

Kwame Nkrumah University of  
Science and Technology



**VICE-CHANCELLOR'S  
REPORT**

**47<sup>TH</sup> CONGREGATION**

JUNE, 2013



**Professor W. O. Ellis**  
**Vice-Chancellor**

**KWAME NKRUMAH  
UNIVERSITY OF SCIENCE AND TECHNOLOGY  
KUMASI - GHANA**



**VICE-CHANCELLOR'S REPORT**

**47<sup>TH</sup> CONGREGATION**

# PRINCIPAL OFFICERS OF THE UNIVERSITY COUNCIL

## **Chancellor**

Otumfuo Osei Tutu II, Asantehene

## **Chairman**

Mr. Paul Victor Obeng

## **Vice-Chancellor**

Professor W. O. Ellis

## **OTHER OFFICERS**

### **Pro Vice-Chancellor**

Professor S. N. Odai  
BEng [Hehai] China, MSc,  
PhD [TUAT] Tokyo, MGhIE

### **Registrar**

Mr. Kobby Yebo-Okrah MCIPR  
BA, Postgrad. Dip. Comm. Studies, Ghana, MA, Med, Ohio

# **ADMINISTRATION OF THE UNIVERSITY**

## **VICE-CHANCELLOR**

Professor W. O. Ellis  
BSc, Kumasi, PhD, McGill

## **PRO VICE-CHANCELLOR**

Professor S. N. Odai  
BEng [Hehai] China, MSc, PhD [TUAT] Tokyo, MGhIE

## **REGISTRAR**

Mr. Kobby Yebo-Okrah MCIPR  
BA, Postgrad. Dip. Comm. Studies, Ghana, MA, Med, Ohio

## **FINANCE OFFICER - ACTING**

Mr. K. Mensah-Bonsu  
BSc (Admin.) Ghana

## **LIBRARIAN**

Dr. (Mrs) Helena R. Asamoah-Hassan  
PhD Kumasi, BLS A. Bello, MA (Lib. Studies), Ghana

## **DIRECTOR OF WORKS & PHYSICAL DEVELOPMENT**

Mr. K. Kyeremeh  
BSc (Bldg. Tech), MSc (Const. Mgt.), Kumasi, MGhIS

## **ACTING INTERNAL AUDITOR**

Mr. Daniel Bart-Plange  
ICA, Ghana, MBA (Finance)

## **DIRECTOR, UNIVERSITY HOSPITAL**

Dr. Yaw Bio  
BSc, MB ChB, Kumasi, PhD, B'ham

# **PROVOSTS OF COLLEGES**

## **COLLEGE OF AGRICULTURE AND NATURAL RESOURCES**

Professor R. C. Abaidoo  
MSc Kumasi, PhD Hawaii

## **COLLEGE OF ARCHITECTURE AND PLANNING**

Professor Edward E. Badu  
BSc, Kumasi, MSc Lough, PhD, NIT Japan, MGIOC, MCIOB, MGhIS, MFIG

## **COLLEGE OF ART AND SOCIAL SCIENCES**

Professor S. K. Afrane  
MSc (Econs in Soc. Policy) Wales, PG. Dip (Housing), PhD (Comm. and Reg. Plg) *Brit. Col.*,  
MGIP

## **COLLEGE OF ENGINEERING**

Professor S. I. K. Ampadu  
BSc Kumasi, MSc, PhD Tokyo, FGhIE

## **COLLEGE OF HEALTH SCIENCES**

Professor E. T. Agbenyega  
BSc, MB ChB, Kumasi, PhD *Manc.*

## **COLLEGE OF SCIENCE**

Professor R. K. Nkum  
MSc Kumasi, DSc Technien Haifa, CPhys, MInstP

## TABLE OF CONTENTS

College of Agriculture and Natural resources	---	---	---	---	1
College of Architecture and Planning	---	---	---	---	63
College of Art and Social Sciences	---	---	---	---	86
College of Engineering	---	---	---	---	131
College of Health Sciences	---	---	---	---	167
College of Science	---	---	---	---	229
Institute of Distance Learning	---	---	---	---	260
School of graduate Studies	---	---	---	---	267
Office of the Dean of Students	---	---	---	---	270
University library	---	---	---	---	276
International Programmes Office	---	---	---	---	285
Sports directorate	---	---	---	---	289

# **COLLEGE OF AGRICULTURE AND NATURAL RESOURCES**

## **INTRODUCTION**

The College of Agriculture and Natural Resources was established under statute 33 in October 2004, as one of the six Colleges of the University, created under the Collegiate system. Its mandate is to train, research and disseminate knowledge in sustainable agriculture, renewable natural resources management and rural development. The College is made up of the following Faculties and Research Centres:

## **FACULTIES**

- Faculty of Agriculture
- Faculty of Renewable Natural Resources
- Faculty of Forest Resources Technology

## **RESEARCH CENTRES**

- Bureau for Integrated Rural Development (BIRD)
- Centre for Biodiversity Utilization and Development (CBUD)
- KNUST Dairy/Beef Cattle Research Station, Boadi
- Agriculture Research Station, Anwomaso

## **COLLEGE ADMINISTRATION**

The College Administration is headed by a Provost who is assisted by Administrative and Academic staff. The College Registrar heads the Administrative Staff; the College Accountant heads the Finance and Accounts Staff, and the College Librarian directs the delivery of library services to students and staff. The Faculties are headed by Deans; and Directors and Heads of Departments head the Research Units and Academic Departments, respectively.

