



2016

ANNUAL REPORT



CSIR-INSTITI

Institute For Scientific and
Technological Information

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**COUNCIL FOR SCIENTIFIC AND
INDUSTRIAL RESEARCH**

**INSTITUTE FOR SCIENTIFIC AND
TECHNOLOGICAL INFORMATION**

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COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH
INSTITUTE FOR SCIENTIFIC AND TECHNOLOGICAL
INFORMATION (CSIR-INSTI)

2016 ANNUAL REPORT

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List of Acronyms

AEAs	- Agricultural Extension Agents
AGORA	- Access to Global Online Research in Agriculture
ARI	- Animal Research Institute
CCST	- CSIR College of Science and Technology
CDs	- Compact Discs
CFO	- Chief Financial Officer
CRI	- Crop Research Institute
CSIR	- Council for Scientific and Industrial Research
CTA	- CDS (Combat Direction System) Track Association
DEM	- Digital Elevation Model
DFID/ACU	- Department of Foreign and International Development
FARA	- Forum for Agricultural Research in Africa
FM	- Frequency Modulation
FORIG	- Forestry Research Institute of Ghana
FGD	- Focus Group Discussion
FRI	- Food Research Institute
GINKS	- Ghana Information Network for Knowledge Sharing
GIS	- Geographic Information Systems
GIZ	- German International Cooperation
GJAS	- Ghana Journal of Agricultural Science
GJS	- Ghana Journal of Science
ICTs	- Information and Communication Technologies
IITA	- International Institute of Tropical Agriculture
IK	- Indigenous Knowledge
IMC	- Internal Management Committee
INASP	- International Network for the Availability of Scientific Publications
INSTI	- Institute for Scientific and Technological Information
IT	- Information Technology
JICA	- Japan International Cooperation Agency

JHS	- Junior High School
KNUST	- Kwame Nkrumah University of Science and Technology
LCD	- Liquid Crystal Display
MIS	- Management Information System
MoFA	- Ministry of Food and Agriculture
NDVI	- Normalized Difference Vegetation Index
NITA	- National Information Technology Authority
R&D	- Research and Development
RS	- Remote Sensing
SAIRLA	- Sustainable Agricultural Intensification Research & Learning in Africa
SARI	- Savannah Agricultural Research Institute
SDGs	- Sustainable Development Goals
S&T	- Science and Technology
STEPRI	- Science and Technology Policy Research Institute
STI	- Scientific and Technical Information
TAFIRI	- Fisheries Research Institute
UNESCO	- United Nations Education, Scientific and Cultural Organisation
UNFCCC	- United Nations Framework Convention on Climate Change
WAAPP	- West Africa Agricultural Productivity Program
WASCAL	- West African Science Service Centre on Climate Change and Adapted Land Use
WRI	- Water Research Institute
TEEAL	- The Essential Electronic Agricultural Library

**Membership of the Management Board
(As at 31st December 2016)**

Dr Paul Effah	- (Chairman) Scholar-In-Residence, GIMPA, Accra.
Dr George O. Essegbey	- (Member) Director, CSIR-STEPRI, Accra.
Dr Joel Sam	- (Member) Director, CSIR-INSTI, Accra.
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Nana Kusi-Appiah	- (Member) c/o Rardford University College East Legon, Accra.

In Attendance

Mrs Gifty N. D. Aryee	- (Secretary) Administrative Officer, CSIR-INSTI, Accra.
Dr Richard Y. Kofie	- Deputy Director, CSIR-INSTI, Accra

**Membership of the Internal Management Committee
(As at 31st December 2016)**

Dr. J. Sam	-	Director/Chairman
Dr. R. Y. Kofie	-	Deputy Director/Head RID/IT Section
C. Lettu	-	Head, Thematic Mapping
A. Armah	-	Head, Science Publishing
Mrs Lucy Dzandu	-	Head, Library and Documenta- tion
L. Bamfo	-	Head, Printing
Mrs G. N. D. Aryee	-	Head, Administration
J. A. Anyen	-	Head, Finance Division
J. Acklae-Boateng	-	Head, PRO
C. Opoku-Dwomoh	-	Head, CID
E. Afari-Kumah	-	Representative, Research Staff Association
D. Appiah Association	-	Representative, Senior Staff
D. N. D. Dodoo	-	Representative, Local
In Attendance		
D. Awenyo	-	Secretary

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Executive Summary

The Institute for Scientific and Technological Information of the Council for Scientific and Industrial Research (CSIR-INSTI) has not relented on its mandate to carry out various research programmes. They provide scientific and technological information to major public research and academic institutions, private individuals as well as the industrial sector for national development.

In carrying out its mandate, the CSIR-INSTI collaborated with the following international development organisations and academic institutes which included, IITA, CFO of UN, INASP, GINKS, CTA, the Netherlands, University of Ghana, KNUST as well as sister CSIR institutes.

During the period under review, the CSIR-INSTI carried out a number of on-going Research Programmes which included: Directory for Female Senior Members in the CSIR, Ghana; Research Scientists Knowledge in the use of Internet Resources for Research in the CSIR, Ghana; Perceived Impacts of Royal FM Agricultural Programmes on livelihoods of farmers in Ghana; Application of Information and Communication Technologies (ICTs) by Extension Agents in Agricultural Technology Transfer; Appraisal of Communication Tools used in the transfer of existing CSIR Technologies to End Users:- the case of CSIR-ARI.

During the period supra, the Institute executed new programmes and among them were; Building the capacity of Unemployed Teenage Mothers in Ghanaian Mining Towns for sustainable self-employment for Livelihood Employment; the use of ICTs in Poverty Reduction in Rural Communities in the three Northern Regions of Ghana; Digital Preservation of Indigenous Knowledge in Ghana; Mapping Land Degradation in Semi-Deciduous Forest Zone in Ghana; Geospatial Information Technologies Approach; Climate Change Adaptation Practices by Food Crop Farmers in Ghana:- the case of Kintampo - North Municipality and Identification and mapping of poverty endemic areas in Ghana using a multi-dimensional poverty index.

Some of the achievements for the year under review were: the introduction of some new programmes; update of the various data basis of the Institute; provision and dissemination of scientific information to Extension Officers, Scientists and Farmers and lastly assisted researchers and students to access various data basis for their research works.

During the period under review, six (6) officers were granted study leave with pay to pursue programmes relevant to their work. Apart from the six (6), two (2) officers resumed duty from study leave while two (2) others retired from the service of the council.

The staff strength as at 31st December 2016 stood at seventy-one (71). In all, fourteen (14) students comprising national service personnel were accepted to undergo their service attachment training at the Institute. The Institute was able to generate internally, an amount of three million and fifty-five thousand, eight hundred and sixteen Ghana cedi and eleven pesewas (GH¢ 3, 055, 816.11) during the year under review.

1.0. Introduction

The Institute for Scientific and Technological Information (INSTI) is one of the Research institutes of the Council for Scientific and Industrial Research (CSIR). It is indeed one of the leading Scientific and Technical Information (STI) Institute in Ghana that provides scientific information for research and development to major stakeholders including research and academic institutions, farmers, policy makers as well as the manufacturing sector.

The Institute's core mandate is to develop nationwide capacity and competence for the efficient and effective conveyance of real-time Scientific and Technological Information (S&TI) and customized information on request for the use of policy makers, industrial, research scientists and others in correctly packaged form.

