**INDUSTRIAL ATTACHMENT AT NAIROBI CITY WATER AND SEWERAGE COMPANY**

**Name: Joseph Otieno Onyango**

**Phone: 0729801494**

**Email:** [**jo34319701@gmail.com**](mailto:jo34319701@gmail.com)

**Institution: Zetech University**

**Duration: 12 Weeks**

**Department: Information Technology**

# DECLARATION

I thus declare that the work contained in this attachment report is entirely original and independent work of mine, and that it has not previously been submitted to the Faculty of Science for consideration of the Diploma in Information Communication Technology award. Therefore, no portion of this paper may be reproduced without my permission.

Name: …………………………………… ADM no: ……………………………………..

Date: ………………………………… Signature: ……………………………….

**Nairobi City Water and Sewer Company**

Name: ………………………………. Emp no: ………………………………..

Date: ………………………………... Signature: ………………………………

# DEDICATION

I want to start by expressing my gratitude to the Almighty God for providing me with strength and grace throughout my attachment at the Nairobi City Water and Sewerage Company, as well as for his guidance and protection throughout that time.

I dedicate this research report to my family, who have always been there for me, supported me, understood me, and showered me with unending love. I also thank them for their tremendous encouragement and support, both materially and morally.

# ACKNOWLEDGEMENT

Without the participation and support of a lot of people, this attachment would not have been effective and I would not have been able to benefit as much as I did from the attachment's industrial components.

First, I would like to thank the Almighty God for giving me the time, health, strength, and ability to finish my attachment period.

I truly appreciate the Zetech University Town Campus management and team for giving me the opportunity to work for the organization. I also want to express my gratitude to Mr. Nicolas Moreithi, one of my lecturers, for giving up his time to come and evaluate me.

I am grateful to the Information Communication Technology (ICT) Department's entire staff, especially ICT Officers MR. Morris Weru and Moses Macharia, for their unwavering support and counsel throughout the duration of my attachment.

Last but not least, I would want to express my gratitude to all of the Nairobi City Water and Sewer Company employees who, in various ways, helped me gain valuable experience in work ethics and the actual application of theoretical knowledge.

# LIST OF ABBREVIATION

**N.C.W.S.C:** Nairobi City Water and Sewer Company

**A.W.S.B:** Arthi Water Service Board

**I.C.T:** Information Communication Technology

**C.B.D:** Central Business District

**I.T:** Information Technology

# ABSTRACT

The purpose of industrial attachment creates the need for any discerning student to create a clear picture of what has been done in the form of a report. Field attachment is a field of practical training experience that prepares trainee for the tasks they are expected to perform on completion of their training. This report contains information which I gathered during my industrial training at Nairobi city water and Sewerage Company. Sociology and environment section for a period of three months starting from May 2023 to August 2023.

As a student, my involvement in this attachment was to make sure that I acquire new knowledge and practical skills, improving my confidence in problem solving and to utilize the opportunity to relate with different category of people likely to be met in real life situations.

This report details all the tasks I completed at the sociology and environment section, as well as the experience I obtained, the practical skills I picked up, and the organizational contributions I made on a personal level. In my paper, I provide a quick overview of Nairobi Water and the functions and responsibilities of the various departments within the company. The report includes information on the responsibilities and functions of the Sociology and Environment section, which is my host section.

The data I'm providing in this report reflects all the successes I had in line with the goals I'd established for myself. This report details the advantages, successes, difficulties I faced, and how I overcame them. Additionally, it displays my advice and the results of my instruction.

Table of Contents

[DECLARATION ii](#_Toc143774081)

[DEDICATION iii](#_Toc143774082)

[ACKNOWLEDGEMENT iv](#_Toc143774083)

[LIST OF ABBREVIATION v](#_Toc143774084)

[ABSTRACT vi](#_Toc143774085)

[CHAPTER ONE 1](#_Toc143774086)

[1.0 BACKGROUND OF THE ORGANISATION 1](#_Toc143774087)

[1.1 History of the Organization 1](#_Toc143774088)

[1.2 NCWSC Regions 2](#_Toc143774089)

[1.3 Mission 4](#_Toc143774090)

[1.4 Vision 4](#_Toc143774091)

[1.5 Core Values 4](#_Toc143774092)

[1.6 Organization Structure 5](#_Toc143774093)

[1.6 Details of Placement of Directorates 6](#_Toc143774094)

[CHAPTER TWO 7](#_Toc143774095)

[2.0 INDUSTRIAL ATTACHMENT EXPERIENCE 7](#_Toc143774096)

[2.1 General Activities Undertaken 7](#_Toc143774097)

[2.2 Specific Activities Undertaken 7](#_Toc143774098)

[2.3 Competence Skills Gained 7](#_Toc143774099)

[2.4 Skills learned and Knowledge Applied 8](#_Toc143774100)

