

**Conseil Ouest et Centre  
Africain pour la Recherche  
et le Développement  
Agricoles**



**West and Central African  
Council for Agricultural  
Research and  
Development**

**Report on:  
Tracer Study of Agricultural Graduates in Ghana**

**CORAF/WECARD**

**Prepared by: *Dr. Joe Taabazuing (GIMPA)***

**On behalf of CORAF/WECARD**

**November, 2010**

**This document is an output from the Strengthening Capacity for Agricultural Research for Development in Africa project (SCARDA) funded by the UK's Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.**



## Table of Contents

ACKNOWLEDGEMENT .....	3
Acronyms .....	4
Executive Summary .....	5
1.0 INTRODUCTION .....	7
1.1 Background to the Study .....	7
1.2 Justification for the Study .....	7
1.3 Objectives of the Study .....	8
1.4 Methodology .....	8
2.0 COUNTRY CONTEXT .....	10
2.1 Geographical Location of Ghana .....	10
2.2 Agriculture in Ghana .....	10
2.3 Historical Perspectives of Ghana's Agricultural Training .....	11
3.0 REVIEW OF LESSONS LEARNED FROM FINDINGS OF PREVIOUS TRACER STUDIES	11
3.1 Introduction .....	11
3.2 Tracer Studies within Other African Countries .....	11
3.3 Tracer Studies in Ghana .....	13
4.0 NATURE OF AGRICULTURAL TRAINING IN GHANA .....	13
4.1 Introduction .....	13
4.2 Agricultural Training Institutions in Ghana and their Capacities .....	13
4.3 Curricula and Teaching Methods .....	16
4.4 Demand for Agricultural Training in the University .....	17
5.0 DEMAND FOR AGRICULTURAL GRADUATES .....	18
5.1 Distribution of Graduates by Employment Sector .....	18
5.2 Distribution of Employed and Unemployed Graduates by Area of Specialization .....	19
5.3 Distribution of Employed and Unemployed Graduates by Year of Graduation .....	19
5.4 Employment Opportunities by Gender .....	19
6.0 PERSPECTIVES FROM VARIOUS EMPLOYERS OF AGRICULTURAL GRADUATES	21
6.1 Perspectives of Public Employers .....	21
6.2 Perspectives of NGOs .....	22
6.3 Perspectives of Private Sector Employers .....	22
6.4 Perspectives of Farmer Organizations .....	23
6.5 Perspectives from Agricultural Graduates .....	23
7.0 CONCLUSIONS AND RECOMMENDATIONS .....	24
7.1 Conclusions .....	24
7.2 Recommendations .....	25
BIBLIOGRAPHY .....	26
APPENDIX 1: LIST OF KEY PEOPLE INTERVIEWED .....	28
APPENDIX 2: TRACER STUDY QUESTIONNAIRE FOR VARIOUS RESPONDENTS .....	30
APPENDIX 3: OPENING ADDRESS AT THE NATIONAL VALIDATION .....	44

## **ACKNOWLEDGEMENTS**

This study is a component of the SCARDA programme, which provided the necessary financial and technical support through CORAF/WECARD. All the efforts and support from CORAF and FARA that made this study possible are duly acknowledged. The facilitating role of Drs. Sidi Sanyang and Samba Ly of CORAF deserve special mention.

The professional and technical support provided by the international consultant, Prof. Francois Kamajou is very gratefully acknowledged. Indeed, Prof. Kamajou facilitated the development of the methodological framework for the study in Dakar, which was attended by the various national consultants

The SCARDA Focal Institution, Crop Research Institute in Kumasi, facilitated this study by arranging appointments with some of the respondents of the study and organizing the validation workshop. Special commendation goes to the Director of Crop Research Institute as well as the SCARDA focal persons at the Crop Research Institute, Dr. Baffour and Dr. Stella Ennin for their special interest in this study and the facilitating role they played to make this study a success.

To the various respondents who provided information to this study, we wish to register our sincere thanks and gratitude for the patience and extra effort in granting us the interview and providing the necessary information and data.

My sincere thanks go to the Research Assistants who helped in the data collection and analysis particularly, Raphel Nuate, Tommie Tommy, Latif Abdul and Emmanuel Naarh.

**Abbreviations and Acronyms**

ASARECA	Association for Strengthening Agricultural Research in East and Central Africa
CANR	College of Agriculture and Natural Resources
CORAF	Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles
CRI	Crop Research Institute
CSIR	Council for Scientific and Industrial Research
ERP	Economic Recovery Programme
FARA	Forum for Agricultural Research in Africa
IAASTD	International Assessment of Agricultural Knowledge, science and Technology for Development
IBRD	International Bank for Reconstruction and Development (World Bank)
ICT	Information Communication Technology
ILO	International Labour Organization
MOFA	Ministry of Food and Agriculture.
NGOs	Non-Governmental Organizations
RUFORUM	Regional Universities Forum for Capacity Building in Africa
SCARDA	Strengthening Capacities for Agricultural Research and Development in Africa
SPSS	Statistical Package for the Social Sciences
UST	University of Science and Technology
WECARD	West and Central African Council for Agricultural Research and Development
WRI	World Resources Institute

## Executive Summary

This study was conducted to trace agriculture graduates from 1993 to 2008, with the view of generating relevant information that could possibly feed into curricula review to ensure that agricultural training institutions are able to produce graduates better suited for the job market.

Specifically, the study sought to:

- assess the nature of agricultural training provided by Agricultural training institutions;
- assess the degree to which the training of agricultural graduates equipped them for their job performance;
- assess the demand for agricultural graduates, and
- capture the perspectives of agricultural graduates on their training and the job market.

The study relied on both secondary and primary data. Secondary data were obtained through a critical review of relevant documents including the Basic Statistics published by the Universities as well as Curricula of the Agricultural training institutions for the various agricultural training programmes. The secondary data were complemented with primary data obtained through a combination three main techniques:

- Questionnaire survey of agricultural graduates
- Face-to-face key informant interviews using an interview guide
- Direct observation

Various categories of employers from the public sector, private sector and NGOs were interviewed to capture their views in terms of the appropriateness and adequacy of the knowledge and skills provided agricultural graduates and the demands of the job market. A self administered questionnaire was design and given to 299 agricultural graduates, who left school from 1993, to capture their perspectives on the training they received and the job market demands. The selection of graduates was done by visiting a cross section of organizations employing agricultural graduates and the assistance of Managers of these organizations sought to identify agricultural graduate employees to fill the questionnaire.

Two Agricultural Colleges (Kwadaso and Pong Tamale) as well as two Agricultural Universities (University of Ghana and University of Science and technology) were also visited and interviews held with the Deans of the Agricultural Faculties and other staff so as to have insights into the training curricula and other challenges confronting the training institutions.

Data analysis was done using both qualitative and quantitative methods. Quantitative data were analysed with the help of SPSS and Microsoft Excel. Thematic coding techniques were used to analyse qualitative data

Key findings of the study included the following:

- i. The training of agricultural graduates tends to emphasize theory rather than the application of the theories.
- ii. Agricultural training tends to produce job seekers but not entrepreneurs who can create their own jobs or effectively help the private sector develop.
- iii. There is a mismatch between the knowledge and skills given to agricultural graduates and what is required by employers. For example, the curricula and teaching methods in agricultural

- institutions tends to neglect the development of soft skills such as critical thinking and problem solving which will allow graduates to easily adapt to changing demands in the job market
- iv. There is also a mismatch in the number of graduates produced in various fields and what is required in the job, due to inadequate labour market information.
  - v. Whilst there is gender disparity in the enrolment of students for the agricultural training in favour of males, the female graduates tend to have higher opportunities for employment compared to their male counterparts.
  - vi. There is declining interest for people to seek agricultural training and take it up as a career
  - vii. Agricultural training institutes have inadequate infrastructure like internet facilities, farms and laboratories for practical work, thus limiting the ability of the institutions to train their students adequately.

Recommendations made, based on the findings, include:

- i. In view of the diverse expectations of agricultural graduates from different employers, it is desirable that agricultural training institutions should equip students with analytical minds and critical thinking that will make them more adaptable to changing work environments. This may require re-orientation of lecturers to participatory teaching techniques such as the use of case studies and student group work.
- ii. Since Agricultural training institutes cannot include all the diverse knowledge and skills areas of interest to various employees, it is desirable for employees to consciously organize in-service training for their agricultural graduates so as to equip them with the specific knowledge and skills required in their jobs.
- iii. Since most employers interviewed valued soft skills like interpersonal relationships, communication, creativity and leadership drive, it may be desirable for agricultural institutions to incorporate programmes or subjects that emphasize such soft skills and make students develop the interest for lifelong learning.
- iv. To make agricultural innovations more responsive to the needs of farmers, it is desirable for agricultural training to ensure that agricultural graduates develop the mindset to recognize and build on the indigenous knowledge system of smallholder farmers in their technology development efforts.

## **1.0 INTRODUCTION**

### **1.1. Background to the Study**

Agriculture is central to the development of many African countries. Over 60% of the population in Sub-Saharan Africa depends on agriculture for their livelihood (ILO, 2005; WRI 2005). Poverty is endemic in the rural areas of Sub-Saharan African countries, where more than 70% of the people engage in farming for a livelihood. Consequently, a prosperous agricultural sector is central to poverty reduction and the general development efforts of Africa. Yet, the productivity of agriculture in many Sub-Saharan African countries is the lowest compared to other countries in the world, thus stifling our development process. For example, even though Sub-Saharan Africa has the fastest growing populations, estimated at 2.7% a year, compared to 2% and 2.2 % a year in Asia and Latin America respectively, the continent at the same time experienced a decline in the per capita food production index from 1.0 in 1961 to 0.81 in 2002, while the index in Asia and Latin America increased from 1.0 in 1961 to 1.82 and 1.25 respectively (Haggblade et.al, 2004).