The institute's primary objectives were to:

- ✓ support the upgrading of efficient research and development in the country through the provision of STI services using appropriate information processing and communication technologies.
- ✓ strengthen national STI facilities through effective networking and collaborative activities at the national and international stages, and develop tactics to improve access to information.
- ✓ produce thematic maps that portray in cartographic form, the modern geographical knowledge and data relating to the physical conditions, natural resources, population, environmental and socio-economic physiognomies of the natural economy.
- ✓ sustain a national S&T publishing and printing facility that publishes for distribution, academic works in the agricultural, industrial, and S&T sectors of the economy.
- ✓ design and implement activities that edify and enlighten the Ghanaian public about CSIR-generated technologies for easy

implementation, and in so doing, help establish connections with the private sector.

The Institute's mandate was addressed through the technical and the supporting Divisions of the Institute. The technical Divisions are;

- Library and Documentation
- Printing
- Science Publishing
- Thematic Mapping
- IT/Research,
- Innovation and Development.

The supporting divisions on the other hand are;

- Accounts
- Administration and
- Commercialization and information

2.0. Research And Development Programmes

The research and development activities pursued during the year under review. They were as follows;

2.1. **Research Title:** Directory for female senior members in the CSIR, Ghana

Start Date: June 2013

Estimated Duration: 3 Years

Sponsors: CSIR-INSTI

Actual Cost Of Project/Expenditure: Gh C 21,568.10

Location: Accra

Principal Investigator: Mrs. Lucy Dzandu

Participating Scientist: Mrs. Grace Obeng-Koranteng

Collaborating Institutions: All Csiir Institutes

Major Findings

Out of the 81 female Senior Members of the CSIR, Food Research Institute (FRI) has 11 female senior members and Forestry Research Institute of Ghana (FORIG) has 13 female senior members, both constituting 58%. The Animal Research Institute (ARI) has 10 female senior members and Water Research Institute (WRI) also has 10 female senior members both constituting 34%. Crop Research Institute (CRI) has 9 female senior members (11.11%), whilst Savannah Agricultural Research Institute (SARI) and Science and Technology Policy Research Institute (STEPRI) have 5 female senior members (6.17%) each.

With reference to the academic credential of the female senior members, it was realized that, out of the 81 female senior members, 31 (38.27%) had Ph.D. degrees or were students pursuing Ph.D. degrees. The rest 50 female senior members (61.72%) had Masters' degrees.

These 81 female senior members specialised in 42 different areas of learning. The top three (3) areas of specialization are Food Science (8; 9.87%), followed by Information Management (7; 8.64%), and Administration (5; 6%). Out of the 81 female senior members, 3 (3.70%) were Chief Research Scientists, 7 (8%) were Principal Research Scientists or its equivalent, 16 (20%) were Senior Research Scientists or its equivalent, and the rest 55 (68%) were Research Scientists or its equivalent.

It can be concluded that the CSIR has a great number of female senior members spread over all the CSIR institutes including the Head Office. Majority of the female senior members have their Masters' degree; are research scientists or its equivalent; and are found in diverse areas of specialization. These professionals are capable of undertaking varying degrees of research work in different disciplining. The research findings and technologies developed by the female senior members of the CSIR may go a long way to facilitate productivity in Ghana.

Reasons For Termination

The project is completed.

Expected Beneficiaries/Potential Impact

The expected beneficiaries of the project included, the CSIR Female Senior Members, CSIR staff and Management, Small and medium scale industries, Government of Ghana, International agencies, and the general public.

2.1. Publications From Project

The Directory developed was distributed among CSIR Female Senior Members, CSIR libraries, libraries of some tertiary institutions, some ministries, and two (2) Girls' Senior High Schools in Accra.

2.1.1. Research Title: Research Scientists' Knowledge in the use of Internet Resources for Research in the Council for Scientific and Industrial Research (CSIR), Ghana

Start Date: October 2015

Estimated Duration: 13 Months

Sponsors: CSIR-INSTI

Actual Cost Of Project/Expenditure: Ghc200.00 Location: Accra

Principal Investigator: Benjamin Yao Folitse,

Participating Scientists: Simon Kwame Osei, Lucy Payne Dzan-du And Grace Obeng – Koranteng

Collaborating Institutions: CSIR Institutes

Major Findings

The agricultural research scientists of the CSIR perceive that the internet resources have enhanced research activities. This has impacted generally positively to their output and job performance. The internet resources have made it easier for scientists to find required information and have increased their motivation to search for information and communication of research findings and increased their level of exchange of information

with colleagues. The internet resources therefore positively impacted on research activities of CSIR scientists and is in agreement with the findings of Adogbeji and Toyo (2006) who reported that more than 90 percent of the sampled lecturers at Delta State University, Abraka, Nigeria agreed that the internet resources has added value to their academic pursuits in terms of quick access to research materials, including online journals. The major problem identified by the Agricultural Research Scientists' was high cost of Internet usage and the slowness of the internet connection at the various institutions.

Reasons For Termination: It Is Complete

Expected Beneficiaries/Potential Impact: CSIR Institutes

Publications From Project: The project has been completed and a technical report is being prepared for submission to the Director of CSIR-INSTI

2.1.2 . Research Title: Perceived Impacts Of Royal Fm Agricultural Programmes On Livelihoods Of Farmers In Ghana

Start Date: February 2016

Estimated Duration: 7 Months

Sponsors: Self Sponsored

Actual Cost Of Project/Expenditure: Ghc600.00

Location: Accra

Principal Investigator: Benjamin Yao Folitse

Participating Scientists: Simon Kwame Osei, Lucy Payne Dzandu, and Grace Obeng-Koranteng

Collaborating Institutions: N/A

Major Findings

The study shows that Royal FM's agricultural programme had made significant impact on the farmers in terms of knowledge-gain in several areas of improved agricultural practices. The study further revealed that the level of impact of the programme on farmers' output was highest in

Banda District was the highest Wenchi Municipality but was moderately high in Jaman North and Tain Districts and Techiman Municipality respectively. The results from the study showed that, there is a significant impact of Royal FM's agricultural programme on the livelihood of farmers in the area of study. Similarly, majority of the farmers indicated that they were satisfied with Royal FM agricultural programme in the study area. The findings suggest that farmers will continue to rely on Royal FM's agricultural programme as a credible source of agricultural information in the study area.

Reasons For Termination: The project has ended.

Publications From Project: The research has been completed and an article has been submitted to the Journal of Sustainable Development in Africa where it is receiving attention

2.1.3. Research Title: Application Of Information And Communication Technologies (Icts) By Extension Agents In Agricultural Technology Transfer

Start Time: 2016

Estimated Duration: 18 Months

Budget: US\$ 38,450

Location: CSIR-INSTI

Principal Investigator: Simon K. Osei

Participating Scientists: Benjamin Y. Folitse; Lucy P. Dzandu; Grace Obeng- Koranteng

Collaborating Institutions: N/A

Background Information And Justification:

Research has established that returns on agricultural investment are low in Ghana and other African countries. In order to improve the status quo therefore some strategies must be mapped out for better yields to be achieved. The Ghana ICT4D therefore identified the use of ICT by extension agents in technology transfer to end-users. The Ghana Shared Growth Development Agenda II identified the promotion and the utiliza-

tion of appropriate research and technology in agriculture production as the key. The specific interventions to be implemented include: strengthening Research-Extension-Farmer Linkages (RELCs). This has also been identified as one of the key strategic goals in SDGs 2a

Objectives Of The Study:

The objectives of the project are to;

- examine the types of ICTs deployed in Technology Transfer by Agricultural Extension Agents
- assess the use of ICTs in the various agriculture enterprises
- determine the extent of use of ICTs by AEAs in technology Transfer
- identify specific challenges faced by AEAs in using ICTs in Technology Transfer
- make recommendations for the use of ICTs in Technology Transfer by AEAs in Ghana

Materials And Methods:

Survey design will be adopted for the study. The project will cover seventy-two (72) study sites

Results Achieved So Far:

Questionnaire for the survey have been developed but are yet to be pre-tested.

