer to policies, awareness, knowledge development, public commitment, and methods and operating practices, including participatory mechanisms and the provision of information, which can reduce risk and related impacts.

**Sustainable development:** Development that meets the needs of the present without comprising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of “needs” in particular the essential needs of the poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs.

Sustainable development is based on socio-cultural development, political stability and decorum, economic growth and ecosystem protection, which all relate to disaster risk reduction.

**Vulnerability:** The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

**Wildland fire:** Any fire occurring in vegetation areas regardless of ignition sources, damages or benefits.

*(Glossary of terms - partly adopted from the UN International Strategy for Disaster Reduction – ISDR, 2002)*
Executive Summary

Introduction

In the Karamoja region there is growing evidence that conflicts are linked to environmental degradation, and competition for natural resources. Climate change and variability has brought in another wave of serious stresses. These stresses leave people more vulnerable to natural and men made disasters. Vulnerability, people's capacities to avoid or cope with and recover from disaster, results from a complex interplay of political, economic, social, and ideological practices present at a given locale and varies by a given hazard and by specific household characteristics. Individuals and social groups carry different "vulnerability bundles" and households and communities vary significantly in terms of disaster impacts and access to private and public resources for responding to and recovering from crisis.

Study Objectives

The main objective of this study was to document information on disaster risk reduction and environment management for the Karamoja region and make recommendation on disaster risk reduction (DRR) and environmental management.

More specifically the study focused on:
- Assessment of environmental change as a parameter of disaster risk in the Karamoja region
- Assessment of environmental causes and the associated consequences
- Assessment of the dynamics between disaster, environmental impacts and the needs of the communities in Karamoja
- Identifying opportunities for environmental management in disaster risk reduction and disaster management
- Recommendations on a strategy for information dissemination on DRR
- Recommendations for short and long-term disaster risk management / reduction options for the region

Methodology

The report was prepared basing on existing general literature and field assessments were conducted in all the districts of the Karamoja region to make a rapid appraisal / assessment of major environmental issues; key players in DRR; local communities’ perceptions of environmental issues and to document on-going initiatives in DRR and environment management. Communities, elders, district / government officials, NGOs/Civil Society personnel were the main sources of primary and secondary information.

Report Structure
This report is organized in five sections: section one gives an overall introduction to Disaster Risk Reduction (DRR) and environmental management. It gives the objectives of the study; study methodology and the report structure. Section two gives the situation analysis that details the biophysical environment of Karamoja and other factors that affect the livelihoods of the Karamajong. It elaborates on the environmental changes in Karamoja and relates these changes to disasters and DRR. Section two also highlights the gender perspective in environmental management and DRR. Special attention is given to drought, in section two, since it is a major factor in DRR in the region. Section two is concluded by giving a brief account of the overall national disaster management structures in Uganda. Section three gives an account of opportunities for environmental management in DRR and the on-going initiatives in DRR and environmental management in Karamoja. It gives a summary of initiatives under the Community Managed Disaster Risk Reduction (CMDRR) consortia that is led by KARITAS Moroto; a summary on lessons learnt so far and the challenges. Section three further gives an overview on an innovative Early Warning System initiative that is spearheaded by the Agency for Technical Cooperation and Development (ACTED). Section three is concluded by a summary on Indigenous Knowledge (IK) issues on DRR as elaborated by elders in the several communities that the study team interacted with in the region. Section four gives a summary of a communication strategy; avenues for information dissemination to the public and the key messages that have to be appropriately packaged and disseminated. Section five summarizes key short and long term DRR and environmental management recommendations for the Karamoja region and indeed several of these recommendations are applicable at national level.

For ease of reference a glossary of terms, that are commonly used in DRR and environmental management, is placed up front in the report.

Main findings

a. Environmental issues; livelihood options and reported disasters

Deforestation and tree cutting were the most frequently mentioned biophysical change that communities observed in the past 30 years. Several communities in Moroto, Nakapiripirit, Kotido, Abim and Amudat reported high rates of deforestation. Apart from the known environmental impacts of deforestation this problem has affected women in Karamoja in a special manner. The women reported that they now travel long distances and spend more time searching for firewood; a clear sign / indication that deforestation has been extensive.

In Moroto, Kotido, Amudat, and other areas communities reported that increased cattle rustling and insecurity have led many households to shift from livestock to crop production. Communities in the region also reported new livelihood options - charcoal burning for men, and firewood trading and beer brewing for women. It was also reported that women are increasingly becoming “bread earners” for the family and this is a major change in the socio-economic set up in Karamoja. Women also fetch water in towns to earn a living and this increase their leverage as “bread earners” for the family. The communities also reported the cutting of grass and selling the grass for roofing houses. In Abim district the harvesting of bamboo for house construction / poles and sale was reported.
It was also reported that because of insecurity animals tend to overgraze the “safe areas” hence accelerating environmental degradation. The problem of overgrazing was also reported in areas adjacent to “Protected Kraals.” Additionally the wet season / normal grazing areas around the manyatas tend to be well controlled / managed by elders unlike the dry season grazing areas that are more communal and lack control. The dry season grazing areas are consequently highly degraded because of extensive / un controlled grazing.

The reported bio-physical changes that have a direct impact on people’s livelihoods include: deforestation / tree cutting; reduced soil fertility; more erratic rainfall; frequent drought / increase in droughts; reduced vegetation cover / grass for livestock; reduced wildlife; less rainfall; drying of rivers / reduced flow volume in rivers; increased pests and diseases; scarcity of firewood; animal diseases outbreaks; increased soil erosion; reduced livestock; higher temperatures; stronger winds; emergency of new weeds.

The reported disasters that are a result of Climate Change and Climate Variability, environmental degradation and other socio-economic constraints in the region include: drought; floods; famine; livestock and human diseases; ambushes; cattle raids; insecurity; fires during the dry season and HIV/Aids.

b. On-going initiatives in DRR and Environmental Management

There are good initiatives that are already in practice / on – going in the Karamoja region. SSD/KARITAS Moroto leads a consortium composed of KADP, MADEFO, KARITAS Moroto and KARITAS Kotido in DRR initiatives. The communities carry out Risk Assessments and several other mitigation measures that are implemented by the communities based on Community Disaster Risk Reduction (CDRR) groups.

The Agency for Technical Cooperation and Development (ACTED) – Moroto is spearheading a Drought Early Warning System (DEWS) in the Karamoja Region. After ACTED and partners have collected the information and written the relevant reports they discuss the issues with the relevant sector e.g. Food Sector Working Groups (FSWGs) and thereafter a partner e.g. an NGO working on food security addresses the issue / problem. The reports are shared with different partners who eventually carry out the interventions.

It is felt that these initiatives are a very good starting point and they should be strengthened.

Main recommendations

The following is a summary of the main recommendations on disaster risk reduction and environmental management measures for the Karamoja region:

1. Partnerships – formation of partnerships is top priority in DRR and environmental management. The different key players / Stakeholders have different roles to play in
Disaster Risk Management and Environment

1. DRR and these roles form / intertwine into a web that determines the success or failure of the interventions. *The partnerships currently initiated under the EWS and CMDRR should be strengthened / a good starting point!*

2. **Engage environmental managers fully in national disaster risk management mechanism:** National platforms for disaster risk reduction should integrate environmental concerns and should be supported by environment-related institutions. Likewise, disaster managers are important partners in environment management initiatives. This arrangement should be institutionalized up to local government and the grass roots / community level.

3. **Include risk reduction criteria in environmental regulatory frameworks:** Frameworks such as Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments, which have been successfully used to prevent further environmental degradation, should be adapted to address disaster risk as well. *NEMA should be a key partner in DRR and environmental management.*

4. **Assess environmental change as a parameter of risk / Risk assessment and mapping:** Risk assessments form the basis of risk reduction strategies and preparedness planning, and should also be the foundation for development plans at the national or the community level. Environmental change should be factored in as a parameter risk. *There is an urgent need for comprehensive vulnerability analysis to be undertaken for disaster-prone areas, incorporating information about past disaster events, the socio-economic conditions of the population living in the affected area, and inventories of major structures liable to damage. Risk assessment and hazard mapping would then be used to delineate areas vulnerable to natural hazards and determine the frequency, intensity, impact, return period and other data in relation to each category of hazard.*

5. **Utilize local knowledge (IK) in community-based disaster risk management:** The indigenous knowledge of people who live in hazard-prone areas should be considered as complementary to scientific knowledge in the development of community-based disaster risk management plans and programmes. Several elders / community leaders have valuable IK that should be used in DRR.