The coordination of the teaching, research, income generation, students' welfare and other matters which have been extensively reported by Faculties, Academic Departments and Research Units is carried out in the Provost's Office by the following staff:

Provost	R. C. Abaidoo, PhD
College Registrar	Mr. Solomon Panford
College Accountant	Mr. E. Appiah-Kubi
Ag. College Librarian	Mr. E. K. Bani
Principal Administrative Assistant	Mrs Nana Adjoa Insaiddoo
Senior Administrative Assistant	Mr Isaac Dwirah Jnr.
Office Support	Mr. Godfred Fosu

## **PHYSICAL DEVELOPMENT AND INVESTMENTS**

The College made a total investment of over GHc1.6m in buildings, laboratory and field equipment, laboratory chemicals, and purchase and maintenance of vehicles. These include the completion of PhD Office Block, refurbished Microbiology Laboratory for postgraduate research and completed drawings for classroom and office complex for the College. These investments have been made possible through our internally generated income activities.



## **STAFF RECRUITMENT AND CONTINUING CAPACITY DEVELOPMENT**

The College made insignificant gains in recruitment of staff despite the aggressive head hunting and media advertisement. Many successful attempts were made to provide early and medium career stage lecturers and research fellows. Specific activities included workshops designed to investigate the potential for developing extension minor in the undergraduate and graduate programmes; propose extension minor model, identify skills and competencies for graduates and identify opportunities for institutional capacity. These also included competence and skills building designed to facilitate staff desire to rise to the challenges of their work especially graduate student supervision.

## **VISITORS TO THE COLLEGE**

The numerous individuals and groups who visited the College include the following: **Drs Bashir Jama** and **Marie Rarieya**, SHP, AGRA; Prof **Steve Daniels**, Community Development Specialist, Utah State University; **Dr Moses Zinnah**, Deputy Minister for Planning and Development, Liberia; **Prof Gregg B. Walker**, Professor in Communication and Adjunct Professor in Environmental Sciences, Forestry, Oceanography, Public Policy and Water Resources Program, Oregon State University, USA; **Dr. Jens Emborg**, Associate Professor, Danish Center for Forest, Landscape and Planning, University of Copenhagen; **Dr Ingrid, Fromm**, Development Economics; Bern University of Applied Sciences; **Prof Henrik Balslev**, Ecoinformatics and Biodiversity, Aarhus University, Denmark; **Dr. Joep van den Broek**, Associate Consultant / Ethiopia, Center for Development Innovation, Wageningen University and Research), The Netherlands; **Tom Gambrah**, Managing Director, Premium Foods, Kumasi, Ghana; **Dr Abishkar Subedi**, Genetic Resources and Seed System Specialist, Center for Development Innovation, WUR; and **Dr Marikis Alvarez**, Associate Dean for Research, Delaware State University, USA who specifically visited the Administration; Jarno Hamalainen, Finland; B.P. Sah, Pasco Corporation, Tokyo; Renate Diggelmann and Lucien Biolley, Zurich, Switzerland; CEO, Clean Seed Capital Group, Canada, 3K&A Industries Limited, Kumasi. Visitors to specific Departments and Faculties are reported in the respective sections below.

## **RESEARCH GRANTS, KNOWLEDGE GENERATION AND DISSEMINATION**

Staff of the College made significant progress in attracting research funds which were used for generating research results; and also successfully reported such results at scientific meetings and in peer-reviewed journals. Overall, 230 publications among which the refereed journal publications are disaggregated by Department as follows: Crop and Soil Sciences, 30; Horticulture, 10; Agricultural Economics, Agribusiness, and Extension, 30; Agroforestry, 6; Animal Science, 16; Silviculture and Forest Management: 4; Wildlife and Range Management, 22 and Wood Science, 4.

## **LINKAGES**

The College has supported Institutional linkages with Wageningen University and Research and Universities of Denmark, Norway, Michigan State, North Carolina, and Guelph with whom collaborative agreements have been signed with support from the KNUST Central Administration. These linkages have created virtual laboratories for generation and dissemination of research results and staff exchange.

Details of these collaborations are reported in the sections under the various Departments and Faculties.

