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WATER RESOURCES ENGINEERING

FINAL YEAR PROJECT

**INVESTIGATING THE EFFECTIVENESS OF USING WATER HYACINTH AS AN
ALTERNATIVE FOR TREATING INDUSTRIAL WASTE WATER**

(CASE STUDY: SCOUL)

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degree in Water Resources Engineering*

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DECLARATION

I the under signed Akol Emmanuel do hereby declare that this report in its form and nature, organization and content is my own work and has never been presented to any other institution of learning for an academic award.

Signature 

Date..... 01/06/2016.....



APPROVAL

This report has been submitted for examination with the approval of the following supervisors:

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DEDICATION

I dedicate this report to the almighty God who protected me through all this period on earth. I further dedicate this report to the following people, my dear mother Mrs.Aaca Rosemary, and all my fellow class mates who entirely helped me plus all other people who help in one way or the other in the accomplishment of this program.

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LIST OF ACRONYMS

EPA	Environmental protection agency
NEMA	National Environment management authority
GoU	Government of Uganda
WHO	World Health Organization
UNEP	United Nations Environment Programme
DANIDA	Danish International Development Agency
BOD	Biochemical Oxygen Demanded
COD	Chemical Oxygen Demanded
SCOUL	Sugar Corporation of Uganda limited
NEMA	National Environment Management Authority
NTUs	Nephelometric Turbidity Units
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
LVEMP	Lake Victoria Environmental Management Project
MWE	Ministry of water and Environment
BOU	Bank of Uganda
PSC	Public Service Commission
UGX	Ugandan Shillings

CHAPTER ONE

1.0. INTRODUCTION

This chapter provides the background to this research study. The aim and objectives are presented and the scope of the work is specified.

1.1. Background

Water pollution is one of the main major concerns in the world today. It escalates the major water problems experienced in the world today as it further reduces the scarce fresh water sources by increasing competition for water of adequate quality for various specific uses (EPA, 2002). Pollution of the biosphere by industrial waste water has accelerated dramatically since the beginning of the industrial revolution (Nriogo, 1979). The primary sources of this pollution are the burning of fossil fuels, the industrial waste water, municipal wastes, fertilizers, pesticides and sewage.

The Uganda's rapid industrial growth rate levels of about 3.8% have led to emissions of these pollutants into water bodies. This threatens not only the aquatic ecosystems but also human health through contamination of drinking water.

Sugar corporation of Uganda limited (SCOUL) is a key sugar producing factory in Buikwe district, central Uganda whose waste waters are treated by Aerobic biological treatment process before being discharged into R. Musaamyia so as to reduce on the contamination levels.

However, Aerobic biological treatment plants used by SCOUL are quite expensive to construct, and needs some level of skills to operate and maintain. They also leave carbon footprints behind as a result of the use of heavy equipment demanding energy for operation. As a result of this, untreated wastewater enters into soil and water thus causing environmental degradation. They also pollute the ground waters. They are therefore a concern to public health (Akinwale, 2014).

Phytoremediation waste water treatment by use of Water hyacinth (*Eichhornia crassipes*), is one of the most widely used technique successfully applied globally for wastewater treatment over the last five decades. The weed is capable of removing waste water contaminants to a certain

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