6. **Engage the scientific community to promote environmental research and innovation:** Greater interaction between policymakers, environmental managers and the scientific community can breed familiarity with technological alternatives and innovations and stimulate targeted research towards reducing disaster risk.

7. **Protect and value ecosystem services:** The proliferation of new technologies and processes for managing natural resources, including new knowledge of the ecological, social and cultural dimensions of resource management, presents many opportunities for reducing disaster risk.
8. **Consider environmental technologies and designs for structural defenses:** While many communities around the world are protected from hazard risks by engineered structural defenses, greater attention to environmentally-sound designs could simultaneously help protect them from environmental degradation.

9. **Integrated environmental and disaster risk considerations in spatial planning and land management:** Environmental authorities, who provide fundamental information and analyses during multi-sectoral zoning and land-use planning, should advocate for greater attention to disaster risk reduction during these processes. There is an urgent need to support a sustainable settlement development and a sustainable land use on consideration of the different public and private interests because of their important influences on environmental disasters.

10. **Prepare for environmental emergencies:** Preparing for environmental emergencies requires communication, engagement of community stakeholders and information on underlying vulnerabilities.

11. **Strengthen capacities for environmental recovery:** Recovery, reconstruction and risk reduction efforts must be carried out with proper environmental guidance and safeguards to avoid devastating short- and long-term impacts on the environment.

12. **Develop / Strengthen Early Warning Systems:** The provision of timely and effective information through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response. The EWS should strengthen / be based on the current initiative that is spearheaded by ACTED.

   Early warning systems consist of three elements (i) forecasting and prediction of impending events, (ii) processing and dissemination of warnings to all relevant authorities and population, and (iii) undertaking appropriate reaction to warnings.

13. **Strengthen community based strategies that involve women in planning and decision making:** These strategies have been found to be effective and lessons need to be better documented, and compiled in such a way as to provide guidance for program planners. Related to this, is the issue of improving land ownership by women, and its relevance for reducing disaster vulnerability, and improving ability to recover from disasters. The community based initiatives (CBMD) should strengthen / be based on the model that is currently spearheaded by KARIJAS Moroto in the CMDRR consortia. Elders play a vital role in the Karamajong society. The elders should be at the forefront / be strongly involved in the CBMD interventions.
Acknowledgement

Highly indebted to all persons and communities that provided very valuable information during this study. Special thanks are extended to KARITAS/ Moroto; ACTED; KADP; District Officials; Communities and elders in the region and all other people that the study team interacted with; your input is highly appreciated. All agencies that provided primary and secondary data are acknowledged. Annex 1 lists the people and communities that were consulted during the study.
1.0 INTRODUCTION

“Although the inherent links between disaster risk reduction and environmental management are recognized, little research and policy work has been undertaken on the subject. The intriguing concept of using environmental tools for disaster risk reduction has not yet been widely applied by many practitioners”. (ISDR, 2002)

1.1 Poverty and vulnerability to risks

Poverty and hazard vulnerability are integrally linked and mutually reinforcing. The poor are forced to exploit environmental resources for survival, thereby increasing both the risk and exposure to disasters, in particular those triggered by floods, drought and landslides. Uganda has experienced a wide range of disasters directly affecting most of the country (GOU, 2009). The following have been frequent: displacement of persons as a result of civil strife; famine as a result of drought; earthquakes; disease epidemics, livestock and crop disease; flooding and landslides as a result of heavy rains and injudicious environmental management; and technological accidents as a result of inadequate safety procedures. New on the scene and most frightening is the phenomenon of terrorism (GOU, 2005).

Vulnerability, people's capacities to avoid or cope with and recover from disaster, results from a complex interplay of political, economic, social, and ideological practices present at a given locale and varies by a given hazard and by specific household characteristics (Blakie et al 1994). Individuals and social groups carry different "vulnerability bundles" and households and communities vary significantly in terms of disaster impacts and access to private and public resources for responding to and recovering from crisis (Cannon, 1994; Wiest et al. 1994). The components of vulnerability have been variously identified, and include elements of livelihood security and assets, personal health and access to basic needs such as food, water and shelter, and extent of social organization, preparedness and safety nets. In other words, those with access to various forms of capital – financial, physical, social, or human capital are better able to weather hazards. Poor people may not only face greater exposure to hazards due to factors such as construction material, location and access to information, but also have a lower capacity to cope.

Whether it a result of out-migration or abandonment, or death of the spouse, households with single heads are much more vulnerable to poverty and poor health. Since the vast majority of single parent households are headed by women, this disadvantage gets accentuated the more male dominated the society is. Cultural and social subordination in a male-dominated power structure like Karamoja leaves women more vulnerable to exploitation in exchange for food or shelter for themselves and their children.
It is well accepted by now that human actions are responsible for disasters, and that impacts are compounded for population groups with increased risk and vulnerability to hazards. As a result, disaster causality and mitigation are best addressed by understanding factors contributing to increased risk and vulnerability by segments of the population.

1.2 Disasters

ISDR has defined disaster as a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environment losses which exceed the ability of the affected community or society to cope using its own resources (ISDR, 2002). Disasters can be broadly grouped into those precipitated by natural hazards and those related to conflicts. The latter are frequently referred to as complex emergencies since conflict is frequently associated with a combination of violence against people as well as livelihood failures resembling those brought on by natural hazards. For example, famine has in the past been a frequent aftermath of wars and conflict. The most visible, extreme cases of conflict are just the tip of the iceberg of environment related social conflicts. According to some estimates, there are 25 million environmental refugees, who have been dislocated due to environmental degradation or localized conflicts (Tickell, 2001).

In the Karamoja region there is growing evidence that conflicts are linked to environmental degradation, and competition for natural resources (FAO, 2006). These stresses leave people more vulnerable to natural and man made disasters, and can intensify or trigger violent conflict and social instability. The government may indirectly have contributed to conflict by gazett ing the traditional grazing grounds / forests, so that the communities have been disenfranchised. By gazetting extensive grazing areas the communities are left with no alternative but to over graze the remaining areas.

People who live in marginal or environmentally degraded areas often struggle on a daily basis to survive and are unable to cope with any additional stress factors. Limited livelihood alternatives, competition over scarce resources, weak governance structures and lack of access to healthcare and other services can compromise a community’s ability to respond to and recover from a hazard event. Environmental management and community based resource management can promote more resilient communities through supporting sustainable livelihoods, conflict prevention and strengthening cooperation for good governance.

It is also important to note that disasters offer opportunities by pointing out existing vulnerabilities and for setting changes in motion. Protection of the natural resource base as part of promoting sustainable livelihoods is crucial both for mitigating disasters and for reducing post disaster stress. Disaster Risk Reduction (DRR) represents an important development in both disaster management and sustainable development paradigms (http://www.proventionconsortium.org/)
1.3 Risk

Risk is commonly defined as the probability of harmful consequences, or expected loses (deaths, injuries, property, livelihoods, economic activities disrupted or environment damage) resulting from interactions between natural or human-induced hazards and vulnerable conditions.

Conventionally, risk is expressed by the notation
Risk = Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability.

Beyond expressing a possibility of physical harm, it is crucial to recognize that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes.

1.4 Disaster Risk Reduction (DRR)

Disaster risk reduction (DRR) is the conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Disaster Risk Management on the other hand involves the systematic process of using administrative decisions organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

The disaster risk reduction framework is composed of the following fields of actions, as described in “Living with Risk: a global review of disaster reduction initiatives” - ISDR (2002)

Box 1: The disaster risk reduction framework (ISDR, 2002)

- Risks awareness and assessment including hazard analysis and vulnerability/capacity analysis;
- Knowledge development including education, training, research and information;
- Public commitment and institutional frameworks, including organizational, policy, legislation and community action;
- Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership
1.5 Objectives of the study

The main objective of this study was to document information on disaster risk reduction and environment management for the Karamoja region.