Challenges: Not yet able to source funding for the research.

2.1.4. Research Title: Appraisal Of Communication Tools used in The Transfer Of Existing CSIR Technologies To End Users: The Case of CSIR-ARI

Start Time: August 2015

Estimated Duration: 6 Months

Sponsors: WAAPP

Budget: US\$ 129, 629.00

Location: Accra

Principal Investigator: Mr. Ayitey Armarh,

Participating Scientists: Dr. Joel Sam, Collins Opoku-Dwomoh, Eric Asante, Benjamin Folitse And Edwin Adotevi

Collaborating Institutions: CSIR- ARI

Background Information And Justification:

Over the years, scientists in the Council for Scientific and Industrial Research (CSIR-Ghana) have made tremendous effort in developing and transferring technologies to local communities for livelihood empowerment. However, scientists quiet often train end-users on how a technology is applied without monitoring, evaluating and assessing impact. The purpose of the current project is to appraise the communication tools used in the transfer of existing CSIR-ARI technologies in grasscutter and piggery to end-users by assessing the level of impact on their livelihoods.

Objectives Of The Study:

The specific objectives are to:

- assess the level of impart of CSIR technologies among end-users
- assess the impact of CSIR technologies on the livelihood of end users
- evaluate the effectiveness of the technology transfer tools adopted by the CSIR
- analyze the demographic characteristics of end users/beneficiaries of CSIR technologies
- recommend strategic adjustment in the CSIR technology transfer

Materials and Methods:

Data collection would be done through structured interview and Focus Group Discussion (FGD). The data collected would be analyzed quantitatively and qualitatively.

Results achieved so far:

A proposal was developed and submitted for funding but no funds were secured. The proposal will be submitted to other agencies such as the German International Cooperation (GIZ), Forum for Agricultural Research in Africa (FARA) in 2017

3.0. On-Going Projects

The research scientists continued to execute the following on-going research projects during the period under review:

3.1. Research Title: Building The Capacity Of Unemployed Teenage Mothers In Ghanaian Mining Towns For Sustainable Self-Employment For Livelihood Empowerment

Start Time: June 2016

Estimated Duration: 6 Months

Sponsors: Covet

Location: Accra

Principal Investigator: Collins Opoku-Dwomoh

Participating Scientists: Benjamin Y. Folitse, John K. Nyameasem
And Jeffery Yeboah

Collaborating Institutions:

Background Information And Justification:

Many teenage girls in some parts of Ghana, particularly the mining communities, fall victim to the menace of teenage pregnancy and eventually drop out of school. A number of such girls terminate their education at

the Junior High School (JHS) level, where they have acquired no skills to engage in any gainful and sustainable employment activity to feed themselves and their children. This phenomenon contributes to the continuation of the illiteracy and poverty cycles in the family and the country as a whole. The focus of this project is to empower vulnerable teenage mothers in the mining areas of Ghana to improve upon their livelihood thereby fulfilling their childhood ambitions through technology transfer.

Objectives Of The Study:

The specific objectives of the project are listed below:

- Train vulnerable teenage mothers in grasscutter rearing, basic marketing and book keeping skills within a period of five days
- Register business partnerships for beneficiaries
- Identify ready market for beneficiaries
- Assist beneficiaries who would still be interested to pursue their childhood dreams and aspirations

Materials And Methods:

The project would be executed in two phases; the inception phase and the implementation phase. During the inception phase survey would be conducted to identify vulnerable teenage mothers as beneficiaries of the project. In the implementation phase, the selected beneficiaries would be trained in grasscutter rearing as well as basic marketing (business development), customer service and book-keeping skills. Afterwards, beneficiaries would be put in groups of three and given start-up capital.

Results achieved so far:

A proposal was developed and submitted to JICA for funding but no funds were secured. The proposal was submitted to other agencies such as the Ministry of Gender and Children, and Techno Serve in 2017

3.2 . Research Title: The Use of ICTs in Poverty Reduction in Rural Communities in the Three Northern Regions of Ghana

Start Time: September 2015

Estimated Duration:

Sponsors: Government Of Ghana

Budget: US \$ 97,604

Location: Accra

Principal Investigator: Dr. Joel Sam (Ph.d),

Participating Scientists: Mrs. Lucy Dzandu (M. Phil), Mr. Simon Osei (Post Graduate Dip.), Mr. Benjamin Folitse (M. Phil), Grace Obeng-Koranteng (M.A), Eric Asante (MBA), Edwin Adotevi (B.A Hons).

Collaborating Institutions: N/A

Background Information And Justification:

Globally, it is estimated that a fifth of the world's population live in extreme poverty. Most of the world's poor are found in developing countries, particularly in sub-Saharan Africa. Ghana is among the developing countries of the world with about 28.5 percent of its population living below the poverty line of one US dollar per day. The various measures adopted by the Government of Ghana to address the problem of poverty placed emphasis on growth as a means to accelerate poverty reduction and to eliminate the worst manifestation of poverty, social deprivation and economic injustice from Ghanaian society. However, despite the significant ICT developments and the growing recognition of their benefits, there are still concerns regarding the ways and the extent to which access to and use of ICTs contribute to sustainable livelihoods and poverty alleviation in rural areas. Studies have not provided sufficient evidence to understand the potential role of ICTs to poverty alleviation and sustainable livelihoods in Ghana. It is against this background that this study will be undertaken to explore the use of mobile phones, radio, television and the internet in poverty reduction in six districts of the three Northern Regions in Ghana.

Objectives of the Study:

The overall objective of the study will be to examine the role of ICTs (mobile phones, radio, television, and the Internet) in poverty reduction in the three Northern Regions of Ghana.

Specifically, the study seeks to:

1. Examine the access to ICT facilities in six districts in the three Northern Regions of Ghana.
2. Examine the use of ICT facilities in six Districts in the three Northern Regions of Ghana.
3. Determine the extent to which access to ICT facilities play a role in poverty reduction in the six districts in the three Northern Regions of Ghana.
4. Determine the extent to which the use of ICT facilities plays a role in poverty reduction in the six districts in the three Northern Regions of Ghana.
5. Identify barriers to the effective use of ICT facilities in the six districts in the three Northern Regions of Ghana.

Materials And Methods:

Interviews, questionnaires and focus group discussions will be used to collect data.

Results Achieved So Far:

A proposal was developed and submitted for funding but no funds were secured. The proposal was submitted to other agencies such as the Nordic Development Fund, UNESCO, DFID/ACU etc. in 2017.

