ASSESSING THE IMPACT OF CHARCOAL PRODUCTION ON THE SHEA NUT TREE VEGETATION COVER IN KAPELEBYONG DISTRICT, EASTERN UGANDA

THESIS

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DECLARATION

I, Esagu John Calvin here by certify that this work entitled as Assessing The Impact Of Charcoal Production On The Shea Nut Tree Vegetation Cover In Kapelebyong District, Eastern Uganda is truly an original work that I made myself and as a scientific work this thesis has never been submitted in any university or tertiary institution except as a fulfillment of the requirements to obtain a master degree (S-2) at Diponegoro University. To the best of my knowledge and belief, it does not include any previously published or written works by any other authors, except where due reference has been made in the text. Additionally, I certify that no portion of this work will ever again be used without the prior consent of Diponegoro University and, as applicable, any partner institution responsible for the joint awarding of this degree in my name for any other degree or diploma at any university or tertiary institution. If at a later date it is found that all or part of this thesis is not a result ofmy own work or plagiarism in certain parts, I agree to received the sanction of revocation of the academic degree that I hold and other sanctions in accordance with the applicable laws and regulations.

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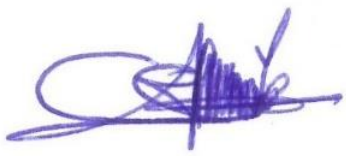

Esagu John Calvin

AUTHOR BIODATA

Esagu John Calvin was born on 4th, April, 1996 in Entebbe, Uganda, East Africa.

The author attended his primary school in Amen primary school, secondary school in Soroti Community Secondary School and obtained PLE, UCE and UACE certificates in 2007, 2011 and 2013 respectively.

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ACRONYMS

DEM	: Digital Elevation Model
DMRVPI	: District Multi-Risk Vulnerability Profile for Isingiro
EP & R	: Emergency Preparedness and Recovery
EPP	: Emergency Preparedness Plan
ESIA	: Environmental and Social Impact Assessment
ESMP	: Environmental and Social Management Plan
FEMA	: Federal Emergency Management Agency.
GIS	: Geographical Information Systems
IDCRP	: Irrigation Development and Climate Resilience project
MAAIF	: Ministry of Agriculture, Animal Industry and Fisheries
MEMD	: Ministry of Energy and Mineral Development
MoFED	: Ministry of Finance and Economic Development
MoH	: Ministry of Health
MoLG	: Ministry of Local Government
MWE	: Ministry of Water and Environment
NEMA	: National Environment Management Authority
NFA	: National Forestry Authority
O&M	: Operational and Maintenance
OPM	: Office of the Prime Minister
PMF	: Probable Maximum Flood
RAP	: Resettlement Action Plan
UWA	: Uganda Wildlife Authority
UTM	: Universal Transverse Mercator
MOLUCE	: Methods of Land Use Change Evaluation

ABSTRACT

With the ever-increasing poor population in the world today, charcoal remains one of the main source of energy mainly extracted from the Shea Nut tree to ease cooking processes and other related necessities, income generation inclusive. The valuable Shea Nut tree is however facing increasing threats from the local communities mainly due to charcoal production. This study therefore, analyses the state of the Shea Nut tree by focusing on the effect of charcoal production on the shea Nut tree vegetation cover in Kapelebyong District. A cross-sectional survey design was employed following both quantitative and qualitative data approaches. Landsat images (Landsat 5, 7TM & 8ETM) of the study area for 2002, 2012 and 2022 were classified using ArcGIS 10.8 and maximum likelihood classification was carried out to assess vegetation variation from 2002-2022. Social economic data on drivers of charcoal production was collected from a sample of 60 respondents engaged in charcoal production, MOLUCE plugin in built in QGIS 2.1 version was used to predict Shea Nut tree coverage by 2032 and key informant interviews were conducted to assess the sustainable Shea Nut tree management mechanisms. Shea Nut trees reduced by 2.3% from 2002-2012 and by 6% from 2012-2022. Therefore, basing on the periods analyzed, there was a sharp declining trend in the concentration of the shea Nut trees. The results depict that the major drivers leading to production of charcoal in the area included high demand from urban areas, need for income and unemployment. It is predicted that by 2032, the coverage of the Shea Nut tree in Kapelebyong District will have reduced to only 713 hectares (7.3%) from 1277 hectares (10.6%) of 2022. Therefore, charcoal production with other land uses like farming, and settlement have greatly resulted to Shea Nut tree deterioration. The study recommends that; use alternative energy sources should be encouraged, the local communities need to be provided with other alternative income generating activities, Government of Uganda through NFA need to enforce and strengthen the ways through which of Shea Nut trees are managed and utilized in order to minimize illegal cutting.

Keywords: Charcoal Production, Shea Nut Tree, Kapelebyong District, Eastern Uganda