More specifically the study focused on:
- Assessment of environmental change as a parameter of disaster risk in the Karamoja region
- Assessment of environmental causes and the associated consequences
- Assessment of the dynamics between disaster, environmental impacts and the needs of the communities in Karamoja
- Identifying opportunities for environmental management in disaster risk reduction and disaster management
- Recommendations on a strategy for information dissemination on DRR
- Recommendations for short and long-term disaster risk management/reduction options for the region

1.6 Methodology

The study was conducted using the following approach and methodology:

1.6.1 Literature Review

The report was prepared basing on existing general literature, among them, the UN – ISDR and the UNEP / ISDR Working Group on Environment and Disasters; Karamoja Action Plan for Food Security (2009 – 2014) by Office of the Prime Minister; Karamoja Participatory Livestock Needs Assessment by FAO; Karamoja Agro-Pastoral Development Program (KADP) Strategic Plan (2005, 2006 – 2008, and 2009 – 2013); Uganda Disaster Risk Reduction Management Policy; Karamoja Food Security Assessment Reports by FAO; Livestock Migratory Roots; Karamoja Livestock Needs Assessments by FAO; FAO WFP Flood Impact Assessment; Turning up the heat: climate change and poverty in Uganda by Oxfam; The time is now: lessons from farmers adapting to climate change by Actionaid; Food Security and Agricultural Livelihoods Cluster: Plan of Action for Northern Uganda (2008 – 2009) by FAO; KIDDP Reports, etc. These amongst others, were very useful in planning the field visit; informing the study and eventual preparation of the report.
1.6.2 Field Assessments
Field assessments were conducted in all the districts of the Karamoja region (Moroto, Kotido, Nakapiripirit, Amudat, Kaboong, Abim, Napak) to make a rapid appraisal / assessment of major environmental issues; key players in DRR; local communities perceptions of environmental issues and to document on-going initiatives in DRR. Communities, elders, district / government officials, NGOs/Civil Society personnel were the main sources of primary and secondary information.

1.7 Report Structure
This report is organized in five sections: section one gives an overall introduction to Disaster Risk Reduction (DRR) and environmental management. It gives the objectives of the study; study methodology and the report structure. Section two gives the situation analysis that details the biophysical environment of Karamoja and other factors that affect the livelihoods of the Karamajong. It elaborates on the environmental changes in Karamoja and relates these changes to disasters and DRR. Section two also highlights the gender perspective in environmental management and DRR. Special attention is given to drought, in section two, since it is a major factor in DRR in the region. Section two is concluded by giving a brief account of the overall national disaster management structures in Uganda. Section three gives an account of opportunities for environmental management in DRR and the on-going initiatives in DRR and environmental management in Karamoja. It gives a summary of initiatives under the Community Managed Disaster Risk Reduction (CMDRR) consortia that is led by KARITAS Moroto; a summary on lessons learnt so far and the challenges. Section three further gives an overview on an innovative Early Warning System initiative that is spearheaded by the Agency for Technical Cooperation and Development (ACTED). Section three is concluded by a summary on Indigenous Knowledge (IK) issues on DRR as elaborated by elders in the several communities that the study team interacted with in the region. Section four gives a summary of a communication strategy; avenues for information dissemination to the public and the key messages that have to be appropriately packaged and disseminated. Section five summarizes key short and long term DRR and environmental management recommendations for the Karamoja region and indeed several of these recommendations are applicable at national level.

For ease of reference a glossary of terms, that are commonly used in DRR and environmental management, is placed up front in the report i.e. before section one.
2.1 Karamoja Region

Karamoja region is located in the northeast of Uganda and lies between longitudes 33 – 35 East and latitude 1 – 4 North; . It comprises of Nakapiripirit, Moroto, Kotido, Kaabong, Napak, Amudat and Abim districts. Napak district has most recently (June, 2010) been curved out of Moroto and Kotido districts. The sub-region covers 27,511 sq km, with a population of 1,017,400 (UBOS 2008 Population Projection); and population density of 47.97 people per sq. km. The region has two main ethnic groups: the Karamajong and the Jie. Other smaller groups such as the Pokot (Eastern Karamoja), Labwor (Western Karamoja), Ik and Dodoth (Kaabong) and Tepeth (Moroto) also exist. Most of the population is agro pastoralist, relying on livestock as its main source of subsistence and engaging in cultivation of crops like sorghum, millet, cowpeas, groundnuts, etc. They supplement their food supply by gathering wild fruits and vegetables and through hunting. The Karamoja region is characterized by drought, lawlessness as a result of cattle rustling and road ambushes and poverty. The region has some of the worst indicators for health, nutrition, education, food security, civil security, and poverty (Mubiru & Magunda, 2010).

The region is mostly a semi-arid plain, largely savannah, covered with seasonal grasses, thorny plants, and shrubs. Karamoja has a harsh climate and low annual rainfall which does not often exceed 800 millimeters per year. The region has been experiencing drought in the last 4 years and this year (2010) has been blessed with a good amount of rainfall. The three major livelihood zones in the region are agricultural, agro-pastoral and pastoral. Although security in the region has improved relatively, cattle raiding within and across the borders have caused disruption of livelihoods, loss of life and general feeling of insecurity.

Historically, the Karamajong have adapted to the unfavourable climatic conditions in the central and eastern parts of the region by focusing on livestock rearing with crop cultivation taking a more subsidiary role. This, according to the PRDP, is the “only rational way and most viable form of livelihood” (FAO, 2008)

Karamoja is chronically a food insecure region that has suffered several years of drought. According to elders in several communities that were consulted the drought cycle is repeated every five years i.e. 4 years of drought followed by a “good” year with reasonable/plenty of rainfall. With an estimated population of just over 1.1 million people, most Karamajong subsist on agro-pastoral or purely pastoral livelihoods. Human welfare, living conditions and quality of life of the people in Karamoja have declined considerably due to a combination of factors which include harsh weather, insecurity, marginalization, illiteracy, poor health and infrastructure, etc. Food security and development levels are very low in the region and strongly influenced by the prevailing insecurity.
due to intertribal conflicts. Poor climatic conditions in parts of the region characterized by extended drought and sparse rains further aggravate the food security situation.

There has been a very marked improvement in the security situation in Karamoja (information from district officials, communities and NGOs in Karamoja, Study Visit, 2010) but more needs to be done to rid the region of insecurity due to cattle raids and other ambushes.

2.2 Environmental Degradation and Disaster Risk

Environmental disasters in many cases are affected by human usage of natural resources. They take place especially because of the negative impact of the over-exploitation of natural resources. The combination of growing environmental problems in Karamoja that include but not limited to: climate change and variability; deforestation, soil erosion and desertification along with growing social problems that include but not limited to: increasing poverty, settlements, protected kraals combine to produce a much higher magnitude of catastrophe than seen before. Households that are poor or those that live in marginal lands already are in a precarious position. For them, weathering events such as drought puts them in distress for survival through seasonal fluctuations in agriculture until the next harvest, and can cut into their production capacity.

During the study visit the District Production Officer (DPO) - Moroto, Mr. Achila Odongo and several other communities emphasized the fact that the seasonal calendar for the area started changing more than 20 years ago but during the last five years the changes intensified. Consequently communities are being sensitized on environmental degradation and the associated disaster risks. The DPO Moroto and other stakeholders in Karamoja further elaborated that some of the coping strategies adopted by the communities have been devastating to the environment e.g. cutting of trees for charcoal.

Box 2 below summarizes the reported disasters that are a result of Climate change and climate variability, environmental degradation and other socio-economic constraints in the region.

**Box 2: Reported disasters in Karamoja Region**

- a. Drought
- b. Floods
- c. Famine
- d. Livestock and human diseases
- e. Ambushes
- f. Cattle raids
- g. Insecurity
- h. Fires during the dry season
- i. HIV/Aids
2.3 Environmental Changes

Deforestation and tree cutting were the most frequently mentioned biophysical change that communities observed in the past 30 years. Several communities in Moroto, Nakapiripirit, Kotido, Abim and Amudat reported high rates of deforestation. Apart from the known environmental impacts of deforestation this problem has affected women in Karamoja in a special manner. The women reported that they now spend more time searching for firewood. The same observations were made by Majaliwa et al., 2009. In many locations women reported trekking several miles in search of firewood.

