JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

DEPARTMENT OF BUSINESS ADMINISTRATION

SCHOOL OF BUSINESS AND ENTREPRENEURSHIP

MURIU GEOFFREY MUGO

HDB212-0209/2020



KENYA POWER AND LIGHTING COMPANY

DURATION: FROM 05/09/2022 TO 30/11/2022

SUPERVISOR: SAMSON OTIENO

# TABLE OF CONTENTS

[TABLE OF CONTENTS 2](#__RefHeading___Toc4551_2790203375)

[ABSTRACT 4](#__RefHeading___Toc2957_1116030413)

[ABBREVIATIONS 4](#__RefHeading___Toc2959_1116030413)

[CHAPTER 1: EXECUTIVE SUMMARY 5](#__RefHeading___Toc2961_1116030413)

[CHAPTER TWO: INTRODUCTION TO THE INDUSTRIAL ATTACHMENT ORGANIZATION 6](#__RefHeading___Toc2963_1116030413)

[2.0. Area of Training in the Organization 6](#__RefHeading___Toc2965_1116030413)

[2.1. Student Perception of the Organization 6](#__RefHeading___Toc2967_1116030413)

[2.2. Special Regulations Concerning Interns in the Organization 7](#__RefHeading___Toc2969_1116030413)

[CHAPTER 3: DESCRIPTION OF ATTACHMENT](#__RefHeading___Toc2971_1116030413) 10

[3.0. Weekly Timetable](#__RefHeading___Toc2973_1116030413) 10

[CHAPTER 4: DESCRIPTION OF A WORKSTATION AND ACTIVITIES UNDERTAKEN DURING FIELD ATTACHMENT 1](#__RefHeading___Toc4179_2790203375)3

[4.0. Description of the Working Place, Day, and Departments 1](#__RefHeading___Toc2977_1116030413)3

[4.1 Optical Motion Sensors 1](#__RefHeading___Toc4183_2790203375)3

[4.2. SCADA 14](#__RefHeading___Toc4185_2790203375)

[4.3. All About Electrical Wiring 15](#__RefHeading___Toc4189_2790203375)

[4.3.0. Wire Sizing 15](#__RefHeading___Toc4191_2790203375)

[4.3.1. Selection 15](#__RefHeading___Toc4193_2790203375)

[4.3.2. Terminating of the cables 15](#__RefHeading___Toc4195_2790203375)

[4.3.3. Cable management 16](#__RefHeading___Toc4197_2790203375)

[4.4. ICT Support 16](#__RefHeading___Toc4203_2790203375)

[CHAPTER 5: IMPACT OF THE ATTACHMENT 1](#__RefHeading___Toc4207_2790203375)7

[5.0. Social Conditions 1](#__RefHeading___Toc4209_2790203375)7

[5.1. Evaluation of the Assigned Task and the Individual Work Experience 1](#__RefHeading___Toc4211_2790203375)7

[5.1.0. Challenges Faced](#__RefHeading___Toc4213_2790203375) 17

[5.2. Comparison of Goals and Expectations with Actual Experience](#__RefHeading___Toc4215_2790203375) 18

[5.3. Implications for Future Study and Career Planning](#__RefHeading___Toc4217_2790203375) 18

[CHAPTER 6: CONCLUSION 1](#__RefHeading___Toc4219_2790203375)9

[6.0. Conclusion 1](#__RefHeading___Toc4221_2790203375)9

[6.1. Recommendations](#__RefHeading___Toc4555_2790203375) 19

# ABSTRACT

The aim of this industrial attachment report is to reflect on the knowledge and experience gained by the student during the attachment period, in a target-oriented way. The report also focuses on giving a detailed information concerning the institution of the external attachment, alongside the descriptions of all activities undertaken and challenges encountered during the attachment period.

# ABBREVIATIONS

KPLC- Kenya Power and Lighting Company

ADSS- All-Dielectric Self-Supporting

OPGW- Optical Ground Wire

SCADA- Supervisory Control and Data Acquisition

ADMS- Advanced Distribution Management System

NOC- Network Operation Center

OTDR- Optical Time Domain Reflectomer

# CHAPTER 1: EXECUTIVE SUMMARY

Our learning institution, Jomo Kenyatta University of agriculture and Technology, organized an industrial attachment program to help inspire students with practical and technical skills. Besides, the external attachment fulfills part of the requirement for the award of a Bachelor’ s Degree in Business Information Technology.