3.3. Research Title: Digital Preservation Of Indigenous Knowledge In Ghana

Start Time: January 2016

Estimated Duration:

Sponsors:

Budget: US\$ 75,000

Location:

Principal Investigator: Mrs. Lucy Dzandu

Participating Scientists: Mr. Simon Osei, Mr. Benjamin Folitse, Grace Obeng-Koranteng and Mr. Solomon Ampofo.

Background Information And Justification:

There is a growing acknowledgement that Indigenous Knowledge (IK) occupies an important space in determining a given people, their practices, and the way they live and relate to other communities. IK is part and parcel of the culture and history of all communities and is unique to a particular culture and society. It is the basis for local decision-making in agriculture, health, natural resource management and other activities. IK is mostly stored in people's minds and passed on through generations by word of mouth. It is for this reason that CSIR-INSTI is embarking on this project of collecting and preserving indigenous knowledge in the area of health.

Objectives Of The Study:

The aims of this project are to;

- collect indigenous knowledge in the area of Health ,
- document and digitise the data collected.
- upload the information onto the CSIR Institutional Repository to make it available and to provide increased public access to the collections.

Materials and Methods

The study would be conducted in the Greater Accra, Eastern and Central regions of Ghana. Interviews and semi-structured questionnaires will be used to collect data. The target group will be mainly the chiefs and the elderly in the communities of the selected Districts. The research team will contact and meet with the chiefs, opinion leaders, and elders in the communities before collecting the data.

Results Achieved So Far: Questionnaire is being developed for data collection.

Challenges: The team has not been able to source funding for the research yet.

3.4 Research Title: Mapping Land Degradation in a Semi Deciduous Forest Zone in Ghana: Geospatial Information Techniques Approach.

Start Date: 2014

Estimated Duration: 1 Year

Sponsors: CSIR-INSTI

Budget: Gh¢ 6,500.00

Location: Csiir-Insti

Principal Investigator: Dr. Albert Allotey (Research Scientist)

Participating Scientists: NIL

Collaborating Institutions: Central Arid Zone Research Institute, Jodhpur, Rajasthan, India

Objective Of The Study

The main objective of this project is to map land degradation risk areas using geospatial techniques with map as the end product.

Methodology: Satellite imagery comprising LANDSAT 5 (Thematic Mapper –TM) and LANDSAT 7 (Enhanced Thematic Mapper Plus ETM+). The images covered a period of 24 years made up of 1986,

2000 and 2010 were downloaded at no cost from US Geological Survey (USGS) site and Global Land Cover Facility site. The objective was to generate land use and land cover map with respect to each of the years stated. ERDAS Imagine, ArcGIS 10.0 and Statistical Package for Social Science (SPSS 16.0) were the software used. In case of the image processing, ERDAS Imagine and ArcGIS 10.0 were used while the SPSS was used for other data analysis including climate and crop production.

Results Achieved So Far: The following maps have been generated:

- Land use/cover maps
- Normalized Difference Vegetation Index (*NDVI*) which shows plant greenness or photosynthetic activity
- Digital Elevation Model (DEM) has been generated from contour map covering the area.
- Overlay operation has been carried out and a draft land degradation risk map of the areas generated.
- Performing further spatial analysis to validate the draft results.

Way Forward: Reorganizing the final report and preparing a poster presentation.

3.5. Research Title: Climate Change Adaptation Practices by Food Crop Farmers in Ghana: The case of Kintampo North Municipality

Start Date: 2015

Estimated Duration: 3 Year

Sponsors: Csir-Insti

Budget: Gh¢ 51, 5060

Location: CSIR-INSTI

Principal Investigator: Dr. Albert Allotey (Research Scientist)

Participating Scientists: Dr. Richard Y. Kofie, Christian Lettu Scientist, Edwin Adotevi, Samuel Akpa-Yeboah

Collaborating Institutions: Meteorological Agency and Presbyterian University College, Akropong Campus.

Objective of the Study

The main objective of this project is to identify, document and educate farmers on best adaption practices being undertaken by other farmers within the same agro-ecological zone (savanna and semi-deciduous forest).

Methodology

Two (2) methods would be used namely: geospatial techniques (which include Remote Sensing (RS), Geographic Information Systems (GIS) and the use of Global Positioning System) and socio-economic survey, which would involve questionnaire administration.

Results achieved so far

Identified collaborators and funding agencies. Besides, identified some funding agencies like West African Science Service Center on Climate (WASCAL), UNFCCC and Horizon 2020.

Way Forward

Literature is being reviewed while proposal is being revised. Additionally, searching for other potential funding agencies.

3.6. Research Title: Identification and mapping of poverty endemic areas in Ghana using a multi-dimensional poverty index

Start Date: 2015

Estimated Duration: 3 Year

Sponsors: CSIR-INSTI

Budget: Gh¢ 116,200

Location: CSIR-INSTI

Principal Investigator: Dr. Albert Allotey (Research Scientist)

Participating Scientists: Dr. Richard Ampadu, Dr. Rose Omari and Christian Lettu

Collaborating Institutions: CSIR-STEPRI

Objective of the Study

The main objective of this project is to use the concept of plurality of poverty indicators to map out poverty endemic communities within the three northern regions identified as the poorest regions (Upper East, Upper West and Northern) in Ghana together with the distribution of natural resource endowments and to assess the extent to which these resources can be harnessed to reduce poverty.

Methodology

This study would use three major methodologies. Firstly, the multidimensional poverty analysis tool developed by Alkire and Foster (2011). The second method will involve a socio-economic survey and thirdly, geographic information systems (GIS) technique.

Results Achieved So Far

Identified collaborators and funding agencies.

Way Forward

Literature is being reviewed while proposal is being revised. Additionally, other possible funding agencies are being sought.

4.0. Programmes And Activities

4.1. Library And Documentation Division

The Library and Documentation Division has as its operational objectives among other things to collect, process, store and repackage for dissemination S&T Information (STI) embodying the results of indigenous S&T research activities as well as those generated elsewhere for the benefit of planners in government to production and manufacturing concerns, to support and promote the production of efficient Research and Development (R&D) activities in the country through the provision of Scientific and Technical Information (STI) services using appropriate information processing and communication technologies.

4.1.1 Collection Development Section

The Collection Development section is responsible for providing specific and general guidelines for the selection and acquisition of new materials through purchases, exchanges, soliciting or donation, legal deposit or through subscription and collaboration. It is also responsible for data collection to feed all the databases in the Library and Documentation Division.

Major activities

The section continued to identify, select and receive some relevant Science and Technology

Materials for the library. Periodicals such as journals, magazines and newspapers were received through exchanges, donation and legal deposit. The Section also acquire the following materials: Serials, Annual reports, monographs, Theses, Newspapers and other digital resources such as CDs.

Collection and Management of Science and Technology (S&T) Materials

The section received forty-eight (48) Journals, ten (10) Monographs, eleven (11) Annual Reports, one hundred and sixty-six (166) Newspapers, eleven (11) Theses, and three (3) CDs during the period under review. The total collection for the year was 249 documents.

This is depicted in table 1 below:

Table 1. Statistical review of materials received in the year under review.