There is growing realization that a major factor to this challenge is the inadequate or inappropriate training given to agricultural graduates, thus making them less capable of generating appropriate innovations and technologies to address the complex challenges confronting the agricultural sector. As a contribution to address this challenge, the West and Central African Council for Agricultural Research and Development (CORAF/WECARD), as part of the Project to Strengthen the Capacity of Agricultural Development in Africa (SCARDA) requested a tracer study of agricultural graduates so as to generate deeper understanding of the relevance and adequacy of agricultural training. This could feed into possible curricula review to make agricultural graduates better equipped to contribute effectively to the development process.

This study takes a broad definition of agriculture to include crops, livestock, fisheries, forestry, as well as agricultural goods and services (IAASTD, 2009).

### **1.2. Justification for the Study**

Various studies on agricultural training in Sub-Saharan African countries (Iwega et al 2005; Eicher, 2006 ) point to poor practical training and inadequate entrepreneurial skills development. However, most of these studies have neglected the soft skills like communication skills, critical thinking and inter-personal skills development. Such soft skills are important for the effective functioning of the graduates in such a rapidly changing environment, where there is need for continuous joint learning and innovation. This requires effective communication, interpersonal relations and conflict management skills. Yet, little is known about the extent to which agricultural graduates are equipped with these soft skills. This study which seeks to generate knowledge in such a grey area deserves the necessary attention and support. It is expected that information and insights generated for this study will go a long way to help agricultural training institutes review their training curricula where necessary.

Furthermore, the demand for various agricultural graduates in the job market has not received sufficient research attention. Yet, such studies are critical for agricultural manpower planning and development to ensure that the agricultural training institutions are producing the requisite numbers and skills mix as required by the job market. The study will therefore provide necessary information to guide agricultural education policy makers in their manpower planning and development.

### **1.3. Objectives of the Study**

This study was conducted to trace agriculture graduates who graduated over the period 1993 to 2009. The aim was to generate relevant information for curricula review to ensure that agricultural training institutions are able to produce graduates better suited for the job market.

The specific objectives were

- To assess the nature of agricultural training provided by Agricultural training institutions
- To assess the degree to which the training of agricultural graduates equipped them for their job requirements
- To assess the demand for agricultural graduates
- To capture the perspectives of agricultural graduates on their training and the job market.

### **1.4. Methodology**

#### **1.4.1 General Approach**

To ensure uniformity in the methodology employed by the various national consultants in undertaking the country tracer studies, there was a methodological workshop in Dakar in April, 2010 and facilitated by the international consultant with the participation of the national consultants. The methodological workshop developed two study guides for the training institutions and the different employers. There was also an outline of the data gathering process and analysis.

#### **1.4.2 Sources of Data**

The study used both secondary and primary data. Secondary data were obtained through a critical review of relevant documents including the following:

- Basic Statistics published by the Universities
- Curricula of the Agricultural training institutions for the various agricultural training programmes.
- The Seminal World Bank Report on Agricultural Education and Training (IBRD,2007).
- ASERECA/RUFORUM study of agricultural graduates in Eastern, Central and Southern Africa, 2009.

The secondary data were complemented with primary data obtained through a combination three main techniques:

- Questionnaire survey of agricultural graduates
- Face-to-face key informant interviews using an interview guide
- Direct observation

#### **1.4.3 Sampling**

The study relied mainly on purposive or convenience sampling techniques to select a cross-section of key stakeholders for interviewing. The justification for this approach was to ensure that the sample captured diverse categories of respondents such that the findings and analysis could be enriched by diverse perspectives. For example, the choice of employers of agricultural graduates to be interviewed was done in such a way that the sample could include both public and private sectors employers as well as ensuring that various specialised areas like forestry, animal science, fisheries,



crops, agro-processing etc. were captured in the sample. The details of the sample of respondents interviewed are:

**i. Training Institutions (4):**

- Two Universities: (University of Ghana and University of Science and Technology, Kumasi)
- Two Agricultural Colleges (Kwadaso and Pong Tamale)

**ii. Employers of Agricultural Graduates:**

- 18 Public Employers
- 15 Private Sector Employers
- 2 International Organizations
- 5 Farmers Organizations
- 10 NGOs

The selection of organizations employing agricultural graduates was based primarily on our local knowledge, with specific targeting those employing many agricultural graduates

**iii. Sample of Agricultural Graduates:**

299 Graduates were selected in such a way that the sample captures the various disciplines of agriculture and gender. Various organizations, noted for employing agricultural graduates were visited and the assistance of Managers of these organizations sought to identify agricultural graduates employed during the last ten years to fill the questionnaire.

#### **1.4.4 Data Gathering Instruments**

Semi-Structured questionnaires were designed to collect data from the training institutions, the various employers as well as the graduates, as provided in Appendix 2. The questionnaire for the agricultural training institutions sought to capture issues related to the curricula, teaching and technical staff as well as the infrastructure.

The questionnaire for the various employers sought to capture issues related to the type of agricultural graduates recruited during the last ten years, the major criteria for their recruitment, job performance of these graduates as well as an assessment of the adequacy of their training vis a vis the demands of the job market. The questionnaire for the agricultural graduates sought to capture issues related to their transition from school to work as well as their perspectives on the training they received and the job market demands and suggestions for possible curricula review.

#### **1.4.5 Data Analysis**

Data analysis was done using both qualitative and quantitative methods. Quantitative data were analysed with the help of SPSS and Microsoft Excel. Thematic coding techniques were used to analyse qualitative data.

#### **1.4.6 Validation Workshop**

After the collection and analysis of data, a draft report was prepared and presented to a cross section of key stakeholders during a validation workshop for the input before the final report was prepared.

### **1.4.7 Limitations of the Study**

Due to constraints of time and logistics, this study could not cover wide and representative sample of agricultural graduates as well as employer of these graduates. A broad generalization of the findings may therefore be done with caution. It is also possible that the purposive or convenience sampling technique used could introduce sampling bias.

## **2.0 COUNTRY CONTEXT**

### **2.1 Geographic Location of Ghana**

Ghana is located in the West Africa sub-region and surrounded by Togo to the east, Cote d'Ivoire to the west, Burkina Faso to the north and the Gulf of Guinea (Atlantic Ocean), to the South. Ghana is geographically closer to the centre of the World than any other country, as it is only a few degrees North of the Equator, and the Greenwich Meridian passes through the country, specifically through the industrial city of Tema. The country covers a land area of 238, 537 square kilometers.

### **2.2 Agriculture in Ghana**

Agriculture continues to be the mainstay of Ghanaian Economy, employing about 57% of the total labour force and contributing about 39% of GDP. Ghana's agricultural development process has had a chequered history with shifts in policy focus with various regimes. In the colonial era, the emphasis was on export crop development, such that the Gold Coast Colony could be a source of raw materials and a protected market for Britain.

After Independence in 1957, the first President of Ghana Dr. Kwame Nkrumah adopted large scale mechanized farming as a springboard for rapid industrialization. Consequently, there was a proliferation of mechanized "state" controlled farms and agro-based industries which were supposed to provide the necessary impetus for economic "take off". The other feature of this era was the neglect of efforts to progressively improve traditional system of farming in favour of large-scale mechanized farming. The view was that agriculture cannot be modernized via improvement of traditional systems of production but through large scale public farms. Unfortunately, these state farms failed because the employed staff perceived the farms as "government property" that could be taken advantage of. The management of the farms was also politicized and therefore did not attract the right caliber of professionals, leading to poor management and eventual collapse of these farms.

After the overthrow of Kwame Nkrumah in 1966, various regimes have sought to develop agriculture along market-orientation and food self sufficiency, with varying success and failures. Over the years, there is growing recognition of the need to develop smallholder agriculture since about 80% of farm holdings in Ghana are less than five hectares. These farmers employ subsistence farming methods, which is proving inadequate to feed the growing population. Although strides have been made by agricultural research to develop improved seeds that can increase productivity, adoption of such technologies by small scale farmers is constrained by limited capital to invest in the necessary farm inputs that go with adopting such technologies. There is need to continuously search for innovative but effective ways of helping small holder famers to improve on their productivity as well as have and improved market access for their produce.

It is recognized that market access to farmers will motivate them to invest in appropriate technologies to produce more, thus accelerating the agricultural development process. Market access requires an agricultural development approach that starts from the market and work backwards to production. A

more integrated value chain approach with investments in quality management is needed, and the whole chain needs to be competitive. Furthermore, there is need to understand and integrate urban demand and rural supply such that agro-based businesses could emerge in response to the differentiated markets of the cities. Such market oriented agriculture requires that agricultural graduates are equipped with entrepreneurial and marketing skills.

### **2.3 Historical Perspectives of Ghana's Agricultural Training**

Historically, agricultural training and development in Ghana may be traced back to the colonial era where the emphasis was on export crops like cocoa, palm oil and rubber. Consequently, agricultural training during the colonial period focused on training graduates to manage the plantations or conduct research related to industrial crops and who would be employed by the colonial bureaucracy. Little attention was given to the development of food crops and smallholder farmers (Casely-Hayford et al, 2001). Agricultural training and development during the colonial era took a rather arrogant approach where local practices were considered primitive and without any scientific basis (Diehl, 2007).

After independence in 1957, Ghana inherited this model of agricultural training and development as the emphasis continued to be the promotion of export crops and commercial agriculture, as evidenced by the numerous state farms established by the first President of Ghana, Dr. Kwame Nkrumah. From independence to 1983 when Ghana embarked on the Economic Recovery Programme, agricultural graduates were readily employed by government which created a job-seeking mentality among agricultural graduates. However, from 1983 to date, there has been a sharp decline in the number of agricultural graduates employed by government. This is the effect of the 1983 Economic Recovery Programme, coupled with the policy shift from government direct participation in agricultural production and marketing to the promotion of private sector led and market driven agricultural production and marketing. The change in demand required that agricultural training should also shift from training job seekers in the public sector to training of entrepreneurs who can establish their own agricultural businesses or effectively participate in the private sector development. It is not evident that the agricultural training institutions have adequately reviewed the training curricula to reflect these new demands from the employers of agricultural graduates.

