

BUSITEMA UNIVERSITY

FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL
SCIENCES

EXAMINING THE CONTRIBUTION OF BRICK LAYING ON WETLANDS
DEGRADATION. A CASE STUDY OF LUKUTWA WETLAND IN YUMBE
TOWN COUNCIL-YUMBE DISTRICT.

BY

OBIGA SINAD

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DECLARATION

I OBIGA SINAD declare that this research is a result of my independent commitment and has never been submitted in the same or different kind to this or other higher institution of learning for award of any academic qualification.

Signed *Y. S. Sinad*

Date ... *07/07/2017*

OBIGA SINAD

BU/UG/2014/2007

BSc. NRE

APPROVAL

This is to certify that this research report by Obiga Sinad has been completed under my supervision and guidance and submitted with my approval as university supervisor of Busitema University faculty of natural resources and environmental sciences.

Signature *Ariango* Date *14th/09/2017*

ARIANGO ESTHER



DEDICATION

To my beloved father Mr. Alli Keniga, my two beloved mothers, Mrs. Alima Aceni, Mrs. Bako Ramula. My uncles Mr Rasulu Keniga, Mr muze Wire, Mr Abuju Frank, Mr Saffi Yada, my great grandfather Alahai keringa and my caring brothers and sisters, Thank you all because without your care, support and advice I would not come to the completion of this course.

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To almighty Allah, I surrender to your degree for the unending blessing, courage, strength, determination and wisdom you have given me to struggle till the end. I thank you very much.

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LIST OF ACCRONYMS

| ACCRONYM | ACCRONYM IN FULL |
|----------|---|
| BTKs | Bull Trench Kilns |
| EPA | Environmental protection agency |
| ICE | Inventory of carbon and energy |
| IUCN | International union for conserving nature |
| Kg | Kilogramme |
| Km | Kilometre |
| MJ | mega joule |
| MT | Metric tonne |
| MUIENR | Makerere University institute of environment and Natural resources |
| NEAP | National environmental action plan |
| NEMA | National environment management authority |
| NPK | Nitrogen, Phosphorous and potassium |
| NRDC | National Research and Development Centre |
| NWESP | Ministry of water and Environment Sector Performance |
| GHGs | Greenhouse Gases |
| NWID | National Wetland Inspection Division |
| PH | Potential of hydrogen |
| PM | Particulate matter |
| SPSS | Statistical package for social sciences |
| TCEQ | Texas commission on environmental quality |

| | |
|--------|--|
| TSP | Total suspended particles |
| UN | united Nations |
| UNEP | United Nations Environment Programme |
| UNICEF | United Nations International Children Emergency Fund |
| VSBKs | Ventilated Shaft Brick Kilns |
| WHO | World Health Organisation |
| WRI | World Resources Institute |

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ABSTRACT

The study was conducted at Lukutwa wetland in Yumbe town council-Yumbe district. Lukutwa wetland is a very important ecosystem with unique ecosystem services supporting a variety of birds, plants and animal species and it is source of water for number of people living around it. This study therefore examines the contribution of brick laying activities on degradation of Lukutwa wetland in Yumbe town council-Yumbe district. Several economic activities take place in the wetland and they include the following; farming, fishing pottery sand mining and brick laying which is a long time economic activity of most local people living around the wetland

The methodology involved interviews with cross-section of the local people around the wetland and self-administered questionnaires were used to collect primary data this was supplemented with secondary data obtained from literature and other secondary sources like the university library, internet, research papers and others

The results concluded that the wetland is severely degraded by brick laying activities especially through extraction of inputs from the wetland and the study recommended the following; There is need to adequately sensitise and educate the brick layers and local masses surrounding the wetland about the ecosystem values of the wetland and how best they can sustainably use wetland resources so that they can continuously accrue a stream of benefits from ecosystem services arising from having the wetland in its natural state, the brick layers should adopt production of perforated and hollow bricks. This makes it possible for reduction of up to 40% in the material use (Units, 2004) by going for perforated/hollow bricks instead of solid bricks. Brick layers should plant fast growing tree species such as *laucaena* or *Albizia* and others in the wetland vegetation depleted areas and also in the pits to provide fuel wood for their future brick production activities and also to green the areas around their brick production units.

CHAPTER ONE: INTRODUCTION

1.1 Background

Brick making is a predominantly rural industry with brick making units belonging to small and informal sector. It consists of clay preparation, shaping, drying, making the kiln and firing operations. Bricks are still preferred house construction materials in most countries in the world. Bricks are fired in kilns that gives them strength and turns the plastic clay irreversibly into a permanent hard material that no longer dissolves when soaked in water (Hashemi et al 2015). Loaded bricks in kilns are heated up to the desired temperature and then cooled again before the bricks can be drawn from the kilns. Heat energy used for firing is lost during cooling and this wastes energy. Energy intensive production methods as well as excessive soil extraction and deforestation are identified as the main environmental damages of the current brick laying/production (Units, 2004). Brick walling is the most common construction method in Uganda. Bricks are readily available in both urban and rural areas of Uganda. Nearly 60% of all houses in Uganda have brick walls(Cruickshank et al, 2015). Brick laying is a long-standing economic activity in Yumbe district particularly in Yumbe town council which has since the last decade grown rapidly as a result of the need to increase the housing facilities in Yumbe town.

Under the Ramsar international wetland conservation treaty, wetlands are defined as follows. Article 1.1: "...wetlands are areas of marsh, fens, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing fresh, Brackish or salt including areas of marine water the depth of which at low tide does not exceed six metres." (Dugan, 1990). In Uganda, a wetland is referred to as "an area that stays wet long enough for only certain plants and animals to grow even when there is no rain. Wetlands are generally" called swamps (National Wetland Conservation Program, 1989). Wetland categories in Uganda include papyrus swamps; forest swamps riverine wetlands, lake edges, flood plains, Dombos and artificial wetlands (UNEP, 1988). Wetlands play a number of roles in the environment, principally water purification, flood control, carbon sink and shoreline stability. Wetlands are also considered the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life. The UN millennium ecosystem assessment

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