## **FACULTY OF AGRICULTURE**

### **INTRODUCTION**

The Faculty of Agriculture, which is in the College of Agriculture and Natural Resources, was established in 1953. As one of Ghana's major teaching and research centres, the Faculty continues to make significant contributions to the country's agricultural and economic development.

As a Faculty we embrace the advancement, preservation and respect of knowledge in Agriculture and Related Sciences through teaching, research and scholarship to the benefit of the wider community. In addition, the Faculty provides educational opportunities at the tertiary level, enabling students to attain knowledge, skills and intellectual independence and to develop their leadership potential with scientific and social awareness and sensitivity.

The Faculty is made up of four academic Departments viz. i) Department of Agricultural Economics, Agribusiness and Extension, ii) Department of Animal Science iii) Department of Crop and Soil Sciences and iv) Department of Horticulture. The Faculty currently runs six (6), programmes, namely; B.Sc. Agriculture, B.Sc. Post Harvest Technology, B.Sc. Agribusiness Management, B.Sc. Dairy and Meat Science and Technology, B.Sc. Landscape Design and Management and B.Sc. Agricultural Biotechnology. The undergraduate student population currently stands at 1,599, a 16% increase over the previous academic year's undergraduate student population. Post-graduate degree programmes in many disciplines of Agriculture are also on offer in the Faculty. This includes the KNUST-AGRA PhD Soil Science Programme which seeks to establish a Centre of Excellence at KNUST for training of teaching and research scientists in Soil Sciences for the West Africa region with students drawn from Burkina Faso, Ghana, Mali, Niger and Nigeria. The Departments of Crop and Soil Sciences and Horticulture have also received AGRA (Alliance for a Green Revolution in Africa) funding to train graduates in M.Sc Plant breeding and M.Sc Seed Science and Technology. The programme has graduated twenty-four (24) students from Ghana, Niger, Mali, Liberia and Sierra Leone. The remaining six students; three each from Liberia and Sierra Leone are preparing to complete their programmes by August, 2013. Three other students from Liberia are receiving MSc training in Entomology, Poultry science and Irrigation engineering with funding from Liberia's Agricultural Sector Rehabilitation Project being funded by the African Development Bank.

### **STAFF STRENGTH**

The Faculty has teaching staff strength of forty-eight (48) made up of six (6) Professors, six (6) Associate Professors, fourteen (14) Senior Lecturers, twenty (20) Lecturers and two Junior Lecturers. The teaching staff is supported by competent technical, administrative and auxiliary staff totalling about 128.

### **DEANSHIP AND HEADSHIP POSITIONS**

The following held managerial positions in the Faculty during the year under review:

Prof. R. Akromah	- Dean of the Faculty
Prof. E.L.K. Osafo	- Vice Dean and Head of Dept. of Animal Science
Dr. J. A. Bakang	- Head, Dept. of Agric. Economics, Agribusiness and Extension
Dr. J. Sarkodie-Addo	- Head, Dept. of Crop and Soil Sciences
Dr. Ben K. Banful	- Head, Dept. of Horticulture

## **FUNDING OF RESEARCH ACTIVITIES**

The Faculty continues to depend heavily on external agencies, programmes and projects to provide financial resources and physical facilities for its research activities. Specific research activities in the Faculty are provided in the reports from the various Departments.

## **COMMUNITY SERVICE**

The Faculty continued to make available to primary, junior and senior high schools in Ghana, farmers and farmer groups, its facilities for diverse uses. Students from several institutions came to the Faculty to acquaint themselves with our research and production practices. Researchers from the Faculty were involved in several outreach services delivery with support from the West Africa Agricultural Productivity Programme (WAAPP), Agricultural Sub-Sector Improvement Programme (AgSSIP), Root and Tuber Improvement and Marketing Programme (RTIMP), Export Development and Investment Fund (EDIF), Department for International development (DFID) and Agri-Business in Sustainable Natural African Plant Products (ASNAPP). Other details of community service offered by the Faculty are detailed in the Departmental Reports.

## **REHABILITATION OF INFRASTRUCTURE IN THE FACULTY**

The following works in the Faculty were completed during the year under review:

- Refurbishment of Laboratories
- Expansion and rehabilitation of the Biotechnology Laboratory to accommodate a soil microbiology research unit
- Painting of the main Faculty building and Laboratories
- Provision of an architectural studio for the Landscape programme

The Faculty started implementing programmes towards overcoming the numerous challenges through the use of its present staff, laboratories, research farms and production units. The Faculty is already engaged in income generating activities and has been in the process of re-organizing itself to fully exploit its potential to generate more income, such as the establishment of the Finatrade/KNUST Model Farm projects. In addition, plans have been put in place to go into partnership with private poultry enterprise (AKATE FARMS) to establish a commercial/research unit at the Animal Science Department. A MoU would soon be signed to kick-start the venture. The Faculty is funding a bee-keeping project under entrepreneurship training for students of the Agribusiness Management programme.

