

FACULTY OF ENGINEERING

YEAR II

DEPARTMENT OF AGRICULTURAL MECHANIZATION AND

IRRIGATION ENGINEERING

KAKIRA SUGAR LIMITED (KSL)



JUNE (19)-AUGUST (18) 2023

DRICHILE HAMIDU

BU/UP/2021/0863

**A REPORT SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL
ENGINEERING IN THE PARTIAL FULLFILMENT OF THE REQUIREMENTS FOR
THE AWARD OF DIPLOMA IN AGRICULTURAL ENGINEERING AT BUSITEMA
UNIVERSITY.**

DECLARATION

I DRICHILE HAMIDU, hereby declare that all the content in this report is original extracted from my research, supervisor and lecturers, and has never been presented for examination to any other institute of higher learning

Name.....

Signature.....

Date.....

DEDICATION

I dedicate this Industrial training to the Head of Department Agricultural Mechanization and Irrigation engineering Mr. Eriau Emmanuel and my supervisor Mr. Kisambira David, who have been guiding me towards the accomplishment of my Industrial training. I will always remember and appreciate your efforts and May the Almighty God reward you abundantly.

APPROVALS

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

ENG. THOMAS DIVELLO

Sign:

Date:

Kakira Sugar Limited

ENG. BAZZE GRACIOUS

Sign:

Date:

Kakira Sugar Limited

MR. ERIAU EMMANUEL

Sign:

Date:

Busitema university

ACKNOWLEDGEMENT

I thank God who made my industrial training at Kakira sugar limited (KSL) a Success. I acknowledge with great pleasure the management at KSL for offering me an Industrial training placement. Great thanks go to irrigation manager Mr. Morgan Muleya, the Agricultural manager Mr. Samuel Chidoma, and the different sub-section supervisors at KSL for the tireless efforts rendered which made the training a success and all the staff of KSL who were of help to me during the training.

I thank my supervisors Mr. Asia Joseph, Mr. Okuna Seith, Mr. Bazze Gracious and Mr. Odong David.

I thank the Head of Department and the entire staff of Agricultural mechanization and Irrigation department for the theoretical knowledge they rendered to me which made the industrial training run smoothly.

ABSTRACT

This industrial training report explains the development of practical and professional skills in the fields of agriculture workshop and agriculture engineering carried out at Kakira Sugar Limited (KSL)

Chapter one: is about the company, KSL where I carried out the training. It talks about the historical back ground of the current KSL, how it has been performing since its establishment, its location, vision, mission and strategic objectives, core values, organization structure, study organization, methodology and implementation of the industrial training of the student, objectives of study and significance of the study

Chapter two: is about the work done during the training; it talks about the different sections in Agriculture workshop, operations done under each section, machines, tools and implements used and how they are handled, the experiences and new lessons learnt from the training. It outlines the new lessons, skills gained from the four sections of agriculture workshop I went through during the training period. And it talks about work done during the training in agriculture engineering and general servicers.

Chapter three: is about the experiences and new lessons learnt from the training. It outlines the new lessons, skills gained from the sections I went through during the training period.

Chapter four: is about the conclusion and recommendations for strengthening the training program. The daily tasks which I carried out during the 8 weeks training period are recorded in the industrial training log book

Table of content

Contents

DECLARATION.....	ii
DEDICATION.....	iii
APPROVAL.....	iv
ACKNOWLEDGEMENT.....	v
ABSTRACT.....	vi
Table of content.....	1 2 3
List of tables.....	4
List of figures.....	4
List of Acronyms.....	4
CHAPTER ONE.....	5
1.0: INTRODUCTION.....	5
1.1: Background of industrial training program.....	5
1.2: Objectives of the industrial training.....	5
1.3: Background of the company.....	5
1.4: Location of KSL.....	6
1.5: Core Activities.....	8
1.6: Vision.....	8
1.7: Mission.....	8
1.8: Organization structure of KSL.....	9
CHAPTER TWO.....	10
2.0: INTRODUCTION AND GENERAL OVERVIEW OF THE WORK.....	10
2.1: Survey section.....	10
2.1.1: Equipement used in surveying.....	11
2.2: ROADS SECTION.....	11
2.2.1: ACTIVITIES CARRIED OUT DURING REPAR AND MAINTENANCE OF ROADS.....	
2.3: AGRICULTURAL WORKSHOP.....	13

