



**TITLE: INDUSTRIAL ATTACHMENT REPORT**

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**REGISTRATION NUMBER: AS263/0537/2018**

**PROGRAMME: BSC. APPLIED STATISTICS WITH PROGRAMMING**

**PLACE OF ATTACHMENT: NGERE TEA FACTORY**

**DURATION: THREE MONTHS**

**UNIVERSITY SUPERVISOR: LOISE WAHOME**

**DECLARATION**

I declare that this report is entirely my work and that this is what I learnt during the three months attachment period. This work forms part of fulfillment of the requirement of the award of a degree in School of Pure, Applied and Health Sciences, Murang’a University of Technology.

KARIMI CHRISTINE

Registration Number: AS263/0537/2018

Signature: Date:

**APPROVAL BY UNIVERSITY SUPERVISOR**

This attachment has been submitted to the university with my approval as led by assessor/supervisor.

**LOISE WAHOME**

Date:

Signature:

**ACKNOWLEDGEMEN**

I wish to acknowledge the following people for support and encouragement that led to the

successful completion of the training. FUM, FSA, PA and my special thanks to the entire Ngere tea Factory team.

Finally, I would like to pass my deepest thanks to my family and friends for the financial

support, encouragement, and honest advice when in my attachment period.

**DEDICATION**

This report is dedicated to my family members and the Ngere Tea Factory for the opportunity to train with them and above all is to God almighty

I also dedicate this report to Murang’a university of technology for giving me a chance to get equipped with the professional quo. You have been a pillar and source of inspiration during the attachment period. God bless you all.

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**LIST OF ABBREVATIONS AND ACRONYMS**

FUM: Factory Unit Manager

FSA: Factory System Administrator

F.S.C: Factory service coordinates

P.A: production Assistance

F.A: Factory accountant

A.F.A: Assistance Factory Accountant

VPN :Virtual private network

GL: Green leaf

**DEFINITION OF TERMS**

**Cultivation.**  Tea bushes are planted from 1 metre to 1.5 metres apart to follow the natural contours ofthe landscape, sometimes growing on specially prepared terraces to help irrigation and to prevent erosion. Young plants are raised from cuttings obtained from a mother bush andthey are carefully tendered in special nursery beds until 12 - 15 months old. They are then planted out it he

tea fields.

**Preparation ( Withering )**  This is one of the most expensive processes of tea manufacture in terms of space and timetaken. This first stage of tea manufacture may take 10 to 20 hours and its main purpose isto bring down the internal moisture of the leaf to between 65 to 67% WB. It also initiates chemical reactions in the leaf cell necessary for quality tea production. This reduction in moisture makes the leaf pliable and easier to cut in the next stage.

**Preparation (Maceration)** The processes of tea manufacture produce three major types of made tea: green tea that is unfermented, oolong that is semi-fermented and black tea that is fully fermented. Almost all tea produced in Kenya is by the CTC (crush, tear and curl) method. This method produces black tea that has the advantage of quicker brewing and which makes mores cups per Kg. The process involves cutting and macerating the leaf to produce a fine mash, Its purpose is to expose the cell contents to atmospheric oxygen for further development through the action of enzymes. This is popularly called fermentation although it’s strictly an oxidation proces

**Fermentation**  Fermentation or oxidization is the most important stage in the manufacture of black tea,and this process makes it uniquely different from all other teas. Fermentation is carried outin custom designed fermentation rooms. Depending on the temperature, maceration technique and the style of tea desired, the fermentation time range from 45 minutes to 3hours. The characteristic coppery color and fermented tea aroma judge the completion offermenting

**Drying**  This is the process that stops fermentation and introduces a stable product of low moisture content between 3.0 to 3.3% that can be shipped and stored.It involves the physical removal of moisture and it’s a crucial process as it seals in all the flavour, aroma and character created during manufactures that are released by brewing.Drying can therefore make a difference between a mediocre tea and a superb tea eventhough they may come from the same factory

**EXECUTIVE SUMMARY**

This report is a compilation of the nine weeks of industrial attachment I had at Ngere tea factory Field Services department. It summarizes the work I did during the attachment period, benefits of attachment, problems encountered and suggestions, and recommendations on how to counter correct the problems. It also highlights the general and specific tasks performed, strong and weak points of the attachment as compared to the school curriculum.

The report is organised in the following order:

**Chapter 1**

Introduction of the Ngere Tea Factory. It also gives the geographical location, historical background, vision, mission, organizational structure and details of placement department.

**Chapter 2**

It summarizes the general and specific activities undertaken during the attachment, acquired knowledge and applied skills, a profile of skills and competence acquired, benefit of attachment, observations and critiques.