The construction of a three-storey postgraduate block to provide lecture halls, offices and study space for postgraduate students is about 98% completed.

## **INSTALLATION OF INTERNET FACILITIES AT ANIMAL SCIENCE AND HORTICULTURE DEPARTMENTS AND PROCUREMENT OF NEW LCD PROJECTORS AND TEXTBOOKS**

The Faculty, in its effort to enhance information and communication technology in some in the Departments, has installed internet facilities at the Department of Animal Science. The internet facility at the Department of Horticulture has also been repaired. Ten Desktop computers have been procured to add to the number at the students' ICT Laboratory.

## **DETAILS OF LINKS WITH OTHER UNIVERSITIES AND INDUSTRY**

These are provided in the reports by the various Departments.

## **DETAILS OF BENEFACTORS AND DONATIONS RECEIVED BY THE FACULTY**

Finatrade Foundation offered scholarships worth seven hundred Ghana cedis annually to each of the best five second year students in the Faculty. The award ceremony took place on 25<sup>th</sup> February 2012 at the Oak Plaza Hotel, Accra. In attendance were all current Finatrade Scholarship beneficiaries from KNUST.

The Ghana Association of Students in Agriculture and Related Sciences (GAAS) donated a router worth GH¢600 to the Faculty to enhance accessibility to internet facilities. In addition, the GAAS executive awarded scholarships worth GH¢2000 to support 20 needy but brilliant students of the Faculty.

## **VISITORS TO THE FACULTY**

The following visited the Faculty during the year under review:

- Mr. Mark M. Mensah - Amenfiman Senior High, Wassa Akropong
- Dr. Kwesi Opoku-Debrah - Vice President, Clean Seed Capital Group, Canada
- Dr. Greme Lempriere - CEO, Clean Seed Capital Group, Canada
- Dr. John Abaka Amuah - 3K&A Industries Limited, Kumasi
- Dr. Yaw Adu Poku - 3K&A Industries Limited, Kumasi
- Prof. Haddish Melakeberhan - Michigan State University, USA
- Dr. Tracy Teal - Michigan State University, U.S.A.
- Rev. Dr. Edwin Momoh - Njala University, Sierra Leone
- Mr. Morrison Kinie Lahai - Njala University, Sierra Leone

## **DEPARTMENT OF AGRICULTURAL ECONOMICS, AGRIBUSINESS AND EXTENSION**

### **INTRODUCTION**

The Department of Agricultural Economics, Agribusiness and Extension (DAEAE) offers training in Agricultural Economics, Farm Management, Entrepreneurship, Agricultural Extension and Rural Sociology and other related areas to undergraduate students in the BSc Agriculture Programme. The BSc Agribusiness Management Programme of the Department will produce its first graduates this academic year. Postgraduate training has been revamped with a

resultant increased registration and timely completion in the MPhil Agricultural Economics Programme. There has been renewed interest in the PhD Programme with several registrations in Agricultural Economics and one in Agricultural Extension.

The Agricultural Economics programme continues to attract the best students of the Faculty since it is the most popular option offered in the final year, while the Agricultural Extension Education component of the composite BSc Agriculture Degree Programme is being restructured to accommodate suggestions made by the National Accreditation Board.

Products of the Department continue to remain competitive in the changing job market because the Department has maintained its high quality standards of the training offered to students through our core mandate activity areas of teaching, research and consultancy, and service to the community.

### **STAFFING OF THE DEPARTMENT**

With the full stream of students under the newly introduced BSc. Agribusiness programme, academic staff in the Department is over-stretched. Also, during the year under review, Mr. K. Osei-Agyemang, was retained on part-time and Mr. Fred Nimoh was granted study leave to pursue PhD Degree in Development Economics at the University of Copenhagen, Denmark. Prof. J. Saa Dittoh, who helped us out during his 2-year sabbatical leave may be leaving at the end of the academic year. The Department therefore urgently needs lecturers in the specific fields of Agribusiness Management, Statistics/Biometry and Resource Economics.

In order to continue to mount postgraduate programmes (MPhil. and PhD) in Agricultural Economics and new ones in Rural Development and Agribusiness Management, there is an urgent need to improve staff capacity through a combination of further (PhD) training and aggressive recruitment. To improve upon income generation in particular, the Department requires the services of a full-time research fellow to coordinate our research activities and make the Department more competitive in bidding for and executing technical consultancies.