Due to the stated reasons, I decided to apply for a two months training at Kenya Power and Lighting Company, as organized by the university. And luckily, I was given an opportunity to be part of their team for that short duration.

Kenya Power owns the electricity transmission and distribution system in the country. The company has its headquarters at Stima Plaza. The organization structure is made Ministry of Energy, followed by the Board of Directors, regional managers and supervisors of various departments.

The application procedure involved applying for the opportunity online through the company’s portal. Upon successful application and selection, the company sent documents contain rules and regulations to be signed then an induction whereby we were issued with letters of various work stations starting from 5’th September to 28’th October Working time was from Monday to Friday 7:45AM – 5:00PM.

The activities carried out during the attachment period included dressing of poles for running fiber optic cables, rolling out of dark fiber cables, splicing, installation of Ethernet cables in an office, construction and repair of Ethernet cables, troubleshooting network issues, among other customer-support activities in the ICT and Telecommunication division.

Besides the brief history of KPLC where I took my industrial attachment from, its structure, functions, responsibilities, vision, mission and core values, this report also contains my individual work performance and evaluation of the assigned tasks comparing my goal and expectations with actual experience and implications for future study and career planning.

This report reflects the progress I have gained from exposure as well as any challenges I have faced at my work place, possible solutions of the challenges and general recommendations.

# CHAPTER TWO: INTRODUCTION TO THE INDUSTRIAL ATTACHMENT ORGANIZATION

## 2.0. HISTORY OF ORGANIZATION

The Kenya power and lighting company limited was incorporated in 1922 as the East African power and lighting company limited to serve Kenya, Uganda and Tanzania. Its name changed to the Kenya power and lighting company limited in 1983.Kenya power is partly owned by the government of Kenya with 50.1 percent shareholding and private investors with 49.9 percent shareholding. Prior to a major power sector restructuring exercise in 1997, Kenya power also managed all generating stations on behalf of the government. Currently, the company only manages some diesel and hybrid power generating stations which are owned by the government and which are not connected to the national grid. Kenya power is the national system operator (dispatcher of electricity).

**Kenya Power Electrical Transmission and Distribution Network**

Kenya power buys its electricity from Kenya Generating Company PLC, KenGen which is the leading electrical power generation company. KenGen produces 75% of its power from green sources namely:

* Hydro(818MW)
* Thermal (706MW)
* Wind(26MW)
* Geothermal(706MW)

## The main steps for transmission are generation, transmission and distribution. Electricity is generated through hydro, geothermal, thermal and wind in a power station. The power generated is then transmitted by high voltage lines to a transmission substation where the power is stepped down to a lower voltage and transmitted by low voltage lines to distribution substation. In the distribution substation, power is distributed to the consumers through overhead cables or underground transmission.

**Kenya Power Fiber Optic Network**

Kenya Power, having been issued with a Network Facility Provider – Tier 2 License by the Communications Commission of Kenya (CCK), has now developed a telecommunications business unit, “U-Telco” for its fiber optic business. Kenya Power’s fiber optic cable rides on the existing extensive power transmission and distribution network across the country.

Since the launch of its fibre optic business in early 2010, the Company has signed lease agreements with a number of telecommunications operators including Safaricom, Airtel, Liquid Telecom Ltd, Jamii Telecommunications, Indigo Telecommunication Ltd and Wananchi Telecom Ltd.

The extensive telecommunications network will also provide inter-connection for Kenya to the entire Common Market of Eastern and Southern Africa (COMESA) region and beyond. Kenya Power is currently offering dark fibre on 5, 15, and 20 years Indefeasible Rights of Use (IRU) at competitive market driven prices.

## 2.1. VISION, MISSION, AND CORE VALUES

**Mission**

Powering people for better lives by innovatively securing business sustainability.

By striving to provide world-class products and services that delight our customers and transform lives as we ensure viability of our business.

**Vision**

Energy solutions provider of choice.

