



KWARA STATE POLYTECHNIC, ILORIN
A TECHNICAL REPORT ON STUDENT INDUSTRIAL WORK
EXPERIENCE SCHEME (SIWES)

HELD AT
MINISTRY OF AGRICULTURE & RURAL DEVELOPMENT
P.M.B. 1383, old jebba road Sango, Ilorin, Kwara

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REPORT OVERVIEW

Here is an overview report of the Student Industrial Work Experience Scheme (SIWES), which was carried out at KWARA STATE MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT, Old Jebba Road, P.M.B,1383, Ilorin, Kwara State. The SIWES spanned through a period of FOUR (4) months starting from the August, 2024 to November, 2024. The first chapter of this report comprises of Introduction, background and objectives of SIWES. The second chapter gives a brief description of the establishment of attachment (Kwara State Ministry Of Agriculture and Rural Development) such as location and brief history of establishment, objectives of establishment, organizational structure (including organogram) and the various departments in the establishment and their functions. The third and fourth chapters explicitly explain the work and activities carried out with clear statements on experiences gained. The last chapter contains the summary, conclusion and recommendations.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

Student Industrial Work Experience Scheme (SIWES) was established by Industrial Training Fund (ITF) in 1973 to solve the problem of lack of adequate practical skills preparatory for employment in industries by Nigerian graduation of tertiary institution.

The scheme exposes students to industry-based skills necessary for a smooth transition from the classroom to the world of work. It affords students of being familiarized and exposed to the needed. Experience in handling machinery and equipment which are usually not available in the educational institution.

Partaking in SIWES industrial training has become a crucial pre- condition for the award of diploma and degree certificates in specific disciplines in higher institution learning in Nigeria in line with the government education policies.

The operations are ITF, the Co-Ordinating Agencies (NUC)

1.2 AIMS AND OBJECTIVE OF SIWES

Specifically, the objectives of the student's industrial experience scheme are:

- Expose students to work methods and techniques in handling equipment machinery that may not be available in the institution.
- Prepare students for the work situation, they are likely to meet after graduation.

- Make the transition from the university to the world of work easier and turns enhance students' content for later job placement.
- Provide students with an opportunity to apply their theoretical knowledge in real work situation, thereby bridging the gap between university work and actual practice.
- Enlist and strength employers' involvement in the entire educational process of preparing graduates for employment in industry.

1.3 IMPORTANCE OF SIWES

- It provides students with an opportunity to apply their theoretical knowledge in real life situation.
- It expose student to more practical work methods and techniques.
- It strengthens links between the employer university and industrial training fund (ITF)
- It also prepares the student for the labour market after graduation.

1.4 OBJECTIVE OF THE REPORT

The objectives are:

- 1) To develop student's skill in good technical report writing.
- 2) To give an adequate and concise account of the skills received during the training period.
- 3) To explain the relevance of the Industrial Training to Agriculture in general and Agricultural Extension in particular and also helps to offer some suggestions for both establishments and agriculture as to which ways their collaboration can be improved.

CHAPTER TWO

2.0 BRIEF HISTORY OF ESTABLISHMENT (MARD)

The Ministry is as old as the State itself. At the creation of the State in 1967, it took off with three departments, namely Forestry, Veterinary and Agric Services. Later, Forestry department was exercised to the Ministry of Environment where it is more relevant and renamed Ministry of Agriculture and Rural Development. Subsequently, other important departments of Fisheries, Livestock were created to bring their functions to the disposal of the farmers. As at today, the Ministry has four core departments: Agriculture and Engineering Services, Fisheries, Livestock and Veterinary. Because of the importance of the Ministry to food Security and the need to propagate new methods of farming that will reduce the drudgery of Farming, the Kwara State Agric Development Project (ADP) was established in 1989 while State Fadama Project was established in 2005 as Parastatal/Agency to take the new methods of farming to the doorsteps of farmers in the State. These departments with ADP and Fadama are coordinated by Administrative and Planning, Research and Statistics departments respectively.