<i>Type of materials</i>	<i>No of copies</i>	<i>No. of Titles</i>	<i>Percentage</i>
Journals and magazines	48	35	19.28
Newspapers	71		28.51
a. Daily Graphic	71		28.51
b. Times	12		4.82
c. Mirror	12		4.82
d. Spectator			
Theses	11	11	4.42
Annual Reports	11	10	4.42
Books	10	6	4.02
CDs	3	3	1.20
Total	249		100

4.1.2 Cataloguing And Classification Section

The Cataloguing and Classification section is responsible for the processing of the materials acquired for the library. It processes them for display and use by clients. This is done by way of physical and content descriptions of the materials acquired. The section received materials from the Collection Development Section for processing and these materials were processed and same were entered into the appropriate databases. All the materials received were processed within the review period.

4.1.3 User Services Section

The User Services section supports clients to identify and retrieve information desired to satisfy their needs. These services are provided through books, periodicals, abstracts, newspapers, and reference materials. Though the services are digitized, manual information re-

trievals for scientists, consultants, and students continued. This involved the use of tools such as the card catalogue, books and other reference materials.

Visits to the Library

A total of three thousand, eight hundred and twenty-three (3,823) students and researchers visited the library during the period under review. Out of this number, 3,536 (92.5%) of them used the reading room on the ground floor whilst 287 (7.5%) used books and other facilities at the User Services section. Table 2 below illustrates the trends:

Table 2: Clients' visits to the Library

<i>Section</i>	<i>Number</i>	<i>Percentage</i>
Reading Room	3823	92.5
User Service Section	287	7.5
Total	3823	100.0

4.1.4. Information And Technology (IT) Division

Introduction

The IT Section carried out general maintenance of computer/ICT equipment in the Institute. These include the installation and test of new software, ensuring that staffs work with appropriate software, and ensuring that anti-virus software are installed and kept up to date. In the area of hardware, the staff carried out checks on and installed new computers. The Section provides IT backbone services for all workshops and seminars in the institute.

Major activities

Network system

The network system in the institute has operated with routine maintenance tasks carried out by IT technicians. This involved regular inspection and attending to reported problems. The institute during

the period under review has continued to subscribe to Vodafone’s internet office package.

Computer Maintenance and Servicing

The Institutes computers were maintained and serviced by IT technicians with assistance from national service persons. No new computers were acquired by the institute during the period. The ECOAGRIS project however received a computer from the coordinating office at MOFA in readiness for the data-hub activities. An LCD projector was purchased by the institute to facilitate presentations at seminars and workshops.

CSIR-INSTI website

The CSIR-INSTI website, www.csir-insti.org underwent re-designing and populating with the assistance of national service persons since the beginning of 2016. Profiles of senior members and staff have been provided as well as on-going research projects. Publications of the institute, which include past annual reports and journals (Ghana Journal of Agricultural Science (GJAS) and Ghana Journal of Science (GJA), have also been introduced on the website. The journals show contents and abstracts of articles published.

E-Resources

An e-Resources subdomain that link users to many journals has been introduced in the CSIR INSTI’s website. The resources provided users access to multi-disciplinary databases of journals listed below and could be accessed at <http://e-resources.csir-insti.org:2048/menu>. A password is provided to enable users gain the access.

Table 3: INSTI E-Resources Database

American Institute of Physics Journals	Sage
Cambridge University Press	Sage Research methods
Cochrane Library	Taylor & Francis

CREDO Reference	University of Chicago Press
EBSCO Host Research Databases	University of California Press
EBSCO Support Research Databases	Wiley Interscience
Emerald	World bank e-library
EUP Journals online	Royal Society Journals online
IEEE	Royal College of Physicians
IMF e-library	Project MUSE online
Institute of Physics	Palgrave Macmillan Journals
JSTOR	Oxford Scholarship online
Liebert Online	Oxford Journals
OSA Journals	Oxford Grove Music
Oxford Dictionary	Oxford Dictionary of National Biography

CSIR-INSTI Moodle

The second feature of the CSIR-INSTI's website is the Moodle subdomain. Based on the memorandum of understanding between CSIR-INSTI and INASP, training in research and grand proposal writing by AuthorAid for research scientists and technologists have been carried out by the institute. This forms part of the research capacity building activities that are to be carried out under the auspices of AuthorAid. One of the supports is to build capacity in setting up and maintaining a Moodle site. Moodle is an online platform that is widely used around the world, especially in Higher Education. The INSTI Moodle site is named, CSIR-INSTI Moodle and could be accessed at <http://csir-insti.org/moodle/>. The Institute successfully conducted the AuthorAID/INASP research writing training programme which lasted 6 weeks. In all, 43 research scientists and technologists drawn from seven institutes of the CSIR signed up for the on-line research writing course but only 11 participants completed fully whilst 7 could not complete one or two modules of the course.

E-Government platform

The e-government platform is being rolled out by the National Information Technology Authority (NITA) under the auspices of the Ministry of Communication. The IT Section participated in three meetings held in June, July and September 2017 on behalf of the CSIR. A workshop on e-government was held in December to assess the extent of the implementation of the e-government policy. The Reports of the meetings were submitted to the Director-General through the Director of the Institute.

WAAPP website

The IT Section played an active role in the WAAPP website updates and is represented in the management committee. It has been doing this service since its inception in October 2009. The head of IT Section has contributed to the review of contents of the website, as and when they were presented. Three meetings were held during the year.

Support for CCST

The IT Section collaborated with the MIS section of the CSIR Head Office in works that led to the registration of the domain name (ccst.edu.gh) hosting and design of the website for the CSIR College of Science and Technology (CCST). It also collaborated in the acquisition of broadband services by Vodafone and the inspection of the main campus at Broz Tito Avenue, Cantonments-Accra for the determination of access, wireless and data points by private service providers.

R&D programmes

The IT Section was involved in the collaboration for the research projects listed in Table 3.

Table 4: R&D Projects

	<i>Title</i>	<i>Status</i>
1	Developing a framework for geo-spatial data integration for district level planning in Ghana	Supplementary data is required to complete the project and a paper developed for publication.
2	The geospatial dimension of soil suitability categorization for Agricultural improvement in South Tongu District of Ghana.	Paper has been submitted to <i>Ghana Journal of Geography</i>
3	Regional Capital City mapping project.	On-going project aimed at digitizing data from Google maps towards production of base maps of the capital cities of Ghana
4	Development of geo-spatial databases for enhanced district level planning in Ghana: A thematic mapping approach.	On-going. Over 200 base maps have been compiled.
5	A geospatial approach to the assessment of the impact of dumpsites on human health (at household levels) in Ghana: A case study of the Greater Accra Region.	Proposal developed and awaiting funding
6	Climate change adaptation practices by food crop farmers in Ghana: the case of Kintampo North Municipality.	Proposal developed and awaiting funding

Challenges

The IT Section is currently made up of only three core members of staff, one, studying for PhD degree in Electrical Engineering and two Technical Assistants at post. No new recruitment has been made at the senior level for the past 3 years. The Section has had to rely on national service persons whose short stay leaves a void in assignments that they handle after they complete their service. The lack of funds

to replace old computers, software and other facilities is a big challenge since working tools across the institute are all computer based. A shortfall in computer availability and software updates is greatly affecting work output.

The restoration of internet services to the annexes through the resourcefulness of the national service persons during the last quarter report of 2016 has to a large extent eased work in the divisions.