**Chapter 3**

It captures the summary, conclusion, and recommendations.

**CHAPTER 1**

**Introduction**

Field attachment is an important component of a student’s studies in the University. It

involves the student being attached to an institution that provides an opportunity to apply the skills and knowledge achieved during the course of study in the industrial environment and to acquire new skills in data analysis and carrying out the jobs assigned. It is also an opportunity to improve social, communication and technical skills needed for working anda chance to keep abreast with the dynamic changing industry, as well as introducing her to the real working conditions and situations he expects to encounter after graduating.

The purpose of this report is to explain what the I did and learned during attachment period at Ngere Tea Factory. This report is also a requirement for the partial fulfillment of University of Murang’a university degree program. The report primarily focuses on the assignments handled, working environment, successes and short comings that I encounterwhen handling various tasks assigned by supervisor. It is also imperative that recommendations and suggestions be given reflecting on the shortcomings, successes,observation and comments.

**1.1 Geographical location**

Set in the tranquil valleys of vast acres of tea plantations, is Ngere Tea Factory located in Murang’a County Central province. The area is covered by physical features such as River Chania, River Kayuyu and River Thika. The famous Ndakaini Dam that is the source of water for Nairobi residents is also located in the area.

Ngere tea factory covers about 2,400 HA with 21,464,885 tea bushes. Making it among one of the largest KTDA managed factories. It has 185 buying centers. Small scale tea farmers in the area produce a lot of tea.

The factory is known for producing the best quality tea in the world market and goes by this buy line to communicate its mark of quality. As an industrial unit, it serves 8,000 small scale farmers from Murang’a County.

**1.2 Historical background**

Smallholder tea cultivation in Kenya commenced in the 1950s. In 1957, the first smallholder tea factory was set up in Ragati, Nyeri, in central Kenya, run through a management agreement with multinational tea companies. In 1960, the Special Crops Development Authority was established under the Ministry of Agriculture to oversee this crucial sector.

In 1964, the Kenya Tea Development Authority was established under the Agriculture Act (Cap 318) Section 91, Legal notice No. 42, replacing the Special Crops Development Authority. The Authority took over management of small holder tea from multinational tea companies.

Ngere Tea Factory was established on 17th November 1993 to help ease the congestion at Njunu Tea Factory. It has 185 buying centers. Small scale tea farmers in the area produce a lot of tea. The factory is known for producing the best quality tea in the world market and goes by this buy line to communicate its mark of quality.

**1.3 Vision**

To be the leading organization in quality teas for the benefits of the stakeholders

**1.4 Mission**

To provide effective and efficient services in production , processing and dispatch of high quality teas for the benefits of farmers and stake holders.

**1.5 Core values**

Customer focused,

High standards of ethical practices.

Social responsibility.

Equal opportunity for employer and good team work

**1.6 Organizational structure**

The company is headed by Factory Unit Manager who oversees all the operation of the company covering tea operations and production. Production department is headed by Production manager who over sees all the production processes. The extension services are headed by Factory Service Coordinator.

**Figure 1 Organizational chart**

F.U.M

F.S.A

P.M

F.S.C

F.A

P.A

A.F.A

Procurement

EXTENSION OFFICES

S/mechanics

**1.7 Details of placement department**

The ICT department is headed by FSA(Factory system administrator). Tea buying technology has improved over the years where the ktda has left traditional method where bythe tea was bought by analogue weighing scale to a more modern digital scale. The scalescome in set containing printer and PDA. PDA has been installed with the software that takes the kgs of the green tea from the field and sends it to the factory database. The FSA can see from the office which centers has the clerk collected the green tea leaves. In case the clerks use the software while it’s offline they are required to send the data through

VPN (virtual private network).The ICT is the custodian of printers’ scales, PDA and all computer accessories. All clerksshould report to him every Monday for checkup of their scales. In case of breakdown the clerk should first report to him keep the record of device and its problems The FSA should report the head office before any device is repaired.The company uses emails to communicate with internal stuff, regional offices and the KTDA headquarters. There is also use of extensions which facilitates a smooth communication and reduces movement within the company.For any data that is sent outside the company has to be verified by the F.U.M

Data automation the level of automation is about 90% of all date that circulate within the company and outside the company. The data from field is sent to the company through the VPN network.

**Data flow chart**

**Figure 2 Data follow chart**

Data follow chart

Offloading

Finance

Field/clerks

Procurement

VPN

Verification

F.U.M

Regional offices

KTDA headquarters

**CHAPTER 2**

2.0 Objectives

* To gain experience that will help me scale up in my field of study and help me grow career wise.
* To be exposed to various duties carried out in an office set up.
* To get the chance to put the knowledge gained in class into practice.
* To share and learn more from the professional world.
* To make contacts with prospective future employers.
* To get equipped with the professional status.