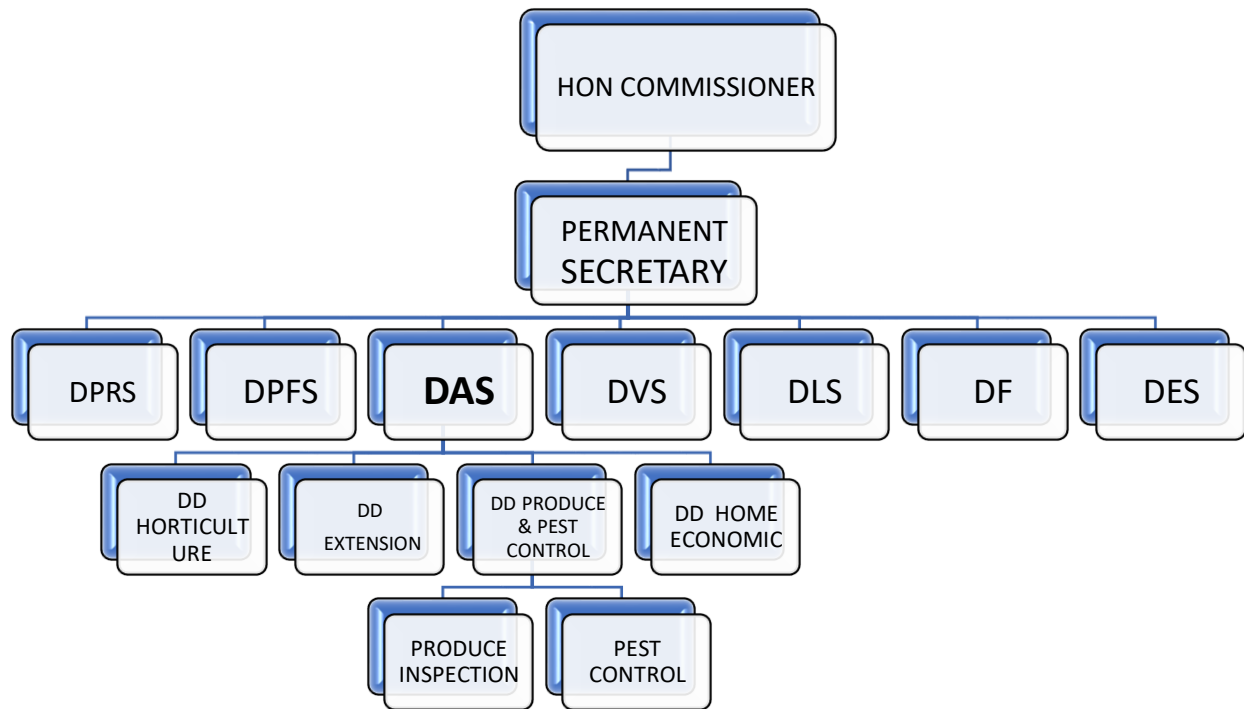
2.1 OBJECTIVE OF MARD

The Kwara State Government is committed to the Development and expansion of its Agricultural potential in order to ensure:

- i Food Security for its citizens
- ii Transformation of the Agricultural Sector from Subsistence to Commercial farming to support Local Consumption, Export Production and the Generation of raw materials for Agro allied industries.
- iii Sustenance of employment generation that would significantly contribute to the internally generated revenue of the State.