## **3.0 REVIEW OF LESSONS LEARNED FROM FINDINGS OF PREVIOUS TRACER STUDIES**

### **3.1 Introduction**

This chapter reviews relevant literature on previous tracer studies with the view of identifying any gaps and distilling lessons to guide the current study.

### **3.2 Tracer Studies within Other African Countries**

Schomburg (2003, p.36) notes that graduate surveys are popular for “analysis of the relationship between higher education and work.” Various tracer studies of graduates have been conducted in some African countries, prominent among which include (Anyanwu 2000; Kaijage, 2001; Cossier, 2003; and RUFORUM 2009). These studies sought to ascertain the whereabouts of the graduates, their transition from higher education to work, job search, employment conditions, use of knowledge and skills, appropriate position and job satisfaction, retrospective assessment of their study condition.

Key conclusions from these studies include the following:

- i. Teaching methods should go beyond theoretical knowledge transfer to the application of theory.
- ii. Training institutions like the Universities need to develop partnerships with industry players for continuous and systematic feedback towards curricula review as well as creating avenues for exposing students to the real world of work.
- iii. Communication skills, a sense of responsibility, reliability, problem solving ability, leadership drive and willingness to continuously learn are important ingredients that should guide training of graduates.

Methodologically, most of the tracer studies focused on the graduates with little attention given to capturing the perspectives of the employers of these graduates. This limits a holistic understanding of the link between education and work.

With the exception of very few tracer studies like REFORUM (2009) and Anyanwu (2000) which tracked agricultural graduates, most of the other tracer studies in Africa either took a generic view of all graduates from a particular institution or focused on other areas like Commerce, Arts and Science graduates but not specifically on agricultural graduates. This tends to mask the peculiar challenges associated with agricultural training, even though agriculture is central to the development of most African countries. There is therefore a clear need for tracer studies which focus specifically on agricultural graduates, which this current study seeks to do.

Anyanwu (2000) traced Agricultural and Arts graduates from the University of Nsukka, Nigeria with the objective of generating better understanding of the transition from school to work as well as the extent to which knowledge acquired during study programme was relevant to their jobs. The study found that majority of the graduates agreed that the knowledge and skills acquired during their studies were used to, at least, a great extent in their current jobs. Methodologically, this study collected information mainly from agricultural graduates without capturing the perspectives of the employers, thus limiting a holistic understanding of the link between education and work. This methodological gap will be addressed in the current tracer study of agricultural graduates in Ghana by including the perspectives of employers in the analysis.

The RUFORUM study of agricultural graduates in Eastern, Southern and Central Africa revealed the following:

- i. The agricultural development agenda is market-led and knowledge-intensive, and therefore needs graduates with the skills, mindsets, and knowledge to address these issues directly and efficiently
- ii. Agricultural training should seek to change the mindset of graduates towards recognition of the value of smallholder farmers in the generation of appropriate technologies and innovations in the agricultural development process.
- iii. A widespread perception amongst employers is that agricultural graduates are weak in terms of problem analysis and solution skills. They may be receiving the theory in their coursework but they do not seem able to put the theory into practice.
- iv. Skills required of agricultural graduates include farmer training skills, implementation of adaptive or on-farm demonstrations or trials, financial management, agricultural value chain addition skills, and business start-up advisory and entrepreneurial skills, combined with the aptitude to participate from the outset as potential innovators in the system.
- v. Universities need to develop functional partnership with industry and other relevant development partners like NGOs as mechanisms to expose students to the real world of work.
- vi. Amongst agricultural graduates at all levels, women are seriously underrepresented. While gender issues are widely accepted and many agricultural specialists are fully attuned to gender

sensitivity, an understanding of how to mainstream gender issues and, importantly, to engage fully women at all levels of agricultural development is less evident.

The RUFORUM study employed both quantitative and qualitative data gathering methods and also extended their interviews beyond the graduates to also include the employers. This enabled the study to benefit from diverse perspectives, thus generating deeper understanding of the issues.

### **3.3 Tracer Studies in Ghana**

Studies tracking University graduates in Ghana have been episodic and occasional. In the wake of graduate unemployment, the Ministry of Education in Ghana commissioned Batse and Gyekye to undertake a tracer study of graduates in 1992. This study attributed the growing graduate unemployment to an educational training that did not sufficiently equip the graduates for the job market.

Another tracer study of graduates of Ghanaian universities from 1985 to 1993 (Djangmah et al., 2000) found that 68% of graduates in humanities and social sciences did not see a link between what they studied at the University and their work. On the other hand, 76% of Law graduates reported some linkage between their work and what they studied in the university.

Methodologically, these studies were almost entirely based on a survey questionnaire and not much use of other methods such as the qualitative, reconstructive techniques which have been shown to be important in social research in general and in graduate tracer studies in particular (Bond and Frances 1990). Besides, these studies collected information mainly from the graduates without capturing the perspectives of the various employers, thus limiting a deeper understanding of the issues. Such methodological deficiencies will be addressed in the current tracer study.

The literature search did not come across any tracer study on agricultural graduates in Ghana. The present study of agricultural graduates in Ghana will therefore contribute to this knowledge gap on agricultural graduates.

## **4.0 NATURE OF AGRICULTURAL TRAINING IN GHANA**

### **4.1 Introduction**

This chapter presents agricultural training institutions in Ghana with analytical details on the four institutions selected for the study. It captures some constraints faced by the agricultural training institutions, in terms of infrastructure and training facilities.

### **4.2 Agricultural Training Institutions in Ghana and their Capacities.**

The major agricultural training institutions in Ghana comprise six Agricultural Colleges which award diploma certificates in Agriculture and four Universities awarding first degree up to Ph.D. The agricultural Colleges are:

- Kwadaso Agric. College in Ashanti Region
- Ohawu Agric College in Volta Region
- Damongo Agric College in Northern Region
- Ejura Agric. College in Ashanti Region
- Animal Health and Production College in Northern Region

- Forestry College in Brong Ahafo Region

The Agricultural Universities are:

- University of Ghana, Legon, Accra
- University of Science and Technology, Kumasi
- University of Cape Coast
- Mampong Agricultural Campus of the University of Winneba
- University of Development Studies, Northern Ghana

The capacities of the agricultural institutions selected for the study are presented in subsequent sections

#### 4.2.1 The College of Agriculture and Consumer Science, University of Ghana, Legon

The University of Ghana was founded in 1948 as the University College of the Gold Coast, with the degrees initially awarded by the University of London. This relationship continued until 1961 when the university became fully autonomous and started to award its own degrees. The College of Agriculture and Consumer Science, of the University of Ghana, was established in 1965 to provide higher educational training in Agriculture from Diploma to Doctoral levels. It has seven Departments:

- Agricultural Economics and Agribusiness
- Agricultural Extension
- Animal Science
- Crop Science
- Soil Science
- Home Science
- Agricultural Research Centres

The College has the following infrastructure and training facilities:

- a. 18 classrooms with seating capacities of between 25 to 50 students each and a lecture theatre with seating capacity of about 150 students.
- b. Each of the Departments has research laboratory with student bench ratio of about 1:5. Laboratory equipment in some of the departments are obsolete. However, the newly built biotechnology centre, with well equipped laboratories have to some extent compensated for this shortcoming as it offers opportunities for various laboratory analysis.
- c. There are two research centres with farms where students could have practical training, but these are off the campus and would require that students are transported there. This makes accessibility of these farms to students problematic as there are no ready means of transporting students to the farms for practical training.
- d. There is a computer laboratory for students with about 30 computers. Internet connectivity to these computers is irregular and slow, making the downloading of academic materials problematic.
- e. About 60% of the Lecturers have single occupancy offices whilst the rest pair in an office.

#### 4.2.2 University of Science and Technology, Kumasi

The University of Science and Technology (UST) started in 1951 as a College of Science and became a full-fledged university in 1961. The College of Agriculture and Natural Resources (CANR) is

responsible for training agricultural graduates in the University. The College has two faculties with various departments as indicated below:

- i. Faculty of Agriculture, with the following Departments:
  - Animal Science
  - Crop Science
  - Horticulture
  - Agricultural Economics and Farm Management
  - Agricultural Engineering,
  
- ii. Faculty of Renewable Natural Resources with the following Departments:
  - Silviculture and Forest Management
  - Wildlife and Range Management
  - Freshwater Fisheries and Management,
  - Wood Science and Wood Technology

The College has the following infrastructure and training facilities:

- a. 27 classrooms with seating capacities of between 25 to 50 students each and two lecture theatres, each with a seating capacity of about 150 students.
- b. Each of the Departments has research laboratory with student bench ratio of about 1:5.
- c. The faculty of Agriculture has crops and livestock farms within walking distance for students to go for practical training. The challenge however, is the large students, which often limit the practical training to mere observation rather than hands-on exercises.
- d. There are two computer laboratories for students with about 30 computers in each laboratory. Internet connectivity to these computers is irregular and slow to download academic materials.
- f. About 70% of the academic staff have single occupancy offices whilst the rest pair in an office.

#### **4.2.3 Kwadaso Agricultural College**

The Kwadaso Agricultural College was established in 1952 to train students in general agriculture with the award of either a Certificate or Diploma in general agriculture. The duration of training is two years for the Certificate and three years for the Diploma. About sixty students are admitted for the Certificate programme annually and fifty (50) students admitted for the Diploma annually.

The College has seven classrooms that can accommodate between 50 to 70 students each. There are various crops and animal farms within the campus, where students easily go for practical training. The relatively lower students' population compared to the Universities allows for more hands-on practical training on the farms. The College has a science laboratory for practical work but the equipment is obsolete. There are inadequate supplies of chemicals and reagents for experiments.

All eighteen academic staff have their separate offices. There is a computer laboratory with sixteen computers hooked to the internet for the use of staff and students. However, the internet connectivity is irregular and slow.