[3.0 CHAPTER THREE 9](#_Toc143774101)

[3.1 METHODOLOGY 9](#_Toc143774102)

[3.2 OBSERVATION 9](#_Toc143774103)

[3.3 DOCUMENTS AND RECORDS 9](#_Toc143774104)

[3.4 MEETINGS 9](#_Toc143774105)

[3.5 INFORMAL INTERVIEWS 9](#_Toc143774106)

[3.6. Summary 10](#_Toc143774107)

[3.7. Conclusion 10](#_Toc143774108)

[CHAPTER FOUR 11](#_Toc143774109)

[4.0 RECOMMENDATION AND CONCLUSION 11](#_Toc143774110)

[4.1 Recommendation 11](#_Toc143774111)

[4.2 CONCLUSION 11](#_Toc143774112)

[REFERENCES 13](#_Toc143774113)

# CHAPTER ONE

# 1.0 BACKGROUND OF THE ORGANISATION

# History of the Organization

Under the provisions of Companies Act cap. 486, the Nairobi City Water and Sewerage Company (NCWSC) was established in December 2003.Although it is a fully owned subsidiary of Nairobi City County, it enjoys operational independence to allow it to function effectively and without interruption.

Its administrative center is located in Nairobi, Kenya, near Kampala Road and the Industrial Area. Its area of authority is divided into six administrative areas: the Northern, Eastern, and North Eastern, Central, Southern, Western, and Informal Settlement regions, which are further subdivided into 28 zones.

The company's mandate is to offer Nairobi County people access to clean water and sewage services in a way that is both financially viable and compliant with legal requirements. By 2019, the city's population is expected to increase to 4.5 million from the current projection of 3.8 million. All Kenyans now have easier access to clean water and sewage services because to changes implemented in the water sector under the 2002 Water Act. Regional water boards were established as a result of this reform, and they were given the duty of overseeing the operation of water and sewage sanitation utilities in their respective regions of authority as well as major asset development.

NCWSC was governed by the Athi Water Services Board (AWSB) within this framework. The Water Act of 2002 is being reviewed, and the proposed Bill calls for the creation of Water Works Development Boards rather than Water Service Boards. The top management team of the Nairobi City Water and Sewerage Company has been hired through a competitive hiring process to increase the company's efficiency.

A code of ethics that guarantees vendors of due diligence in line with the Company's purpose of developing its corporate governance is binding on both Directors and senior management personnel. Staff and management are integrated into a competitive, productive workplace that is customer-focused and results-oriented since the organization is run on commercial principles. In order to reassure customers about the quality management methods used by the company, it is also ISO 9001 certified.

The NCWSC operates under commercial principles and is focused on the needs of its clients. Water for the business is obtained from the Ndakaini Dam, Sasumua Dam, Ruiru Dam, and Kikuyu spring. Several water treatment facilities, including the Ngethu Treatment Works, Sasumua Treatment Works, Kabete Treatment Works, and Kikuyu Spring Treatment Works, treat this raw water. Additionally, NCWSC provides waste water treatment facilities for cleaning up consumed, used, and recycled water. The Kariobangi and Ruai waste water treatment plants are where the waste water is treated.

Only 50% of Nairobi's three million citizens currently have direct access to piped water. The remainder get water from vending machines, kiosks, and illegal connections; roughly 40% get water continuously.

The Nairobi City Water and Sewerage Company is dedicated to ensuring that the water reaching the customers is of the best quality and that all stakeholders receive water routinely and effectively. The business wants to set an example for other water businesses operating in Africa.

# 1.2 NCWSC Regions

The NCWSC has seven regions in total, they include:

1. Central Region (Enterprise Plaza). The central Region serves three zones and they include:

* Zone 1: Upperhill, CBD, Ngara
* Zone 2: South C, Makadara, Akila and Mugoya
* Zone 3: Industrial Area (Enterprse Rd upto Likoni Rd), Nairobi West, Balozi, Plainsview, South B and Diamond Park.

1. Eastern Region (Kayole, Spine Road). Eastern Region has 6 zones that it serves, they include:

* Zone 1: Kayole.
* Zone 2: Komarock.
* Zone 3: Umoja.
* Zone 4: Industrial Area.
* Zone 5: Embakasi.
* Zone 6: Donholm

1. Northern Region (Off Murang’a rd, Pangani). Northern Region serves 5 regions namely:

* Zone 1: Safari Park Estate, Thome, Maruri, Garden Estate, Utalii Village, Ridgeways, Njathaini, Kasarani, Old Muthaiga, Muthiga North, Balozi Estate, Runda, Gigiri,Forest Rd, Pangani, Roysambu.
* Zone 2: Huruma, Mathare, Ngumba, Drive Inn, Mathare North
* Zone 3: Zimmerman, Githurai 44, Congo, Kahawa West, Kiamumbi, Jua Kali, Maziwa, Quarry, Kiwanja
* Z0ne 4: Githurai, Kahawa Wendani, Kahawa Sukari, Githurai Progressive.
* Zone 5: Ngumongo, Sportsview, Sports Drive, Roysambu, Kasarani Police, Clay City, Seasons, Hunters, Keroka, Chieku, Maji Mazuri, Mwiki, Mariru, Budalangi, Mwirijo