Communities also reported major changes in the socio-economic and livelihoods set up. In Moroto, Kotido, Amudat, and other areas communities reported that increased cattle rustling and insecurity have led many households to shift from livestock to crop production. Communities in the region also reported new livelihood options - charcoal burning for men, and firewood trading and beer brewing for women. It was also reported that women are increasingly becoming “bread earners” for the family and this is a major change in the socio-economic set up in Karamoja. Women also fetch water in towns to earn a living and this increase their leverage as “bread earners” for the family. The communities also reported the cutting of grass and selling the grass for roofing houses. In Abim district the harvesting of bamboo for house construction / poles and sale was reported.

Communities in Moroto have shifted from pastoral livelihoods to crop production. Such change has been a result of cattle rustling and insecurity in northeastern Uganda. The change has increased vulnerability of the communities to climate change since crop production in the area is riskier than the pastoral livelihoods that the communities have practiced for ages. These findings underscore the complex nature of response to climate change and the need to address adaptation by taking multi-sectoral approach (Majaliwa et. Al. 2009).

It was also reported that because of insecurity animals tend to overgraze the “safe areas” hence accelerating environmental degradation. The problem of overgrazing was also reported in areas adjacent to “protected Kraals”

Box 3 summarizes the reported bio-physical changes that have a direct impact on people’s livelihoods

Box 3: Reported Bio-Physical Environmental Changes that have a direct impact on livelihoods (As reported by communities and by Majaliwa et. al. 2009).

1. Deforestation / tree cutting
2. Reduced soil fertility
3. More erratic rainfall
4. Frequent drought / Increase in droughts
5. Reduced vegetation cover / grass for livestock
6. Reduced wildlife
7. Less rainfall
8. Drying of rivers / reduced flow volume in rivers
9. Increased pests and diseases
10. Scarcity of firewood
11. Animal diseases outbreaks
12. Increased soil erosion
13. Reduced livestock
14. Higher temperatures
15. Stronger winds
16. Emergency of new weeds
17. More frequent flooding

2.4 Environmental impacts of disasters

2.4.1 Dynamics between disaster and impacts

Understanding the dynamics between a disaster, it’s environmental (as well as social and economic) impacts, the needs / livelihoods of the community and implications for the early recovery process is a vital need. At the same time, however, there are a number of humanitarian- and relief-related activities that are commonly undertaken during the early recovery phase which may themselves have an impact on the state of the environment.

2.4.2 Environmental degradation is a hazard in itself.

Environment and disaster would be incomplete without recognizing that environmental degradation is in itself a hazard – a man-made hazard. The loss of biodiversity or desertification, for instance, will continue to severely affect local communities and wider ecosystem and economic systems. The risk and vulnerability perspective elaborated by the disaster reduction community also provides a valuable framework for analyzing patterns of vulnerability to environmental change and identifying opportunities for reducing that vulnerability as elaborated in box 4.

Box 4: Environmental causes and consequences
2.5 The link between disaster risk reduction, development and the environment

Disasters are not random and do not occur by accident. They are the convergence of hazards and vulnerable conditions. Disasters not only reveal underlying social, economic, political and environmental problems, but unfortunately contribute to worsening them. Such events pose serious challenges to development, as they erode hard-earned gains in terms of political, social and educational progress, as well as infrastructure and technological development.

Several studies have recently highlighted the fact that investments in development are in jeopardy unless precautionary action is taken toward reducing disaster risk. Yet few development organizations adopt a precautionary approach in the design and management of projects and fewer still recognize the role of environmental management in reducing disaster risk.

Environmental degradation, settlement patterns, livelihood choices and behaviour can all contribute to disaster risk, which in turn adversely affects human development and contributes to further environmental degradation. The poorest are the most vulnerable to disasters because they are often pushed to settle on the most marginal lands and have least access to prevention, preparedness and early warning. In addition, the poorest are the least resilient in recovering from disasters because they lack support networks, insurance and alternative livelihood options.
A comprehensive approach to disaster risk reduction (DRR) acknowledges the role of the environment in triggering disasters and protecting communities. At the same time, it recognizes that the environment is itself vulnerable to disasters in post-disaster recovery. The potential contributions of environmental management (including environmental science, information, governance and technologies) towards reducing disaster risk are very vital. Sustainable and integrated management of natural resources, including reforestation schemes, proper land use and good management of rivers will increase the resilience of communities to disasters by reversing current trends of environmental degradation.

2.6 Environmental change as a parameter of disaster risk in the Karamoja region

Environmental degradation and disasters are very closely linked in many regions. In Uganda the regions that suffer most from disasters are the same ones in which environmental degradation is proceeding most rapidly. Similarly, poverty and vulnerability to disasters are closely linked. While the link between natural disasters and environmental degradation is well established, now there is growing evidence that many conflicts are the result of environmental resource mismanagement.

“Environment and disasters are inherently linked. Environmental degradation exacerbates the impact of natural disasters. It affects natural processes, alters humanity’s resource base and increases vulnerability. The degree to which environment can absorb impacts, increase overall resilience and provide effective and economical solutions to reduce disaster risks are therefore jeopardized. Furthermore, societies’ traditional coping strategies are challenged.”

(ISDR, 2002)

2.7 Gender perspective in environmental management and disaster risk reduction

2.7.1 Gender in pre-disaster vulnerability

How men and women are impacted by, and respond to disasters is shown to be directly founded on existing gender roles, and relative socio-economic status in pre-disaster situations. From a sociological perspective, both the poor and women are more likely to be underprivileged, and therefore more vulnerable. Within this, a gender perspective shows that since women shoulder a combination of productive, reproductive and household maintenance responsibilities, and have access to relatively fewer resources than men, they consequently face greater challenges and stresses during and after disasters.
Consequently, an understanding of the social and gender dimensions of disaster risk in Karamoja and indeed in other communities, brings the interface between development and disasters into clear focus. Lessons drawn from several works on gender and development are equally relevant for disaster mitigation and recovery. In particular, recognizing and supporting women’s economic contribution and empowerment has been found to be more critical to achieving development and welfare objectives rather than focusing on them with relief and welfare alone.

Women are directly impacted by environmental degradation both via their production and household maintenance responsibilities. When women are engaged in crop production, they are more likely to be farming the poorer, eroded lands. Low productivity is further eroded when men have to migrate to seek paid work, and leave women to manage agriculture alone (Paolisso and Gammage 1996). Household maintenance activities, such as collection of firewood, water and fodder tend to be mainly women’s responsibilities – and all these become more time intensive with environmental degradation. Given the already heavy workloads, when such labor demands on women increases, their ability to engage in productive income activities is reduced.

2.7.2 Gender in post disaster vulnerability

In post disaster situations, women are universally found to be more vulnerable than men. Their care giving roles expand dramatically after a disaster, and their access to resources for recovery is constrained. The cumulative effect of these circumstances puts women and children at great risk. Many researchers find that women suffer more psychological health problems from disasters. Generally, natural disasters are not expected to be as likely to lead to Post Traumatic Stress Disorder (PTSD) as conflict situations that are accompanied by armed conflict or torture, and where people live under threat for extended periods of time (Wiest et. al. 1994).

There is an increasing tendency for poorer men to walk away from marriages and the normative obligation to dependent wives and children. Natural disasters can trigger the abandonment of women, as has been shown in northeastern Brazil, where women household heads are known as “widows of the drought” (Byren, 1995). Women tend to seek out support primarily from other women and from their kinship networks in dealing with disasters, rather than from established administrative or assistance officials.

2.8 Drought

All communities and other stakeholders consulted while on the study visit in Karamoja mentioned drought as one of the leading environmental change / problem that results into famine and other socio-economic problems. The communities also noted that although the main hazard is drought but it may catalyze other hazards. The frequent occurrence of droughts was mainly attributed to climate change and climate variability. Globally the disaster management community conventionally distinguishes between various forms of drought:
- **Meteorological drought** refers to a departure from anticipated mean rainfall but generally does not connote a disaster in itself.

- **Hydrological drought** and agricultural drought, on the other hand, both have devastating impacts on human populations. Hydrological drought concerns a reduction in available water but the critical thresholds are relative to local demands.

- **Agricultural drought** refers to changes in timing, frequency or intensity of the rainfall that have specific implications for crop yield.