2.2 ORGANOGRAM OF MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

ORGANIZATIONAL STRUCTURE OF THE ESTABLISHMENT



KEY

DPRS : DIRECTOR PLANNING RESEARCH AND STASTITICS

DFS : DIRECTOR PERSONEL, FINANCE AND SUPPLY

DAS : DIRECTOR AGRIC SERVICES

DVS : DIRECTOR VETRINARY SERVICES

DLS : DIRECTOR LIVESTOCK SERVICES

DF : DIRECTOR FISHERY

DES : DIRECTOR ENGINEERING SERVICES

DD : DEPUTY DIRECTOR

2.3 BRIEF HISTORY OF DEPARTMENT OF AGRICULTURAL SERVICES

The Agric Services is one of the Six Directorates of the Ministry of Agriculture and rural Resources. The Directorate consists of four Divisions. Each of the Divisions has their respective responsibilities to accomplish the Government policies which are hereafter enumerated. But in general, the Directorate is responsible for raising of assorted tree crops seedlings, production of vegetables and ornamental plants. Disseminating information on improved technological approach in farming to the Farmers through the Extension Agents and collection of information for research and agricultural improvement. Improved nutrition training to the Rural Women is the responsibility of the Home Economics of the Directorate. Produce grading, grain storage, produce quality control, pest and weed control activities are the responsibilities of Pest and Produce Division.

2.4. DIVISIONS IN AGRIC SERVICES

2.4.1. EXTENSION DIVISION (CROPS)

Extension division is one of the Divisions in the Agric Services Directorate of the Ministry of Agriculture and Rural Development.

The objectives of the Division include among others;

1. Provision of enabling environment for agricultural practitioners in Kwara State.
2. Facilitating availability of agricultural inputs on subsidy where and when necessary.
3. Provision of extension services on crop activities.

4. Co-ordination of the State agricultural programmes and projects to ensure achievement of set targets/objectives and ensuring success of National Policies on agriculture in Kwara State
5. Carrying out independent field researches and in collaboration with Agricultural Researchers to obtain adequate agricultural information in the State.

2.4.2. HORTICULTURE DIVISION.

MANDATE OF THE DIVISION

- i. Raising of assorted tree crops and ornamental plants in nurseries where new plants are grown before being sold to the public.
- ii. Production of vegetable plants for the public.
- iii. Consulting for public about the selection of plants suitable for their needs
- iv. Recommending new planting designs or layouts based on client needs, available space, sunlight requirements, and other considerations

2.4.3. PRODUCE/PEST DIVISION.

DUTIES

- i. Control of pests on the field and residential
- ii. Registration of produce merchants
- iii. Grading of quality produce
- iv. Storage of produce i.e. grains in the store
- v. Storage of fertilizer procured by the State Government

2.4.4. HOME ECONOMICS DIVISION.

There are five [5] Home Economics centers for the processing of food, namely: Offa, Omu-aran, Oyun, Osi and Headquarter. All these centers except Headquarter have been abandoned due to dilapidation of the structures. Meanwhile staff stationed at these stations gets alternative means of discharging their duties.

Center for breast feeding support programme.

This programme was designed to help nursing mothers to be able to breast feed their babies during working hours. The Headquarter and Baboko market centers are the functional ones to date.

CHAPTER THREE

3.0 ACTIVITIES PARTICIPATION AND EXPERIENCE GAINED

During my SIWES program at Department of Agric service, I was able to attend both practical and theory lectures on;

- i) Nursery practices of fruit crop and vegetable
- ii) produce and pest control
- iii) Soya beans and soya cheese preparation

3.1 NURSERY PRACTICES

Nursery is simply an intensive plant care-centre where young plants are raised and nurtured to age that can facilitate and ensure their survival when transplanted into field. Cocoa, Kola, Coffee and Cashew produce recalcitrant and viviparous seed that are short-lived and lose viability rapidly. The followings are the common operations for tree crop nurseries:

(i) Selection of Nursery Site

The site must be FLAT and WELL DRAINED to prevent surface erosion and seasonal water logging/flood, or else ridge banks have to be made round the nursery site. Essentially, a good nursery must have unhindered access to water source either from the stream, river, wells, borehole or public water supply system. Nursery site must be accessible to vehicle for mass transportation of seedlings or materials.

(ii) Site Preparation

The site must be CLEAR and LEVELED and some cases beds (15m x 1.8m x 10cm) across slope are made for cocoa, coffee and kola and not for cashew. Beds of this size can take about 1000 plants. There should be 60cm space between 2 beds for easy access and routine operations.

