A TECHNICAL REPORT

STUDENT INDUSTRIAL WORKING EXPERIENCE SCHEME

(SIWES)

Held at

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DEDICATION

I dedicate this technical report to the Almighty God, the giver of knowledge, wisdom and who is rich in mercy. And also to my parent **MR. AND MRS. EVANS** for their effort and support towards me.

ACKNOWLEDGEMENT

I take this opportunity to express my profound gratitude and deep regards to the creator of heaven and earth, the one who knows the beginning and the end, the alpha and the omega, the Almighty God and also to my guides **MR. & MRS. IBRAHIM** and to all those who has helped me during my SIWES programme. The blessings, help and guidance given by them, time to time has carry me so this far and shall carry on the journey of life on which I am about to embark.

I also take this opportunity to express a deep sense of gratitude to compliment my mentor for his cordial support valuable information and guidance which helped me in completing my SIWES through various stages.

A big thanks goes to my friends and also my regard to the school board of trustees and the staff a very big thank you to all and sundry.

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CHAPTER ONE

1.0 Introduction

1.1 Background of the SIWES Program

The SIWES (Student Industrial Work Experience Scheme) is a compulsory program for students in Nigerian higher institutions, aimed at bridging the gap between theoretical learning and practical application in the field of study. The program allows students to gain real-world experience in their field and prepare them for the workforce.

The Industrial Training fund established by decree 43 was introduced in 1971, vis-à-vis the birth of the Students Industrial Work Experience Scheme (SIWES) the same year by the Federal Government of Nigeria (FGN). It is against this background that the industrial training fund (ITF) initiated, designed and introduced SIWES Scheme in 1973 to acquaint students with the skills of handling employers' equipment and machinery.

The Industrial Training Fund (ITF) solely funded the scheme during its formative years. However, due to financial constraints, the fund withdrew from the scheme in 1978. The Federal Government, noting the significance of the skills training, handed the management of the scheme to both the National Universities Commission (NUC), and the National Board for Technical Education (NBTE) in 1979. The management and implementation of the scheme was however, reverted to the ITF by the Federal Government in November, 1984 and the administration was effectively taken over by the industrial training fund in July 1985, with the funding solely boned by the Federal Government. It is an integral part of the requirements for the award of Certificates, Diplomas and Degrees in institutions of higher learning, e.g. Colleges of Education, Polytechnics, Universities, etc.

Student Industrial Work Experience Scheme (SIWES) exposes students to industry based skills necessary for a smooth transition from the classroom to work environments. It accords students of tertiary institutions the opportunity of being

familiarized, exposed, and prepare students of universities, polytechnics, college of technology, college of agricultures and college of education for the industrial work situation they are likely to meet after graduation and to the needed experience in handling machinery and equipment which are not found in such an educational institution.

1.2 Objectives of the SIWES Program

i. To provide students with hands-on experience in their field of study.
ii. To expose students to industry practices and technology.
iii. To enhance the quality of academic learning through exposure to practical situations.
iv. To build essential skills that contribute to professional growth.

1.3 Overview of the Department of Mineral Petroleum Engineering at Quarry

The Department of Mineral Petroleum Engineering at Quarry focuses on the study and practice of the extraction of minerals and petroleum resources from the Earth. It incorporates both geological and engineering principles to ensure safe and efficient operations.

CHAPTER TWO

2.0 DESCRIPTION OF THE ESTABLISHMENT OF ATTACHMENT

2.1 Location and Brief History of Establishment

Quarry is an established mining and petroleum company, involved in the extraction and processing of minerals and petroleum products. With state-of-the-art facilities, Quarry offers an environment that integrates both theoretical knowledge and practical skills for students.

