



FACULTY OF NATURAL RESOURCE ECONOMICS AND ENVIRONMENTAL
SCIENCES

**COMMUNITY-BASED MITIGATION AND ADAPTATION STRATEGIES TO
CLIMATE HAZARDS AFFECTING LIVELIHOODS OF CATTLE KEEPERS IN
KIRUHURA DISTRICT, UGANDA.**

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A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF NATURAL
RESOURCE ECONOMICS AND ENVIRONMENTAL SCIENCES IN PARTIAL
FULFILMENT FOR THE AWARD OF BACHELOR'S DEGREE IN NATURAL RESOURCE
ECONOMICS

FEBRUARY, 2024

DECLARATION

I AKANKUNDA DESIRE declare that the information in this research is true and complete to the best of my knowledge and this report has not been submitted for any other purpose or assessment and it does not infringe upon the intellectual property rights of any individual or entity.

Signed.....

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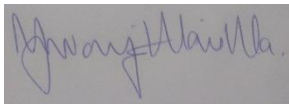
APPROVAL

This is to certify that this research has been submitted with my approval as supervisor

Name of supervisor

Prof. Waiswa Wilson Mwanja

Signature

A rectangular box containing a handwritten signature in blue ink. The signature is cursive and appears to read "Waiswa Wilson Mwanja".

DEDICATION

I dedicate this report to my family, whose unwavering support and love have been my source of strength throughout this journey. To my sisters, brothers, relatives, friends and classmates who shared their words of advice, support and encouragement to finish this study

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my supervisor Prof. Waiswa Wilson Mwanja for his invaluable guidance and support throughout the process of creating this report. His expertise and insights have been instrumental in shaping the content and direction of this work.

LIST OF ACRONYMS AND ABBREVIATIONS

MDG Millennium Development Goals

NDC-PP Nationally Determined Contribution Partnership Plan

IPCC Intergovernmental Panel on Climate Change

UNDP United Nations Development Programme

IISD International Institute for Sustainable Development

UNEP United Nations Environment Programme

FAO Food and Agriculture Organization of the United Nations

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ABSTRACT

This research project was conducted in partial fulfillment of the requirements for the award of a degree of Bachelor of Science in Natural Resource Economics, Busitema University and submitted to the Faculty of Natural Resource Economics and Environmental Sciences. The research, documented the major climate change hazards, community adaptations and coping strategies in Kihura District, one of the semi-arid areas of Uganda. The study adopted both qualitative and quantitative research approaches. The study was conducted in 8 subcounties of Kiruhura District, namely Sanga, Kikatsi, Nyakashashara, Kanyaryeru, Kinoni, Kashongi, Kenshunga, Rushere town council. Forty-five households were subjected to semi-structured interviews, five (05) pastoral households were randomly sampled from each of the sub counties, and five (05) key informants were purposively chosen, that is, the District Environmental Officer, District Veterinary Officer, District Forestry Officer, Administrative Officer, District Planning Officer were interviewed with an open ended questionnaire. In addition, field observations, Remote Sensing, GIS and modeling techniques were used capture the trends of biophysical (land-use/cover; carbon stock) and socio-economic parameters. Results indicated that long drought spells, strong winds, increased pests and diseases especially termites, and increased frequency of floods are among the climate hazards faced by pastoralists and these resulted into high death rate of cattle, reduction in milk production which then affects their incomes. It was identified that major causes of these climate related hazards were increased deforestation, charcoal burning, and over grazing in the district. In addition, cattle keepers are faced with effects of the climate hazards such as, income reduction due to disruptions in liters of milk produced, flooding of roads, food insecurity, death of both livestock and lives of cattle keepers. Cattle keepers have come up with coping mechanisms such as training and formation of farmer associations, use of water conservation practices that is construction of dams, selling off of cattle, renting land, paddocking of the grazing lands, planting drought resistant pastures such as Grass and legumes that are planted on degraded pasture land in fenced fodder plots within the drought examples of Grasses cultivated in the range lands of Kiruhura are *Pennisetum purpureum* (elephant grass), *Stylosanthes guianensis* (stylo), *Chloris gayana* whereas the legumes are *Calliandra spp.* and *lablab*. Those are the major coping strategies. There is need for sensitization for diversification of livelihoods, community participation in joint climate change mitigation and adaptation strategies and strengthen community institutions for regeneration of dry lands.

1.0 INTRODUCTION

Geography

Kiruhura District lies within the cattle corridor of Uganda which covers about 35% of Uganda's land surface and diagonally stretches from southwestern to northern Uganda, characterized with low and unreliable rainfall prolonged drought, and typically areas of open grasslands and rangelands that are dominated by pastoralist activities. (Emmanuel Hasahya, 2023)

Kiruhura District is located in the western region of Uganda. It is classified as having an improved extensive crop-livestock production system and has a strong dairy cooperative network, large scale farms with mixed crop farming planted with improved pastures for grazing livestock. The average farm sizes in Kiruhura district are about 20ha (49.4 acres), with most of the land being used for livestock grazing activities ((Ben Lukuyu, 2021). Kiruhura District is originally part of greater Mbarara area in Nyabushozi, and lies within 0° 14' 12" South, and 30° 57' 40" East. The area is dominated by savannah grassland with few trees. Land is flat with few hilly places

Economic activity and livelihoods

. Kiruhura District is a farming district where livestock forms the backbone of economic activity in the district. Cattle keeping which is the major economic activity for this area also known as cattle farming involves rearing and management of two types of animals, one group for food requirements like milk, and another for labor purposes like ploughing and irrigation. (cattle rearing, 2020) Farming is done at both subsistence and commercial basis, a few cash crops are also grown in the area and these include bananas and coffee. Food crop production is on limited scale and less diversified and the dominant food crops are bananas, maize, millet, potatoes and beans. (Ronald, 2013)

Vegetation

Acacia Savanna is the most common type of vegetation in Kiruhura District. The common vegetation is acacia thicket dominated by acacia hockii found mainly on well drained hill sides and low lying hill tops. Poorly drained valley bottoms are characterized by grasses such as Sporobolus pyrioides and various sedges. The rocky hillsides with poor, shallow soils are dominated by Loudetia kagerensis. These form the basis of the pasture in the project area that

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