#### **4.2.4 Animal Health and Production College, Pong-Tamale**

The Animal Health and Production College in Pong-Tamale was established in 1960 to train students up to the Certificate and Diploma level in animal health and production. The duration of training is

two years for the Certificate and three years for the Diploma. About sixty students are admitted for the Certificate programme annually and fifty students admitted for the Diploma annually.

The College has eight classrooms that can accommodate between 50 to 70 students each. There are various animals produced within the campus where students easily go for practical training. There is also a well equipped central laboratory for research and production of vaccines. The relatively lower student population compared to the Universities allows for more hands-on practical training.

All academic staff have their own offices. However, there are no computers with internet connectivity for staff and students. Students therefore have to go to town for commercial internet services.

#### **4.2.5 Analysis of the Infrastructure and Facilities of the Agricultural Training Institutions**

Generally, there is inadequate infrastructure and training facilities in these agricultural institutions. The situation is most severe in the Universities where student intake keeps increasing without the necessary corresponding expansion in facilities. The result is overcrowding, inadequate supervision of students by staff and less practical exposure of students. For example, the Faculty of Agriculture in the University of Science and Technology, for 2008/2009 academic year had 47 fulltime academic staff to handle 876 students, made up of 781 degree students, 47 Masters and 2 Ph.D students. For some of the first and second year degree subjects, one lecturer may be handling over one hundred students in a class.

All the agricultural training institutions had obsolete Laboratory and research facilities as well as poor ICT infrastructure and poor access to recent relevant literature. For example, the student:computer ratio in the College of Agriculture, University of Ghana, is 1:50. Internet connectivity is irregular and very slow.

Whilst the Agricultural Colleges have adequate farms for training of students, the same cannot be said of the Universities. For example, there are experimental or demonstration farms within the campus of the Kwadaso Agricultural College, where students have hands-on practical training, but there are no such farms on the campus of the University of Ghana.

The training institutions complained of declining Government investments in agricultural training infrastructure and facilities, despite the increasing enrolment of students over the years. Lecturers and other staff of agricultural training institutions interviewed complained of work overload as a result of increased student enrolment and limited staff. This was particularly pronounced in the Universities, since each of the Agricultural Colleges admit about fifty students annually, whilst the Universities keep increasing their admissions. The tendency of the Universities to admit more students than the facilities can conveniently accommodate is due to the desire of the Universities to maximize their internally generated income through the payment of students' user-fee.

#### **4.3 Curricula and Teaching Methods**

In terms of quality of training of graduates, an analysis of the curricula and teaching methods in the agricultural institutions point to a more practical-oriented training in the Agricultural Colleges, as opposed to the theoretical and academic orientation training in the Universities. For example, whilst the Agricultural Colleges have a systematic programme of organizing practical attachment for their students during holidays; this is not the case with the Universities. The curricula and teaching methods in the Universities emphasize theoretical knowledge transfer without stimulating innovative



and critical thinking among students. There is also little or no exposure of students to the real world of work.

Even for Postgraduate training in the Universities, the lack of research funding limits the research design and ability of Masters and Doctoral agricultural students to generate innovative and appropriate technologies to accelerate agricultural development in the country. Most of the research work or theses of agricultural students are left to gather dust in the shelves rather than find application in the field. The implication is the Agricultural Universities are not able to take their rightful place as centres of generating appropriate agricultural technologies and innovations to speed up the agricultural development process.

Historically, the colonial government in their desire to train Ghanaians to take up jobs in the Civil and Public Service, designed the curricula of training to produce job-seeking graduates. This approach of training seems to have influenced post independence training of agricultural students in Ghana, even though the realities have changed with limited job opportunities in the Civil Service and the emphasis is now on private sector led agricultural production and marketing. There is need therefore for Agricultural training institutions to change their curricula and methods of training to produce graduates who are entrepreneurs and job creators rather than job seekers.

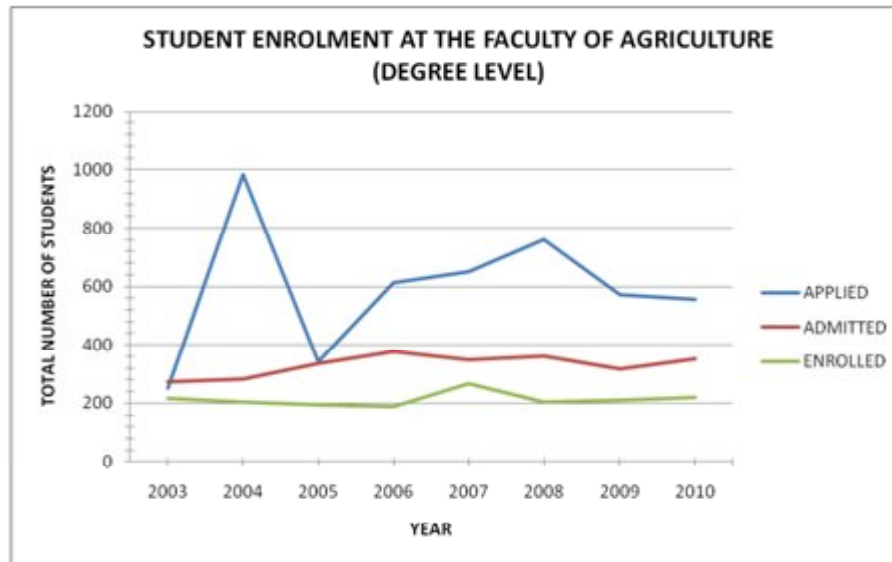
The general feedback from employers of agricultural graduates indicated that most agricultural graduates come to the job market with little or no practical exposure and ill equipped with the necessary soft skills like communication, inter-personal relationships, critical thinking and problem-solving, thus making them less versatile in a diverse and rapidly changing demands in the job market. Furthermore, agricultural graduates interviewed complained of inadequate opportunities for group discussions and seminar presentations which reinforced their inability to engage in critical thinking and innovative problem-solving.

#### **4.4 Demand for Agricultural Training in the University**

The study revealed a growing disinterest in agricultural training as evidenced by the decreasing number of people applying to the University for Agricultural training, as well as lowering of the admission standards in terms of the cut-off grade point for admissions. For example, analyses of statistics from the University of Ghana shows that about 1000 people applied to study agriculture in 2003 and this declined sharply to 370 applicants in 2004 and picked up to about 780 applicants in 2008 and declined again to 580 applicants in 2009. This is captured in Figure 2.1 below. The low demand and competition for agricultural training in the University resulted in lowering of the standards for admissions. For example the cut-off point for admissions to the Faculty of Agriculture at the University of Ghana in 2006 was aggregate 15 and this was dropped to aggregate 20 in 2008 and 2009. Similar trends were also observed for the University of Science and Technology, Kumasi.

This trend of declining applications/ enrolments, and the quality of students at entry for degree courses in Agriculture tends to correlate with the declining trend in the number of agricultural graduates employed by the Ministry of Food and Agriculture, due to the freeze in Civil Service employment since 2003. This suggests that the declining job opportunities with the public sector could have signalled the unattractive nature of agricultural training. The implication associated with this line of thinking is that it reinforces the argument that agricultural institutions tend to produce job-seeking graduates who see themselves as bureaucrats to work in the office or public sector but not as entrepreneurs capable of applying their knowledge and skills for a livelihood.

**Figure 2.1: Student Application and Enrolment at the Faculty of Agriculture, University of Ghana, Legon**



Further analysis reveals a much lower demand from agricultural students to opt for some specialized fields like animal science. If this trend continues, it is obvious that in future Ghana may not have adequate manpower to effectively develop the various aspects of agriculture, particularly an important dimension of animal science. There is therefore an urgent need to find innovative mechanism to make the study of various fields of agriculture attractive to students.

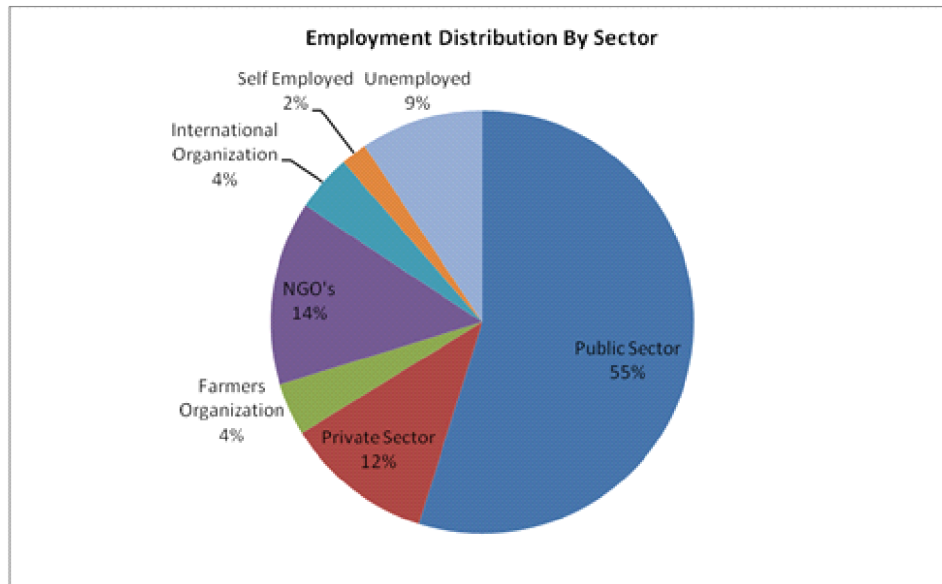
## 5.0 DEMAND FOR AGRICULTURAL GRADUATES

The demand for agricultural graduates was assessed by analyzing the distribution of graduates by employment sector, field of specialization as well as by year of completion and by gender. The emphasis was on qualitative demand in terms of understanding the type of specializations required by employers

### 5.1 Distribution of graduates by employment sector

Results of the study showed that public service is the major employer of agricultural graduates, employing 55% of the traced graduates. This is followed by Non-Governmental Organizations (NGOs) which employed 14% of the traced graduates. Indeed, the NGO sector is emerging as a major employer of agricultural graduates. The distribution of agricultural graduates by employer is captured in Figure 3.1 below

Figure 3.1 reveals that 12% of the traced graduates were employed in private companies (both local and multinational) and only 2% were into the management of their own/family business. This points to the weak ability of agricultural graduates to apply their knowledge and skills into self employment.