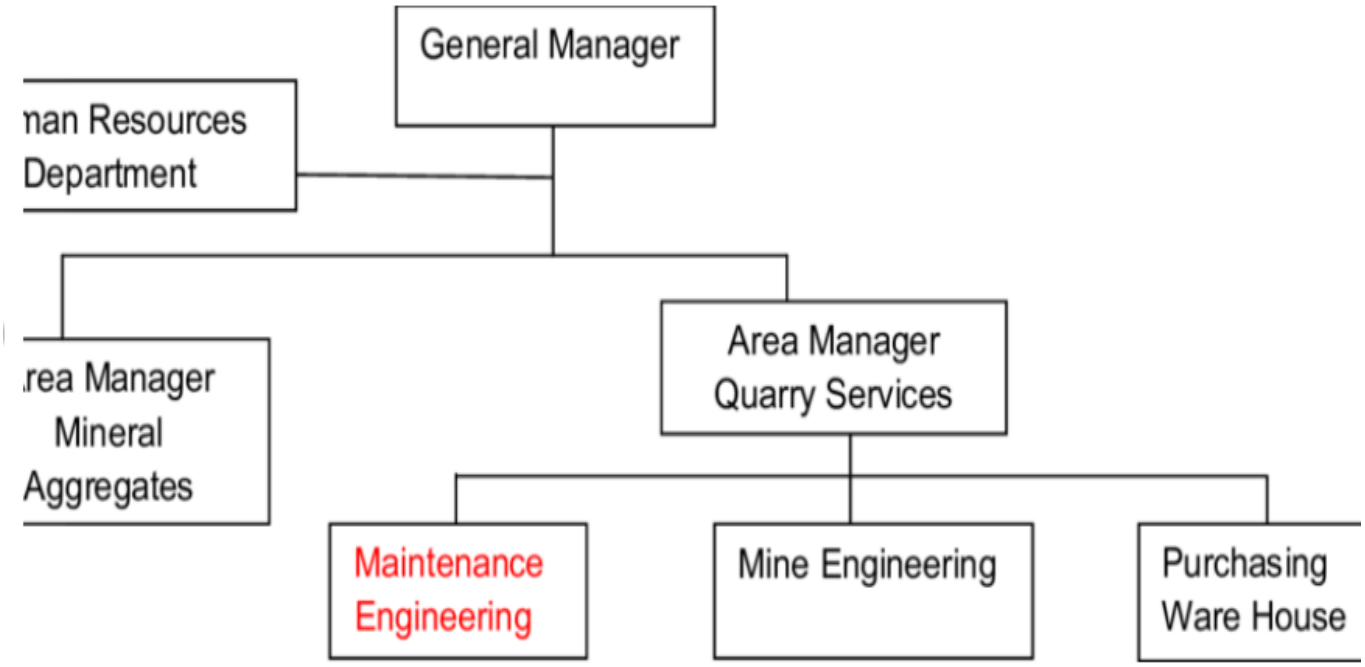
The name of the quarry we visited is Davosah Investment, Oreke Ilorin, Kwara State; it was established in the year 2005.At the quarry, we were all obligated to have the minimum PPE (Personal Protective Equipment) for us to have a safe visit. The staff who was our guide through the quarry further explained that the PPE requirement had to be met to avoid any mishap on the site.

2.2 Mission and Vision of the Quarry

i. **Mission**: To explore and develop natural resources in a sustainable and environmentally friendly manner while providing high-quality products and services.
ii. **Vision**: To be a global leader in the mining and petroleum industry through innovative practices and technological advancements.

2.3 Organizational Structure of Quarry

The organizational structure of Quarry is hierarchical, with various departments including geology, exploration, drilling, production, and safety management. The SIWES program offers students exposure to these departments.



CHAPTER THREE

3.0 Roles and Responsibilities

3.1 Student's Role in the Department

As an intern, the student's role included assisting engineers in field surveys, data collection, and assisting in the analysis of geological samples.

3.2 Responsibilities in the Quarry Environment

Students were responsible for supporting the senior engineers, reporting on daily field activities, and preparing documents related to quarry operations. Our guide at the quarry explained the stone quarrying process from start to finish how it's gotten to how it's refined for commercial purposes. Kwara State is a place blessed with naturally occurring solid mineral deposits which is the main raw material for stone quarrying.

3.3 Identification of rock(s)

The first step is identifying the type of rock to be used - in this aspect; the expertise of a geologist would be needed to know the strength among other properties of the rock.

Excavation

After identifying the desired rock to be used, holes are drilled into the rock using a machine called WAGON DRILL, the rock is then charged with explosives (which could be ammonium nitrate, or electric chargers or whatever the preference of the company is).

Picture showing Two Wagon Drills

Crushing

During the charging, a chemical reaction occurs which in turn leads to an explosion which shatters the rock into fragments of different sizes – the bigger ones are known as BOULDERS, the smaller pieces are then collected in a truck and transported to the quarry for crushing.