The role of environmental degradation or, more broadly, human modification of the natural environment, plays an important role in agricultural and meteorological droughts. Land use practices, including settlement patterns and farm management systems can significantly affect the onset of drought conditions. Water use and water management practices directly affect the preconditions for hydrological drought.

A study conducted by the Ministry of Water, Land and Environment (MWLE) showed that the frequency of droughts increased from an average of one per decade to about seven in the last decade (Figure 1). In the Karamoja region communities reported very serious drought in the last 4 years and the cycle was reported to be repeated every five years.

**Figure 1: Trend in frequency of occurrence of drought in Uganda**

![Graph showing trend in frequency of drought](image)

**Source:** MWLE, 2007.
2.9 Wild land Fire Risk

Fire risk is a function of fire weather, fuel load and the presence of an ignition source. Forest fires are directly linked to environmental degradation through a number of undisputed pathways. Substantial evidence suggests that deforestation / logged over forest is at greatest risk for fire; this is because the debris left behind in the open, dries out rapidly and serves as an excellent fuel source.

In Karamoja two types of fires were reported:

a. **Village fires** – these are normally accidental but they destroy houses and food and have serious impacts on the livelihoods of the communities

b. **Rangelands wild land fires** – these are normally deliberately started to allow generation of “new grass” for the animals

(Sources: Zachary Angera - District Forestry Officer–Moroto & Lotyang John – District Environment Officer – Moroto)

2.10 Disasters and Disaster Management in Uganda

Uganda has experienced a wide range of disasters directly affecting most of the country. The following have been frequent: displacement of persons as a result of civil strife; famine as a result of drought; earthquakes; disease epidemics, livestock and crop disease; flooding and landslides as a result of heavy rains and injudicious environmental management; and technological accidents as a result of inadequate safety procedures. New on the scene and most frightening is the phenomenon of terrorism (GOU, 2005).

Uganda also has in place a National Disaster Preparedness Policy and Institutional Framework approved by Cabinet in 1999 and revised in 2003 (www.opm.go.ug). In addition Uganda has in place a National Policy on Internal Displacement of Persons and a National Policy on Conflict Resolution and Peace Building.

The Department of Disaster Management and Refugees in the Office of the Prime Minister (OPM) is responsible for multi-sectoral coordination and collaboration in disaster risk reduction. The department is headed by the 1st Deputy Prime Minister and Minister for Disaster Preparedness and Refugees who is supported by a Minister of State and a team of Technical Experts led by a Commissioner and two Assistant Commissioners. The department is also the secretariat for an Inter-Ministerial Policy Committee (IMPC), which gives coordinated policy direction in disaster management. With support from ISDR, a National Platform of disaster focal points from relevant Ministries such as Water and Environment, Lands, Health and Education was put in place to plan and implement in coordinated approach mitigation and response initiatives (GOU, 2005).

**The current disaster management structures:**
Box 5: Current disaster management structures

- Office of the Prime Minister (OPM) - National Level
- District Disaster Management Committee (DDMC)
- District Council (DC)
- Food Security Working Committee (FSWC) – at sector level
- Sub-County Level Disaster Committee (not yet operational)

Source: District Production Officer-Moroto
3.0 OPPORTUNITIES FOR ENVIRONMENTAL MANAGEMENT IN DISASTER RISK REDUCTION AND ON GOING INITIATIVES IN KARAMOJA

3.1 Reducing Risk

Disaster risk Management is defined as the systematic process of using administrative decisions organization, operational skills and capabilities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or limit (mitigation and preparedness) the adverse effects of hazards. In many countries and in many communities, particularly in disaster prone areas, prevention has, for generations, been one of the coping strategies for living with risk. Traditional coping strategies are important assets to disaster management programs.

3.2 Disaster reduction strategies

Disaster Risk Reduction (DRR) or the conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development is very vital in any disaster prone community. Disaster reduction strategies are aimed at enabling societies at risk to become engaged in the conscious management of risk and the reduction of vulnerability. The adoption of appropriate development policies can reduce disaster risk. These policies should be gender sensitive and need the necessary political commitment. They involve the adoption of suitable regulatory and other legal measures, institutional reform, improved analytical and methodological capabilities, financial planning, education and awareness. Risk reduction should be seen as a comprehensive process that goes beyond traditional response to the impact of individual national hazards. This process should be multi-sector and inter-disciplinary in nature and comprise a wide range of interrelated activities at the local, national, regional and international levels.

Contemporary environmental management is often characterized by a diverse array of managing partners including communities, national, and local government agencies, scientists and researchers, NGO’s and the international donor community thus providing for vertical integration. Similarly, horizontal integration of management regimes incorporates the interests and dynamics of multiple sectors such as agriculture, environment, disaster management, tourism and health. Integrated approaches have become widely accepted through the development of new planning paradigms, such as watershed management and integrated water resources management (IWRM).
These approaches adopt a regional perspective, by taking a watershed, river basin or other ecological region as the basic management unit.

Integrated approaches to environmental management are, in principle, well positioned to incorporate disaster risk reduction in the framework of environmental management and development plans. While the relationship is generally accepted at the conceptual level, more subtle analysis is needed to identify critical thresholds of vulnerability and specific opportunities for synergy.

Most development and aid programs emphasize poverty, but ignore the risk of natural disasters as a major influence on poverty, though there is awareness of the link. One consequence of this omission is the failure to address environmental protection measures or strengthen institutions that manage competition for resources in an inclusive manner, as an integral component of poverty reduction efforts.

There is fortunately, a growing awareness of the economic value of environmental conservation, even in the short run. With the increasing scarcity of water, need for protection of watersheds for a variety of water users is becoming apparent. In the process of such environmental protection, the areas are also being protected against disasters such as drought and flooding.

Enabling local communities to better manage natural resources is now emerging as top priority on the combined agenda of environmental, social justice and poverty oriented development efforts. Lessons from success stories where community based natural resource management has been effective point to the importance of women’s meaningful participation in formulation and implementation of rules (Hesse and Trench 2000).

3.3 Disaster Risk Reduction Initiatives in Karamoja

During the study visit in Karamoja a number of initiatives were reported by several stakeholders as reported below.

3.3.1 Community Managed Disaster Risk Reduction (CMDRR) Consortia Activities

Ms Longole Hannah – Program Officer CMDRR Consortia and Mr. Nyanga John Bosco – Program Assistant DRR/CMDRR patiently elaborated on the current DRR initiatives that are spearheaded by KARITAS Moroto. SSD/KARITAS Moroto leads a consortium composed of KADP, MADEFO, KARITAS Moroto and KARITAS Kotido. The consortia initiated several activities in DRR from 2006 after the communities were exposed /trained in DRR in Ethiopia by the International Institute of Rural Reconstruction (IIRR). The communities carry out Risk Assessments and the elements
within these assessments are summarized in Box 6 below. Thereafter the communities are guided to develop Mitigation Action Plans (MAPS). Within the same arrangement the communities identify vulnerable groups within their community (Vulnerability Assessment) and the vulnerability will vary/differ depending on the hazard. After the Risk Assessment and development of MAPS the communities form groups and solicit funding for the mitigation measures. Such assessments have been carried out in Kodony - Katikekile Sub-county. Implementation of interventions/ mitigation measures is carried out by the communities - Community Disaster Risk Reduction (CDRR) groups. For example in Rupa, Moroto district the main hazard identified was drought and the mitigation measure agreed on was construction of water pans. The water collected / harvested from runoff is used for domestic, livestock and mining activities. These pilot initiatives with the communities are supported by Matheniko Development Forum (MADEFO) that is funded by CORD AID.

**Box 6: Risk Assessments and development of action plans by communities in Karamoja**

- Hazard identification
- Ranking / prioritization
- Resources Mapping (Local Resources)
- How to mitigate hazards
- Prioritization of hazards with biggest impact using PRA tools
- Identification of activities to minimize / mitigate the hazard
- Development of action point / mitigation plans

In another community (Kodony – Katikekile Sub-county) the main hazard identified was drought and the interventions agreed upon by the community were water protection and opening up of an access road to the community. The river from where the communities collected water was salty and the water was making them sick. Additionally this community was isolated and did not have good accessibility/road. The intervention (spring protection) has provided the community with a permanent source of good water. The community also started vegetable production / kitchen gardens and the vegetables are for home consumption and sale / income generation. The organization also helped the community to interact with other outside communities via exchange visits. Exchange visits were organized to Kapchorwa, northern Kenya and Ethiopia. These visits helped the communities see how other communities living in similar environmental conditions are coping and the exposure had very lasting impressions on those that participated in the exchange visits. Box 7 summarizes the impact / outcome of these interventions. Annex 2 shows a sample of a community action plan.