By becoming the preferred energy solution for businesses and individuals, we empower our customers to achieve more and reach their full potential

**Core Values**

* Customer first - we put our customers first as they matter most
* Teamwork - we work together as one team to achieve our goals
* Passion - we are passionate about powering the nation
* Integrity -we believe in integrity and delivering on our promises
* Excellence - we strive for excellence in all that we do
* Accountability -we are accountable to our customers and stakeholders

## 2.2. Area of Training in the Organization

The industrial attachment lasted for two months began on 5’th of September to 28’th of October of the year 2021. Our areas of training were basically revolving around Electricity House, CBD and field works, which involved visiting Kenya Power offices to do repairs and maintenances.

During all operations we had an instructor or two at most to take us through the various activities; from the introduction, tools and equipment to the actual operation and execution of tasks. At times we would take a break, say a lunch break or when assessments are being done, then resume afterwards.

## 2.3. Student Perception of the Organization

It was an esteemed act for Kenya Power and Lighting Company to give me a platform to visualize most of the concepts learned in class on actual grounds.

Through the attachment program, the organization helped me indirectly to interact with its staff in different areas of training. I was also able to correlate with them well, hence, learning the basic skills on how to create a good rapport with people. I believe that the skills I gained will help me daily, especially when I will be going for work in future.

The company gave the attachment program maximum attention and the necessary supervision with the help of qualified instructors where actual operation was required. That helped me a great deal to familiarize with various activities which we undertook, gain practical skills that I’m positive will help build my future carrier and a nice experience all together.

I’m one of the proud beneficiaries of the whole program as I’ve acquired a number of skills in various fields which I believe will work to my advantage.

## 2.4. Special Regulations Concerning Interns in the Organization

The organization provided the following guidelines to all persons on attachment/internship in all capacities to serve as a basis which guides them to ensure ethical conduct in their relationships with their colleagues and customers with whom they interact on daily basis.

1. They must perform their duties with honesty, integrity and to the best of their abilities.

They must not allow themselves to be unduly influenced by anything or anybody.

They should communicate openly and honestly, and demonstrate a sense of purpose

and a commitment to achieving the optimum outcome, to the interest of the company

even under adverse or tempting conditions.

1. At all times, persons on attachment/internship should treat people with fairness,

courtesy and sensitivity with respect to their rights and dignity. They are expected to

have respect for diversity.

1. They must accept accountability for their actions and decisions, and also appreciate

positive criticism.

1. They must behave in a way which is above reproached which does not put them in a

compromising situation.

1. They must comply with all the rules, procedures and regulations that apply to the

company, its systems and the way it conducts its business. They are expected to

uphold the positive image of the company at all times.

1. They are expected to use information obtained from the company only for the purpose

for which it is intended and within their Delegation of Authority.

1. They should treat the assets and property of Kenya Power, its employees, its customers

and its suppliers with the same respect as if they were their personal property. They

must not waste the Company's resources, including time. They should develop a

positive and constructive attitude at all times.

1. They are expected to share and declare any information they may have about a

personal or corporate conflict of interests to avoid a compromising situation.

1. They are expected to refuse any gift that could be regarded as an attempt to exert

undue influence on them.

1. They should challenge others if they are acting in an unethical way, report behavior in

conflict with this code, but should not suppress unnecessarily any positive and

constructive contributions and criticisms.

1. They should consult the appropriate Manager, Department or Functional Head if in

doubt about the applicability of this policy to any given circumstances.