Picture showing the trucks used for transporting the boulders

The boulders can be crushed into smaller sizes immediately after blasting win vehicles known as MOBILE CRUSHING PLANT; the vehicles have wheels attached behind them

which crush the boulder into smaller sizes

a picture showing two mobile crushing plant

The quarry operates what is known as a STATIONARY CRUSHING PLANT. As shown

The quarry operates what is known as a STATIONARY CRUSHING PLANT. As shown in the figure below, the crushable rocks are fed into the primary jaw (as shown in the figure below) which then travels on a conveyor belt through two wheels which crush the rocks into smaller sizes. The crushed rocks travel further on the conveyor belt into another set of two wheels which crushes the rocks into very small size.

A picture showing the primary jaw.

A picture showing the two wheels for crushing the boulders

The various sizes the machine produces are as follows;

1-inch

3/8-inch

½-inch

¾-inch

Stone dust

Stone base

The prices of these stones vary from quarry to quarry and so there is no generalized price for these stones.

A picture showing all the various sizes of stone

USES

These various sizes of stones have very different uses.

1-inch stones are used in building constructions especially at the foundation stage, they are used as the hard core.

3/8-inch stones are used in addition to stone dust; to get better compaction for interlocking blocks used in walkways, for kerbs, construction of drainages and in the construction of roads.

½-inch and 3/8-inch stones are used together with stone dust and bitumen to produce asphalt used in road construction. Stone base is used in filling during the construction of roads

3.3 Overview of Practical Tasks and Assignments

Students worked alongside engineers and geologists to conduct fieldwork, including rock sampling, petroleum drilling monitoring, and safety protocols for quarry operations.

CHAPTER FOUR

4.0 Difficulties Encountered During the Programme

Interns participated in geological surveys, the extraction of mineral samples, and understanding the geology of the quarry site.

4.1 Petroleum Engineering Projects

Students were involved in the planning and design of petroleum extraction processes, well logging, and monitoring production wells.

4.2 Quarry Operations Involved in the SIWES

Interns were exposed to the processes involved in quarrying, including drilling, blasting, and mineral processing.

4.3 Challenges Encountered and Problem-Solving Methods

Challenges such as equipment malfunction, safety concerns, and technical difficulties were encountered. Students learned how to mitigate these challenges with creative solutions and effective communication with senior engineers.

Life they say is not a bed of roses and whatsoever that has advantages also have its disadvantages. In as much as the SIWES Programme is a wonderful programme which has been designed to help the students have a practical knowledge of their various courses of study, it is note-worthy to also mention some of the problems encountered during the programme.

1. Problems of Securing a Place of Attachment

Securing a place of attachment for industrial training programme was a very big challenge to me. This is due to the fact that there are very limited establishment that accepts students undergoing industrial training. While I was searching for a place of attachments, I got to find out most of the establishments that accepts students had

already taken the maximum number of students needed, while others would just reject the request giving one reason or the other.

2. Working Time

As an IT student working in FRCN, I was meant to work for twelve (12) hours in a day, five days in a week (i.e. Mondays to Friday). I barely had time to attend to my personal needs. Not just that IT students had to work all day, but also, the work load was quite much. Most times IT students would be asked to work overtime even without any incentive attached to it and students have no option but to comply every given instruction.

3. Finance

Stipends given to me during my industrial training programme is nothing to write home about. The stipend was so little that it could not even cover up for my daily transportation fair not to even mention my feeding fee; therefore, making me spent more from my personal savings. Despite the fact that the stipend was little, it was delayed. Most students ended their programme without receiving their complete stipend due to late payment from firm and we are also asked to pay for the practical we are going to conduct which makes student loose interest in participating.

4. Inaccessible Machines

In Quarry Link Limited, industrial training students were not opportune to access most of the automated analyzers because they are not available Instead, we were being told to make research of such machine which does not assist us in learning better going with the saying “practice makes perfect” and not “plain research makes one perfect”. One of the objectives of SIWES is to expose students to work methods and techniques in handling equipment’s and machineries that may not be available in their universities, thus, the above stated objective of SIWES is not been fulfilled completely.

The difficulties encountered during the programme among others include;

i. Inadequate monitoring of students on industrial training;

ii. Lack of cooperation and support from organization;

iii. Delay in release of fund for supervision and student's industrial training allowances;

iv. Student's reports were not corrected.