(iii) Erecting Artificial Shade

Shade must be erected over the beds to reduce severe radiation from the sunlight and water loss from young plants. In traditional system, it is advisable to use bamboo or *Glyricidia* poles as uprights and bamboo as cross-pieces. The uprights should be about 2.5m tall with 30cm in the ground. Palm fronds (leaves) are used to cover the top (roof) and sometimes for fencing to prevent rodents, millipedes, frogs and reptiles from damaging the planting. However, in the modern-day nursery, the bamboo pole has been replaced by metal poles, cross-pieces with galvanized wire and, palm fronds by high-tensile net.

(iv) Filling and arrangement of Pots

Best alternative to bed-raised plants is potted plants. In this case, instead of bed preparation, top soil rich in organic matters are filled into polythene pots (bags) of different sizes, depending on the crop. The pots must not be filled complete i.e. allowance of about 3-5cm must be left for water retainability and prevention of soil and nutrient wash-off. Filled pots are arranged in block of 50s i.e. 10 x 5 rows with about 50cm between blocks for easy operations. The ground where the pots are to be arranged must be covered with polythene sheet to prevent roots from penetrating the ground and easy removal during transplanting or when to be used for as rootstocks for clonal propagation. The pots must be perforated in the bottom avoid water-lodging and drain-off of excess water.

(v). Seed Preparation and Sowing.

Good quality seeds (heavy and plum) should be selected for sowing at depth of about 5cm and watered. For cashew, good quality seeds can be identified by flotation technique in which only sinkers seeds are selected for sowing. Furthermore, to facilitate germination in cashew due to its hard shelled nature, seeds for sowing

should be soaked in water for 12- 24 hours or overnight. Sowing should be done in the morning or evening when the temperature is cool and not too hot. Each seed is sown in a polythene pot with topsoil and thoroughly watered during dry weather condition.

(vi) **Nursery Shade Management**

The major advantage of using artificial shade over nursery is that it can be easily adjusted as required. As palm fronds dry out naturally they are fragmented by wind, rain and birds, and gradually the seedlings (young plants) hardened off, because of the accompany increase in the amount of light being allowed through the deterioration of the organic shade materials. In the case of cashew, shade is rarely required at all except under severe hot weather condition in which very light shade should be provided to conserve moisture. Hardening is a gradual conditioning routine practice of adapting young plants raised and maintained under intensive nursery management to field conditions.

(vii). **Watering.**

Water is very essential in nursery especially during the dry period. Young growing plants should be CAREFULLY watered with drizzling nozzles or watering can at alternate days especially during the dry season. However, when the plants are being raised during the very hot weather condition the watering regime can be increased to daily and none during raining period. In case of dry season, watering should be done in the morning or late in the evening. Use of water hose without nozzle should be avoided as pressure from splashing of the water will not only wash off the soil nutrient but can uproot the seedlings.

(viii). **Weeding.**

The nursery must be weeded regularly by hand-picking weeds from the pots and use of small hoes or hand trowel for the surroundings. Use of herbicide is not recommended for weeding in nursery.

(ix). **Disease and Pest Control**

Because of the severity of damage that can be done to the young emerging cocoa plants by insect pests, Rogor 40 is routinely sprayed. Seedling wilt is a very common disease of cocoa caused by fungal infection; the cocoa nursery is sprayed with Bordeaux mixture or Cuprous Oxide. Rodents, reptiles and frogs can only be prevented by netting.

(x). **Transportation and Transplanting of Seedlings.**

Where feasible the nursery should be sited very close to the field where the seedlings would be transplanted. Whatever the case may be, the nursery must be accessible for trucks, tractors for easy and mass shipment of seedlings to the field. The road must be smooth to avoid too much shake during movement. The seedlings must be arranged SINGLY on a flat medium in the truck or tractor and not packed on top of each other. Transportation of materials must be done a week (i.e. allow the plants to recover from the stress of the journey) before transplanting.

3.2 PLANTING AND HARVESTING OF JUTE MALLOW (EWEDU)

Ewedu, botanically called *Corchorus olitorius*, is also called jute in the English language. It is a major delicacy in the southwestern part of Nigeria, usually served with an indigenous dish like yam flour and melon soup.