# CHAPTER 3: DESCRIPTION OF ATTACHMENT

## 3.0. Weekly Timetable

| Week | Date | Workshop | Tasks |
| --- | --- | --- | --- |
| 1 | 05/09/2022 | Electricity House | -Orientation  -Introduction to work environment and departments in the organization |
| 06/09/2022 | Electricity House | -Talk about mental health |
| 07/09/2022 | Electricity House | -Basic hardware components of a computer  -Antivirus protection  -Microsoft office installation and repair |
| 08/09/2022  09/09/2022 | Electricity House  Electricity House | -Identifying errors in RAM  -IP address Configuration  -Windows installation  -Repairing the operating system |
| 2 | 12/09/2022 | Electricity House | -Installing new Ethernet cables  -Repairing non-functional Ethernet cables |
| 13/09/2022 | Electricity House | -Troubleshooting phone network unavailability. |
| 14/09/2022 | Electricity House | -Data cabinets used in each floor  -Data recovery centers |
| 15/09/2022 | Electricity House | -How to install applications in a new computer from the kplc server  -changing phone name of an IP phone following the retirement of its original user |
| 16/09/2022 | Tala Substation | -connect a user to the internet  -Troubleshoot network issues |
| 3 | 19/09/2022 | Electricity House | -How to clean servers  -Troubleshooting why outlook is not receiving new mails  -How to maneuver when the mail is full |
| 20/09/2022 | Electricity House | -How to change the PCs password without opening the pc  - Installing token trackers |
| 21/09/2022 | Electricity House | -Cable location in the data cabinets  -Why it’s not recommended to join network cables directly |
| 22/09/2022 | Roysambu Substation | -Pole dressing along USIU |
| 23/09/2022 | Electricity House | -Board meeting on fiber business |
| 4 | 26/09/2022 | Electricity House | -KPLC fiber business  -OPGW  -ADSS |
| 27/09/2022 | Electricity House | -How to configure emails to a company network |
| 28/09/2022 | Electricity House | -Power Systems Communication  -SCADA  -ADMS |
| 29/09/2022 | Roysambu | -Pole dressing |
| 30/09/2022 | Roysambu | -Pole dressing |
| 5 | 03/10/2022 | Electricity House | -How to speed up a slow computer |
| 04/10/2022 | Electricity House | -Setting up a Network Operation Center (NOC) at Electricity House |
| 05/10/2022 | South C Substation | -Cabling of Ethernet |
| 06/10/2022 | South C Substation | -Cabling of Ethernet |
| 07/10/2022 | South C Substation | -Cabling of Ethernet |
| 6 | 10/10/2022 | NATIONAL HOLIDAY | NATIONAL HOLIDAY |
| 11/10/2022 | South C Substation | -Cabling of Ethernet |
| 12/10/2022 | Electricity House | -How to use an Optical Time-Domain Reflectomer (OTDR) |
| 13/10/2022 | Electricity House | -How to speed up a slow computer |
| 14/10/2022 | Electricity House | -How to configure emails to a company network |
| 7 | 17/10/2022 | Rongai and Ngong Substations | -Troubleshooting network issues |
| 18/10/2022 | Stima Plaza | -Data Centers |
| 19/10/2022 | Electricity House | -How to set up a server for a small business |
| 20/10/2022 | NATIONAL HOLIDAY | NATIONAL HOLIDAY |
| 21/10/2022 | Roysambu Substation | -Troubleshooting network issues  -Fixing network issues |
| 8 | 24/10/2022 | Electricity House | -Repairing Ethernet cables. |
| 25/10/2022 | Electricity House | -Aerial vs Buried fiber deployment |
| 26/10/2022 | Karen | -Stringing of dark fiber cable |
| 27/10/2022 | Karen | -Stringing of dark fiber cable |
| 28/10/2022 | Karen | -Splicing |

# CHAPTER 4: DESCRIPTION OF A WORKSTATION AND ACTIVITIES UNDERTAKEN DURING FIELD ATTACHMENT

## 4.0. Description of the Working Place, Day, and Departments

We conducted most of our activities in the office at Electricity House, Nairobi CBD. However, we occasionally went for field work at different places depending on how urgent the situation was or the availability of equipment to carry out the respective work.

The attachment coordinator briefed us on the company’s organization and what was expected of us before the commencement of the training.

The attachment coordinator was the project manager, Samson Otieno, who briefed us on what is expected of us before commencement of the attachment. We were then given some of the safety materials like the overall and the safety helmet. Thereafter, we were introduced to the workplace and the technicians/electricians, who were supposed to guide us throughout the attachment period.

The training was all round and not limited to a particular activity.

The working station was a construction site. Therefore, we were allowed to engage in a variety of tasks which I’m so glad to have been part of. Some of the major activities being undertaken in that site included:

1. Access controls
2. Security installations
3. Fire alarm installations
4. Data installations

The instructors coordinated well with us, and we gained knowledge from the following areas during the attachment period:

## 4.1. Optical Ground Wire (OPGW)

An optical ground wire (also known as an OPGW or, in the IEEE standard, an optical fiber composite overhead ground wire) is a type of cable that is used in overhead power lines. Such cable combines the functions of grounding and communications. An OPGW cable contains a tubular structure with one or more optical fibers in it, surrounded by layers of steel and aluminum wire.