4.2. Thematic Mapping Division

The Division continues to pursue its mandate by gathering data and information to design and construct Thematic Maps that depict contemporary geographic knowledge on Ghana at the national, regional and municipal or district levels and also respond to the need of clients for special or customized maps. The Division used available human and material capacities to train individuals and institutions on the techniques of spatial data documentation using Geographical Information Systems (GIS).

The objective of the Division for the period was to collect and analyse data for the design and construction of thematic maps using digital technologies to depict Ghana's resources and development potential for the purpose of aiding planning, policy-decisions, research and general education at all levels. The priority areas were resource mobilisation, partnership and networking, capacity building and making the Division visible.

The activities in the Division during the year were technical and research based. The former included data capture (digitising and scanning), geo-referencing, editing and map composition, all carried out by qualified cartographic technicians. While on the other hand, it involved identification of research problems within the thematic areas of the Director General's Vision for the Council, and using geo-spatial techniques to address them.

Technical Activities

The Division continued mapping activities in pursuance of its mandate to collect and analyze data for the design and construction of thematic maps depicting Ghana's resources and development potentials in order to aid planning, policy decision-making and for general education using digital technologies. The Division undertook the under listed programmes, all but one was a continuation of previously started projects.

At the request of clients, the following map product were produced and delivered accordingly:

Ghana Maps

- Temperature distribution map of Ghana
- Rainfall distribution map of Ghana
- Mineral distribution map of Ghana
- Political map of Ghana
- Geological map of Ghana
- Meteorological stations in Ghana
- Vegetation map of Ghana
- Relief Map of Ghana
- Regional/District Map of Ghana

Africa Maps

- Physical map of Africa—digitized, composed and designed a physical map of Africa showing relief and drainage features on the continent
- Vegetation map of Africa---digitized, composed and designed a vegetation map of Africa showing the various vegetation zones on the continent

West Africa Maps

- Vegetation map of West Africa---digitized, composed and designed a vegetation map of west Africa showing the various vegetation zones in the sub region
- Administrative map of West Africa---digitized, composed and

designed a map showing the administrative regions in West Africa.

Other Map

- Locations of Restaurants and Food Joints in Osu,

Aside these products, the Division continued to update its geospatial database with special reference to communication network (roads, railways, footpaths etc) using up to date satellite images on Google Earth. These processes are being accomplished by two technicians and five national service personnel in the Division.

5.0. Administration and Financial Issues

5.1 Administration

The Administration Division provided administrative support services and created the enabling environment to the entire staff to enable them perform their jobs. The Division also implemented directives, policies, rules and regulations of the Council.

5.1.1 Management of INSTI

A seven member Management Board with Dr. Paul Effah as the Chairman, and a 12-member Internal Management Committee (IMC) with Dr. Joel Sam, Director of the Institute as Chairman managed the Institute for the period.

5.1.2 Staff Strength

The staff strength of the Institute stood at 71. This is made up of 18 Core Research Scientists, three Non-core Senior Members, 26 Senior Staff, and 28 Junior Staff. The staff strength and gender distribution is shown below. The full list of staff can be found in Appendix II.

Table 5: Staff Strength: Gender Distribution

<i>Gender</i>	<i>Senior Members</i>	<i>Senior Staff</i>	<i>Junior Staff</i>	<i>Total</i>
<i>Males</i>	14	16	23	53
<i>Females</i>	4	12	2	18
<i>Total</i>	18	28	25	71

5.2. Human Resource Development

As part of the Institute's policy on capacity building, the following members of staff have been granted study leave to further their education at

various higher Institutions. Below depicts detail information on a number of staff who are currently on full time /partial study leave with pay:

Table 6: Number of staff on full time/partial study leave with pay

<i>NO</i>	<i>NAME</i>	<i>INSTITUTION</i>	<i>PROGRAM</i>	<i>DURATION/STATUS</i>	<i>DATE OF PROGRAM</i>	<i>REMARKS</i>
1.	M. A. Mahamadu	SouthWest Jiatong, Univ. China	Ph.D (Comm. Eng.)	2 years full time study leave with pay	Sept. 2012 – Aug. 2014	Extended to Sept., 2017 Bonded
2.	Lucy Dzandu	Accra Institute of Technology	Ph.D (Information Technology)	4 years partial study leave with pay	Sept. 2013 – Aug. 2017	Not Bonded
3.	Felix T. Kabutey	Harbin Institute of Technology, China	Ph.D (Environ Sci. & Eng.)	3 years full time study leave with pay	Sept. 2015 – July. 2018	Bonded
4.	Doris Ku-miwa	Tema Campus Univ. of Cape Coast ,	Diploma in Business Studies	3 years partial study leave with pay	Aug. 2015 – July. 2018	Not Bonded
5.	Samuel Ankrah	Accra Campus, Univ. of Cape Coast	B.Com	2 years partial study leave with pay	Aug. 2015 – July. 2017	Not Bonded
6.	Emmanuel Davidson	KAAP Univ. College	BSc. (Geomatic Eng.)	4 years partial study leave with pay	March- 2014 Feb., 2018	Not Bonded

5.2.1 Study Leave Issues

- Mr. Stephen Bekoe, Scientific Information Officer, who was granted a-4 year study leave with pay to pursue a course leading to the award of Ph.D in Human Geography Development at the Royal Holloway University of London, completed the course and resumed duty in October, 2016.
- Ms. Risikatu Lawal, Senior Accounting Assistant was granted a-4 partial study with pay to pursue a 1st degree course in Business Administration (Accounting Option) at the Central University College. She has completed the course as slated.

5.2.2 Retirement

- Mrs. Gifty Yiborku, Chief Administrative Assistant retired from the service of the Council on 29th February, 2016 after she has served the Council for many years.
- Mr. Ernest Sonne, Senior Assistant Transport Officer retired from the service of the Council on 30th November, 2016 after he has served the Council for many years.

5.2.3 Resignation

Mr. Samuel Opare, Chief Technical Officer resigned as a staff from the Council on 11th April, 2016.

5.2.4 Staff Promotion

In all, eleven (11) Officers were due for promotion and same were processed and submitted to the Head Office to be considered for promotions.

5.2.5 National Service/Attachment Personnel

The following personnel were attached to the various Divisions to do their national service/attachment. The service came to an end on 31st August, 2016.

Table 7: National service / attachment personnel

<i>NO.</i>	<i>NAME</i>	<i>INSTITUTION</i>	<i>DIVISION ATTACHED TO</i>
1.	Edinam A. Woetsa	Data Link University of Ghana	Comm. & Information
2	Alfred Adjei Sowa	KNUST	Information & Technology
3	Deborah Richmond	University of Ghana	Thematic Mapping
4	Perpetual Ollenu	KNUST	Science Publishing
5	Thomas Laryea	University of Ghana	Library & Documentation
6.	Jerry P. Y. Nortey	University of Ghana	Library & Documentation
7	Ernest K. Yevugah	University of Ghana	Library & Documentation
8	Edwin Tetteh-Bio	Rasford University	Printing

5.2.6 Industrial Attachment

The following persons did industrial attachment at the Institute during the period under review.