Summary of Attachment Activities

The gains of this exercise are immense; that it was worth the while is grossly an understatement. Being accorded another opportunity in life to be exposed to the rudiments of work places outside the class room teaching is an experience of a life time.

Furthermore, the exposure to practical tools, and working features had engendered better understanding of lessons thought in the class room and charted a course for career development in food science

General Appraisal

Suggestion for Improvement & Recommendations of the Scheme ways of Improving the Programme

SIWES programme can be improved by the various actors in the programme which include the Federal Government of Nigeria (FGN), Industrial Training Fund (ITF), Supervisory Agencies (NUC, NCCE, and NBTE), the Institutions, and the Employers.

A. The Federal Government of Nigeria

- The Federal Government should make it mandatory to all ministries, companies, and other organization to offer placement and as well as accept students for industrial attachment.
- The Federal Government should increase the fund being provided for the SIWES programme and other educational programmes in general for effective and productive implementation of the scheme.

B. The Industrial Training Fund (ITF)

- The Industrial Training Fund should provide a strong insurance policy covered for students on SIWES programme.
- The ITF should provide logistic and material necessary for the effective administration of the scheme.
- The ITF should formulate policies and guidelines for SIWES programme for enhancement to all SIWES participating bodies, institutions and companies involved in the scheme.
- The ITF should provide information on companies for the attachment and help in the placement of students.

C. The Supervisory Agency

- The supervisory agency should liaise with the Industrial Training Fund to ensure the implementation of all federal government policies on the scheme.
- The supervisory agency should ensure adequate funding of the SIWES unit in all the institutions for effective administration of the scheme.
- The supervisory agency should research into the development of the scheme in line with advances in technological development.
- The supervisory agency should develop, monitor and review job specification in collaboration with the institution toward the maintenance of the National Minimum Academic Standard for the entire programme approved for SIWES.

D. The Institution

- The Institution should help identify placement opportunities for student attachment with employers.
- The Institution should ensure regular visitation of their students on industrial training to monitor their welfare and improvement status.
- The Institution should have adequate information on some of the challenges facing the firm and the student; it should be noted and treated immediately.
- The Institution should ensure payment of student's allowances and other outstanding financial challenges.

E. The Employer

- The Employers should accept students for industrial training attachment.
- The Employer should allow the students to have access to some of their useful equipment and other useful facilities.
- The Employer should provide welfare services like drugs and other medication and show good hospitality to students.

Advice for Future Participants

I strongly recommend that future participants should bear the following in mind;

i. The student should be focused to avoid disputing the reputation of the institution in their place of industrial attachment and they should also bear in mind the objective of the scheme and show commitment, diligence and honesty.

ii. The student should obey and adhere strictly to all rules and regulations of the company; they should respect the industrial based supervisors as well as other staffs of the company because the moral standard of the student is also evaluated.

iii. The student should avoid change of placement without seeking permission from the institutional based supervisor, the employer and the industrial training fund.

iv. The student should handle the equipment if the firm with great care and they should take pride in protecting the interest of the company throughout the period of industrial attachment.

Advice for the SIWES managers

i. The SIWES managers should give attention to student welfare on industrial training and the students allowance should be increased as a result as high cost of living in our society.

ii. Technologists from various departments or program should be involved in the drafting of time table for students on IT to ensure that students are always sent into areas where activities that will result in learning experience are taking place.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The SIWES program at Quarry provided a great opportunity to apply classroom knowledge in real-world situations. The exposure to both mineral and petroleum engineering processes was invaluable.

The experience significantly shaped the career path, offering practical knowledge that will be helpful in future employment within the engineering and energy sectors.

The visit to the quarry has enabled me to have an in-depth knowledge of the quarrying process, products and uses.

5.2 Recommendations

i. Tertiary institutions need to comply with the standards set for proper implementations of SIWES to enable students derive the greatest benefits from participation in the scheme.
ii. Tertiary institutions need to provide adequate logistics (mobility, internet service etc.) and adequate funding to make their SIWES units functional.
iii. Students should be well prepared through meaningful orientation programmes by institutions before embarking on SIWES. A book, such as the "Guide to successful participation in SIWES" would be useful in achieving the purpose if read before, during and after SIWES by participants.
iv. Quality assurance of SIWES, through adequate supervision of participants by the relevant stakeholders (institutions, employers and ITF) would ensure that the scheme meets its objectives vis-à-vis the principles of cooperative education or work-integrated learning.