The current staffing situation is as follows:

### **TEACHING STAFF**

Dr. S. C. Fialor

Dr. J. A. Bakang - Head

Dr. Victor Owusu

Dr. G.K. Nurah

Prof. J. Saa Dittoh - (Visiting Professor from Univ. for Dev. Studies)

Mr. Patrick Appiah

Mr. M.T. Asiamah

Mr. D. Awunyo-Vitor

\*Mr. Fred Nimoh

Dr. Robert Aidoo

Mr. J. Osei Mensah

\*\*Dr. K. Ohene-Yankyera

\*\*Dr. Collins K. Osei

## **NON-TEACHING STAFF**

The Department has four non-academic staff comprising one Technician, one Senior Administrative Assistant, one messenger (on study leave) and one cleaner. The Department urgently requires three Technicians (with HND or BSc. qualification) to handle field work, data entry and audio-visuals for teaching, research and outreach activities.

## **ACTIVITIES**

A summary of the activities of the Department during the year under review in the areas of teaching, research and consultancies, and service to the community is as follows:

### ***Teaching***

The Department continued to play its role in training students of the Faculty of Agriculture in the 4-year composite BSc. Agriculture Degree programme. Teaching activities under the BSc. Agribusiness Management Programme in the Department also continued.

### ***Undergraduate programme/courses***

The Department currently offers a total of 34 courses in Agricultural Economics, Farm management, Extension Education, Rural Sociology, Accounting, Statistics and Computer Science. Twelve of these courses are compulsory courses for the first three years of the BSc. Agriculture Degree programme. Management and entrepreneurial skills are offered for all final year students of the Faculty of Agriculture, while many other courses are offered as service courses to students in other Colleges (Engineering, Science, and Architecture and Planning).

Except for a few, all the courses in the 4-year BSc. Agribusiness Management programme are handled by academic staff in the Department.

### ***Postgraduate programme/courses***

The Department's PhD and MSc. Programmes in Agricultural Economics continue to attract a large number of local and international students. During the year under review, the MPhil programme in Agric. Economics was oversubscribed. Plans to introduce postgraduate programmes in Agribusiness Management, Rural Development and Agricultural Extension are underway.

### ***Research***

Activities within the Department's Outstation Research Unit in the Ejura-Sekyedumasi District in the Ashanti Region continued to focus mainly on:

- The generation of data on commodity prices, storage and transportation costs
- Identification of source and destination markets of agricultural produce carted from the District
- The role of food crop traders' association, especially with regards to storage and transportation of produce and price information.

However, the Outstation activities continue to face a number of challenges including low caliber of technical staff, inadequate supervision and lack of adequate funds in general and means of transportation in particular.

Senior members in the Department continued to collaborate with colleagues in other Departments to provide the necessary socio-economic input into research within and outside the Faculty.

During the year under review, the Department was contracted by the UN World Food Programme (Ghana office) to conduct a baseline survey in the Ashanti and Northern Regions of Ghana on the production, handling and marketing of maize, rice and cowpea under the Purchase for Progress (P4P) Programme. The Department continues to provide technical support to the IITA's *N2 Africa Project* which aims at putting biological nitrogen fixation to work for smallholder farmers in the three Northern Regions. The Department is supporting the monitoring and evaluation aspect of the project through socio-economic data entry, data cleaning and data management.

Current research issues being worked on by senior members of the Department either independently or in collaboration with others, and in varying stages of implementation, are as follows:

**Dr. K. Ohene-Yankyera**

- Gender and Economic Efficiency in rice production in Ghana;
- Economics of Small ruminant livestock production in northern Ghana;
- Sanitation market demand analysis and market segmentation in Ghana;
- Analysis of Consumer behavior;
- Analysis of yam quality defects and their effect on yam prices;
- Yam marketing margins and impediments to the efficiency of yam marketing in Ghana;
- Economics of seed yam production in Ghana;
- Determinants of credit access and use among farmers in Ghana;
- Cotton production and its contribution to farm income in Northern Ghana;
- Business planning, feasibility studies and investment appraisal/analysis.

**Dr. J. A. Bakang**

- Indigenous Technical Knowledge Systems in Natural Resource Management, biodiversity conservation, and livelihood security strategies among rural people in Ghana;
- Agricultural Programme Development and Implementation under Decentralisation;
- Determinants of agricultural technology adoption in Ghana;
- The ecology of practice in yam culture: A Sociological Analysis of Farming Practices and Decision-making among commercial yam farmers in Ghana;
- Socioeconomic, health and food safety issues in Urban and peri-urban agriculture in general and vegetable production in particular.

**Dr. S.C. Fialor**

- Opportunities, Constraints and their Impact on Agricultural Technical Vocational Education and Training in Ghana;
- Testing the Feasibility of Selected Resource Recovery and Reuse (RRR) Business Models in Kumasi;

- Analysis of the Risk Management Strategies among Groundnut Market Participants in Ghana;
- Risk Management Strategies by Cocoa Farmers in Selected Districts in Ghana;
- Agricultural Policy Analysis;
- The Effects of *Aflatoxins* on the Market Value of Selected Food Commodities in Ghana;
- Profitability of Soya and Maize Cropping Systems in Upper West Region of Ghana.