**Figure 3.1 Distribution of graduates by employment sector**

### 5.2 Distribution of Employed and Unemployed Graduates by Area of Specialization

Employment opportunities were found to be much brighter for graduate in Agricultural Economics and Crop Science as compared to those who specialized in animal science. This is captured in Figure 3.2 below. This suggests that the animal production sector is less developed to generate more employment avenues. Indeed, the animal industry in Ghana is collapsing as a result of importation of cheaper and sometimes subsidized meat from the developed countries, thus making local farmers unable to compete and generate sufficient income to reinvest and develop their animal farms. Besides, public policy and investments in Ghana tend to tilt towards crops at the expense of animal production.

### 5.3 Distribution of Employed and Unemployed Graduates by Year of Graduation

Unemployment was found to be higher among new graduates who had little experience, as employers tend to favour those with experience. Consequently, the study did not come across any agricultural graduate who left school eight years ago and was unemployed

The challenge confronting many fresh graduates is how to get the first job to acquire the necessary experience often demanded by many employers. The Ministry of Food and Agriculture (MOFA) used to be a major source of first employment to many fresh agricultural graduates. However with the freeze in Civil Service employment since 2003, the transition between graduation and first employment is getting longer.

### 5.4 Employment Opportunities by Gender

Even though there are fewer female graduates in agriculture compared to their male counterparts, and by extension fewer females in the sample, those female sampled had a lower incidence of unemployment of about 5 % (5÷92) as compared to the male incidence of unemployment of 11% (23÷207). This is captured in Figure 3.4.

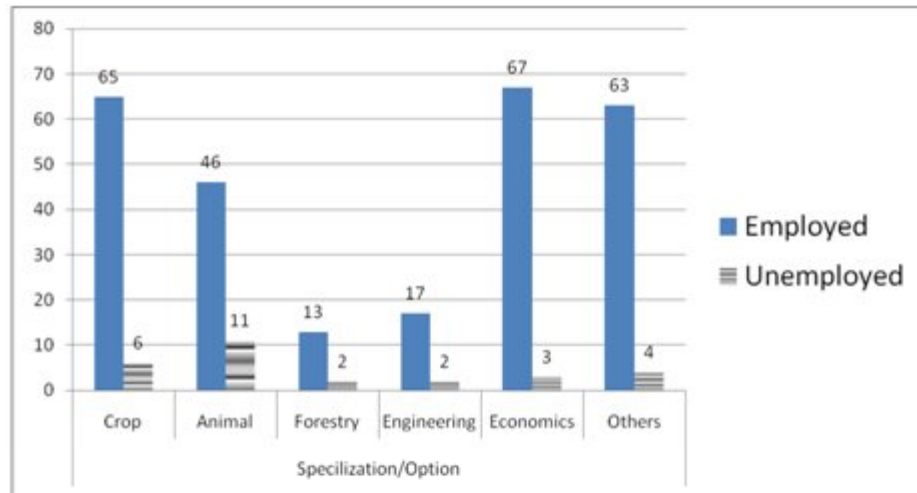
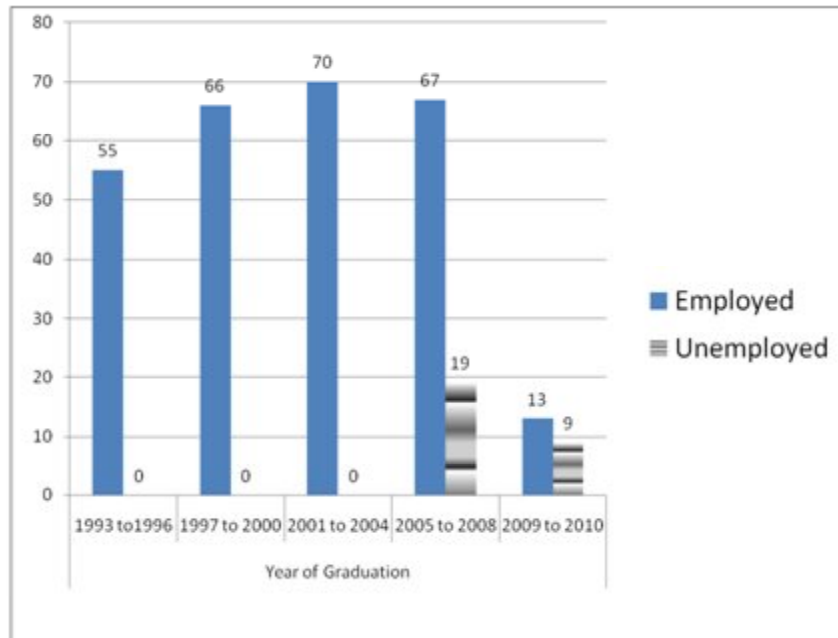
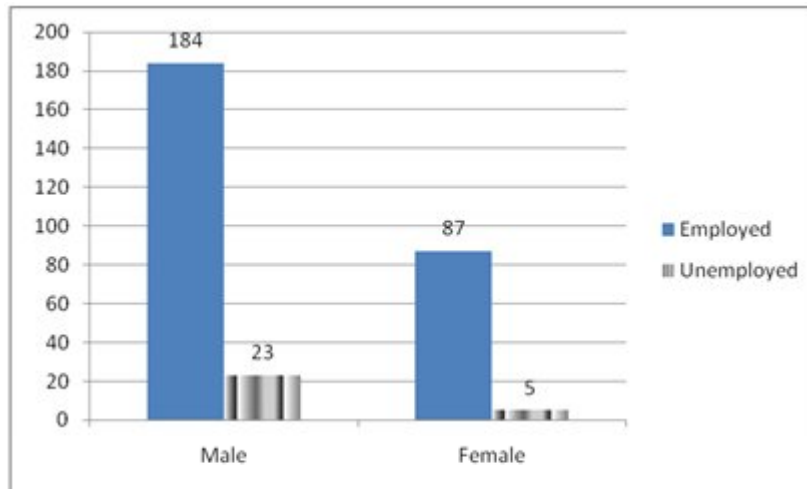
**Figure 3.2: Distribution of employed and unemployed graduates by area of specialization****Figure 3.3: Distribution of employed and unemployed graduates by Year of Graduation**

Figure 3.4 suggests that even though there may be gender imbalance in the training of agricultural graduates in favour of males, the female graduates have better employment opportunities than their male counterparts (Figure 3.3). This may be due to the raising gender consciousness and the desire to employers, particularly NGOs, to give preferential consideration to females during recruitment process.

**Figure 3.4 Employed and Unemployed Graduates by Gender**

## 6.0 PERSPECTIVES FROM VARIOUS EMPLOYERS OF AGRICULTURAL GRADUATES

### 6.1 Perspectives of Public Employers

The public sector remains the major employer of agricultural graduates in Ghana, especially the Ministry of Food and Agriculture which employs between 40-60% of the graduates produced annually. Other public sector institutions employing agricultural graduates include the Forestry Commission and Ghana Cocoa Board.

They see agricultural graduates theoretically sound but practically weak. Public employers acknowledge that agricultural training institutions have failed to keep pace with the changing farming environment. They thus produce graduates who are ill equipped to provide appropriate solutions to the changing needs of farmers. Furthermore, a major concern of MOFA is the inability of agricultural training institutions to adapt their curricula and training methods to reflect the national agricultural policy framework and its demands. For example, national agricultural policy projects an annual agricultural growth of between 10 to 20 %, which requires modernization of agriculture through application of appropriate technologies. Yet, agricultural training still employs old methods which are largely theoretical and academic, rather than the stimulation of critical thinking and application of science and technology in agricultural production and processing.

There was consensus among public sector employers that key tasks for agricultural graduates in the public sector include effective interactions with farmers so as to appreciate the production challenges and providing appropriate innovative solutions to these farmers, possibly in collaboration with researchers. This requires teambuilding skills and good inter-personal relationships as well as the ability to effectively communicate with various categories of people. Unfortunately most of the agricultural graduates lack these soft skills. Of particular concern was the declining ability of graduates over the years to write good reports.

Suggested areas to include in training of graduates include the following:

- Appreciation of National Agricultural Policy Formulation and Implementation
- Communication, particularly Report Writing skills
- More practical training in appropriate agricultural technologies
- Partnerships and interpersonal relationship skills
- Information Communication Technology (ICT) Skills.

### **6.2 Perspectives of NGOs**

NGOs are increasingly employing agricultural graduates, although they tend to prefer experienced rather than fresh graduates. The consensus with NGOs who employed agricultural graduates is that these graduates lack analytical and problem solving skills. The NGOs also raised concerns about the reluctance of most agricultural graduates to value farmers' local knowledge by blending such local knowledge with scientific knowledge to generate innovative solutions to the diverse and complex production challenges confronting farmers. NGOs noted that most agricultural graduates go to farmers as 'all knowing' and eager to teach farmers what they have learned in school rather than joining hands with the farmers to search for innovative solutions to their farming challenges.

NGOs called for changes in agricultural training that will equip graduates with the right mind-sets as partners in the agricultural development process with a willingness to jointly and continually learn and innovate, as reflected in the agricultural innovation system principles. Specific training areas to be included in the agricultural training, as suggested by NGOs include the following:

- Analytical and problem-solving skills
- Agricultural value chain analysis and development
- Sustainable Livelihoods strategies
- Project Planning and Management
- Culturally grounded development paradigm
- Agricultural Innovation System Research

### **6.3 Perspectives of Private Sector Employers**

Private sector employers acknowledged that most agricultural graduates have good theoretical understanding of their subject areas but lack the ability to apply such knowledge to provide goods and services required by the market. They therefore recommended that agricultural graduates should be armed with market oriented skills like production to meet market demands as well as marketing of produce.