2.1 Benefits

* The attachment is aimed at creating a holistic being by carrying out activities both practically and theoretically. I was able to merge bit of the theory from school through doing it practically.
* I knew how to collect data using their PDA and send it to the factory database via VPN
* I learn how to clean the collected data by removing duplicated imputing the missing values and search for outliers in the dataset for further analysis.
* I was exposed to data analysis using CHAIPRO system monthy report generations and data visualizations.
* I learn to imputes diversions to various factories such as Njunu,generate gains and loses,visualize the results in terms of kilograms clerks against their variences
* Learnt how to conduct weekly production analysis for various tea grade and bolls.
* Learnt how to create tender request quotataions for various items and conduct a suppliers analysis based on prices of the items and the credibility of the supplier using SAP system
* I learnt how to maintain the database daily.
* I learnt on how to ensure the system is up all the the time.
* Learnt server configuration how server communicate with the rest of computers through ip and how they can be assessed virtually from another machine within the LAN.
* Learnt to configure php.ini so that it can send mails and putting wamp server an IP so that it can be accessed remotely and act as the testing server for the online application.

2.2 General activities undertaken

**The general activities that I was involved in includes:**

* Data collections from the farmers, and in productions.
* Data analysis using CHAIRPRO System.
* Report generations for monthy production and Diversions.
* Data entry to the SAP and Chairpro system.
* Database maintenance
* Database configuration

2.3 Specific activities

* Green leaf collection in the brownline which entailed weighing,data enty into the PDA ,printing out the data to the farmers and exporting data to the company database via VPN.
* Data collection in GL according to the trough process and weigfeeder data treciability and weather conditions data collection in GL.
* Network management
* Database configuration and maintenance.

2.4 Experience

Through my attachment period I have gained more experience in data analysis using excell,Chaipro and SAP system lots of data analysis on Field based and in production .

The first week at the Ngere Tea FctortyI began by going through the set guidelines and rules. I was also given a preview of what was expected of me during the attachment period and also the expected working hours that is arrival time and time to leave.A brief orientation at the What happens in Ngere Tea factory in terms of all the process that takes place in Field Base and in productions and all the sections data was being generated and accounted for , I was trained on how to use Chaipro to generate daily production for the farmers and showed how to navigate through Chaipro The first task i was give was checking data duplicates in refunds and cleaning data by removing duplicates . Was trained on how to handle farmers data daily reports monthly report and yearly report generation.With the help of supervisor i created weekly rotines for data collection from the farmers . After that the supervisor embarked on training me SAP system which is build with the aim of data analysis automation and some machine learning for prediction . That week we design a registration form where password must contain characters,numerical numbers, uppercase and lowercase alphabets and at least 8 characters. The password was encrypted for top security.We repaired a scale which was not starting where I acquired new skills. I was required to enter tea weight and checking if the sum of weight equals the weight record at the offloading point and the weight sent through VPN to the factory database. Supervisor and I created a login page, where the I was thought the importance of using cookie and keeping variable and user information in session id. Cookies store the data in remote browser and thus tracking or identifying and returning the user who’s online. Once they are set they can be accessed on the next page load by $\_cookie. I was also involved in database backup where I was required to do backup at least three times per day for all the data that is being generated in production and field base i.e. Morning afternoon and evening before leaving.We update the factory system to a new version by running script which was sent from KTDA headquarters. This was a better chance where I how the upgrading of the system is done and the requirement before the upgrading is done. One should make sure that has done the database backup to avoid any malfunction thereafter. Or the upgrade could be done on standa lone machine which is not in network incase error arises we were required to report to developers (chai web developers).I also learnt to configure php.ini so that it can send mails and putting wamp server an IP so that it can be accessed remotely and act as the testing server for the online application. I did that and tested the application which we were developing with the supervisor from another computer through a local IP.I was also involved in replacement of internal hardware such as hard disk and also synchronizing PDA which could not send data through VPN. The data was then sent to factory database although that was done manually this was required us to be extra keen. I was also involved in server configuration this was a good chance to learn how server communicate with the rest of computers through ip and how they can be assessed virtually from another machine within the LAN.

2.5 The profile of the skills gained

**Team-work**- learned how to work in groups of two or more to achieve a common goal in

the department.

**Time management.** During my attachment period, I learnt the essence of punctuality and significance of time management in the organization. My practical learning taught me to prioritize and organize my work according to the schedule given and this enabled me to complete my tasks within the allocated time.

**Self-control.** I exercised control over my own behavior by setting standards and facing consequences of my own action. During my attachment, this skill was important to me as a trainee who does not have much of authority.