The OPGW cable is run between the tops of high-voltage electricity pylons. The conductive part of the cable serves to bond adjacent towers to earth ground, and shields the high-voltage conductors from lightning strikes. The optical fibers within the cable can be used for high-speed transmission of data, either for the electrical utility’s own purposes of protection and control of the transmission line, for the utility’s own voice and data communication, or may be leased or sold to third parties to serve as a high-speed fiber interconnection between cities.

The optical fiber Itself is an insulator and is immune to power transmission line and lightning induction, external electrical noise and crosstalk. Typically OPGW cables contain single-mode optical fibers with low transmission loss, allowing long distance transmission at high speeds.

Installation of OPGW requires some additional planning because it is impractical to splice an OPGW cable in mid-span; the lengths of cable purchased must be coordinated with the spans between towers to prevent waste. Where fibers must be joined between lengths, a weatherproof splice box is installed on a tower; a similar box is used to transition from the OPGW to an outside plant fiber-only cable to connect the fibers to terminal equipment.

## 4.2. Supervisory Control and Data Acquisition (SCADA)

SCADA is an acronym for Supervisory Control and Data Acquisition. It is a system in which message or commands that are individual are sends to the external world; it provides a host control functions for the supervisor to control and define settings. SCADA systems are used to monitor and control a plant or equipment in industries such as telecommunications, water and waste control, energy.

A typical SCADA system comprises of:

* I/O signal hardware
* Controllers
* Software
* Network
* Communication

In this system, measurements are made under field or process level in a plant by number of remote terminal units and then data are transferred to the SCADA central host computer so that more complete process or manufacturing information can be provided remotely. This system displays the received data on number of operator screens and conveys back the necessary control actions to the remote terminal units in process plant.

## 4.3. Ethernet Cable Installation

Properly installed Ethernet network cable reduces downtime and allows for the constant flow of data, connecting your data systems and network devices such as routers, modems, adapters, or whatever ‘thing’ needs connecting throughout your facility.

### 4.3.0. Getting Started

The first and most important part is creating a plan. You will need to consider:

* Will you have a Central distribution point? And Where will it be located.
* How many rooms will you wire?
* What are the Wiring routes?
* How many sockets (Ethernet outlets) in each room?
* Socket locations?
* Ethernet cable – Cat5, 6 or 7 Cable ? (cat 6 recommended)
* Will you use a patch panel?

### 4.3.1. Selection of the Wiring Standard

Wiring standards is what cable color is wired to what pin on the connectors. There are two wiring standards in use ( 568A or 568B –wiki ). You should choose one and use it consistently everywhere.

### 4.3.2. Terminating Ethernet Cables

1. Strip off about 2 inches of the Ethernet cable sheath.
2. Untwist the pairs - don't untwist them beyond what you have exposed, the more untwisted cable you have the worse the problems you can run into.
3. Align the colored wires according to the wiring diagrams above.
4. Trim all the wires to the same length, about 1/2" to 3/4" left exposed from the sheath.
5. Insert the wires into the RJ45 plug - make sure each wire is fully inserted to the front of the RJ45 plug and in the correct order. The sheath of the Ethernet cable should extend into the plug by about 1/2" and will be held in place by the crimp.
6. Verify the wires ended up the right order and that the wires extend to the front of the RJ45 plug
7. Crimp the RJ45 plug with the crimper tool.
8. Verify the wires make good contact with the metal contacts in the RJ45 plug
9. Cut the Ethernet cable to length - make sure it is more than long enough for your needs.
10. Repeat the above steps for the second RJ45 plug.

### 4.3.3. Cable Management

**Keep Your Cables Organized**

* Don’t bundle the cables over one another, as their performance would be degraded.
* Make sure the unshielded twisted-pair cables for canceling out EMI from external sources aren’t exposed.
* Keep the fiber and copper cables in the runs separate.
* Label the cables at both ends and label the racks and the patch panels as well.
* Don’t route the cables through pipes or holes. You might want to add more cable runs later.

## 4.4. ICT Support

Information technology (IT) describes the use of technology to solve business and organizational problems. Computers are used to store, recover, transmit, process and secure all forms of electronic data and information.