1. North Eastern Region (Eastleigh, Section 3) These Region Serves 5 zones. They include:

* Zone 1: Buruburu
* Zone 2: Jogoo Road
* Zone 3: Eastleigh
* Zone 4: Dandora /Babadogo
* Zone 5: Kangundo road

1. Southern Region (Woodley Estate, of Joseph Kangethe rd). The Southern Region Serves three zones, they include:

* Zone 1: Kilimani, Kileleshwa, Lavington, Hurligham,Riverside, Ngong Road.
* Zone 2: Kibera, Highrise, Ngumo, Woodley, Jamhuri,Golfcourse, Highway
* Zone 3: Karen, Lang’ata

1. Western Region (Along Chiromo Lane, off Waiyaki Way). Western region serves also three zones, they include:

* Zone 1: Parklands, Westlands
* Zone 2: Springvalley, Kangemi, Rhapta Road, Gigiri, Kyuma
* Zone 3: Lavington, Kawangware, Dagoretti, Kinoo

1. Informal Settlements Region (Industrial Area, National Water Plaza, Dunga rd). It serves three zones:

* Zone 1: Maendeleo Community School, Mukuru Kwa Ruben chief’s Camp, Gatoto Primary, Our Lady of Nazareth, Mukuru Kwa Njega, St Elizabeth, Lungalunga Health Center, Viwandani Chiefs Camp, Mukuru Kwa Ruben Police Post, Kwa Njenga Mosque, Mukuru Kayaba Primary, Kaloleni Primary School.
* Zone 2: Krogocho Chiefs camp, Mathare DCC Office,Kosovo Chiefs camp, Mathare North Chiefs Camp, Kahawa Soweto Health Center, Matopeni Police Post, Mji Wa Huruma.
* Zone 3: Bangladesh, Kibera Laini Saba, Kibera Silanga Community Grounds, Raila Educational Center, Kibera DCC, Ng’ando New Estate, Southlands.

# 1.3 Mission

Providing Reliable quality water and sewerage services in an environmentally friendly manner that delights customers within Nairobi City County.

# 1.4 Vision

To be a World Class provider of water and sewerage services.

# 1.5 Core Values

* **Accountability**: The value aids the organization in defining the company’s mission, values and goals as well as everyone’s role in working towards them. It aims to hold employees accountable and responsible in accomplishing the organizations goals.
* **Team** **Work**: These is a value tool that comes with a magnitude of benefits. From building trust to encourage problem solving skills, teamwork brings our team together and creates a clear communication.
* **Integrity**: This value is essential in building trust between working colleagues. It is also integral for making ethical decisions and addressing challenges calmly and purposefully.
* **Customer** **Focus**: These is a key feature that focusses on solving the customer’s needs.
* **Commitment:**
* **Creativity and Innovation:**
* **Professionalism**: This value aims at developing staffs and maintaining their professional behavior which is essential to the success of the organization.

# 1.6 Organization Structure



# 1.6 Details of Placement of Directorates

The eight key directorates of the company namely;

1. Commercial directorate
2. I.C.T directorate
3. Technical directorate
4. Finance directorate
5. Internal Audit & Risk Directorate
6. Human resource and Administration directorate
7. Company secretary directorate
8. Managing directorate

# CHAPTER TWO

# 2.0 INDUSTRIAL ATTACHMENT EXPERIENCE

# 2.1 General Activities Undertaken

The following are some of the major activities which I undertook at the attachment.

* Creation of Backup mechanism before performing any computer maintenance activity.
* Maintenance of Computer hardware and software
* Installation of software and hardware components for users in order to work efficiently.
* Allocation of necessary hardware components for users e.g. Printers, Hard Disk, Ram, Computers
* Monitoring the Organizations network to ensure that all departments can access and deliver on their daily activities.
* Support the ETHOS of the organization
* Mapping Data. Daily report writing on daily activities undertaken

# 2.2 Specific Activities Undertaken

1. Allocating printers
2. Installing software’s
3. Perform Computer Maintainers:
4. Corrective Maintenance
5. Preventive Maintenance
6. Evolutionary Maintenance
7. Active Maintenance
8. Creating back up mechanism.
9. Maintaining Network.
10. Allocation users.
11. Terminating Network Cables.

