FACULTY OF ENGINEERING

DEPARTMENT OF MINING AND WATER RESOURCES ENGINEERING

FINAL YEAR REPORT

PROJECT TITLE:

THE EFFECT OF USING RICE HUSK ASH AND WOOD ASH AS PARTIAL REPLACEMENTS OF CEMENT IN CONCRETE BLOCKS

BY

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A final year project proposal submitted to the Department of Mining and Water Resources Engineering as a partial fulfillment of the requirements for the award of a Bachelor of Science degree in Water Resources Engineering

ABSTRACT

With increasing agriculture, the large extent of agricultural by-products (wastes) is accumulated, leading to environmental pollution. So, this study focuses on the safe and economical reduction of these wastes. Wood Ash are the residue produced by the uncontrolled burning of wood for power generation and other purpose. On the other hand, Rice Husks are by products produced by Rice Milling Machines. The cement manufacturing industries will produce large amount of carbon dioxide to the environment, these cause greenhouse effect. The utilisation of Wood Ash and Rice Husk Ash as partial replacements of cement reduces the environmental and ecological problems. This paper intends to present the result of various experimental investigation leading with concrete incorporating Wood Ash and Rice Husk Ash replacing Ordinary Portland cement (43 grade) in concrete with various percentages. The fineness of wood ash is done by Sieves. The workability properties (slump test) and compressive strength, water absorption were determined and were compared with control M-25 mix.

ACKNOWLEDGEMENT

I thank the Almighty God for the far that He has brought me, the gift of life, knowledge, hope protection and his provision to me during and throughout the writing of this project proposal.

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It would be great injustice if I omit the role played by my dear friends in directing me, their tremendous tireless support and guidance given to me during the writing of this proposal.

Lastly, I thank all those who were involved directly or indirectly during my project proposal writing.

May the good Lord reward you all!

DECLARATION

I, **MUGOMBESYA NICHOLAS,** here by certify and confirm that the information I have written in this project proposal is a result of my own effort, research and has not been submitted before to any university or institution of higher learning for any academic award.

Signature: .....

Date: …….....

APPROVAL

This proposal on the effect of using rice husk ash and wood ash in concrete blocks has been written under the supervision of;

Supervisors

DR OTIM DANIEL

Signature: ……..…….

Date…….……

And

DR KAMALHA EDWIN

Signature: ……..….

Date…….……

DEDICATION

This report is dedicated to my beloved parents in appreciation for their selfless care and unflinching support provided to me since childhood, and for the spirit of hard work, courage and determination instilled into me, which attributes I have cherished with firmness and which have indeed made me what I am today.

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ACRONYMS

RHA - Rice Husk Ash

WA - Wood Ash

USA – United States of America

ASTM – American Standard of Testing Materials.

OPC – Odinary Portland Cement

SEM - Scanning Electron Microscopy

ACI - American Concrete Institute

PSD - Particle Size Distribution

DOE - Design of experiments

SCM - Supplementary Cementitious Materials