



**BUSITEMA
UNIVERSITY**
Pursuing Excellence



FACULTY OF ENGINEERING

**DEPARTMENT OF AGRICULTURE MECHANISATION AND
IRRIGATION ENGINEERING**

FINAL YEAR PROJECT REPORT

**LAND EVALUATION FOR IRRIGATED
AGRICULTURE**

CASE STUDY: BUSITEMA SUB COUNTY

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*Submitted in partial fulfillment of the requirements for the award of a Bachelor of Science in
agriculture mechanization and irrigation Engineering Busitema University.*

ABSTRACT

Appropriate land use decisions are vital to achieve optimum productivity of the land and ensure environmental sustainability. Land evaluation for irrigated agriculture was carried out in Busitema Sub County following the FAO procedure of Land evaluation for irrigated agriculture, NRCS soil classifications, and ESRI rules for GIS in overlay. The result of the study revealed that the arid months are January, February, July and August, soils of Busitema Sub County study are suitable for irrigated. Considering topography, drainage, sediment transport, soil and slope as the factors that affect irrigated agriculture, the suitability model shows that 58% is suitable, 0.09% is highly suitable and the rest is not suitable. This suggests that all the limitations can be improved so as to attain the potential suitability through practicing integrated soil fertility management, farmers should use irrigation as a supplementary method during the arid months and also opt for good land management practices for optimum and sustainable production.

DECLARATION

I KYATEREKERA BRENDAH hereby declare that the report and work presented in it are my work and has been generated by my efforts and the work of my supervisors. This report has not been submitted in any form to any institute of higher learning.

SIGNATURE: *BrenDAH*

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APPROVAL

This report has been submitted in partial fulfillment of Bachelor of Agricultural Mechanization and Irrigation Engineering under the persistent and constant efforts of my supervisors.

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DEDICATION

I hereby dedicate this report to my Supervisors Mr. Mugisha Moses and Mr. Oketcho Yoronimo, my parents, my sisters and friends who were there by my side to guide me and give me the courage that I can do best so long as I took a path to try a task.

LIST OF ACRONYMS

AHP	Analytical hierarchy process
AWC	Available Water Content
DEM	Digital Elevation Model
GDP	Gross Domestic Product
GIS	Geographic Information System
GPS	Global Positioning System
FAO	Food and Agriculture Organization of the United Nations
ILWIS	Integrated Land and Water Software
KARI	Kawanda Agricultural Research Institute
LUCC	Land Use Classification Code
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MCE	Multi Criteria Evaluation
MLHUD	Ministry of Lands, Housing and Urban Development
NRCS	Natural Resources Conservation Service
QGIS	Quantum Geographic Information System
UBOS	Uganda Bureau of Statistics
UNMA	Uganda National Meteorological Authority
UTM	Universal Transverse Mercator

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1.0 INTRODUCTION

This chapter includes the back ground to the study, problem statement, objectives, and justification of the study, scope as well as a brief description of Busitema Sub County.

1.1 BACKGROUND

17% of the world's total cropped area is irrigated, irrigated agriculture provides 40% of the world food production. This is almost a double of what rain fed agriculture can produce. (1) At present, the world is faced with rapid population growth leading to ever increasing demands on available land, especially through the need for food production. To feed the nearly 8 billion people expected to live on earth by 2025, food production will have to be doubled. (2)

Agriculture is the mainstay of the Ugandan economy, employing 65.65 of the population aged 10 years and above accounting for 22.5% of the total GDP and 46% of the total exports. (3) Its productivity has not kept pace with population increase because food production has achieved growth of about 2.5% per year while population has risen at a rate of over 3.4% (4)

Pressures arising out of the Uganda's quest for irrigated agriculture to sustain lives, poor land use planning practices such as bush burning, encroachment are putting serious strain on land and its resources. (5)

However, land needs to be made more productive through appropriate technological packages, such as GIS which is one of the ministry's eight sub programs for land productivity. (4)

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