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

BU/UG/2014/2007

A RESEARCH REPORT SUBMITTED TO THE FACULTY OF NATURAL RESOURCES AND ENVIRONMETAL SCIENCES IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELORS DEGREE OF SCIENCE IN NATURAL RESOURCE ECONOMICS OF BUSITEMA UNIVERSITY

JUNE 2017

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 ..... 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 ..... **Date** 14th/09/2017.....

ARIANGO ESTHER

BUSITEMA UNIVERSITY
DATE:.....
LIBRARY

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 Abujju 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.

ACKNOWLEDGEMENT

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.

To my father Alli Keniga and to my beloved mothers, uncles, brothers and sisters for morally, materially and financially facilitating my pursuit of this knowledge that has finally formed the source and basement/bedrock of my future/career.

Then finally to Ojok Denis, Acidri Denis, Kaguta Osbert, Bisangabasaija Sufyan Nakabiri Ziadah Edeti Favourate, Isingoma Moses and all my friends for protecting, guiding and supporting me whenever I seemed to lose truck. May almighty Allah bless you all.

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

LIST OF TABLES

LIST OF FIQURES

Table of contents

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 Ramser 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

REFERENCES

Bay, R. (2009). Small scale farming on wetland resource utilization : a case study of mandlanzini,

Efficient, R., Briefing, C. P., Guide, R., Micro, F. O. R., & Enterprises, S. (2013). Brick and tile production resource guide for micro & small enterprises, (April).

Environment, O. C. (n.d.). Highlights of the Uganda Atlas of Our Changing Environment,1-2.

Hashemi, A., Cruickshank, H., & Cheshmehzangi, A. (2015). Environmental Impacts and Embodied Energy of Construction Methods and Materials in Low-Income Tropical Housing, 7866–7883. https://doi.org/10.3390/su7067866

http://en.wikipedia.org/wiki/House_Energy _Rating.

http://www.Fao.org/docrep/x5328e/x5328e08.html

https://businessimpactenvironment.wordprss.com/2011/10/03/Environmental_Pollution_From_Brick_Kilns

https://www.academia.educ/183945/Environmental_health_Effects_of _brick kilns_in_Kathimandu_Valley.

https://www.hindawi.com/journals/aess/2015/409401/.

Impact-Analysis-Of-Informal-Brick-Production-On-The-Environment-Gaborone-Dam-Area-Botswana.pdf. (n.d.).

K, F. B. F. A. J. R. M. (2013). Impact Analysis of Informal Brick Production on the Environment : Gaborone Dam Area, Botswana, 2(9), 73–78.

Khan, R., & Vyas, H. (2008). A study of impact of brick industries on environment and human health in Ujjain city (India), 2(3), 421–425.

Maclean, I. M. D., Tinch, R., Hassall, M., & Boar, R. (2003). Social and economic use of wetland resources: A case study from lake Bunyonyi, Uganda. Working Paper - Centre for Social and Economic Research on the Global Environment, (1), 1–20.