



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

DEPARTMENT OF WATER RESOURCES AND MINING ENGINEERING

FINAL YEAR PROJECT

**DETERMINATION OF THE EFFECTIVENESS OF SAW DUST ASH IN IMPROVING
THE GEOTECHNICAL QUALITY OF EXPANSIVE SOILS.**

Case study: BUDUDA DISTRICT.

BY

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***Report submitted in partial fulfillment of the requirements for the award of a Bachelor of
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DECLARATION

I **OJAMBO HENRY** solemnly declare that this final year project report is a result of my own efforts and tremendous work done during the research period and it has never been submitted to Busitema University or any other institution of higher learning for any academic award.

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APPROVAL

This is to certify that this project report was written under the guidance of my supervisors on the topic "*determination of the effectiveness of saw dust ash in improving the geotechnical quality of expansive soils*" and is now ready for submission to the department of Busitema University.

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I can't forget my great friends especially class mates,,

DEDICATION

I dedicate this final year project report to all my family members especially my parents for providing and mentoring me always.

My friends, Kakooza Geoffrey, Komugisha Sunny, Nannozi Rehema, Mpiima Vincent, Odoch Jimmy and Akinyi Lydia for they have always been there for me in my academic struggle.

LIST OF ACRONYMS

SDA	–	Sawdust Ash.
NLA	–	National Lime Association.
UNRA	–	Uganda National Roads Authority
USCS	–	Unified Soil Classification Society
CGS	–	Colorado Geographic Survey.
GPS	–	Geographical Positioning System
GRT	–	Global Road Technology.
IJESAT	–	International Journal of Research in Science and Technology.
PL	–	Plastic Limit.
LL	–	Liquid Limit.
UGX	–	Uganda Shillings.
CEC	–	Cation Exchange Capacity.

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CHAPTER ONE

1.1 INTRODUCTION

This chapter includes the following; back ground to the study, statement of the problem, purpose of the study, objectives of the study, research questions, scope of the study which includes the conceptual scope, geographical scope and time scope and finally the significance of the study.

1.2 BACKGROUND

Soil is sediment or other unconsolidated accumulation of solid particles produced by physical and/or chemical disintegration of rock. It may be organic or inorganic material.

Soil stabilization is one of the common and effective methods of improving the geotechnical quality of engineering soils. Lime and sawdust are common examples of soil stabilizers. Soil used as foundation material and sub grade material should be strong enough to bear the load. The soils which are expansive in nature tends to swell in presence of moisture and shrink in dry condition this undesirable properties of expansive soil cause damage to structures (**Karnataka, 2012**). The application of industrial waste such as fly ash and saw dust ash or the combination of them often results in transformation of stability of soil.

Some studies have been carried out on geotechnical properties of laterite soil using stabilizers (**amu et al 2011**).

Soil stabilization results in improved engineering properties of soil. Fly ash and saw dust ash which are disposed materials from industries are used in the stabilization process to improve the properties of soil. (**Kumar, 2014**). Lime treatment of soils is also a proven method to save time and money on construction projects. (**National Lime Association, 2005**).

Other common methods of improving geotechnical quality of soil include pre-wetting, compaction, vibration, injection of carbon dioxide, chemical stabilizers using sodium silicate. Many catastrophes have resulted from the poor geotechnical quality of soil around the world.

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