Specific training areas suggested by the private sector to be included in the agricultural training, included the following:

- Modern Agricultural Technologies and their Applications
- Market Research and analysis to understand market demands
- Entrepreneurial skills
- Preparation of Business Plans
- Business start-up advisory skills
- Customer Service
- Computer-based Software Applications

#### **6.4 Perspectives of Farmer Organizations**

Farmer Organizations expect agricultural graduates to bring them innovative ideas and technologies to solve their specific farming problems. Yet, these graduates bring extension messages which are mainly theoretical blueprints that do not effectively respond to the diverse and changing environments farmers operate in. The farmers complained that agricultural graduates lack understanding of the complexities of rural life and farming systems. Consequently, these graduates tend to look down on farmers' local ways of production rather than first seeking understanding of the indigenous knowledge and building on the valuable aspects towards the generation of innovative solutions to specific farming challenges. The farmers also complained that even though smallholder farmers are the majority in the country, most technological innovations tend to suit commercial or large scale farmers as the neglect of the peculiar challenges and interests of smallholder farmers. This limits the ability of smallholders to adopt such technologies.

The Farmer Organizations therefore called for review of agricultural training that will not only equip graduates with the appropriate practical and technological skills but also to shape their mindsets to value indigenous farmers' knowledge in the generation of agricultural technologies and extension services.

Specific areas of training to be included, as suggested by the Farmer Organizations included the following:

- Appreciating the coping strategies of small holder farmers as basis for generating agricultural innovations.
- Building rapport and interpersonal relationships with farmers.
- Participatory Technology Development
- Rural Sociology (Appreciation of the socio-cultural contexts of farmers)
- Farmer Group Development Techniques

#### **6.5 Perspectives from Agricultural Graduates**

There was consensus among agricultural graduates, particularly those who did first degree, that there was inadequate practical training given to them at the University. They attributed this to the large number of students admitted for degree programmes without the corresponding expansion of facilities, thus reducing practical training to mere observation. To illustrate this issue, one of the graduates explained that he had a class mate who obtained Second Class Upper in crop science and could write beautifully about rice production but never saw a rice plant. The graduates opined that one way of circumventing the challenges associated with practical training is for the Universities to develop more comprehensive programme for holiday attachment of students to various farms and other agricultural related industries. This however requires strengthening the relationships and linkages between the Universities and industry.

Agricultural graduates also complained that the teaching methods and examination of students do not encourage students to fish for knowledge but rather memorize and reproduce what was taught in class by the lecturer. The situation is reinforced by the over emphasis of society on certificates rather than what an individual is capable of doing. Students therefore have the impression that it is the certificate which matters in terms of job openings but not the skills, thus pushing some students to find short cuts, including cheating to acquire the certificate.

Furthermore, Agricultural graduates, particularly those from the Universities, admitted that their training shaped their thinking and orientation towards office work as technocrats but not field application of their knowledge and skills in self employment. With the decreasing opportunities for employment in the public sector, many agricultural graduates find it difficult to secure jobs in offices and at the same time not capable of applying their knowledge and skills in self –employment, leading to frustrations.

With the increasing drive towards modernization of agriculture through the application of science and technology, agricultural graduates suggested that curricula review should emphasize the following areas:

- Agricultural machinery use and maintenance
- Farm management
- Entrepreneurial skills
- Computer-based software applications
- Agricultural Business Plan preparation to secure venture capital
- Generation of Appropriate technologies for agriculture

## **7.0 CONCLUSIONS AND RECOMMENDATIONS**

### **7.1 Conclusions**

Key conclusions from the study include the following:

- i. There is consensus that the training of agricultural graduates, tends to emphasize theory rather than the application of the theories.
- ii. Teaching methods and examination of students in the Universities do not encourage students to fish for knowledge but rather memorize and reproduce what was taught in class by the lecturer. The situation is reinforced by the over emphasis of society on certificates rather than what an individual is capable of doing. Students therefore have the impression that it is the certificate which matters in terms of job opportunities but not the skills, thus pushing some students to find short cuts, including cheating to acquire the certificate.
- iii. Agricultural training tends to produce job seekers but not entrepreneurs who can create their own jobs or effectively help the private sector develop.
- iv. There is a mismatch between the knowledge and skills given to agricultural graduates and what is required by employers. For example, the curricula and teaching methods in agricultural institutions tends to neglect the development of soft skills such as critical thinking and problem solving which will allow graduates to easily adopt to changing demands in the job market.
- v. There is also a mismatch in the number of graduates produced in various fields and what is required in the job, due to inadequate labour market information.
- vi. Whilst there is gender disparity in the enrolment of students for the agricultural training in favour of males, the female graduates tend to have higher opportunities for employment compared to their male counterparts.
- vii. There is declining interest for people to seek agricultural training and take it up as a career. The low interest is even more pronounced for specialized fields like animal science.
- viii. Agricultural training institutes have inadequate infrastructure like internet facilities, farms and laboratories for practical work, thus limiting the ability of the institutions to adequately training their students.



## 7.2 Recommendations

- i. In view of the finding that different categories of employees demand specific knowledge and skills from Agricultural graduates, it is recommended that agricultural training institutions should equip students with analytical minds and critical thinking that will make them more adoptable to changing work environment. This may require re-orientation of lecturers to participatory teaching techniques such as the use of case studies and student group work.
- ii. In view of the decline in opportunities to employ agricultural graduates in the public sector, there is need for agricultural training to emphasize entrepreneurial skills training such that the graduates could be job-creators and not job-seeks.
- iii. To ensure that agricultural graduates are able to establish their own farms, it may be desirable for government to support such interested agricultural graduates with land banks and necessary agricultural machinery. The example of the Nigerian Government's support for graduate farmers can be emulated by the Ghana government.
- iv. Since most employers interviewed valued soft skills like interpersonal relationships, communication, creativity and leadership drive, it may be desirable for agricultural institutions to incorporate programmes or subjects that emphasize such soft skills and make students develop the interest for lifelong learning. The curricula review by agricultural training institutions should also include value-chain analysis and development, particularly post harvest lost management as well as ICT.
- v. Since Agricultural training institutes cannot include all the diverse knowledge and skills areas of interest to various employees, it is desirable for employees to consciously organize in-service training for their agricultural graduates so as to equip them with the specific knowledge and skills required in their jobs.
- vi. To make agricultural training more responsive to market demands, it may be desirable for Agricultural training institutions to establish stronger linkages with industry such that students could have extended practical attachments to various industrial establishments. This should be done in a more systematic manner by the Training Institutions identifying well-established farms or industries where agreements could be reached to take a number of agricultural graduates annually on attachment for practical training as a necessary condition for graduation. Other ways of facilitating exposure of students to the real world of work are through mentoring, counseling, and guest-lectures from industry practitioners. Such a linkage will ensure that agricultural graduates have an understanding of the demands of industry and thus be able to transform their scientific knowledge into relevant innovations for accelerated development.
- vii. In view of the large number of agricultural students compared to lecturers at the Universities, it may be desirable for the Universities to employ demonstrators or practical teaching assistants who can spend more time with students on practical demonstrations.
- viii. The curricula and teaching methods in agricultural training institutions should reflect a fair balance between Practical training and Theory. For example, the Mampong Agricultural campus of the University of Winneba teaches theory for 3 years and in the final (fourth) year students are made to go out into the community to identify a problem and develop strategies to solve that problem – this approach to training enables the students to be more practical and apply their skills. Other training Institutions can adopt this approach.
- ix. To ensure the effective overhaul of agricultural training that will make graduates more innovative and practical oriented, there is need for major shifts in mindsets among some faculty members to see agricultural training more as equipping students with critical thinking and problem-solving acumens rather than merely memorizing and reproducing theories to pass exams. This may require retraining of some faculty members as well as encouraging them to take 'work sabbatical' in industries.

- x. To make agricultural innovations more responsive to the needs of farmers, it is desirable for agricultural training to ensure that agricultural graduates develop the mindset to recognize the value of indigenous knowledge system of smallholder farmers and build on it in their technology development efforts.
- xi. In view of declining job opportunities in the animal production industry, there is need to revamp it through favourable government policies and other necessary support, like provision of concessionary loans to animal farmers as well as market access to their poultry and other products.
- xii. There is need for re-prioritization of public expenditure to ensure more resources are allocated to upgrade agricultural training facilities like laboratories, experimental farms etc, such that Universities can effectively train agricultural students as well as making the Universities centres to generate appropriate agricultural technologies and innovations to speed up the agricultural development process.

### **BIBLIOGRAPHY**

- Atta-Konadu, Y. 2000. "The History of Agriculture Policy Making and the Performance of Agricultural Projects in Ghana Since 1950. Discussion Paper presented at the consultative meeting for the MOFA Prosperity study, November 2000. Prampram, Ghana
- Batse, Z. and O. Gyekye. 1992. Graduate Tracer Study: A Study of Employed and Unemployed Graduates in Ghana. Report to Ministry of Education, Higher Education Division, August 1992, Accra
- Bond, I and Frances T. 1990. "Methods and Instruments Used to Conduct Follow-Up Studies of Teacher Education Graduates". Paper presented at the Annual Meeting of the Eastern Educational Research Association (14th, Clearwater, FL, February 14-17, 1990).
- Casely-Hayford, L; Ameza, K; Dannson, A; Otoo, L; Asibey-Bonsu, P and Mr P.A. Bruce P.A 2001. A Historical Review of the Ministry of Food and Agriculture's Policies and Programmes (1900-2000). Paths to Prosperity Study Discussion Paper No.1 produced for the Ministry of Food and Agriculture with support from DFID. PPMED, MOFA, Accra
- Chau, V. S. and Witcher, B. J. 2005. Longitudinal Tracer Studies: Research Methodology of the Middle Range. *British Journal of Management*, 16: 343–355.
- Cosser, M. 2003. Graduate tracer study. In *Technical college responsiveness: learner destinations and labour market environments in South Africa*. Cosser, M., McGrath, S., Badroodien, A. & Maja, B. (eds). Cape Town: HSRC Publishers. 27-55.
- Diehl, L. 2007. The Role of Agriculture in Ghana: Looking Back at 40 Years of Co-operation for Agricultural Development. German Embassy, Accra.
- Anyanwu, G.A. 2000. Graduates' Transition From Study to Employment: A Study of the Arts and Agriculture Graduates of University of Nigeria in the World of Work. A study Report submitted to the Association of African Universities.

