FACULTY OF NATURAL RESOURCE AND ENVIRONMENTAL SCIENCES
DEPARTMENT OF NATURAL RESOURCE ECONOMICS

FACTORS AFFECTING THE ADOPTION OF CLIMATE CHANGE MITIGATION STRATEGIES

A CASE OF BRIQUETTE TECHNOLOGY IN MUBENDE DISTRICT

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A THESIS SUBMITTED TO THE DIRECTORATE OF GRADUATE STUDIES AND RESEARCH INNOVATIONS IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF SCIENCE IN CLIMATE CHANGE AND DISASTER MANAGEMENT OF BUSITEMA UNIVERSITY

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DECLARATION

I, Mabiriizi Julius, declare that the dissertation hereby submitted to Busitema University for the award of a degree of Master of Science in Climate Change and Disaster Management has not been previously submitted to this University or any other Higher Institution of Learning for any Degree award.

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DEDICATION

I would like to dedicate this work to the Almighty God, and to my beloved family members, Rose Akwaro, my daughter Shammer, Justine Nambwere, John-Mary Male and Immaculate Nantumbwe.

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TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

CBO's	Community Based Organisations
GHG	Greenhouse gas
GIS	Geographic Information system
GOU	Government of Uganda
IEA	International Energy Agency
MEMD	Ministry of Energy and Mineral Development
MJ	Mega joules
NEDS	National Energy Demand Strategy
NGO's	Non- Governmental Organizations
SSA	Sub-Saharan Africa
UBOS	Uganda Bureau of Statistics
UNHS	United Nations Health Strategy
USA	United States of America

ABSTRACT

Briquettes and other improved biomass energy technologies were introduced in Uganda and in the cattle corridor as an alternative energy source following a rapidly increasing energy demand and reducing wood fuel. Despite the widespread campaigns, the adoption of briquettes remains very low, therefore, this study aimed at identifying the factors influencing adoption of briquette technology. The study was conducted in Mubende district and employed both qualitative and quantitative data collection and analysis tools. Descriptive statistics were used to analyse variables between adopters and non-adopters. A logistic regression was employed to determine their effect on adoption of briquettes.

The logistic regression analysis indicated that household income level, household size, age of household head, marital status, and education level, access to credit and membership to association significantly affected the adoption of briquette technology. Household adoption was further influenced by availability, affordability and ease of use of the technology. The low levels of adoption were due to limited supply of briquettes on market, unavailability of briquette stoves and limited lighting of briquettes for consumers and limited output of machines, limited supply of raw materials and limited supply of machinery on local market as well as unavailability of credit facilities for producers.

The study recommended that there is need to sensitise and mobilize masses on briquettes and intensifying training of households with focus on social-cultural practices and engaging women. In addition a public private partnership should be established to enhance the adoption briquettes. Furthermore carbonate char to reduce on smoke production, and improve on the lighting of briquettes. Producers should be encouraged to form cooperatives so as to increase on their supply on market and also bargain for better prices of briquettes and also accelerate their chances accessing financial support. And lastly the Ministry of Energy and Mineral development and the Parliament should improve policy environment in favor of improved biomass energy technologies especially through setting appropriate implementation strategies and coordination of the associated programmes.

Keywords: Biomass energy, Adoption, Briquettes, Cattle corridor, Uganda

CHAPTER ONE: INTRODUCTION

1.1 Background

Nearly half of the global population relies on solid fuel, such as biomass, coal, or dung, for their cooking needs (Legros *et al.*, 2009; Rehfuess *et al.*, 2006). Unprocessed biomass (like charcoal, wood, crop waste) remains a major household fuel source for most residents of low income countries particularly the poor (Bruce *et al.*, 2000). In sub- Saharan Africa, wood-based fuels account for over 80% of primary energy supply and more than 90% of the population rely on firewood and charcoal (IEA, 2006).

According to the Uganda Demographic Health Survey (2006), most households use solid fuels for cooking such as charcoal, wood and other biomass fuels. During the Uganda National Household Survey for 2009/10, information on the type of fuel that a household most often used for cooking was collected in which majority of the households (95%) still used wood fuels (wood and charcoal) as a main source of energy for cooking. Firewood was most commonly used by the rural household (86%) while charcoal is commonly used by urban households (70%). It is worth noting that the proportions of households that used electricity for cooking was still very low. Studies indicate that even those with access to electricity the capacity to use and to pay for it is limited (MEMD, 2006 & UBOS, 2010). Recent studies in Uganda revealed that biomass energy accounts for 94% of the total energy consumption in the country (MEMD, 2014).

Large volumes of biomass residues are generated annually in developing countries as by-products of the commercial forestry, agricultural and industrial sectors (Njenga *et al.*, 2009). These residues are often considered waste products and are either burned without heat recovery or left to rot in situ, subsequently emitting greenhouse gasses (GHG) and causing other environmental problems. Estimates from Sub-Saharan Africa (SSA) indicate that as much as 1000 million tons (Mt) and 140 Mt are generated annually from the forestry and agricultural sectors, respectively (Dasappa, 2011). Most of these residues are usable as fuel, directly or indirectly, and salvaging them for this purpose prevents unnecessary burning, burying or storage. Direct use of biomass for fuel is justifiable when the source of waste is close to the point of energy production or use. As distances between sources and sites of end-use increase,

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