



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

HELD AT

**MINISTRY OF AGRICULTURE & RURAL DEVELOPMENT**

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By

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## **ABSTRACT**

Student Industrial Work Experience Scheme (SIWES) is a skill development programme established by Industrial Training Fund (ITF) in 1973 to provide a link opportunity for students to participate in the real world of work, benefit from practical exposure at various institutions offering services relevant to their field of studies and it is aimed at exposing students to the realities of world of work by matching the theoretical classroom knowledge with current practices in the work environment.

This report has attempted to give the overview of all that was done during the six (6) months Industrial Training and the experience gathered in the course of the training at Ministry of Agriculture and Rural Development Ilorin.

Agricultural Services is one of the Department in Ministry of Agriculture and Rural Development which was established to disseminate information on improved technological approach in farming through the Extension agent,

To improve nutrition training to the Rural Women through the Home economics division

To help in the raising of nursery through the horticulture division

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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:

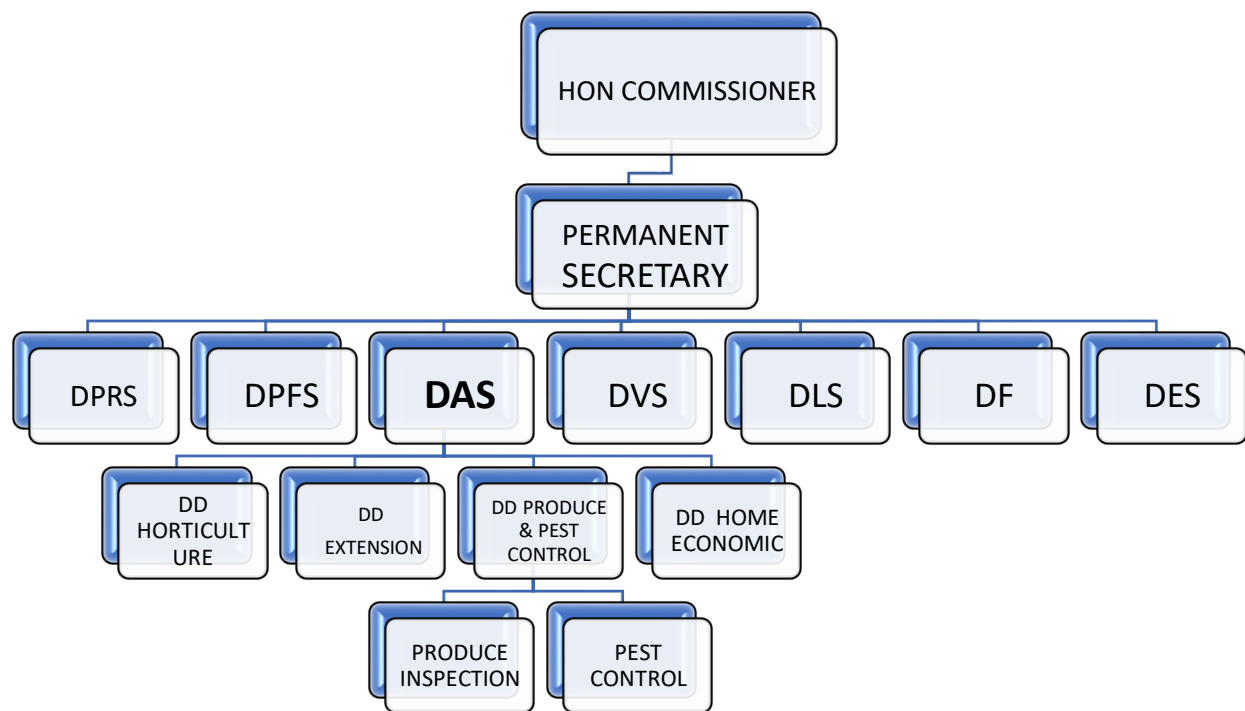
- i Food Security for its citizens
- ii Transformation of the Agricultural Sector from Subsistence to Commercial

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- as well as Socio-economic empowerment of the Citizen.

## **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 lectures on;

- i) Vegetable farming
- ii) Extension methods
- iii) Soya beans and soya cheese preparation

### **3.1 VEGETABLE FARMING**

Vegetable farming is the growing of vegetables for human consumption. The practice probably started in several years ago, with families growing vegetables for their own consumption or to trade locally. Different techniques have emerged over years in growing vegetables. Some of these techniques include:

#### **WHAT ARE VEGETABLES?**

Vegetable are parts of plants that are consumed by humans or other animals as food. Vegetables can be eaten either raw or cooked and it plays an important role in human nutrition, being mostly low in fats and carbohydrates but very high in vitamin, minerals and dietary fiber. Many nutritionists encourage people to consume plenty of fruits and vegetables.