Table 8: Industrial attachment personnel

<i>NO.</i>	<i>NAME</i>	<i>INSTITUTION</i>	<i>DIVISION ATTACHED TO</i>	<i>DATE OF COMMENCEMENT AND EXPIRY</i>
1	Vivian Amponsah	Univ. of Ghana	Library and Documentation	4 th January, 2016 – 22 nd January, 2016
2	Augustina Agyekum Antwi	Univ. of Ghana	Library and Documentation	4 th January, 2016 – 22 nd January, 2016
3	Elisabeth Basoah	Univ of Cape Coast	Thematic Mapping	23 rd May, 2016 – 31 st July, 2016
4	Priscilla Ampofo	Univ. of Prof. Studies	Information Technology	1 st June, 2016 – 30 th August, 2016
5	Joseph Ampadu	Univ. of Ghana	Library and Documentation	1 st June, 30 th August, 2016
6	Dorh Richmond Adjartey	Univ. of Ghana	Thematic Mapping	1 st June, 2016 – 30 th August, 2016

5.3 Financial Report

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR ENDED DECEMBER 31, 2016

	BUDGET	ACTUAL 2016	ACTUAL 2015	VARIANCE
REVENUE		GH¢	GH¢	GH¢
Compensation	2,740,289.00	2,687,599.99	2,786,319.21	(52,689.01)
Goods and Services	37,669.00	28,075.31		(9,593.69)
Non-Financial Assets				-
IGF	674,661.00	302,789.22	289,268.09	(371,871.78)
Donor-Grants	91,898.09	37,351.59	91,898.09	(54,546.50)
Other Income				
	3,544,517.09	3,055,816.11	3,167,485.39	(488,700.98)
EXPENDITURE				
Compensation	2,740,289.00	2,687,599.99	2,747,220.87	52,689.01
Goods and Services	37,669.00	199,308.51	193,121.02	(161,639.51)
Non-Financial Assets				-
Govt Subsidies				-
Social Benefits				-
Other Expenses-IGF	674,661.00	158,439.32	201,310.46	516,221.68
Consumption of Fixed Assets	20,792.82	9,134.10	20,792.82	11,658.72
	3,473,411.82	3,054,481.92	3,162,446.17	418,929.90
(SURPLUS/DEFI- CIT)		1,334.19	5,039.22	(69,771.08)

**INSTITUTE FOR SCIENTIFIC AND
TECHNOLOGICAL INFORMATION
BALANCE SHEET AS AT 31ST DECEMBER 2016**

	2016	2015
	GH¢	GH¢
CURRENT ASSETS		
Stocks	5,718.60	3,260.38
Sundry Debtors	25,865.40	25,865.40
Staff Debtors	8,904.56	12,856.88
Inter-Institute Debit Balances	18,837.84	18,837.84
Bank & Cash Balances	24,271.40	27,976.62
TOTAL CURRENT ASSETS	83,597.80	88,797.12
	59,326.40	60,820.50
NON CURRENT ASSETS	33,117.37	32,355.25
TOTAL ASSETS	116,715.17	121,152.37
LESS CURRENT LIABILITIES		
Inter -Institute Credit Balances	79,322.93	86,523.69
Provision and Accruals	13,590.00	13,590.00

Other Credit		
Balances	7,164.37	5,735.00
TOTAL		
LIABILITIES	100,077.30	105,848.69
NET ASSETS	16,637.87	15,303.68
CONTRIBUTED		
BY		
Accumulated		
Fund	16,637.87	15,303.68

APPENDIX I: PUBLICATIONS

Workshops/Conferences

Sam, J. attended a-4 7th Africa Agriculture Science Week and FARA General Assembly held from 13th to 16th June, 2016 at Kigali, Rwanda.

Kofie, R attended the following Workshops;

A one-day Orientation Programme for Deputy Directors of CSIR on 25th February 2016 held at CSIR Head Office Conference Room, Accra.

Two-day Workshop on Sustainable Agricultural Intensification Research and Learning in Africa (SAIRLA) held from 16th to 17th May, 2016 at CSIR-STEPRI Auditorium, Accra

Workshop on Enhancing AuthorAid Embedding Using Moodle held from 23th to 25th May 2016. Fisheries Research Institute (TAFIRI), Dar es Salaam, Tanzania.

Forum on Open Data, Open Science and Open Access in Agriculture in Ghana, held on 11th July 2016 at Best Western Hotel, Accra.

A one-day Sensitization Workshop on Indigenous Knowledge (IK) on Forest Foods and Medicinal Plants in Ghana, held on 19th October, 2016, CSIR-INSTI Conference Room, Accra.

E-Government Workshop held from 9th to 10th November 2016, AI-TI-KACE, Accra.

Osei, S. attended a workshop on ‘ECOAGRIS’ on 1st December 2016, at MoFA Resource Center, Accra.

Folitse, B. attended a workshop on ‘ECOAGRIS’ on 1st December 2016, at MoFA Resource Center, Accra.

Acquaye, E. attended TEEAL & AGORA Training-of-trainers Workshop held from 13th to 15th June 2016, at CSIR-INSTI Conference Room, Accra.

Pappoe, R. attended TEEAL & AGORA Training-of-trainers Workshop held from 13th to 15th June 2016, at CSIR-INSTI Conference Room, Accra.

APPENDIX II

LIST OF STAFF AS AT 31ST DECEMBER, 2015

SENIOR MEMBERS

NO.	NAME	DESIGNATION	QUALIFICATION
1	Dr. Joel Sam	Chief Librarian/ Director	Ph.D(Infor.Studies);MPhil. (Library Studies); B.A.(Hons); Grad.Dip. Library Studies
2	Dr. Richard Yao Kofie	Prin. Research Scientist/Dep. Director	Ph.D(Geography);MPhil. (Geography); B.A.(Hons); Cert.(Remote Sensing)
3	Mr. Simon Osei	Librarian	PG.Dip.(Library Studies); B.A.(Hons) Library Studies
4	Mr. Eric Asante	Chief Technologist	CEMBA(General Mgt.); B.A.(Hons) Art
5	Mrs. Lucy Payne Dzandu	Senior Librarian	M.Phil(Library Studies); M.A.(Library Studies); B.A.(Hons) Library Studies
6	Mr. Christian K. Lettu	Chief Technologist	M.Phil(Dev.Geography); B.A.(Hons)
7	Mr. Mahamuda A. Mahamadu	Scientific Information Officer	MSc.(Electrical Engineering); BSc.(Hons) Computer Sceince/ Statistics)

8	Mr. Alphonse Ayitey Armah	Snr. Scientific Infor. Officer	MPhil.(Entomology); BSc(Hons)Zoology & Botany;BED.
9	Mr. Benjamin Yao Folitse	Librarian	M.Phil(Agric.Ext.); M.A.(Library Studies); BSc.(Agric Ed.); BEd.
10	Dr. Albert N.M. Allotey	Research Scientist	Ph.D(Geography & Resource Dev't; M.Phil(Dev.Geography; B.A.(Hons) Geography
11	Mr. Joshua Addae-Boateng	Public Relations Officer	M.A.(Adult Education); B.A.(Hons) Psychology/Religion
12	Mrs. Gifty N.D. Aryee	Snr. Administrative Officer	M.A. (Industrial Sociology); B.A. (Management Studies); DBS (Secretarial)
13	Mr. Stephen Bekoe	Scientific Information Officer	MSc. (Information Stud.); B.A.(Hons) Publishing Studies
14	Mrs. Grace Obeng-Koranteng	Librarian	M.A. (Library Studies); B.A.(Hons) Infor. Studies with History; Dip. (Librarianship)
16	Mr. Collins Opoku-Dwomoh	Principal Technologist	PGDip.(Publishing Studies); B.A.(Hons) Publishing Studies
17	Mr. Joseph A. Ayen	Accountant	MBA(Finance), GIM-PA; I.C.A(GH); BSc. (Admin.) Accounting