- Djangmah, J.S; Anyimadu, A; Markwei, C and Ohene-Konadu, K . 2000..The Challenge of Further Vocationalizing University Education in Ghana: A Survey of University Graduates.
- Eicher C., 2006. "The Evolution of Agricultural Education and Training: Global Insights of Relevance for Africa." Unpublished paper commissioned by the World Bank, AFTHD.
- Haggblade, S., Kirsten I., Mkandawire R and de Vries F.F. 2004. Agricultural successes in the Greater Horn of Africa: Conference overview. NEPAD Conference held in Nairobi, Kenya from 22-25 November 2004.
- IBRD , 2007 ,Cultivating Knowledge and Skills to Grow African Agriculture, Washington DC: The World Bank.
- ILO. 2005. Global Employment trends model. International Labour Office, Geneva. Available at <http://www.ilo.org/pubdoc/english/employment/strat/global106.htm>
- Iwega A., Kaiza-Boshe, T., and Kyomo M., 2005, "SUA Training Needs Assessments, Job Market Surveys, And Tracer Studies", a report for Sokoine University of Agriculture
- Kaijage, E.S. 2001. Knowledge and Skills of B.Com Graduates of the Faculty of Commerce and Management, University of Dares Salaam in the Job Market. Published as Research Paper No. 8. AAU.
- Nelita, M and Lalican, A. 2007. Tracer Survey of Agriculture Graduates. Paper presented at the 10<sup>th</sup> National Convention on Statistics (NCS) at Shangrila Hotel, Accra, from 1-2 October 2007.
- RUFORUM, 2009. A study of agricultural graduates in Eastern, Southern and Central Africa: Demand, quality and job performance issues. .
- Schomburg, H. 2003. *Handbook for Graduate Tracer Studies: Centre for Research on Higher Education and Work*, University of Kassel, Germany. Also available at: [http://www.qtafi.de/handbook\\_v2.pdf](http://www.qtafi.de/handbook_v2.pdf)
- WRI. 2005. The wealth of the poor: Managing ecosystems to fight poverty. World Resources Institute, Washinton DC.

**Appendix 1: List of Key People Interviewed**

NAM E	PO SIT ION	E -m ail	Telephone
Prof. John Ofosu-Anim	Vice Dean, School of Agric. UG	aweze@ug.edu.gh	0244717621
Prof. Robert C.Abaidoo	Provost, College of Agriculture and natural Resources, KNUST	abidoorc@yahoo.com	0208438958
Dr. Eric Obeng Bempong	Principal, Animal Health and Production College, Pong Tamale	ericobengbempong@yahoo.com	0247977769/ 0279466896
Mr. Kwadwo Fosu Kontor	Principal, Kwadaso Agricultural College, Kumasi	kontor600@yahoo.com	0244619731
Dr. Aliu Mahama	Head of Department, Agric. Engineering, UG.	aliumaham@yahoo.com	0244605365
Dr. Boniface Kayang	Head of Animal Science Department, College of Agric. And Consumer Science, UG	bbkayang@ug.edu.gh	0244066442
Dr. Paschal Baylon Atengdem	Lecturer, Agric. Extension Department, UG	Atengdem@ug.edu.gh	0244263156
Prof. Ramatu Alhassan	Professor in Agric Economics, UG		
Dr Angelina Danquah	Head of Home Science Department, UG	adanquah@ug.edu.gh	0277499231
Dr. Akwasi Mensah-Bonsu	Senior Lecturer, Department of Agric. Economics, UG	Mensah_bonsu@ug.edu.gh	0244768353
Mr. Francis Amoabeng	HRDM, MOFA		0242360030
Dr. Nelson Obirih-Opareh	CSI-STEPRI	nobirih_opareh@yahoo.com	0277728010
Dr. Godfred Frimpong	Assistant Director, CSI-STEPRI	Goddie58@yahoo.com	0244274205

Dr Kwame Amezah	Ag. Director, Agricultural Extension	kamezah@hotmail.com	0208158440
Mr. Frank Sofo	Director, Human Resource and Administration, Ministry of lands Forestry & Mines	fsofo@yahoo.com	0208241430 0244272774
Samuel Oku	Deputy Director, Statistics Research and Information Directorate	Oku_samuel@hotmail.com	0208193118
Mrs Victoria Tsekpo	Deputy Director, Women in Agricultural Development Directorate (WIAD)	victsekpo@yahoo.com	0244139005
Mr. Asare-Mensah	Director of Animal Production, MOFA	basaresnr@yahoo.com	0244573732
Mr. Franklyn Yaboah	Deputy Director, Animal Production, MOFA		0244625260
Mr. John Gyewonu	Secretary, Ghana National Association of Farmers and Fishermen		0244115537
Mr. B. Asare-Mensah	Director of Animal Production	basaresnr@yahoo.com	0244573732
Mrs. Azara Ali Mamshie	Deputy Co-ordinator, Projects Division of MOFA	alimamashie@yahoo.com	0277403985
Mrs. Patricia Markwei	Deputy Director of Fisheries		0244272791
Mr. John Awuku Dziwornu	National Secretary, GNAFF	dzigoh@yahoo.com	0244115537
Mr. Enoch Akisiba	Upper East Regional Co-ordinator of GNAFF	0244832075	
Mr Ebenezer Asante	Administrator of GNAFF	Abenaste2yahoo.com	0277170623

**APPENDIX 2: TRACER STUDY QUESTIONNAIRE FOR VARIOUS RESPONDENTS****2.1: QUESTIONNAIRE FOR AGRICULTURAL TRAINING INSTITUTIONS**

**Conseil Ouest et Centre  
Africain pour la Recherche  
et le Développement  
Agricoles**



**West and Central African  
Council for Agricultural  
Research and  
Development**

**CORAF/WECARD - SCARDA PROGRAMME****Ghana Tracer Study of Agricultural Graduates (1993 – 2010)****1. Identification of Institution**

- 1.1 Name of Institution:  
1.2 Year of Establishment:  
1.3 Legal Status (Public or Private):  
1.4 Address:  
1.5 Telephone:  
1.6 Email:  
1.7 Name of Director/Head:  
1.8 Name(s) of Respondents:

<b>Name</b>	<b>E-mail</b>	<b>Telephone</b>

**2. Infrastructure (Teaching/Training Facilities)****2.1 Administration**

2.1.1 How Efficient is the Admission Process? Rank from 1 -5 with 1 being the least efficient

Give reasons for your ranking

.....

2.1.2 How efficient is the Supervision of Students? Rank from 1 -5 with 1 being the least efficient  Give reasons for your ranking.

.....

2.1.3. How efficient is the process graduation and awards of certificates? Rank from 1 -5 with 1 being the least efficient  Give reasons for your ranking.

.....

**2.2 Classrooms**

2.2.1 How many classrooms and what is the Quality of these Classrooms?

.....

2.2.2 What is the average Number of Students per Class?

.....

**2.3 Office**

2.3.1 What is the Ratio of Offices to Lecturers?

2.3.2 Do Lecturers have Internet Facilities in their offices?

**2.4 Research and Practical Farms**

2.4.1 Do students and lecturers have access to Farms for research and practical work?

.....

2.4.2 What Types of Farms are these (suitable, large, small, good locations, poor location, etc)

.....

.....

**2.5 Libraries**

2.5.1 Tick the types of library available and indicate if they are equipped with IT facilities:

- Central Library .....
- Departmental library.....

2.5.3 Is the Internet Access Regular, and What is the Speed of the Internet (Slow, Fast etc)

·

.....

.....

2.5.4 Is the Subscription for:

- Online Publications Regular? .....
- Hard copies Regular? .....

## 2.6 Science Laboratories

Fill in the table below to indicate the type and quality of Laboratories available

Type of Laboratory	Availability and Quality of Equipment and Reagents	Ratio of Bench to Students
1.		
2.		
3.		
4.		

## 2.7 Computer Labs

2.7.1 Are there Computer Labs? .....

2.7.2 What is the Ration of Computers to Students?.....

2.7.3 Do students have Access to Internet Facilities? .....

## 3. Academic Organization of the Institution

### 3.1 Departments

Please fill the Table below to show the various Departments and Lecturers

Name of Department	No. of Lecturers	Areas of Specialization	Courses Taught during the last 2 academic years (2008-2010)	Average hours Taught per

(If possible get list of Lecturers, indicating the areas of teaching and load distribution as well as teaching experience in years)





2004				
2005				
2006				
2007				
2008				
2009				
2010				

### 3.3 Bachelor Degrees Offered

3.3.1 What are the Entry Requirements for a Bachelor Degree?.....

3.3.2 What is the Duration of Studies?.....

3.3.3 Please fill in the Table below to indicate the type of courses offered for the various specialization areas under the Bachelor Degree programme

Area of Specialization	Courses Offered

(if possible, collect time table for various courses to show current hours of Lectures, Practicals and Tutorials by subject for the Degree programme)

3.2.1.4 Please provide the statistic of number of Degree graduates turned out yearly, by ender since 1993

YEAR	AREAS OF SPECIALIZATION AND GRADUATES							
	1.		2.		3.		4.	
	M	F	M	F	M	F	M	F
1993								
1994								
1995								
1996								

1997				
1998				
1999				
2000				
2001				
2002				
2003				
2004				
2005				
2006				
2007				
2008				
2009				
2010				

**3.4 Masters Degrees Offered**

3.4.1 What are the Entry Requirements for a masters Degree?.....

3.4.2 What is the Duration of Studies?.....

3.4.3 Please fill in the Table below to indicate the type of courses offered for the various specialization areas under the Masters Programme

Area of Specialization	Courses Offered

(if possible, collect time table for various courses to show current hours of Lectures, Practicals and Tutorials by subject for Masters Degree)



2003				
2004				
2005				
2006				
2007				
2008				
2009				
2010				

**4. Curriculum Development and Reforms**

**4.1 Curriculum Development Procedure:**

4.1.1 What is the Curriculum Development Procedure?.....

4.1.2 Who are the Stakeholders?.....

.....