**Box 7: Impact / Outcomes of interventions**

- Communities able to manage the project themselves and have strong commitment; this is very vital for the continuity and sustainability of the intervention/project
- Communities able to train others
- Have good Project – Sub committees and the DRR Sub-committees have strengthened sustainability
- Revolving spirit; communities are willing to share outputs with others e.g. off
“Communities will always face natural hazards, but today’s disasters are often generated by, or at least exacerbated by, human activities. Destitution and demographic pressure have led more people than ever before to live in flood plains or in areas prone to landslides. Poor land-use planning; environmental mismanagement; and a lack of regulatory mechanisms both increase the risk and exacerbate the effects of disasters. I also believe that we need to be better prepared for natural disasters and incorporate disaster risk management into our poverty reduction, development and environmental strategies.”

Kofi Annan (ISDR, 2002)

3.3.2. Resource Use Conflict

In other intervention areas the consortia found that resource use conflicts were related to availability of food. In “good” years i.e. when food is available the cattle raids are fewer and the converse is true. Several communities also indicated that disarmament has indirectly caused insecurity because the disarmed communities are left very vulnerable to attacks by those communities still armed! Additionally when disarmament was started the communities were not offered alternative livelihoods.

In Nabilatuk the communities are in a “Conflict Corridor” where conflicts for resources are very rampant. The communities agreed that the interventions should address insecurity and drought. The action plan activities agreed on were:

i. Support the disarmed warriors
ii. Requested for drought resistant / fast growing seeds to make sure that they have food and surplus seed to sell to other communities. Perl millet ; green gram and groundnuts seed were given to the community
iii. Key traditional leaders were used to inform neighboring tribes that they were no longer involved in raiding.
iv. Elders are responsible for “Peace Awareness Creation”

3.3.3 Disaster Risk Reduction Activities and approaches in the three major agro-ecological zones of Karamoja.

The District Production Officer - Moroto Mr. Achilla Odongo, summarized the intervention / mitigation / livelihood activities for the three major agro-zones in Karamoja as follows:
a. **Pastoral Zone** – Use Pastoral Zone Field Schools for sensitization, training and implementation of enterprises / other livelihood options

b. **Agro-Pastoral Zone (500-700mm)** - enterprises in crops

c. **Wet Zone** - enterprises in crops

The DPO – Moroto further elaborated that the FIEFOC Project promoted tree planting in highly degraded areas.

### 3.3.4 Lessons Learnt

The consortia have several success / case stories where the communities have implemented Action Plans on their own after DRR assessments. From these cases there are several lessons learnt. On environment issues the communities are active/good at formulating their own bye-laws e.g. if they agree on stopping tree cutting / charcoal making they will abide. Once the communities agree on a given principle then they will abide / conserve.

#### 3.3.4.1 The DONTS

- Don’t show the community that you have a lot of money
- Don’t show that you are knowledgeable
- Don’t undermine Community Leaders
- Don’t keep away reports generated from the information given by the communities

#### 3.3.4.2 Awareness Creation

- Use key community leaders – they are more effective than the LCs
- Radio programs are good but they need good packaging and should be professionally done
- Posters – because of the high illiteracy level use of pictures / pictorial’s are recommended
- The International Day for Disaster Risk Management is a good opportunity for information dissemination
- Awareness raising – talk to the communities since they are easy to mobilize (because of staying in manyatas)
- Documentaries are good
- The longer the change agent stays with the community the better for impact creation and awareness

#### 3.3.4.3. Challenges

- Translation of the hazards into the local languages
b. Translating the "dialects" of the different tribes / communities

c. Financial resources – funds requested by the communities may be too high

d. Interventions of government may interfere or conflict with the beliefs of the community; hence the need to work as partners (Civil Societies and Government Agencies)

3.4 Drought Early Warning Systems in Karamoja

Mr. Rogers Otuta – Program Assistant in the Agency for Technical Cooperation and Development (ACTED) - Moroto gave a very detailed account of the Drought Early Warning System (DEWS) that has been initiated in the Karamoja Region. ACTED is funded by the Danish church Aid group. The DEWS was initiated in October, 2009 and is based on six sectors / indicators that are broken down as follows: Livelihoods; Livestock; Water and Sanitation; Civil Security; Natural Resources and Health. Questionnaires are developed and they are then administered at parish level to interview households. DEWS is currently operating in all the districts of Karamoja and ACTED has partnered with Oxfam, C&D, SEF and other partners to implement the initiative in early warning systems and other mitigation activities. Annex 3 shows a copy / sample of one of the questionnaires used to collect information for the DEWS in Karamoja.

After ACTED and partners have collected the information they discuss it with the Food Sector Working Groups (FSWGs). Thereafter a partner e.g. an NGO working on food security addresses the issue / problem. The reports are shared with different partners who eventually carry out the interventions.

3.4.1 Structure / Information Flow in the DEWS:

Box 8: Structure of DEWS

- a. Parish Chiefs collect information / administer the questionnaires
- b. Information sent to the Sub-county Chief
- c. Sub-County Chief passes on the information to the district
- d. Early Warning Focal Person at district analyzes the data and produces the drought bulletin
- e. Drought bulletin / Report presented to the Food Sector Working Group (FSWG)
- f. Secretary to the Sector Working Group presents report to the DDMC and decisions are taken at that level
- g. Information / Report used to generate Food Security Early Warning forecasts
It was noted that the Focal Persons at the districts are normally department heads e.g. Natural Resources Officers, DPOs etc. These officers/offices have been supported by ACTED by provision of computers, printers, stationery etc.

3.5 Indigenous Knowledge and DRR

The several communities consulted were requested to enumerate indigenous knowledge (IK) on disasters and DRR. Box 9 summarizes the captured IK on disasters:

**Box 9: Summary of reported IK on disasters (as reported by community elders in Moroto, Nakapiripirit, Kotido, Amudat and Abim Districts)**

<table>
<thead>
<tr>
<th>A. Cluster of six stars – Cluster relationship with the moon used for prediction of bad years; “color of the moon or orientation” of the moon. e.g. if the early moon “tilts/faces” southwards its an indication of a bad year or disaster</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Birds – migratory birds are good source of information on seasons e.g. arrival of a certain group of birds signifies that rains are expected shortly and there will be good harvest &amp; “at the same time white ants appear”</td>
</tr>
<tr>
<td>C. Rats – when rats are plenty – its an indication of drought the following year</td>
</tr>
<tr>
<td>D. Quella birds – when the appear its an indication of a bad year</td>
</tr>
<tr>
<td>E. Trees – if trees flower / produce a lot during the dry season its an indication / prediction of drought in the following year</td>
</tr>
<tr>
<td>F. Star called “Lomoroko” – when it appears at 5.00am in the early morning then its likely to be a bad year / prediction of drought</td>
</tr>
<tr>
<td>G. Animals “kneeling ” when drinking water - indication of a bad year</td>
</tr>
</tbody>
</table>
4.0 STRATEGY FOR INFORMATION DISSEMINATION

4.1 Public awareness

Public awareness or the processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards is a vital process in DRR and environment management. This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of disaster.

Public awareness activities foster changes in behaviour leading towards a culture of risk reduction. This involves information, dissemination, education, radio or television broadcasts, use of printed media, as well as, the establishment of information centres, networks and community participation actions.

The overall objective of the communication strategy is to widely disseminate information on disasters and risk reduction and its likely effects, in order to save lives and livelihoods. The increase in the intensity of natural disasters requires continued and more intensive efforts in information dissemination at local, national and regional levels.

There is need to disseminate information on:

- **Case studies** that improve the understanding of environmental factors which shape vulnerability to disasters, and the options for adaptation within policy frameworks;
- **Guidelines** for reducing vulnerability to disasters using environmental management tools;
- **A network of institutions** at the regional, national and local levels with the capacity to assess and address vulnerability to disasters.