2.3.1: Training schedule.....	14
2.3.2: ENGINEERING SECTION.....	14
Tasks and assignments in this section.....	15
Replacing worn out clutch of a tractor.....	15
2.2.3: INTRODUCTION TO TRACTOR SERVICING.....	16
Definition of servicing.....	16
Reasons for servicing.....	16
2.2.4: Types of machine service.....	16
Minor servicing.....	16
Major servicing.....	17
Procedure of tractor servicing we did in the workshop.....	17
2.3: MOTOR VEHICLE SECTION.....	17
Leaf spring.....	18
2.4: HAULAGE SECTION.	19
2.4.1: Activities done in haulage section.....	19
2.4.2: INTRODUCTION TO GEAR BOX.....	20
2.4.3: Functions of the gearbox.....	20
2.4.4: INTRODUCTION TO THE BRAKE SYSTEM.....	20
Types of braking system.....	20
2.4.5: Brake over haul dry type and mechanically governed.....	
2.4.6: Overhaul of a wet clutch.....	
2.4.7: INTRODUCTION TO ENGINE OVERHAUL.....	
2.5: OTHER OPERATIONS CARRIED OUT.....	23
2.5.2: Trouble shooting leakage of the radiator of Mahindra tractor.....	24
2.5.3: Fixing the problem of hard steering in a Mahindra tractor.....	25
2.6: LIGHT TRACTORS.....	25
2.6.1: Operations we did in light tractor section.....	25
Filling of pressure in a tyre of a low bed.....	26

Servicing of a bulldozer.....	26
CHAPTER THREE:	27
3.0: Experiences and lessons learnt from my industrial training at KSL.....	27
3.1: Knowledge and skills.....	27
3.2: Relationship with other company staff.	27
3.3: Challenges.....	28
3.4: Major benefits derived from the Industrial training.....	28
CHAPTER FOUR.....	28
4.0: CONCLUSION AND RECOMMENDATIONS.....	28
4.1: CONCLUSIONS	28
4.2: RECOMMENDATIONS.....	29
4.3: REFERENCES.....	30

LIST OF TABLES

Table 1 shows the training schedule.....	14
Table 2 shows the budget of my industrial training at KSL.....	36

LIST OF FIGURE

Figure 1 shows the organization structure.....	8
Figure 2 shows a data logger.....	9
Figure 3 shows the GNSS tripped machine.....	9
Figure 4 shows murrum excavation.....	11
Figure 5 showing bucket loader loading murrum to the tipper truck for transportation.....	11
Figure 6 shows routine estate maintenance.....	12
Figure 7 dry clutch housing.....	14
Figure 8 shows an air compressor used for blowing from air filters.....	16
Figure 9 4wd tractor furrowing on the contour.....	24
Figure 10 90hp 4wd tractor cultivating the inter-row in a ratoon crop.....	25

LIST OF ACRONYMS

KSL.	Kakira Sugar Limited
MCU.	Main consumer unit
ISS.	Industrial Security Services
TCD.	Tons crushed per day

CHAPTER ONE

1.0 INTRODUCTION

1.1: Background of industrial training program.

The industrial training is a compulsory activity for every engineering student as a condition for the reward of Bachelors of Agricultural Mechanisation and Irrigation engineering at Busitema university. This exercise is intended to provide exposure and experience to the students about the real situation in the field of engineering and as an early preparation of students before entering the working field.

As per the program of Agricultural mechanisation and irrigation engineering students at the end of their second year are expected to apply to companies of their choice for a period prescribed by the university, I picked interest in Kakira Sugar Limited where I was attached to different agricultural sections by the Human Resource specialist for a period of eight weeks.

After the training students are expected to organise a report about the activities of the entire training period.

1.2: Objectives of industrial training.

- To provide students with opportunity to test their interests in particular carrier before permanent commitments are made.
- To develop skills in the application of theory to practical work situations.
- To increase students' sense of responsibility and work habits.
- To build a good communication with group of workers and cooperate behaviour in the industry basis.
- To enhance the ability to improve students' creativity and sharing ideas at the place of work.
- To develop skills and responsibility in line with the students' careers.

1.3: Background of the company

Kakira Sugar Limited was formed in 1985 as a Joint Venture between the Madhvani Group and the Government of Uganda to take over the assets of Madhvani Sugar Works Ltd., which was the Group's flagship prior to 1972. At the time of take-over in 1985, owing to the economic turmoil in the intervening years as well as inadequate management whilst under Government control, the factory was no longer in production and most of the nucleus estate had reverted to bush.

Under the Group's management, the Kakira sugar complex was fully rehabilitated with financing of US\$ 60 million from the World Bank, the African Development Bank and Uganda Development Bank.

The sugar factory has been expanded steadily and is currently operating at a crushing capacity of 6,000 Tons Crushed per Day ["TCD"] during a 10.5 month crushing season. A confectionery