Land Preparation and Pre-Planting Activities of Planting Ewedu

- A conventional tillage practice is best for planting Ewedu successfully.

- A soil that is well-pulverized aids root development and good growth. Also, decomposed poultry manure should be added to the soil about two weeks before planting.
- Before planting, it is imperative the seeds dormancy are broken to aid fast germination and uniform growth.

Planting Method

Ewedu is best planted on beds, like 1m by 5m. Organic fertilizers are incorporated in the beds about two weeks before planting. There are various systems of planting seeds; we have broadcasting, dibbling, drilling etc.; for vegetable seeds, broadcasting and drilling are the best. In broadcasting, the seeds are evenly dispersed on the bed. In the drilling system, tiny channels are made across the bed with the finger; the seeds are poured on these channels and covered with soil slightly.

For commercial purposes, the broadcasting method is the best. Since the vegetables are to be sold per bed; more plants are gotten from a single bed, thus, making it more profitable. To do this, mix the seeds with dry sand before broadcasting on the beds. This will facilitate even distribution and the seeds are utilized evenly too.

Harvesting of Ewedu plants

Ewedu has a short gestation period; it is ready to harvest at about 4-5 weeks after planting with good agricultural practices. Harvesting can be done by cutting the plant's stem with a knife or uprooting the plants completely from the bed. Uprooting the plants completely from the beds is the best because it helps to conserve soil nutrient and rejuvenate the soil.

Post planting activities of Ewedu cultivation

- After planting for about four days Ewedu seedlings emerge; they

are very tender and fragile.

- Supply adequate water to ensure to hasten germination and increase yield.
- Apply water daily till after 3 weeks when the vegetables are fully grown.
- Alternate your supply of water to about 3 times in a week.

Fertilization is also crucial to increase yield; this greatly depends on your system of cultivation.

CHAPTER FOUR

4.0 ACTIVITIES PARTICIPATION AND EXPERIENCE GAINED

4.1 PRODUCTION OF SOYA MILK AND SOYA CHEESE

Soya milk is gotten from Soya bean. The protein in soy milk is healthy, plant-based, and can help support healthy muscles and organs. Soy milk is rich in omega-3 fatty acids, which are “healthy” fats that your body cannot form on its own. Omega-3 fatty acids are linked to a reduced risk of dementia and Alzheimer's disease.

4.1.1. PREPARATION OF SOYA MILK

1. Sorting of Soyabean manually
2. Two bowls of soybean is used
3. Rinse the two bowls of Soyabean
4. Soak for 3 to 4 hours over night
5. Grind it with minimal water to make it tick.
6. Sieve with muslin cloth to filter after grinding
7. Put the sieved liquid in a pot already on fire
8. Allow to boil for 15-20 minutes
9. Pour into the muslin cloth to sieve it again
10. Add sugar and little along-side when sieving to make the sugar melt and make it tasty.
11. Fill it into a 50cl bottle with a funnel. It can be taken either cold or hot

4.1.2 SOYA CHEESE PREPARATION

1. Grind the soya beans
2. sieve with muslin cloth to filter it

3. Pour the sieved content in a pot already on fire
4. Add fermented corn water called 'omiogi' in Yoruba language in order for it to coagulate when it has boiled 10-20 minutes
5. Pack the coagulated filtrate to a muslin cloth and allow water to drain.
6. Pour back into the pot already on fire, add pepper and maggi and stir
7. Pour back in muslin cloth and press under a jack to drain the water to solidify
8. Remove the solidified content from the jack in the muslin cloth
9. Remove the muslin cloth and place in a tray to cut then fry in hot groundnut oil or any type of oil good for frying on the fire
10. When it is brownish in colour from frying remove from fire, allow oil to drain and pack into nylon.

4.2 PRODUCE AND PEST CONTROL

It is imperative to control pest attacking produce of plants since each crop has one or two pests attacking them and this will lead to total loss or damage of the crops if not well managed.

