SPATIO-TEMPORAL IMPACTS OF LAND COVER CHANGES ON NAMANVE WETLAND HEALTH AND COUNTER MANAGEMENT STRATEGIES IN MUKONO DISTRICT, UGANDA

By

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August, 2019

DECLARATION

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I the undersigned, declare that this research dissertation is my original work, except where due acknowledgement has been made. I declare that this work has never been submitted to this University or to any other Institution for funding/ for partial fulfilment for any award.

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SUPERVISOR(S) APPROVAL

This research dissertation submitted as a partial fulfilment for the award of Master of Science in Climate Change and Disaster Management of Busitema University of Busitema University, with my/our approval as the academic supervisor(s)

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DEDICATION

I dedicate this piece of work to my entire family and specifically to my daughters Abigail Charlene Arinaitwe and Alison Kareen Karungi who endured my absence from home for two years of advanced studies.

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I acknowledge with great pleasure the support received from my supervisors, Dr. Alice Nakiyemba and Dr. Ddumba Daniel Saul without whose guidance all through the period of producing this dissertation, it would have been difficult to achieve this enormous work. From the deep most bottom of my heart, I salute you.

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ABSTRACT

The study examined the spatio-temporal impacts of land-lover changes on Namanve wetland health and counter management strategies in Mukono district. The objectives of the study were:- to characterise land cover changes in Namanve wetland from 1996 to 2016; to determine the effects of land cover changes on Namanve wetland health using the WET-Health assessment tool; and to assess the contributions of formal and informal institutional arrangements in managing land cover changes in the wetlands in Mukono district.

In the study, both qualitative and quantitative methods of data collection and analysis were used based on a case study and longitudinal spatial analysis study design. Longitudinal spatial analysis with the help of GIS tools was used to generate data on the pattern of land cover changes in the Namanve wetland system for a period between 1996 and 2016. Other quantitative data was collected using household questionnaires and WET-Health assessment tools to assess the impact of the change in land cover patterns on the health of the wetland. Qualitative methods used include expert interviews, Focus group discussions, field observations and documentary reviews.

The results of the study confirm the long-held view of many Government and Research Agencies that wetland coverage has drastically deteriorated in the last 20 years from 15.6% % or 37,575km^2 of the total land surface area in 1994 to 10.9% or 26,330 km^2 in 2014 (Water & Environment SPR,2016). Namanve wetland is therefore not exceptional in experiencing degradation within the same time frame. The main drivers include unemployment, population growth and land shortage. Settlements, including factories and infrastructure, crop cultivation and brick making are the most dominant human activities with significant impact on wetland health measured in terms of vegetation, hydrology and geomorphology. The overall impact of the land cover change on the wetland health has been assigned level C representing a moderately modified Namanve wetland system. Inadequate enforcement of wetland laws and regulations and corruption were found to be the main reasons wetland related policies and strategies are not being implemented to conserve wetlands including Namanve wetland.

The recommendations of this study, therefore include :- a deliberate policy shift from the more powerful but inefficient central government approach to decentralized, participatory and empowered management of environment resources; comprehensive land use planning (both urban and rural) and zero tolerance to corruption at all levels. E-monitoring of sensitive ecosystems such as wetlands and forest reserves using the latest technologies like drones and GPS; enactment of wetland specific law and wealth creation will guarantee high-income levels per capita and drive the population to demand for an improvement in environmental quality in line with the Environmental Kuznerts Curve theory.

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ACRONYMS AND ABBREVIATIONS

CBOs	Community Based Organizations
CDO	Community Development Officer
CSOs	Civil Society Organizations
DEC	District Environment Committee
DEO	District Environment Officer
DNRO	District Natural Resources Officer
DPSIR	Driving Force-Pressure-State-Impact-Response)
EA	Environmental Alert
EBA	Ecosystem Based Adaptation
EIA	Environmental Impact Assessment
ENR	Environment and Natural Resource
FGDs	Focus Group Discussions
FY	Financial Year
GIS	Geographic Information Systems
GoU	Government of Uganda
GPS	Global Positioning System
HGM	Hydro-geomorphic
IPCC	Intergovernmental Panel on Climate Change
KCCA	Kampala Capital City Authority
LEC	Local Environment Committee
LC	Local Council
LG	Local Government

MWE	Ministry of Water and Environment
NDVI	Normalized Difference Vegetation Index
NEA	National Environment Act
NEMA	National Environmental Management Authority (Uganda)
NGOs	Non-Governmental Organizations
NIR	Near-infrared
NWP	National Wetland Program
NWSC	National Water and Sewerage Cooperation (Uganda)
OECD	Organisation for Economic Co-operation and Development
RS	Remote Sensing
SC	Sub County
SDGs	Sustainable Development Goals
SOER	State of Environment Report
SPR	Sector Performance Report of Water and Environment Sector
SPSS	Statistical Package for the Social Sciences
UBOS	Uganda Bureau of Statistics
UCU	Ugana Christian University
UGX	Uganda Shillings
UIA	Uganda Investment Authority
UNCST	Uganda National Council for Science and Technology
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reductio**n**
VBN	Value Belief Norm Theory
WET	Wetland Evaluation Techniques
WID	Wetlands Inspection Division
WMD	Wetlands Management Department
EPPU	Environmental Protection Police Unit
MEO	Municipal Environment Officer
NFA	National Forestry Authority
UEEF	Uganda Environment Education Foundation
UNDP	United Nations Development Program
FAO	Food and Agriculture Organization of UN
ICRAF	International Centre for Research in Agroforestry
CITES	Convention on International Trade in Endangered Species

UN	United Nations