



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

FACULTY OF ENGINEERING
DEPARTMENT OF MINING AND WATER RESOURCES
ENGINEERING
FINAL YEAR PROJECT
DESIGN OF NYAKIHITA TRADING CENTRE WATER SUPPLY
SYSTEM

MUTARA SUB-COUNTY IN MITOOMA DISTRICT

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**A FINAL YEAR REPORT SUBMITTED FOR THE AWARD OF BACHELOR OF
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ABSTRACT

In the world, it is reported that over 1.1 billion of citizens in the world do not use drinking water, while 2.6 billion lack basic sanitation and 9.2 million people in Uganda have no access to safe water where out of 57000 rural areas in Uganda of which only 11000 rural areas have only accessed clear safe water which makes 19.3% of rural areas with access to clean water.

This percentage is still so small and a lot has to be done to extend clean and safe water to rural areas in the country.

In Nyakihita parish-Mitooma district, residents (especially women, children and pupils) move long distances of about (3-4) kilometres to collect unsafe water since the water points are unevenly distributed with poor water quality and always dries up at the beginning of dry seasons. The existing open wells are shared with the animals and this makes the water unsafe for consumption by the people.

This research project aimed at finding a solution to this current situation by designing a suitable water supply system which enables community members' to access clean and safe water points from their respective residents.

The employed techniques/methods were attempted to solve the problem and monitor the performance of supply system hydraulics to ensure quality delivery to water users.

DECLARATION

I **Tumushabe Abel** declare that this research project titled “**Design of Nyakihita Trading Centre Water Supply System - Mitooma district**” is entirely my own original work and it has never been submitted to any institution of higher learning for academic purposes

Tumushabe Abel

Reg. No: BU/UP/2014/636

Signature:

Date:

ACKNOWLEDGEMENT

I take this opportunity to give honors to almighty God who has enriched me with guidance and full protection in life.

Unmeasurable thanks goes to my own supervisors Eng. Mohammed Badaza and Ms. Engole Marion for their great effort and professional guidance they have given towards achieving this goal. Heartedly I would like also to thank all the lecturers in the department for the academic input they have always given us both in and outside lectures. I finally thank my fellow classmates for the advice and constructive ideas we have always been sharing.

DEDICATION

I greatly dedicate this final year research project to my entire family especially Uncle Byoruganda John Willbroad for the care both financially and morally impacted in my academic life. May the good lord bless you all abundantly.

APPROVAL

This is to certify that Tumushabe Abel has done his final year project titled “**Design of Nyakihita Trading Centre Water Supply System**” under our supervision. We are hereby to approve his project research for the submission to the Department and Board of Examiners of Busitema University.

Main Supervisor

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Date:

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LIST OF ACRONYMS

UBOS	Uganda Bureau of Statistics
LC	Local Council
NPSH	Net Positive Suction Head
PV	Photo Voltaic
CSP	Concentrated Solar Power
CAD	Computer Aided Design
GPS	Global Positioning System
TC	Trading Center
NWSC	National Water and Sewerage Corporation
ERA	Electricity Regulatory Authority
MWE	Ministry of Water and Environment
DWRM	Directorate of Water Resources Management
W.H.O	World Health Organization
MDG	Millennium Development Goal
m ³ /h	Cubic meters per hour
m/s	Meters per second
SDG's	Sustainable Development Goals

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CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND.

Safe drinking water, sanitation and good hygiene are fundamental to health, survival, growth and economic development for each sector. However, these basic necessities are still considered a luxury for many of the world's poor people. Over 1.1 billion of citizens in the world do not use drinking water from treated or any improved sources, while 2.6 billion lack basic sanitation (W.H.O, 2000).

The 2030 Agenda includes a dedicated goal on water and sanitation (SDG 6) that sets out to “ensure availability and sustainable management of water and sanitation for all”. SDG 6 expands the MDG focus on drinking water and sanitation to now cover the entire water cycle, including the management of water, wastewater and ecosystem resources. With water at the very core of sustainable development, SDG 6 not only has strong linkages to all of the other SDGs, it also underpins them; meeting SDG 6 would go a long way towards achieving much of the 2030 Agenda (SDG's report, 2015)

The MDG sanitation target aims to reduce the proportion of the population without access to improved sanitation from 51% in 1990 to 25% in 2015. Coverage of improved sanitation increased from 49% in 1990 to 64% in 2012. Between 1990 and 2012, almost two billion people gained access to an improved sanitation facility, and open defecation decreased from 24% to 14% (Who and Unicef, 2014)

About 770 million and 700 million urban people gained access to improved drinking water and sanitation, respectively, during 1990–2004 but out of 73% of rural people having access to an improved source of drinking water, only 30% have access to piped water in the home (Affairs, 2000).

In Uganda an estimated 9.2 million people do not have access to clean and safe water and are thus unable to enjoy their human right to water. Limited access to safe water and subsequently adequate sanitation thus compromises the right to health of a large proportion of the country's population. In 2013, 85 percent (85%) of the Ugandan population lived in rural areas and the rural population grew by three percent (3%). Rural areas not only suffer from greater levels of poverty but also from the most serious limitations on access to safe and clean water. Access to sufficient amounts

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