**Dr. Victor Owusu**

- Development Economics, Environmental Economics, Impact Evaluation of Poverty Reduction and Food Security Interventions in Ghana;
- Consumer preference for Improved Local Rice in Ghana;
- Impact of Adoption of Yam Storage Technologies on Household Food Security in Ghana;
- Impact of Agroforestry Management Technologies on Productivity of Cocoa Farmers in Ghana;
- Farm Labor Allocation and its Effects on Integrated Pest Management Adoption Rate in Ghana;
- Economic Viability of Cocoa Agroforestry Management Systems in Ghana;
- Soil Conservation, Shadow Wages and Labour Supply of Agricultural Households in Rural Ghana.

**Dr. G. K. Nurah**

- Assessing Socio-Economic Factors Affecting Rice Farmers' Adoption of Integrated Pest Management;
- Study on the Supply Requirement of Maize Farmers in the Upper West Region;
- Determination of Factors Influencing Soy Beans Producers' Choice of Marketing Channels in Northern Region;
- Assessing the Impact of Irrigation Management Transfer (IMT) on Productivity of Irrigated Agriculture;
- Development of Agricultural Business Plans.

**Dr. Robert Aidoo**

- Agricultural Commodity Value chain analysis (e.g. Analysis of Ghana's cocoa value chain and grain legume value chain)
- Empirical estimation of factors affecting consumption of poultry products in Ghana
- Assessment of farmers' willingness to adopt crop insurance as a risk management strategy
- Economics of seed yam production in Ghana
- Analysis of urban food consumption patterns
- Assessment of technical efficiency in Ghana's cocoa industry
- Consumers' willingness to accept cassava bread in Ashanti Region of Ghana
- Baseline surveys (Cocoa farmers in Western Region & Maize, Rice and Cowpea farmers and traders in Ashanti and Northern Regions)
- Study on the use of Landraces Accessions in Breeding Programmes in Ghana



- Business planning, feasibility studies and investment appraisal/analysis

#### **Mr. Patrick Appiah**

- Effect of fertilizer subsidy on maize production in northern Ghana
- Perceived Effects of HIV/AIDS Pandemic on Fishing-Related Livelihoods in the Greater Accra Region of Ghana
- Assessment of the Influence of Business Loans on Socioeconomic Status of Women Beneficiaries of Credit Unions in the Kumasi Metropolis
- Effects of Farmer Support Programmes on Maize Production: The Case of the Millennium Development Authority Programme in the Sekyere East District of Ghana
- Awareness and Knowledge Level of Swine Flu among Pig Farmers in the Ashanti Region of Ghana
- Rabbit Technologies: Adoption Studies in the Ashanti Region of Ghana

#### **Mr. Maxwell T. Asiamah**

- Profitability Analysis of Swine Production (A case study of Farmers in the Ejisu-Juaben Metropolis);
- Effect of Extension Services on Cocoa Production in the Amansie West District;
- Spent Layer Marketing: Assessing Profitability and Risks of Retailers in the Ejisu-Juaben Metropolis;
- Assessing the Value Chain of Pork;
- Determination of Technical Efficiency of Rice Farmers in the Ejisu-Juaben Municipality.

#### **Mr. Fred Nimoh**

- Sustainable sanitation studies in the Dangme West District in the Greater Accra Region of Ghana. identifying existing barriers to improved sanitation and propose business models for providing hygienic latrine technologies and waste management solutions that can be used in poor, rapidly urbanizing townships in Ghana
- Effect of Formal Credit on the Performance of the Poultry Industry – Case Study of Urban and Peri-urban Kumasi
- Factors Influencing the Performance of Entrepreneurs in the Kumasi Metropolis of Ghana
- Factors Affecting the Adoption of Upland NERICA Rice in the Ejura Sekyedumase District in the Ashanti Region of Ghana
- Baseline surveys

#### **Mr. J. Osei Mensah**

- The Status of Total Quality Management (TQM) in Ghana; a Comparison with Selected Quality Awards Winners from Turkey.
- TQM in Ghana: Critical Success Factors (CSF), and a Model for Implementation of Quality Revolution in Ghana.
- Consumers' Use and Understanding of Food Label Information and Effect on their Purchasing Decision in Ghana.

- Assessing Farmers' Satisfaction of the Services Received from Agronomic Input Dealers Using the SERVQUAL model.
- The Impact of World Food Programme's Purchase for Progress (P4P) on the livelihood of farmers and Performance of Farmer Based Organization.
- An assessment of the Performance and the Economic Viability of Street Food Vending (SFV) in Ghana and Impact of Policy Strategies on the Performance of SFV.

