

**BUSITEMA UNIVERSITY**

**FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL SCIENCE**

**ASSESSING THE IMPACTS OF EUCALYPTUS PLANTATION TO THE LIVELIHOOD  
OF THE PEOPLE IN THE COMMUNITY. A CASE STUDY OF KAWERI CENTRAL  
FOREST RESEVE IN EASTERN DIVISION MUBENDE MUNICIPALITY.**



**BY**

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**Thesis submitted in partial fulfillment for the award of Bachelor of  
Science degree in Natural Resource Economics**

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## **DECLARATION**

I **Nabukenya Dorah**, do declare in the name of the almighty God that this research work is mine and has never been formally submitted by any person to Busitema University or any other institution of higher learning for the award of a degree and other qualifications. And where other peoples' reports were used, the authors were dully acknowledged.

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**APPROVAL**

This is to confirm that this research report is original and has only been through the efforts of **Nabukenya Dorah** after pursuing a three year Bachelor of Science in Natural Resource Economics of Busitema University. She has therefore fulfilled part of her requirements for the Award of the Degree in Natural Resource Economics of Busitema University.

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## **DEDICATION**

I Nabukenya Dorah, dedicate this research report to my parents Namayanja Betty and Matovu Elisha. My brothers Dankan, Edson, wyclif, Samuel, Enock, Simon. My sisters, Sharon, Oliver, Ruth, Layer and my friends Paul, Chris, Mariam, Elizabeth, Sharon, Tracy, Happy, Jaya, Judith, Ronald, Ms. Areto Dorcus, John Sekajugo, Fred Mugabi, Joseph, Deo, Kizito, Petter and Mathias. My supervisor Madam Ariango Esther and whoever put in a hand towards accomplishment of this report. May the good Lord reward you abundantly.

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## **LIST OF ACRONYMS**

C	Carbon
CBNRM	Community Based Natural Resource Management
CFR	Central Forest Reserve
CO <sub>2</sub>	Carbon dioxide
FAO	Food and Agricultural Organization
FUGs	Forest User Groups
GDP	Gross Domestic Product
NEMA	National Environment Management Authority
NFA	National forestry Authority
NGO	Non-Government Organization
REDD	Reduce Emission from Deforestation and Forest Degradation
SID	Society for International Development
SOC	Soil Organic carbon
UFA	Uganda Forest Authority
UNDP	United Nation Development Program
UTGA	Uganda Timber Growers Association

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## **ABSTRACT**

The study was carried out in four villages which include; Kilyanono, Kigamba, Kabatende and Kibyayi in the Eastern division of Kaweri Mubende District. The aim was to generate information about the impacts of Eucalyptus plantation to the livelihood of the people in the community. This was important in choosing the appropriate alternative in restoration and management of the forest reserves in Uganda. This was done by examining the current and former benefits obtained by the people, finding out the problems currently faced by the people residing around Kaweri central forest reserve and assessing the attitude of people towards management of Kaweri central forest reserve in its current state.

Self-administered questionnaires were used to obtain information about the benefits of the forest reserve, problems faced by people residing around and people's attitudes towards management. The information gathered was coded and entered into the Microsoft excel which was further analyzed with the use of two software packages (SPSS and Microsoft excel)

The findings indicate that a natural forest had more benefits as compared to the eucalyptus plantation because a natural forest used to comprise of the beneficial tree species such as Ficus, Euphobia, Misopsis, Albizia Zigia, Mikarmia Retea, Sapium, Acacia, Maesa, Spathodea, Myrica and these used to provide services (direct and indirect) which improved the living standards of the people by then and when it was restored by NFA through planting Eucalyptus tree species as an alternative, the services which were obtained from the reserve before reduced and contributed to more challenges which are faced by the people residing around the reserve such as water scarcity, reduced crop yields, long dry spell, loss of firewood and poverty.

## **CHAPTER ONE**

### **1. 0 INTRODUCTION**

#### **1. 1 Background of the study**

Globally, landowners and governments have relied on plantation forestry as one way of meeting subsistence and commercial demand for wood products. The most recent FAO estimates put global plantation cover at 7.0% (FAO 2010b).