4.1.3 What is the Basis for Curriculum Development?.....

.....

**4.2 Curriculum Reform:**

4.2.1 What is the Curriculum Reform Procedure?.....

.....

4.2.2 Who are the Stakeholders?.....

.....

4.2.3 What is the Basis for Curriculum Reform?.....

.....

4.2.5 How Frequent is the Curriculum Reform?.....

**5. Professional Interactions with employers and Graduates**

5.1 How Frequent are the Interactions with Employers and Graduates held?.....

5.2 What Matters are discussed? .....

**2.2: QUESTIONNAIRE FOR EMPLOYERS**

**Conseil Ouest et Centre  
Africain pour la Recherche  
et le Développement  
Agricoles**



**West and Central African  
Council for Agricultural  
Research and  
Development**

**CORAF/WECARD - SCARDA PROGRAMME****Ghana Tracer Study of Agricultural Graduates (1993 – 2010)**

1. Name of Supervisor (Respondent) .....
2. Name of Organization or Enterprise .....
- .....
3. Kindly provide a summary of Agricultural Graduates employed by your organization over the last ten years by filling the Table below (from Diploma to Ph.D).

YEAR	CATEGORY OF GRADUATES, INDICATING SPECIALIZATION AND GENDER				
	Diploma	Degree	Masters	Ph.D	Dominant Areas of Specialization
2009	M= F=	M= F=	M= F=	M= F=	
2008	M= F=	M= F=	M= F=	M= F=	
2007	M= F=	M= F=	M= F=	M= F=	
2006	M= F=	M= F=	M= F=	M= F=	
2005	M= F=	M= F=	M= F=	M= F=	
2004	M= F=	M= F=	M= F=	M= F=	
2003	M= F=	M= F=	M= F=	M= F=	

2002	M= F=	M= F=	M= F=	M= F=	
2001	M= F=	M= F=	M= F=	M= F=	
2000	M= F=	M= F=	M= F=	M= F=	

4. What are the 3 major criteria for Recruiting Graduates? (For example, Specialization, Level of Qualification, Prior Experience etc)

- i. ....
- ii. ....
- iii. ....

5. Please provide the knowledge and skills required for various grades or job positions of agricultural graduates in your organization and rank the level of satisfaction of these graduates in exhibiting these skills or attributes at the job.

Category or Grade of Agric. Graduates	Knowledge and Skills Required for Job Performance at that Position	Ranking to Show Level of Satisfaction with Graduates Exhibiting these Skills or Attributes (1 being very low and 5 being very high)					REASONS OR EVIDENCE TO JUSTIFY RANKING
		1	2	3	4	5	
1.							
2.							
3.							
4.							
5.							

**6. Managerial Capacity (Leadership, Administrative and Financial Skills) and Attitudes of Agricultural Graduates**

From your experience, please rank your level of satisfaction with the managerial capacity and attitudinal orientation of Agricultural Graduates at various levels

CATEGORY OF GRADUATES	Ranking To Show Level Of Satisfaction With Managerial Capacity and Attitudinal Orientation of Graduates (1 being very low and 5 being very high)					ANY COMMENTS
	1	2	3	4	5	
Diploma						
Degree						
Masters						
Ph.D						

7. What do you observe as the general strengths and weaknesses of agricultural graduates in your organization

STRENGTHS OF AGRICULTURAL GRADUATES	WEAKNESSES OF AGRICULTURAL GRADUATES
i. ....	i. ....
ii. ....	ii. ....
iii. ....	iii. ....
iv. ....	iv. ....
v. ....	v. ....

8. From your experience, how long does it take a fresh agricultural graduate to become effective on the job? .....

**9. Curriculum Development and Reform:**

9.1 Have you ever been invited by any of the agricultural training institutions to attend a Curriculum Development meeting? YES  NO

9.2 If Yes, when was this and how frequent is such invitation?

.....



9.3 What were your contributions for inclusion in the Curricula Development?

.....

9.4 Were your contributions taken seriously and incorporated in the curricula?

10. Based on your experience, what suggestions will you offer towards curricula review of agricultural training? .....

.....

**THANK YOU FOR YOUR COLLABORATION**

**2.3 QUESTIONNAIRE FOR AGRICULTURAL GRADUATES**

**Conseil Ouest et Centre  
Africain pour la Recherche  
et le Développement  
Agricoles**



**West and Central African  
Council for Agricultural  
Research and  
Development**

**CORAF/WECARD - SCARDA PROGRAMME****Ghana Tracer Study of Agricultural Graduates (1993 – 2010)**

1. Name of respondent .....
2. Sex: check: Male ( 1); Female ( 2)
3. Training institution:.....
4. Year of graduation: .....
5. Highest qualification: check: Certificate, (1); Diploma (2); Degree (3)  
Masters (4) ; Ph.D (5).
6. Option or specialization: Crop (1); Animal (2); Forestry (3);  
Engineering (4); Economics and/or sociology (5);  
Other, to specify (6) .....
7. First employment upon graduation: Specify (ministry or organization )  
Public (1), .....
- Private (2) .....
- Farmers' organization (3) .....
- NGOs (4) .....
- International Organizations (5) .....
8. Time between graduation and first employment,  
Number of months (1) ..... or years (2).....
9. How was this first employment found? .....
- .....
10. Current employment if you have changed job: .....
11. Reasons for leaving previous employment(s) .....
- .....
12. Give five key tasks of the first and/or current employment and rank the relevance of your training  
to the task performance (1-5 and give reason for the ranking):

- Task a), nature ..... Rank ( )
- Task b), nature ..... Rank ( )
- Task c), nature ..... Rank ( )
- Task d), nature ..... Rank ( )
- Task e), nature ..... Rank ( )

13. Difficulties faced in the first employment and/or in the current employment: .....

.....

.....

14. If self employed:

- a) Activity .....
- b) Since when: (months) ..... (1); years ..... (2).
- c) Partnership .....
- d) Sources of capital: .....

15. What are the strengths and weaknesses of the agricultural training you received in relation to your job/business performance?

STRENGTHS	WEAKNESSES

16. Suggestions for a more relevant agricultural training program

**THANK YOU FOR YOUR COLLABORATION**

**APPENDIX 3: OPENING ADDRESS AT THE NATIONAL VALIDATION WORKSHOP BY THE SCARDA FOCAL PERSON, DR. STELLA ENNIN**

Mr. Chairman and distinguished participants

The Forum for Agricultural Research in Africa (FARA), in June 2007, initiated an innovative capacity building programme at the CSIR-Crops Research Institute, and nine other identified national Focal Institutes for Agricultural Research throughout Africa. The programme targets strengthening of entire institutes' capacity for agricultural research management and delivery in contrast with the conventional individual capacity building programmes. The purpose is to **'strengthen the institutional and human capacity of African agricultural research and development systems to identify, generate and deliver research outputs that meet the needs of the poor'**. The Strengthening Capacity for Agricultural Research and Development in Africa (SCARDA) programme is managed by FARA through the Sub regional organizations, The West and Central African Council for Agricultural Research and Development (COFAF/WECARD for West Africa) and is supported by the United Kingdom's Department for International Development (DFID) over three years.

**Mr Chairman,**

Following an institutional analysis of the CSIR-Crops Research Institute by SCARDA, institutional capacity gaps were identified and **tailor-made capacity strengthening programmes have been developed in Business winning, Communication and Human Resource development. Implementation of this blue print document has begun** under SCARDA. This has accelerated the process for CSIR-CRI to realize its vision of becoming a centre of excellence for innovative and quality agricultural research for development within the short to medium term.

.....

Some of the capacity building programmes that have been undertaken with sponsorship from SCARDA are:

- Two Agricultural Research Management (ARM) training workshops for five top management staff of CSIR-CRI together with fifteen others from the West African sub-region from Nov 2008 to March 2009;
- Monitoring and evaluation training workshop for twelve scientists from the sub-region, with three from CSIR-CRI;
- Local professional skills development training programmes in 2009 and 2010 for management, scientists and other senior staff of the institute facilitated by GIMPA in  
-Mentoring, -Research Proposal writing, -Public Relations and  
Marketing, -Advocacy and Negotiation skills,
- 3 Technicians have had international training in Laboratory equipment and computer maintenance

.....

Within the West African subregion, SCARDA has also successfully supported **Post graduate training** of 9 Gambian and 5 MSc students from the CSIR-Crops Research Institute in various Agricultural disciplines at the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, and a Librarian at the University of Ghana, Legon.

**Mr. Chairman, distinguished participants,**

The West and Central African Council for Agricultural Research and Development (CORAF/ WECARD), through its SCARDA project has also supported a **tracer study** of agricultural graduates from tertiary institutions to evaluate the relevance and adequacy of agricultural training for the public and private sectors, industry and Ghana's economic growth. With Agriculture contributing 37.5% of Ghana's GDP, an improvement in quality of agricultural sector delivery will have a direct positive impact on Ghana's economic growth.

We have gathered here today, as stakeholders in the training of agricultural graduates. Present are representatives of the universities, agricultural colleges, Council for Scientific and Industrial Research (CSIR), NGOs, Association of Ghana Industries (AGI), Ministry of Food and Agriculture, and fresh university graduates. Our purpose is to validate this tracer study report, and make appropriate recommendations to guide curriculum development at the tertiary agricultural institutions, to ensure relevance for economic growth. I therefore urge you all to have an open, frank and constructive discussion on the subject.

I will like to welcome you, Mr Chairman and distinguished participants to the CSIR-Crops Research Institute, the Focal Institution for SCARDA in Ghana, and wish you fruitful deliberation.

Thank you  
AKWAABA