**Dr. D. Awunyo-Vitor**

- Agricultural Finance – Access to Financial Services, Determinants of Loan Repayment by Farmers;
- Operations of Ghana Stock Exchange – Effect of Share Concentration on the Performance Listed Firms.

**COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

As the extension wing of the Faculty of Agriculture, the execution of outreach programmes continues to be undermined by lack of vehicle in the Department. However, individuals continued to offer services to the community in various capacities. The Department continued to provide general short-term technical, advisory and consultancy services to a wide variety of clients in the form of training, baseline surveys, agricultural project monitoring and evaluation, impact assessment and feasibility studies, among others. The Department has been central to the College's training programmes in Value Chain Development and Adaptive Management of Natural Resources.

**Dr. J.A. Bakang** was the Head of Department during the year under review. He continued to serve on the Faculty, College and Academic Boards and also the University Library Committee.

**Dr. S.C. Fialor** was appointed as the Hall Master for the University Hall during the year under review.

**Dr. G.K. Nurah** was appointed as the Coordinator of the Postgraduate section at the Department.

**Mr. Maxwell T. Asiamah** was appointed the Coordinator of the Agricultural Extension Section and continues as Chairman of the Vacation Training Committee of the Faculty of Agriculture.

**Dr. Robert Aidoo** was appointed the Coordinator of the Agribusiness Section and also Vacation Training for the Department of Agricultural Economics, Agribusiness and Extension. He was also appointed as the Coordinator for the Environment and Climate Platform under the Building Stronger Universities Programme being implemented jointly by KNUST and DANIDA. Robert is also serving on the Postgraduate Committee at the Department. He is currently one of the patrons for the newly formed Agribusiness Students Association in the Faculty of Agriculture.

**Dr. Victor Owusu** continued to serve as the Departmental Examinations Officer and a member of the postgraduate committee at the Department. He also serves as the seminar coordinator for the Department.

**Mr. Patrick Appiah** continued to serve as the Examinations Officer for the Faculty of Agriculture.

**Mr. J. Osei Mensah** was appointed as one of the patrons of the newly formed Agribusiness Students association at the Faculty of Agriculture.

## **PUBLICATIONS**

During the year under review, senior members at the Department made several publication and these can be found in the University's QUALITY Assurance Bulletin.

## **CONFERENCE ATTENDANCE**

FAO/MoFA National Seed Policy Development Forum, Kumasi, Ghana

## **COLLABORATION/PARTNERSHIPS**

During the year under review, the Department collaborated with and had partnerships with a number of institutions:

- **KNUST-DANIDAPARTNERSHIP –Research title: Enhancing the performance and growth potential of street-food vending for accelerated socio-economic development in Ghana.**
- **KNUST-DANIDA PARTNERSHIP – Sustainable Sanitation-Ghana Project (SUSA)**  
The Department in collaboration with DANIDA through the initiative of the Provost carries out sustainable sanitation studies in the Dangme West District in the Greater Accra Region of Ghana. The SUSA-Ghana Project aims to identify existing barriers to improved sanitation and propose business models for providing hygienic latrine technologies and waste management solutions that can be used in poor, rapidly urbanizing townships in Ghana. The capacity building component of the Project has five PhDs (Socio-cultural, Engineering/Technology, Occupational Health Safety, Business/Economics, and Monitoring). Currently, one of our Senior Members (Mr. Fred Nimoh) has been offered a fellowship under the project and is pursuing PhD Degree in Development Economics at the University of Copenhagen, Denmark. He is working on the Business/Economics aspect of the SUSA project. Also, one (1) student is pursuing MPhil Degree in Agricultural Economics at our Department with financial support from the project.
- **KNUST-IFPRI RESEARCH COLLABORATION –Research Title: Economic viability of climate change mitigation through the use of *biochar* in the Ashanti Region of Ghana**

On 23<sup>rd</sup> day of March, 2012, the Department entered into a research agreement with the International Food Policy Research Institute (IFPRI) to investigate the economic viability of using *biochar* as an amendment to increase agricultural productivity and as a tool that provides climate change mitigation services. The contract, which will expire in December 2012, has a total budget of US \$25,000. Currently, the project is supporting the research activities of one (1) MPhil Student in the Department.

- **KNUST-UN WORLD FOOD PROGRAMME PARTNERSHIP: Project Title: Purchase for Progress (P4P) Project**
  
- **PARTNERSHIP BETWEEN KNUST AND BERN UNIVERSITY OF APPLIED SCIENCES, SWITZERLAND.**

In the year 2011, the Department of Agricultural Economics, Agribusiness and Extension was approached by the Department of International Agriculture of the School of Agricultural, Forest and Food Sciences (HAFL) at Bern University of Applied Sciences, Switzerland to discuss the possibility of a partnership. Following some initial discussions, one (1) MSc. student from the Department of International Agriculture at Bern University of Applied Sciences visited Ghana for a period of three months (August – October, 2011) to study the Ghanaian cocoa value chain under the supervision of Dr. Robert Aidoo.