### 3.1.1 VEGETABLE PRODUCTION

#### LAND PREPARATION

i. **LAND CLEARING:** Removing of weeds and any other obstacles that will hinder vegetable production (i.e stone, tree branches etc)

ii. **BED PREPARATION:** Turning over upper layer of soil, bringing fresh nutrient to surface, breakdown clods of soil and also expose the soil to solarization. There are two types of bed used in planting vegetables.

- **Sunken beds:** The sunken bed is that type of vegetable bed with a concave surface, that is the edges are more prominent than the surface of the bed. Sunken bed are used in commercial vegetable farming where vegetables are produced all through the year, irrespective of the season. It is used during dry and wet season where there is no threat of flood

-**Raised beds:** Raised beds are used for wet season vegetable planting, it is constructed such that it is taller than the earth surface with a flat surface. The idea is that it helps to prevent flooding and helps to retain water.

#### FACTORS TO CONSIDER IN BED PREPARATION

- |                |                          |
|----------------|--------------------------|
| i. Weed free   | iii. Good drainage       |
| ii. Raised bed | iv. Well pulverized soil |

### 2. METHOD OF PLANTING VEGETABLE

The method you adopt when planting your vegetable seeds matters a lot, it can increase or decrease your profit. There are two method of planting vegetables, depending on size of the seeds.

i. **Broadcasting Method:** The seeds are uniformly distributed on the beds

#### **Advantages**

- i. It accommodate more plant
- ii. It reduces the work force
- iii. It is easy and less time consuming
- iv. Low incidence of weeds

#### **Disadvantages**

- i. Total control of weed is not achievable
- ii. It leads to wastage of seeds
- iii. There is high competition for nutrients, water and space
- iv. At times the yield is usually low

**NOTE:** One technique to attain good distance of seedlings is to **MIX DRY CLEAN** sand with the seeds before broadcasting.

ii. **Drilling Method:** Involves making of small opening or channels of an equal distance across the bed such that the seeds are planted inside the channels made only

#### **Advantages**

- i. Agronomic practices are easily carried out
- ii. Seeds are better economized
- iii. Plant density per bed is managed
- iv. Little or no competition for water nutrient and space among plant

#### **Disadvantage**

- i. Requires more space as each bed contain a relatively small amount of vegetables
- ii. It is labour intensive

### **3. SEEDLING MANAGEMENT**

- i. Watering/ Irrigation
- ii. Shading/Protection
- iii. Weed Control
- iv. Fertilizer Application
- v. Disease and Pest Control

### **4. TRANSPLANTING**

Transplanting is an act of uprooting and moving of a plant from nursery (temporary field) to permanent field. The general rule is that when seedlings has three to four true leaves, it's large enough to plant out in the garden (after it has been hardened off).

**NOTE:** When you plant a seed the first leaves to emerge are the cotyledons, these leaves will look different from leaves that will grow later. The purpose of these leaves is to provide stored food to the seedlings for a short period of time. True leaves grow shortly after the cotyledons

#### **FACTOR TO BE CONSIDERED FOR TRANSPLANTING**

- i. Seedlings should be watered at least a day prior to transplanting
- ii. Select the seedlings to transplant. Don't transplant disease infected seedlings
- iii. Select seedlings of the same height (stage to transplant to attain uniform growth).
- iv. Seedlings should be dug up (beds), easily pulled (seedling tray) to avoid damage on root zone (minimize stress on the plant)
- v. Transplant early in the morning or late in the afternoon.

### 3.1.2 PREPARATION OF TOFU (SOYABEAN CAKE/BESKE/AWARA)

Tofu is faux cheese made from SoyMilk curds. Awara or Beske is the local name for Tofu amongst Yoruba speaking people in Nigeria.

Tofu is a good source of protein and contains all nine essential amino acids. It is also a valuable plant source of iron and calcium and the minerals manganese and phosphorous (Britannica)

Making Awara/Beske even though it requires a couple of steps is pretty easy. The basic ingredients are Soya beans, Water and a Coagulant. The steps required are just like making Soya Milk but the fun starts once a coagulant is added. What makes Beske / Awara different from other Tofu is the frying. Frying the Awara completes the preparation process. Air frying or baking or grilling are healthier options if you like.

“Beske oni gun merin” is a fun name we called this as kids. Loosely translates as Fried Tofu with four sharp edges.

