



**BUSITEMA  
UNIVERSITY**  
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**FACULTY OF NATURAL RESOURCES AND  
ENVIRONMENTAL SCIENCES**

**DEPARTMENT OF NATURAL RESOURCE ECONOMICS**

**ECOSYSTEM-BASED ADAPTATION TO DROUGHT AMONG  
AGRO-PASTORAL FARMERS IN KAYUNGA DISTRICT, UGANDA**

**By**

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A Dissertation submitted to the Faculty of Natural Resources and Environmental Sciences in partial fulfillment of the requirements for the award of the Degree of Master of Science in Climate Change and Disaster Management of Busitema University

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## ABSTRACT

The study examined Ecosystem-based Adaptation (EbA) to drought among Agro-pastoral farmers in Kayunga District. Specifically, the study examined farmer's perceptions of drought; identified the different EbA practices, and assessed the effectiveness of EbA practices among agro-pastoral farmers to cope with drought. The study was carried out using a cross sectional research design, and both qualitative and quantitative data were collected. Primary data was collected using questionnaires and interviews while secondary data was collected through document review. Quantitative data was managed using SPSS Version 19, and analyzed using frequency tables and Spearman's correlation coefficient tests. Qualitative data was managed using ATLAS.ti and analyzed using narrative analysis. The study findings revealed that the study area has experienced drought conditions for a very long time but the conditions were severe in November-March and June-September 2018. In response to the drought, most agro-pastoralists adopted wetland edge farming, fishing, mixed cropping, irrigation, fertilizer application and planting of drought resistant crops in order to cope with the drought conditions. In terms of effectiveness, irrigation was reported to be the most effective EbA method. The study recommends: support to agro pastoral farmers acquire irrigation equipment's, construction of valley dams, strengthening policy on conversion of fragile ecosystems (wetlands and forests) to sugarcane farms, and supporting alternative livelihoods for agro pastoral famers.

## DECLARATION

I, Basaliza Edigar declare that this Dissertation is my own original work and it has never been submitted to any other institution for an award.

Signed:.....

Date:.....

*Basaliza Edigar*

*16<sup>th</sup> 12/20*



**APPROVAL**

This is to confirm that this dissertation has been submitted with my approval.

Signature: .....

Date: .....

Dr. Masaba Sowedi

## DEDICATION

Dedicated to my family and friends.

## ACKNOWLEDGEMENTS

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## LIST OF ACRONYMS

AMS	American Meteorological Society
CBD	Convention on Biological Diversity
CI	Conservation International
DDP	District Development Plan
EBA	Ecosystem Based Approaches
EbA	Ecosystem-based Adaptation
IPCC	Intergovernmental Panel on Climate Change
LCMT	Land Conflict Management Tool
LG	Local Government
NAADS	National Agricultural Advisory Services
NDP	National Development Plan
NECSC	North East Climate Science Center
NEMA	National Environment Management Authority
OECD	Organization for Economic Co-operation and Development
UBOS	Uganda Bureau of Statistics
UNFCCC	United Nations Framework Convention on Climate Change

## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the study

Natural resource dependent communities especially those found in developing countries are highly vulnerable to climate variability and change due to their dependence on ecosystems for livestock and crop production (Westerman *et al.*, 2012; IPCC, 2012; Deressa *et al.*, 2009). The impacts impose challenges such as forage and water scarcity, which are perceived drought impacts experienced by agro-pastoral farmers (Ndamani and Watanabe, 2016). Climate variability and change impacts manifested through recurrent droughts for example, have resulted into reduction in farm productivity (Kgosikoma *et al.*, 2014). Drought, a climate change hazard has heavily and negatively affected the livelihood of local people who depend on ecosystems and biodiversity (Phuong, 2011). It is projected that the livelihoods of the poorest communities in arid and semi-arid areas are more likely to be negatively affected by drought through effects like crop withering, increased pest and disease invasion (Adger *et al.*, 2003; FAO, 2013, 2014; Hisali *et al.*, 2011). Drought and its characteristic extended period of moisture deficiency, greatly affects smallholder agro-pastoral farmers especially in the developing countries whose livelihood principally depends on the natural resource base coupled with minimum application of external farm inputs (Keil, Zeller, Wida, Sanim, & Birner, 2008; Stringer, Scricciu, & Reed, 2008; Feras, Bunning, & Pauw, 2015).

Drought has been defined differently and scientists have only agreed on very general definitions of a drought, e.g. (Beran and Rodier, 1985) noted that, drought is a decrease of water availability in a particular period over a particular area. IPCC, (2013) defined drought as a prolonged period of abnormally dry weather condition leading to a severe shortage of water. Yevjevich, (1967) claims that the lack of general acceptance of a precise and objective definition of drought, has been one of the principle obstacles to the investigation of drought. It is important to be aware that different definitions might lead to different conclusions regarding the drought phenomenon. For instance, it is possible that rainfall statistics summarized over a calendar year indicate no drought, whereas the moisture supply in the growing season does Yevjevich, (1967). Great Britain Meteorological Office, (1951) gives a general definition of drought basing on precipitation amounts and duration of a period more than some particular number of days with precipitation less than some specified small amount". According to Mniki, (2009) drought is an extreme and recurring climate event that affects the livelihoods of millions of people around the world and is regarded as the most

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