The FAO estimates that forests industries contribute more than US\$ 450 billion to national incomes, contributing nearly 1 percent of the global GDP in 2008 and providing formal employment to 0.4% of the global labor force (FAO 2012). Factors promoting plantation adoption across the globe include loss of or poor access to natural forest, unique benefits of plantation forestry, and institutional promotion. Plantations are primarily seen as alternatives to natural forest that has either become scarce or inaccessible. Given historical and contemporary rates (FAO, 2010b) of deforestation, it is unreasonable to expect that forested land will increase in non- temperate regions any time in the near future. Recent investments in plantations have been driven largely by the private sector (Lyons & Westby 2014 and Schoneveld, 2011). Whilst there is renewed interest from investors, governments and enterprises in the potential of planted forests in Africa, doubts have been expressed by communities, environmental and social NGOs and other commentators about recent impacts. Planted forests provide products (timber, fibre, energy and food) and environmental services (carbon, land restoration and reclamation, hydrological regulation and biodiversity and genetic resource conservation).

The consistent decline in the size and quality of forest estate is a major concern given the forest sector's contribution to national and household economies and rural livelihood. E. Africa has lost more than 22 million hectares of forest cover (Society for International Development (SID),

## References

- AGRAWAL, A. 2003. *Sustainable Governance of Common-pool Resources: Context, Methods, and Politics. Annu. Rev. Anthropol.*32: 243–262.
- AGRAWAL, A. 2003. *Sustainable Governance of Common-pool Resources: Context, Methods, and Politics. Annu. Rev. Anthropol.*32: 243–262.
- Agrawal, A. C. (2013). *Economic Contributions of Forests. American-Eurasian J. Agric and Envi-ron. Sci.*
- Agrawal, A. C. (2013). *Economic Contributions of Forests. American-Eurasian J. Agric and Envi-ron. Sci.*
- ANDERECK, K.L. and VOGT, C.A. 2009. *The relationship between residents' attitudes toward tourism and tourism development options. Journal of Travel Research* 39(1):27–36.
- Badola, R., Barthwal, S. and Hussain, S.A. 2012. *Attitudes of local communities towards conservation of mangrove forests: A case study from the east coast of India. Estua-rine, Coastal and Shelf Science* 96: 188–196
- BAGHERIAN, R., BAHAMAN, A.S., ASNARULKHADIA.S. and SHAMSUDDIN, A. 2009. *Factors influencing local people's participation in watershed management programs in Iran.*
- BHAVANNARAYANA, C., SARITHA, V., USHA, P. and RAO, B.P. 2012. *Dependency and usage pattern of forest-dwellers on non timber forest products. Botswana Notes and Records* 39: 113–124.
- LUO, X. 2002
- Charles, M. ( 2010). *Economic Benefit and Willingness to Pay for Improved Rangelands In Uganda.*
- CHOWDHURY, M.S., GUDMUNDSSON, C., IZUMIYA-MA, S., KOIKE, M., NAZIA, N., RANA, M.P., . . . REDOWAN, M. 2014. *Community attitudes toward forest conservation programs through collaborative protected area management in Bangladesh. Environment Dev Sustain*
- COULSON, A.B., MACLAREN, A.C., MCKENZIE, S. and O'GORMAN, K.D. 2014. *Hospitality codes and social exchange theory: The pashtunwali and tourism in Afghanistan. Tourism Management*
- D, I. ( 2010). *Initial Assessment of the Costs and Benefits of the National Forest.*
- EAGLY, A.H. and CHAIKEN, S. 2007. *The advantages of an inclusive definition of attitude. Social Cognition*