4.2 Levels of communication:

a. Communication at the National level

- Such communication should target policy and decision makers like Members of Parliament and Cabinet for information, endorsement of resource allocation and other preparedness measures required.

b. Communication at Regional and districts levels

- The LC V chairmen and other district, Civil Society officials and Church leaders / church based institutions should be responsible for communicating to the public. Information to communicate will be obtained from the DDMCs. Avenues for communication should
include but not limited to; Local radios, televisions, meetings/gatherings, church/religious based meetings, local newspapers, etc.

c. Communication to the public in general

- This should act as an early warning strategy; communication on the impending disasters and their effects is fundamental to raising awareness, getting the population prepared and understanding of the problem.

- Targeted and strategic communication should be made locally, to mobilize the donors, partners, civil society, and other stakeholders to support implementation of the contingency plan.

- Local leaders and elders are very crucial in the Karamojong society set up and should be involved in information dissemination. They should also play key roles in the mitigation measures

4.3 Messages to be communicated and avenues

The messages should be well packaged and be communicated to all stakeholders mentioned above.

The Awareness Avenues should include but not limited to:

- Posters
- Fliers
- Newspapers
- Radios
- Televisions
- Community gatherings/meetings
- Use of vans & loud speakers
- Mobile phones – SMS messages

The community in Teramoth village – Pupu Kamuya Parish; Nyakwayi Sub-county, in Abim district indicated that churches and church based organizations are very effective in disseminating information and they are respected by the masses. Additionally they argued that posters should be pictorial because of the high illiteracy levels. The same community indicated that the best times for messages on radios are in the morning (7.00am); lunch time (1.00pm) and evening (8.00pm)
5.0 RECOMMENDATIONS: SHORT AND LONG-TERM DISASTER RISK REDUCTION AND ENVIRONMENTAL MANAGEMENT OPTIONS FOR KARAMOJA

Around the world, a growing share of the devastation triggered by ‘natural’ disasters stems from ecologically destructive practices and from putting ourselves in harm’s way. Many ecosystems have been frayed to the point where they are no longer resilient and able to withstand natural disturbances, setting the stage for ‘unnatural disasters’ – those made more frequent or more severe due to human actions. By degrading forests and rangelands, filling in wetlands, and destabilizing the climate, we are unraveling the strands of a complex ecological safety net. (Abramovitz, 2001)

Environmental concerns and opportunities are relevant to the implementation of all disaster risk reduction priorities. The following section (Box 10) summarizes recommendations for environmental management in risk reduction and suggests ways in which environmental managers can engage with disaster managers and other development partners to reduce disaster risk. These recommendations are partly adopted from the UNEP / UN ISDR Working Group on Environment and Disaster (2002).

Box 10: Recommendations for disaster risk reduction and environmental management

1. **Partnerships** – formation of partnerships is top priority in DRR and environmental management. The different key players / Stakeholders have different roles to play in DRR and these roles form / intertwine into a web that determines the success or failure of the interventions. *The partnerships currently initiated under the EWS and CMDRR should be strengthened / a good starting point!*

2. **Engage environmental managers fully in national disaster risk management mechanism:** National platforms for disaster risk reduction should integrate environmental concerns and should be supported by environment-related institutions. Likewise, disaster managers are important partners in environment management initiatives. This arrangement should be institutionalized up to local government and the grass roots / community level.

3. **Include risk reduction criteria in environmental regulatory frameworks:** Frameworks such as Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments, which have been successfully used to prevent further environmental
degradation, should be adapted to address disaster risk as well. **NEMA should be a key partner in DRR and environmental management.**

4. **Assess environmental change as a parameter of risk / Risk Assessment and Mapping:** Risk assessments form the basis of risk reduction strategies and preparedness planning, and should also be the foundation for development plans at the national or the community level. Environmental change should be factored in as a parameter risk. **There is an urgent need for comprehensive vulnerability analysis to be undertaken for disaster-prone areas, incorporating information about past disaster events, the socio-economic conditions of the population living in the affected area, and inventories of major structures liable to damage. Risk assessment and hazard mapping would then be used to delineate areas vulnerable to natural hazards and determine the frequency, intensity, impact, return period and other data in relation to each category of hazard.**

5. **Utilize local knowledge (IK) in community-based disaster risk management:** The indigenous knowledge of people who live in hazard-prone areas should be considered as complementary to scientific knowledge in the development of community-based disaster risk management plans and programmes. Several elders / community leaders have valuable IK that should be used in DRR.

6. **Engage the scientific community to promote environmental research and innovation:** Greater interaction between policymakers, environmental managers and the scientific community can breed familiarity with technological alternatives and innovations and stimulate targeted research towards reducing disaster risk.

7. **Protect and value ecosystem services:** The proliferation of new technologies and processes for managing natural resources, including new knowledge of the ecological, social and cultural dimensions of resource management, presents many opportunities for reducing disaster risk.

8. **Consider environmental technologies and designs for structural defenses:** While many communities around the world are protected from hazard risks by engineered structural defenses, greater attention to environmentally-sound designs could simultaneously help protect them from environmental degradation.

9. **Integrated environmental and disaster risk considerations in spatial planning and land management:** Environmental authorities, who provide fundamental information and analyses during multi-sectoral zoning and land-use planning, should advocate for greater attention to disaster risk reduction during these processes. There is an urgent need to support a sustainable settlement development and a sustainable land use on consideration of the different public and private interests because of their important influences on environmental disasters.

10. **Prepare for environmental emergencies:** Preparing for environmental emergencies
Disaster Risk Management and Environment

11. Strengthen capacities for environmental recovery: Recovery, reconstruction and risk reduction efforts must be carried out with proper environmental guidance and safeguards to avoid devastating short- and long-term impacts on the environment.

12. Develop / Strengthen Early Warning Systems: The provision of timely and effective information through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response. The EWS should strengthen / be based on the current initiative that is spearheaded by ACTED.

Early warning systems consist of three elements (i) forecasting and prediction of impending events, (ii) processing and dissemination of warnings to all relevant authorities and population, and (iii) undertaking appropriate reaction to warnings.

13. Strengthen community based strategies that involve women in planning and decision making: These strategies have been found to be effective and lessons need to be better documented, and compiled in such a way as to provide guidance for program planners. Related to this, is the issue of improving land ownership by women, and its relevance for reducing disaster vulnerability, and improving ability to recover from disasters. The community based initiatives should strengthen / be based on the model that is currently spearheaded by KARITAS Moroto in the CMDRR consortia.

Improving local communities’ rights to natural resources is a movement that is steadily gaining ground – and should continue to do so in order to meet the environmental and social justice goals of sustainable development.

Living with Risk (2004) also outlines the following as ways to integrate environmental and disaster reduction strategies:

- Assessment of environmental causes of hazards occurrence and vulnerability
- Assessment of environmental actions that can reduce vulnerability
- Assessment of the environmental consequences of disaster reduction actions
- Consideration of environmental services in decision-making processes
- Partnerships and regional approaches to land use and nature conservation
- Reasonable alternatives to conflicts concerning alternative uses of resources
- Advice and information to involve actors in enhancing the quality of the environment.
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### 7.0 ANNEXES