Pest can be defined as organisms that causes damage or infestation to agricultural produce. Examples include termites, grasshopper, bean weevils, cockroach, rats etc. The different types of pests are field pest, house pest and storage pest

Field Pest: These are insects and mites that damage crops, weeds that compete with field crops for nutrients and water, plants that choke irrigation channels or drainage systems, rodents that eat young plants and grain, and birds that eat seedlings or stored foodstuffs. Examples include locusts, grasshoppers and caterpillar

House Pest: They are animals and insects that live in the house. They are harmful insects and animals. They are dangerous to health. They often carry diseases. They are commonly found in dirty houses and surroundings e.g rats, cockroaches etc.

Storage Pest: A storage pest is any organism which causes damage to farm produce in storage. Examples include bean weevils.

Method of Controlling Pest

This involves reducing the number of pests attacking agricultural produce to minimal. This is very important so that there will be minimal/low damage and no loss in agricultural produce. The methods are:

Cultural: Cultural methods of pest management include use of resistant varieties, tillage, mulching, hand weeding and hoeing, pruning, trapping and hand picking of insects and weeds, and the use of physical barriers such as row covers and sticky bands.

Physical: Physical control refers to mechanical or hand controls where the pest is actually attacked and destroyed. Physical controls are used mostly in weed control. Tillage, fire, removal by hand, grazing and mowing are all used to destroy weeds and prevent reproduction.

Chemical: The most well-known way of controlling pests is by using pesticides and rodenticides. Chemical types of pest control have been seen as reliable, and tackle a large portion of the pest population. Pesticides are usually used in certain circumstances where no other method will work.

Mechanical: Mechanical and physical controls kill a pest directly or make the environment unsuitable for it. For example, traps - for pest animals and insects; mulches - for weed management; steam sterilisation - for soil disease management; or barriers - such as screens or fences to keep animals and insects out.

Application of Pesticides

- Selective (Effective on specific plants)
- Non-Selective (This is use when the land has been cleared and new farmland is to be established. It is effective on random plants)
- Contact (It is effective on the leaves and flower but the root is not affected)
- Systemic (Effective on the root, but it takes 3-5days before it becomes visible)

3.5.1 Symptoms of not properly applied herbicides

- Vomiting
- Skin irritation
- Dizziness
- Blurred vision
- Dehydration
- Skin diseases
- Death

Safety precautions to follow while applying herbicides

- Wear overall
- Novet
- Avoid Eye contact

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The Student Industrial Work Experience was quite inspiring, updating and revealing. It exposed me to real life situations as it relates to my noble profession. My knowledge of most of the courses taught- topic like extension teaching methods, leadership, monitoring and evaluation, introduction to agricultural extension and rural sociology and agronomy before going for the industrial Training afforded me the opportunity to contribute significantly to the organization and the programme.

The gap between my theoretical classroom experience and the practical knowledge has been closed. Aside this, it has also improved my capacity, social relationships and team work.

5.2 PROBLEM ENCOUNTERED

The followings are the problems encountered during the SIWES programme.

1. Unavailability of place of attachment. SIWES is meant to expose the student to various aspects of their field of study and therefore organization should ensure that provision for places of attachment are made available for any student due for the experience. Most students find it difficult to obtain approval from most industries for their training and poor supervision scheme.
2. Another problem encountered was non-exposure to critical works due to the employer's student's non-expertise.
3. Insufficient personal protective equipment

5.3 RECOMMENDATIONS

The Student Industrial Work Experience Scheme (SIWES) is a laudable scheme that prepares students for the challenges ahead and for this reason it should be continued. Considering the importance of the scheme and the opportunities available during Industrial Work Experience, below are my recommendations for a more effective scheme:

They should provide more practical facilities so as to ensure that student have a fair practical knowledge of the profession before going on attachment.

Student should be assisted in getting attached to places where needed experience in their field of study can be obtained.

The industry-based supervisor should be contacted and encouraged to meet with the industrial attachés so that there can be room for them to relate for intellectual development.

The departments in various schools should provide students with list of firms and places where experience relevant to the field of study can be obtained.

The school supervisors should keep contacts of industry-based supervisors during their visit to foster good relationship between the department and the firm. As this will go a long way in helping students with placements in the future.