- Ecology and Society* 16(3): 1–16.
- Economic Contributions of Forests*. (2013). Agrawal, A., Cashore, B. Hardin, R., Shepherd, G., Benson, C., Mille R. D.
- EJOLT. (2012). *An overview of industrial tree plantations in the global South*. EJOLT.
- Environment., M. O. (2016). *State of Uganda's Forestry Report*.
- Environmental Conservation* 36(3): 208–217
- Erudite Journal of Ecology and Environment*
- FAO, B. ... (n.d.). *Development of Eucalyptus Plantations*.
- GENC, H., DEMIRKAYA, H. and DENIS, H. 2012. *The investigation of eighth grade students' attitudes toward forest*. *Archives of Applied Science Research*
- H, J. S.-O. (2014). *Clonal Eucalyptus; Commercial Trees for Tomorrow*.
- H. GAREKAEI, H. T. (2013). *Attitudes of local communities towards forest conservation in Botswana*.
- Hjerpe, E. a. (2012). *Willingness to pay for ecosystem conservation in Alaska's Tongass National Forest: a choice modeling study*.
- Ingram, V. D. (2010). *Evaluating the impacts of plantations and associated forestry operations in Africa—methods and indicators*.
- J, J. W. (2007). *Development of sustainable forestry plantations in China*.
- Journal of Environmental Science, Toxicology and Food Technology* 8(4): 68–75
- June., J. J. (2012). *Smallholder Eucalyptus Plantation Forestry in Eastern Paraguay*.
- K., M. (2012). *Global tree plantation expansion*.
- KIPKEU, M.L., MWANGI, S.W. and NJOGU, J. 2014. *Community participation in wildlife conservation in Amboseli Ecosystem, Kenya*.
- Landry, J. (2009). *Analysis of the potential socio-economic impact of establishing plantation forestry on rural communities*.
- LEPETU, J., MAKOPONDO, R.O. and DARKOH, M.B. 2008. *Community-based natural resource management and tourism partnership in Botswana: Which way forward?*

- Lopes, A. (2010). *The Economic Value of Portuguese Forests*.
- Ltd, F. E. (2013). *Trading As Ferdfarm. Investment In Tree Plantation Project*.
- MACURA, B., RODRIGUEZ, F.Z., SATORRAS, M.G., DEMPS, K., LAVAL, M., GARCIA, C.A. and GARCIA,V.R. 2011. *Local community attitudes towards forest out-side protected areas in India. Impact of legal awareness, trust, and participation*.
- MAHANTA, R. and DAS, D. 2013. *Attitudes towards biodiversity conservation of forests dwellers and encroachers: A case study of Assam in Northeast India*.
- MANWA, H. and MANWA, F. 2014. *Poverty alleviation through pro-poor tourism: The role of Botswana Forest Reserves*.
- Melissa M. Kreye, F. J. (2013). *Valuing the Ecosystem Services of Florida's Forest Conservation Programs: The Economic Benefits of Protecting Water Quality*.
- Obed Tugumisirize, O. (: 2017). *National Forestry Authority. Tree Farming: Uganda's Untapped Potential*.
- Obua1, J. A. (2010). *Status of forests in Uganda*.
- Prof. Kaboggoza, J. ( 2011). *Forest Plantations and Woodlots in Uganda*.
- Roland Camirand, R. f. ( 2002). *Guidelines for Forest Plantation. Establishment and Management in Jamaica. .*
- Senior, B. .. (2008). *Forest Officer (Plantations) Forest Resources Development Branch Forestry Department FAO .Development of Eucalyptus Plantations*.
- Small-scale Forestry 12(2): 307–319*.
- Statistics., U. B. ( 2017). *National Population and Housing Census 2014 Area Specific Profiles of Mubende District*.
- T., S. B. (2016). *Analysis of the Impact of the Use of Eucalyptus Biomass for Energy on Wood Availability for Eucalyptus Forest in Portugal*.
- TABACHNICK, B.G. and FIDELL, L.S. 2014.*Using Multi-variate Statistics*.Harlow: Pearson Education Limited
- The National Forestry and Tree planting Act. (2003)*.
- Thomas P. H, S. M. (2017). *A Conceptual Framework for Adaptive Forest Management under Climate Change*.