#### Annex 1: People met / consulted

<table>
<thead>
<tr>
<th>Name &amp; Title</th>
<th>Organization &amp; Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mr. Edward Okori - Head of Office</td>
<td>FAO - Moroto</td>
</tr>
<tr>
<td>2. Dr. Paul Opio</td>
<td>FAO - Moroto</td>
</tr>
<tr>
<td>3. Mr. Paul Emuria – National Agronomist</td>
<td>FAO Kotido Sub-Office</td>
</tr>
<tr>
<td>4. Mr. Patrick Nyeko – Program Development Officer</td>
<td>Samaritan’s Purse International Relief - Kampala</td>
</tr>
<tr>
<td>5. Mr. Abura Stephen – Program Officer Governance and Conflict Transformation</td>
<td>Karamoja Agro-Pastoral Development Programme (KADP) - Moroto</td>
</tr>
<tr>
<td>6. Ms Ludy van Dijk – Program Manager</td>
<td>ZOA Refugee Care - Amudat</td>
</tr>
<tr>
<td>7. Mr. Otuta Rogers – Program Assistant Early Warning System (EWS)</td>
<td>Agency for Technical Cooperation and Development (ACTED) - Moroto</td>
</tr>
<tr>
<td>8. Ms Longole Hannah – Programme Officer CMDRR Consortium</td>
<td>KARITAS /CMDRR Consortia - Moroto</td>
</tr>
<tr>
<td>9. Mr. Nyanga John Bosco – Programme Officer Emergency &amp; DRR/CMDRR</td>
<td>KARITAS / DRR-CMDRR - Moroto</td>
</tr>
<tr>
<td>10. Mr. Achila Odongo – District Production Officer</td>
<td>Moroto district</td>
</tr>
<tr>
<td>11. Mr. Zachary Angera – District Forestry Officer</td>
<td>- Moroto district</td>
</tr>
<tr>
<td>12. Mr. Lotyang John - District Environment Officer</td>
<td>- Moroto district</td>
</tr>
<tr>
<td>13. Mr. Geoffrey Otim – Coordinator Agriculture and Livelihoods</td>
<td>ZOA – Amudat district</td>
</tr>
<tr>
<td>14. Mr. Lokiru Michael - Chair LC I</td>
<td>Nabokotom – Amudat district</td>
</tr>
<tr>
<td>15. Gregory Loïyele - Chair LC III</td>
<td>Moruita Sub-County – Nakapiripirit district</td>
</tr>
<tr>
<td>16. Mr. Arnest Angélia – Program Officer Food Security and Livelihoods</td>
<td>Oxfam Kotido</td>
</tr>
<tr>
<td>17. Ms Harriet Tosquine Akech – Livelihoods &amp; Food Security Officer</td>
<td>ADRA - Kotido</td>
</tr>
<tr>
<td>Community Met / Consulted:</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1. Community Leaders (15) – Lorikokwa Village, Nadunget Sub-County – Moroto district,</td>
<td></td>
</tr>
<tr>
<td>2. Nabakotom Village Community (30) – Amudat Parish, Amudat Sub-County, Amudat district,</td>
<td></td>
</tr>
<tr>
<td>3. Karinga Village Community (30) – Moruita Sub-County, Nakapiripirit district</td>
<td></td>
</tr>
<tr>
<td>4. Teramoth Village Community (40) – Pupu Kamuya Parish, Nyakwayi Sub-County, Abim district</td>
<td></td>
</tr>
</tbody>
</table>

COMMUNITY ACTION PLAN.

Baseline information:

District: Moroto
Sub county: Lotome
Name of a parish: Moruongor
Number of villages:
Households:
Sex (males):
Females:
Estimated Population:

Location of the parish from the s/c headquarters: North East
Location of the Sub-county from the district headquarters: Southwest

Issue: 2. Sustainable management of common property resources.

Output: 1. To enhance the capacity of communities to sustainably manage their water resources.

<table>
<thead>
<tr>
<th>activity</th>
<th>Time frame</th>
<th>Responsible (tick where its appropriate)</th>
<th>Resource needed (list the type of contribution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disilting more water ponds</td>
<td>March</td>
<td>Community, KADP, GOV'T</td>
<td>Provide labor, Mobilization of the community, Identify land, Select water committees</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td></td>
<td>Provide disilting materials</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borehole and wind mills</td>
<td>March</td>
<td>Community, KADP, GOV'T</td>
<td>Provide labor, Mobilization of the community, Identify land, Select water committees</td>
</tr>
<tr>
<td>construction</td>
<td>April</td>
<td></td>
<td>Provide drilling machines, Provide cash</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td></td>
<td>Provide stones &amp; cement, Provide borehole spare parts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provide cash</td>
</tr>
</tbody>
</table>
Annex 3: Drought Early Warning System tool for information collection

KARAMOJA DROUGHT EARLY WARNING SYSTEM
MONITORING OF WATER, CROP, LIVELIHOOD, LIVESTOCK INDICATORS
Community

Information to be collected on a MONTHLY basis.

District: ___________________ Sub-county: ________________ Month/Year: _____________
Parish: ___________________

WATER
1. Type of water sources

Tick the type of water sources used by the community during the month under review.

<table>
<thead>
<tr>
<th>#</th>
<th>Type of water sources</th>
<th>Tick if used by the community</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>River</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Borehole</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pans and dams</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Traditional river wells</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Natural ponds</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Springs</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lakes</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Rock catchment</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Other (Specify)</td>
<td></td>
</tr>
</tbody>
</table>

CROP
1. Type of crop/ Area planted/ Time of planting/ Pests and Diseases

For each type of crop planted indicate the area planted in acre.

<table>
<thead>
<tr>
<th>Type of crop</th>
<th>Area Planted (acre)*</th>
<th>Crop infected by pest/disease? (Yes/No)</th>
<th>If Yes, which ones?</th>
<th>Extent of damage (acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorghum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cassava</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G/nuts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunflower</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cowpeas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simsim</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*If not planted, indicate 0

2. Crop Condition

*Fill in this section only when crops are growing. Leave it blank the rest of the year.*
### Type of crop

<table>
<thead>
<tr>
<th>Crop condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorghum</td>
</tr>
<tr>
<td>Maize</td>
</tr>
<tr>
<td>Beans</td>
</tr>
<tr>
<td>Potatoes</td>
</tr>
<tr>
<td>Millet</td>
</tr>
</tbody>
</table>

**Crop condition**
- **Good** = Deep green leaves’ condition
- **Fair** = Yellowing leaves though growing
- **Poor** = Stunted growth of young plants

### COPING MECHANISMS

#### 1. Price of casual labour
- What has been the daily rate for casual labour in this parish during the last 4 weeks?

---
**UGX/day**

#### 2. Out-Migration
- How many Households moved to other sub-county/region/country during the last 4 weeks?

---
**HH**

- What have been the main reasons?

**Search for labour=1, Insecurity=2, Search for water=3, Search for pasture=4, Floods=5, Search for food (relatives/food distribution points…)=6, Other (specify)=7**

- Where did they go?

### LIVESTOCK

#### 1. Livestock migration
- How many animals migrated to other locations during the last 4 weeks?

---
**animals**

- Where did they go?

- Which type of animal moved?

*Tick the cell(s) corresponding to the type of animals which migrated*

<table>
<thead>
<tr>
<th>Cattle</th>
<th>Goat</th>
<th>Sheep</th>
<th>Donkey</th>
<th>Camel</th>
</tr>
</thead>
</table>

#### 2. Livestock disease incidence

Give the type and number of animal affected by the following disease in the parish, during the last 4 weeks

<table>
<thead>
<tr>
<th>Disease</th>
<th>Type of animals infected (tick)</th>
<th>Number of animals infected</th>
<th>Get this information from</th>
</tr>
</thead>
</table>

_Disaster Risk Management and Environment_
<table>
<thead>
<tr>
<th>Disease</th>
<th>Hosts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FMD</strong> Foot and Mouth Disease</td>
<td>cattle</td>
</tr>
<tr>
<td><em>Ejota</em></td>
<td>calves</td>
</tr>
<tr>
<td></td>
<td>goat</td>
</tr>
<tr>
<td></td>
<td>pigs</td>
</tr>
<tr>
<td></td>
<td>sheep</td>
</tr>
<tr>
<td><strong>PPR</strong> Pest des Petits Ruminants</td>
<td>goat</td>
</tr>
<tr>
<td><em>Lowuruto</em> / <em>Lomoo</em></td>
<td>sheep</td>
</tr>
<tr>
<td><strong>CCPP</strong> Contagious Caprine pleuropneumonia</td>
<td>goat</td>
</tr>
<tr>
<td><em>Lomée</em></td>
<td></td>
</tr>
<tr>
<td><strong>CBPP</strong> Contagious Bovine pleuropneumonia</td>
<td>cattle</td>
</tr>
<tr>
<td><em>Loukoi</em></td>
<td>calves</td>
</tr>
<tr>
<td><strong>New Castle Disease</strong></td>
<td></td>
</tr>
<tr>
<td><em>Ekolera</em></td>
<td></td>
</tr>
<tr>
<td><strong>African Swine Fever</strong></td>
<td></td>
</tr>
</tbody>
</table>

Filled in by: __________________________  Date: _____________  Signature: ________________

Approved by (Sub-County Chief): _________________________________  Signature: ________________

(Source: ACTED Moroto)