18	Mr. Felix Tetteh Kabutey	Scientific Information Officer	MPhil(Botany); BSc. (Applied Biology with Environmental Sci.); Teacher's Cert "A";
19	Mrs. Dorothy Awanyo	Administrative Officer	MBA (Admin); B.A(-Public Admin.); Dip. (Librarianship)
20	Dr. Seth A. Manteaw	Snr. Scientific Information Officer	PhD(Agric.Ext); MSc(Agro); PGDip. (Com.Stud); MA (Com.Stud.)
21	Mr. Edwin Adotevi	Senior Technologist	BA (Comm. Studies)

SENIOR STAFF

NO.	NAME	DESIGNATION	QUALIFICATION
1	Mr. Dennis N.D. Dodoo	Chief Purchasing Assistant	HND (Purchasing)
2	Ms. Cordellia Akua Busumtwi	Chief Administrative Assistant	Cert. (Private Secretary)
3	Ms. Bernice Acorlor	Chief Administrative Assistant	HND (Secretariaship & Mgt.)
4	Mrs. Gifty Yiborku	Chief Administrative Assistant	HND (Secretaraship & Mgt.)
5	Ms. Doreen Appiah	Chief Library Assistant	BA (Info.Studies with Political Sci.); HND (Info. Systems)
6	Mrs. Janet Otoo-Abedi	Chief Accounting Assistant	Dip.(Public Finance&Accountancy)

7	Mr. Emmanuel E. Davidson	Chief Technical Officer	Cert. Basic Cartography
8	Mr. Jeffrey Yeboah	Principal Library Assistant	B.A. (Info.Studies & Archaeology)
9	Mr. Francis Viduku	Principal Technical Officer	Cert.(ITS) Snr.Sup/ Mgt.Cert. (Printing Mgt.)
10	Mr. Samuel Opare	Chief Technical Officer	BSc.(Mgt & Computer Studies)
11	Mrs. Margaret Ivy Koranteng	Chief Library Assistant	Diploma (Librarianship)
12	Ms. Belinda B. Nkansah	Principal Administrative Assistant	BSc.(Admin. HRM);DBS (Secretarial)
13	Mr. Daniel Darke	Chief Accounting Assistant	HND(Accounting);DBS(Accounting)
14	Miss. Esther Opoku	Principal Library Assistant	BA (Info.Studies & Sociology); Diploma (Librarianship)
15	Mr. Eric Sam	Senior Technical Officer	HND (Graphic Designing)
16	Ms. Sarah Mensah	Principal Accounting Assistant	Dip.(Public Fin. & Accounting)
17	Mr. Alex K.I. Ocansey	Principal Technical Officer	Cert.(ITS)Snr.Sup/ Mgt;NVTI Gd I Cert.
18	Mr. Atta Ampofo Addo Snr.	Principal Library Assistant	CIM-UK(Level 1); BA (Info. Studies & Sociology)

19	Mr. Ernest N.A. Sonne	Senior Assistant Transport Officer	Transport Mgt.Cert; Def.Driving Cert; MSLC
20	Ms. Risikatu Lawal	Senior Accounting Assistant	DBS(Accounting);CIPS Cert. (Purchasing & Supply)
21	Mr. Samuel Ankrah	Accounting Assistant	HND(Accountancy); SSSCE; BECE
22	Mr. William K. Akpakli	Senior Security Officer	BA (Social Work with Psychology); SSSCE; BECE
23	Mr. James Sam	Senior Accounting Assistant	DBS (Accounting)
24	Mr. Robert Abo-moi	Security Officer	Security Training Module 3; MSLC
25	Mr. Roland A. Pappoe	Technical Officer	Cert(Linux Network Admin.); City & Guilds Grad.Dip. (Microtech)I&II
26	Mr. Eric K. Acquaye	Technical Officer	Advanced Cert. in Microsoft Certified Systems Eng. (GIMPA); SSSCE
27	Mr. Timothy Kwamena	Assistant Transport Officer	Cert.(Trans Mgt); Inter-city STC Coaches Ltd.; MSLC
28	Mrs. Susan Nana Gyamfi	Chief Auditing Assistant	BA (Accounting)
29	Mrs. Linda Agbefi	Principal Auditing Assistant	Bachelor of Commerce

JUNIOR STAFF

NO.	NAME	DESIGNATION	QUALIFICATION
1	Mr. Alex Bamfo Mireku	Senior Technical Assistant (Works)	Special Junior Tech.Su-pervisory Mgmt.Course, ITS-Accra.;NVTI Cert.
2	Ms. Lucy Akyempon	Senior Clerk	
3	Mr. Stephen Ayim	Junior Foreman	Special Junior Tech.Su-pervisory Mgmt.Course, ITS-Accra.; NVTI Cert.
4	Mrs. Salamatu Abdul Mumuni	Clerk Grade I	NACVET Cert.(STE-NOGRAPHER)
5	Mr. Charles Kulley	Jnr. Library Assistant	SSSCE
6	Mr. Joseph Lamptey	Traffic Supervisor	Intercity STC (Def. Driving Course);BECE
7	Mr. Enos Awusie	Driver Inspector	Intercity STC (Def. Driving Course); MSLC
8	Mr. Bancie Habi-la Hussein	Jnr. Library Assistant	SSSCE
9	Mr. Razark Ay-idana Akambase	Supervisor Grade I	B.E.C.E.
10	Mr. Seth Asare	Tradesman Grade I	Special Junior Tech.Su-pervisory Mgmt.Course, ITS-Accra.;
11	Mr. Isaac G. Amponsah	Supervisor Grade I	NVTI GD II
12	Ms. Yvonne D. Azuma	Clerk Grade I	SSSCE
13	Mr. Robert Achandi	Supervisor Grade II	M.S.L.C.
14	Mr. Cephas Awusie	Senior Security Assistant	Security Training Mod-ule 3; G .C. E.'O' Level

15	Mr. Simon Angabe	Security Assist. Grade I	Security Training Module 3; G .C. E. 'O' Level
16	Mr. Nathan K. Aborgeh	Security Assist. Grade I	Security Training Module 3; M.S.L.C.
17	Mr. Abdul Rahman Iddrisu	Senior Security Assistant	Security Training Module 3; M.S.L.C.
18	Mr. Kojo Asanab	Supervisor Grade I	B.E.C.E.
19	Mr. Francis Ayarik	Supervisor Grade II	Nil
20	Mr. Abdul Wahab Usman	Senior Labourer	Nil
21	Ms. Doris Kumiwa	Principal Telephonist/ Receptionist	DBS(Secretarialship); Nat. Banking Coll.(Cert Cashier & Frontline Exec); SSSCE; BECE
22	Mr. Matthew Narteh Amoatey	Driver Grade II	City & Guild (Mech. Eng. Craft Practice); BECE; Driv. Lic "C"
23	Mr. Fuseini Inusah	Security Assistant Grade I	SSSCE; Security Training (Module II)
24	Mr. Jonathan Sotie	Driver Grade II	NVTI (Motor Vehicle Mechanic I); BECE