**Co-ordination Skill.** In practical environment, there is need for integration thus making co-ordination an essential ingredient. As a trainee it was necessary for me to co-ordinate well with my supervisor as well as other colleagues which enabled me to work well with those around me.

**Better Communication Skill.** During my coursework I was taught to communicate effectively with others. This experience augmented my communication skills and gave me the confidence of communicating with my supervisor and other colleague

**Interpersonal Skills.** This was the most common and one of the most important skills during my attachment period. During my attachment it helped me build a good rapport with the other employees who guided me in the best possible manner. My interaction and dealings with existing and others helped me broaden my social network.

**Conceptual Skills.** I used conceptual skills to gain an insight into the working of the institution to understand the core and routine functions of the IT, Field base and Production and the entire organization as well, the problems it faces and its relative contribution to the country as a whole.

**Stress Management Skills.** I faced a lot of mental strain in terms of adapting to the new environment, practical learning, coping with challenges faced, schedule (complete tasks within reasonable time) that is meeting short notice deadlines. This skill helped me to cope-up with the professional status.

2.6 Observation and critiques

Observation

1 Good working environment. The Ngere tea factory management gave its staff a good working atmosphere.

2 Amazing learning culture embraced by KTDA headquarters where it is a requirement that before becoming one of the senior officers you had to go through a training for one to two years.

3 Teamwork was as it best by the employees

Critiques

1 ,I observed that there were are large amount data flowing in and out of the factory but their is litle analysis of data done.

2, I also observed that their is lot of data automation using the SAP sytem which is used in a few sectors like in suppliers analysis and sending and receiving of data from one department to another,one factory to another and to the ktda headquarters. But one critical thing is that system can do more than that if harnessed well .Hence can bring big change in the Tea production all over the country.

3 Minimim of data utilisation .I believe large amount of data being generated by the Ktda can be analyzed and modeled using machine learning and as the result can be used in resources prediction like amount of firewood a certain factory will use in future,Amount of tea that will be likely be produced in a a two or three years to come and come up with the efficient measures to improve tea production in kenya.

4, Litle research done on tea while their is massive well organized data in their database that can bring massive change.

**CHAPTER 3**

3.0 Summary

My industrial attachment gave me a real-world experience and an opportunity to learn which

most can’t be taught in the classroom. the industrial attachment helped me: with the opportunity

to relate the theoretical work to the practical part, with the opportunity to work in my area of

intended specialization, to enhance my understanding of organizational and group processes, to

enhance my awareness of public service obligations, the opportunity to develop hands-on

experience in the world of work and its complexities, hence making me employable and become

productive immediately after arriving at the workplace.

During the attachment period, I gathered numerous skills necessary to help me scale up career wise for instance through getting to know how the analyse data , visualize ,cleaning data ,database management and prepare monthy report for resources used which aided in desicion making of the the operations of the factory . Also through acquiring general professional status.

3.1 Conclusion

The three months-month attachment exposes students to a hand based approach to skills learnt in class and prepares them for the work environment. It is a good way of practicing and nurturing a student before he/she graduates. The department that I was placed has a great team of highly qualified professionals who are very passionate towards their job which is shown in the way each employee diligently carries out their work, seeks guidance from each other and are always punctual. All members of the staff relate well with one another as they are supportive and respectable towards each other that in turn builds team spirit.

As an attaché I was actively engaged since I was allocated tasks which I worked on and reported back to my supervisor who evaluated my work and advised me accordingly. Formal training and mentorship helped me blend in with the committed team. I undertook data analysis and data base management responsibilities such as data cleaning, data entry, data visualization,network management and filling of reports and also participated in designing the reports. Challenges encountered included; responding to work load and application of theoretical knowledge to practical. My attachment ran from September to November.

3.2 Recommendation

**Although the attachment time was a three-month trainings, I would wish to recommend the Ngere Tea Factorty to;**

The management should buy more computers to enable the smooth running of the

activities in the office.

2 I would also recommend the organization to give more students the opportunity for their

industrial attachment because some miss the experience and it is the university.

3 Set funds or allowances to cater for student transport and lunch when in industrial

attachment.

**Recommendations to Murang’a University of Technology:**

****

The university should help students to secure attachment positions according to their

respective courses undertaken in the university to avoid the ache gotten by students in

search of industrial attachment opportunities.



The practical training period is not enough to acquire all the necessary skills and

knowledge needed therefore, the university should try and communicate with the

organizations from which students seek attachment to increase the learning period from

the initial 10 weeks.

**REFERENCES**

1 Attachment logbook

2 https://ktdateas.com

**APPENDIX**

Students’ attachment logbook