# 2.3 Competence Skills Gained

1. Problem solving skills
2. Good interpersonal skills
3. Customer relations skills
4. Mobilization skills
5. Punctuality

# 2.4 Skills learned and Knowledge Applied

1. How to compose and address in a meeting
2. How to trouble shoot, maintain and deal with a network loop when it occurs
3. How to map Data with Excel
4. Maintaining Hardware components
5. Allocating IP addresses to Network computers
6. Managed to apply the network topology’s

# 3.0 CHAPTER THREE

# 3.1 METHODOLOGY

The term "methodology" describes the approach taken during a study in a specific field. We'll examine the techniques I employed for data collection in this chapter. It can be utilized as a point of comparison for everything expressed or reported, so to speak. I gathered the data for this report using the following methods: Observation, informal interviews, paperwork and meetings in person.

# 3.2 OBSERVATION

I picked up some knowledge from observation, such how to number network cables assigned to switches. Users pulling and removing connectors has resulted in the destruction of several network connectors. I looked for user responses to the company network. The responses were generally favorable. I largely learned how to sensitize by watching my supervisors do it, then I could move on to the next user and put what I had seen into practice.

# 3.3 DOCUMENTS AND RECORDS

I used various records, including those from previously completed questions, to learn more. I was able to learn more from the customer's completed contract forms for sewer and water, which related to community needs for sewerage connection and water delivery.

# 3.4 MEETINGS

Attended one meeting within the organizations premises where we were analyzing and noting some of the challenges staffs who are working out in the field are going through in order to improve the new acquire software.

# 3.5 INFORMAL INTERVIEWS

I could conduct interviews in the field with the customers. All the interviews were informal that is there were no pre-structured form of questioning or line of question, again these interviews could be conducted anywhere, that is in the customers’ business premises or house. The questions were random and mostly the answer to one question could lead to a connected question.

# 3.6. Summary

The attachment provided me with a lot of field work experience, project monitoring and reporting.

# 3.7. Conclusion

I gained a lot from the field placement in that I was able to put the theoretical knowledge I had learned in school into practice through the numerous activities and duties I was assigned.

I was able to gain and develop skills like interpersonal, listening, presentation, acting naturally among people, typing, dispute resolution, and organizing abilities thanks to my internship. Additionally, I gained a great deal of knowledge about computer networking, computer maintenances and system configuration, online software access, the operation of the workplace, etc. My education and experience were greatly enhanced by the various perspectives I gained from the organization's staff as well as by engaging with other interns from other universities.

Finally, the internship was enjoyable, thus I recommend it.

# CHAPTER FOUR

# 4.0 RECOMMENDATION AND CONCLUSION

## 4.1 Recommendation

The provision of water and sewerage services by the Nairobi Water to its customer is very good. In fact as their motto 'Improving Reliability' they have been true to it for most of the time. But there are some few recommendations that improve your services to your customers.

I have noticed that it takes a lot of time to respond to various water issues such as water supply failure, connection of Pre-paid water dispensers. The issue has been reported so many times, but it has always taken a lot of time to be responded to. The same case has been reported, despite them being connected with water, and meters installed they have experienced low supply of water and instead buy water. So clearly response to these issues has been delayed and customers are suffering. So if you could improve response to such issues and start responding faster, it can improve a lot on your service delivery.

I have noticed that there is less allocation of computer networking components. These components aid in connecting computer devices to the organizations LAN and also the tools to be used when terminating networking cables. I believe in order to deliver good services and for the users to enjoy working in the organizations I believe the network should be strong and the tools for terminating the cables should be readily available

The other major issue has been network. There have network failures within the organization that hinder proper service delivery to your customers and I know this affects the revenue collection. Poor network infrastructure hinders service delivery for customers and slows down service delivery from the employees.

# 4.2 CONCLUSION

Human rights; are human claims which are entitled to human beings. In 2010 the UN General Assembly passed a resolution to recognize provision of clean water and sanitation as a human right. NCWSC provision of clean water is an observance of this human right. There is a saying that water is life. This is true because without water we would die. This means the right to clean water and sanitation supports other fundamental rights such as the right to life. It is therefore very important that in every society that should be accomplished, without discrimination and to the best way possible. For NCWSC I can say that this has been done without discrimination, but for the best way possible I may not since I was attached to informal and so I do not know the state of the formal section. They should be appreciated for that. The core values of development are sustainability, freedom and self-esteem. I have seen how water is of great benefit to the people of the informal sector. I have seen women wash their clothes, youth open businesses such as car wash and men take baths and be fresh to go to work. This now should be made sustainable and that is to keep up the provision of water to everyone without failure. To support the other core of development is how water has been able to give freedom to these people, freedom to do other things without having to worry about water. Lastly it has given people self-esteem, they are able to wear clean clothes and go to proper toilets.

# **REFERENCES**

1. The Nairobi City Water and Sewerage Company website

[www.nairobiwater.co.ke](http://www.nairobiwater.co.ke)