#### Ingredient

- Soya (Soy) Beans
- Water
- Coagulant (you can use either Liquified Alum or Vinegar or Lime Juice, *see notes below*)
- Salt
- Spices (blitzed peppers are traditionally used)
- Vegetable oil for frying



## Procedure

1. Sort the beans to remove impurities especially if you bought the unsorted ones from the open market
2. Rinse thoroughly and soak for a few minutes. The outer coat of Soya beans is a little tough to remove, so soaking for a few minutes will soften it first.
3. Peel the beans to remove the outer coat, rinse and repeat continuously until all the coat is removed.
4. In a blender or industrial mill, grind the beans to a smooth thick paste with water.
5. Add water twice the amount of the paste, into the paste. And mix it till it is loose.
6. Get a sieve cloth (muslin or cheesecloth) the type for Ogi and sieve out the milk from the beans chaff. Squeeze till all the milk is out.
7. Add a little more water to the chaff and squeeze one more time. This is to ensure you get out all the milk.
8. In a large pot (you need a very large pot because soya milk froths over), pour in the raw milk and boil.
9. You will need to stand over the pot as you cook this, to skim off the froth and to watch it to keep it from boiling over.
10. Cook for at least 20 mins, on medium heat, to bring it to a boil
11. Slowly add coagulant, in little bits and watch as the milk splits. Don't add all at once or too much, it may alter the taste and texture if you add too much.
12. Once split, turn the heat off, and strain the milk curds with a sieve cloth and squeeze out all the water.

13. Add salt, and spices and mix in till the spices are well incorporated into the curd.
14. Return into the sieve cloth, tie it in firmly and squeeze further. Place on a flat surface and place a heavy weighted item on it and leave the rest water to ooze out.
15. Once firm cut to shapes.
16. Deep fry in hot oil until golden brown. A healthier option will be baking or air frying.

## **CHAPTER FOUR**

### **4.0 EXPERIENCE GAINED IN THE EXTENSION DEPARTMENT**

Agricultural Extension involves the dissemination of innovative information to Farmers and his household in order to increase farmer's income, farmer's production, farmer's livelihood

### **4.1 PRINCIPLES OF AGRICULTURAL EXTENSION**

- \* Extension work starts from people i.e. where they are (location)
- \* Extension is based on clearly stated and specific objectives
- \* Extension work is based on the cultural needs and interest of the people you are willing to reach
- \* It should not be forced on people

### **4.2 ADOPTION OF INNOVATION**

Adoption is the process of transferring innovative ideas, knowledge to Farmers in order to accept for practice.

#### **PROCESS OF ADOPTION**

- i. Awareness
- ii. Evaluation
- iii. Interest
- iv. Adoption
- v. Trial

## METHODOLOGY OF EXTENSION

- i. Communication
- ii. Diffusion: This involves passing the same information to Farmers the same way.
- iii. Adoption: This involves the acceptance of innovation

## EXTENSION METHODOLOGY OF TECHNOLOGY DESSEMINATION

- i. Workshop
- ii. Seminar
- iii. Conference
- iv. Agric shows
- v. Field days

### **4.3 EXTENSION TEACHING METHOD**

Extension teaching method can be defined as a medium of communication between the instructor and the learner.

## QUALITIES OF GOOD EXTENSION AGENT

- i. Must be knowledgeable on the field
- ii. Don't underrate the farmers
- iii. Must be articulate i.e. get yourself prepared
- iv. It should be down to earth
- v. Be a problem solver

## EXTENSION METHOD

- 1. Individual contact
- 2. Group contact

### 3. Mass contact

**INDIVIDUAL CONTACT:** The extension agent meets the farmer at home or on the farm and discusses issues of mutual interest, giving the farmer both information and advice.

Types of individual method

- i. Family and home visit,
- ii. Phone calls,
- iii. Personal letters,
- iv. Result demonstration

**GROUP CONTACT:** It is a method in which a group of interested farmers accompanied and guided by an extension worker, goes on a tour to see and gain first-hand knowledge of improved practices in their natural setting. Is majorly for early and late adopters.

Types of group method

- i. Group meeting,
- ii. Group discussion

**MASS CONTACT:** An extension worker has to approach a large number of people for disseminating new information & helping them to use it.

Types of mass method

- i. Newspaper,
- ii. Radio,
- iii. Television,

iv. Publications

#### **4.4 PROBLEMS ENCOUNTERED DURING THE PROGRAM**

**There were quite a number of problem and challenges during the industrial attachment program. These problems include;**

- Limited number of equipment was available which made work slow, tiring and time wasting
- Inadequate monitoring of students on industrial training
- There was low level of infrastructures
- The distance from home to place of attachment is quite far and sometimes caused delay in arriving to work.

## **CHAPTER FIVE**

### **5.0 5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 CONCLUSION**

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 as an Agricultural Extension agent. 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.

#### **4.2 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:

The Institution 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.