The major ropes kc ICT in KPLC were to: maintain, support and repair technical equipment, including desktops, laptops, printers, SMART Boards, projectors, A/V equipment and peripherals. Install and deploy new equipment, and perform hardware/software upgrades and installations. Maintain computer hard drive images and regularly re-‐image machines. The ICT support technicians answer queries from users via telephone, email, chat room or instant message, identify technical problems and possible solutions, then compile reports about this, as well as enter information into databases and liaise with colleagues in the rectification of common problems.

# CHAPTER 5: IMPACT OF THE ATTACHMENT

## 5.0. Social Conditions

I can say that my industrial attachment was an exhilarating journey because the learning environment was supportive. The climate was conducive for learning, and I had the chance to interact with people from different backgrounds and exchanged ideas.

The respect that we gave each other was a great mentoring situation for me. Through that, I was able to gain insight of what we were learning, and made an impact to others and the company at large.

## 5.1. Evaluation of the Assigned Task and the Individual Work Experience

The amount of value that the industrial attachment impacted to me is something commendable and worth of attention.

Out of the activities undertaken, Ethernet installations turned out to be the best. The rolling out of the cables to data points and work stations demanded quite an involvement in every step. However, each one of us was able to participate with the guide of the instructors and the experience was quite fulfilling. I must admit the whole experience changed my prior postulation of the same in which I believed data wiring to be a whole complex process but in actual sense it’s not.

The activities of ICT support were also exhilarating. Connecting users to domains after their computers were liked out, troubleshooting their phone networks, why their outlook was not receiving new mails, blowing dust off PCs, and doing inventories, among others made my training at Kenya Power and Lighting Company a worthwhile.

The rolling out of fiber optic cable also needed one to make use of creativity so that you may achieve maximum work with less time. Besides, the interaction with different technicians also helped me gain experience in different perspectives.

In a few words, the whole experience was generally awesome. Learning how to do Ethernet installations at the client level was quite a dream-come-true to me. During the two-month period of the attachment I also managed to acquire a few skills like work precision, being creative/initiative, and good listening and communication skills, which I believe are pertinent in propelling my future carrier.

### 5.1.0. Challenges Faced

* There were no enough tools in the work place i.e. the ladders and drilling machines had to be shared, which was time consuming.
* Financial crisis- lack of financial support to attachees in the company made it a bit difficult to perform tasks and gather for lunch expenses.
* It was difficult to multitask i.e. being at different places at the same time. Therefore, it was inevitable to miss some important information in some areas.
* Inadequate personal protective equipment- the company did not provide personal equipment for workers, hence sharing of the available few leaving others unprotected which not only is dangerous but against the company’s policy.
* Inefficient means of transport- there were a few number of drivers despite the availability of vehicles hence most of the time delay to reach set planned places of work.

### 5.1.1. Possible Solutions

The following are possible solutions to the problem encountered:

* Purchase of more equipment—The company should purchase more equipment so that time is not wasted on assigned tasks while sharing.
* Provision of stipends—The company should consider stipends for attachees to enable them performs tasks diligently.
* Proper planning —The company should come up with a proper plan of activities to enable trainees have enough time to be part of each activity.
* Provision of personal protective equipment-employees should be provided with safety care first because of their own safety and also to avoid sharing and problems associated such as taking more time to perform tasks.
* Employment of more drivers-the company should employ more drivers to make sure assigned tasks are done on time and that workers reach their desired places faster and on time.

## 5.2. Comparison of Goals and Expectations with Actual Experience

The aim of the attachment was to help us relate the concepts that we learned in class with real life situations. We were able to achieve those goals through actual involvement in the work area in a target-oriented way.

## 5.3. Implications for Future Study and Career Planning

The industrial attachment gave me an in-depth insight into how to handle different tools during Ethernet and fiber installations. This has given me an interest in wanting to pursue another career (telecommunications in particular), to have a deeper understanding of fiber, and how it connects with different networks.

# CHAPTER 6: CONCLUSION

## 6.0. Conclusion

The overall experience during the industrial attachment period was a wonderful one. The purpose of students’ attachment is to help them to learn how to interact and work with different people. Besides, they were also supposed to have a wonderful time to put all the concepts that they had learned in class into practice. We achieved all these objectives, and I can declare that generally, the program was a success.

## 6.1. Recommendations

Supervision of students: The university should monitor students closely to encourage them and give them confidence to do more accurate duties. Close supervision will also help students develop a close link to their supervisors; hence, proper assessment.