Preparations are far advanced to get some publications with the student and two other supervisors in Switzerland.

Also, Dr. Robert Aidoo of our Department and one of the academic staff at the Department of International Agriculture at Bern University (Dr. Ingrid Fromm) have jointly prepared and submitted a research proposal to jointly conduct research on “*Promoting sustainable production methods and socio-environmental certifications among small-scale cocoa farmers in Ghana.*” This proposal was in response to the Swiss Development Cooperation’s call for application under the KFH Programme: *Promotion of Research Partnerships between Swiss Universities of Applied Sciences and Developing and Transition Countries*. The proposal has passed the first stage and a full proposal has been submitted. When approved, staff and postgraduate students from KNUST and Bern University of Applied Sciences will have their capacities developed through exchange programmes and through collaborative research activities. Also, cocoa farmers would be trained on sustainable cocoa farming methods and cocoa certification to improve cocoa output, farm income and overall livelihoods of the farmers.

## **DEPARTMENT OF HORTICULTURE**

### **INTRODUCTION**

The Department of Horticulture, offers the BSc (Agriculture) composite degree programme, the BSc (Postharvest Technology) degree and the BSc (Landscape Design and Management) degree programmes. The Department also runs postgraduate degree programmes leading to the award of MSc, MPhil and PhD.

## **ACADEMIC SENIOR MEMBERS**

Dr. B.K.B. Banful - **Head of**

### **Department**

\* Prof. P.Y. Boateng

\* Prof. (Mrs.) N. S. Olympio

Mr. P.Y. Adjei

Dr. B.K. Maalekuu

Mr. P. Kumah

# On Study Leave \* On Contract

Mrs. H.V. Adzraku

Dr. Laura Atuah

Mrs. P. D. Kaledzi

Mr. F. Appiah

# Mrs I. A. Idun

## **TEACHING**

Staff continued to teach courses leading to the award of degrees in BSc (Agriculture) programme, BSc (Postharvest Technology) programme and BSc (Landscape Studies) programme at the undergraduate level. At the postgraduate level, programmes leading to the award of MSc and PhD degrees are offered in the regular academic stream. In addition, an MSc (Postharvest Technology) programme is taught in the distance mode by the Department in collaboration with the Institute of Distance Learning. Some of the professional horticultural courses taught by staff of the Department at the undergraduate level are: Vegetable crops production, Fruit crops production, Seed Science and Technology and Landscape Design and Management. Others are Floriculture, Ornamental Nurseries and Management, Plant Materials for Landscaping, Plant Propagation, Breeding of Horticultural Crops, Amenity Horticulture, Organic and Sustainable Horticulture, Herbs, Spices and Aromatic Plants and Postharvest Physiology.

## **POSTGRADUATE PROGRAMMES IN REGULAR STREAM**

The Department continues to run postgraduate degree programmes leading to the award of MSc and PhD degrees. The programmes offered include Seed Science and Technology, Postharvest Technology, Landscape Studies, Vegetable Crops Production, Fruit Crops Production, Ornamental Horticulture. These programmes continue to attract applicants from all the five public universities, research institutions and employees of various organizations. Presently, five (5) students have enrolled for PhD programmes whiles twenty six (26) students are pursuing various MSc. programmes.

## **POSTGRADUATE PROGRAMME IN DISTANCE LEARNING MODE**

An MSc (Postharvest Technology) programme is run in the distance learning mode by the Department in collaboration with the Institute of Distance Learning.

At the Distance Learning, forty four (44) applicants were admitted to study the MSc Postharvest Technology.

## **ACADEMIC STAFF DEVELOPMENT**

1. Mr. Patrick Kumah was promoted to Senior Lecturer in October, 2011.
2. Dr. Francis Appiah successfully completed his PhD programme and was awarded a PhD degree in Food Science and Technology, KNUST 2012
3. Mrs. Irene Idun was granted a 4-year study leave to enable her pursue PhD studies in Fruit science at the University of Stellenbosch, South Africa.

4. Mrs. H-V Adzraku commenced a PhD programme in Landscape Science and Climate Change at the Department of Horticulture, KNUST, Kumasi, Ghana.
5. Ms. P. D. Kaledzi started a PhD programme in Plant Breeding at the Department of Crop and Soil Sciences, KNUST, Kumasi, Ghana.

## **COLLABORATIONS**

The Department has initiated collaboration discussions with Anglogold Ashanti, Obuasi, Ghana to rehabilitate their disused mine sites and degraded lands laden with heavy metals for future productive use. The discussions are also considering post graduate training of their staff in land remediation. Similar discussions have also been extended to Anglogold Ashanti, Guinea Conakry, Guinea.

Further, the Department continued its collaboration with:

- a. Federal University of Agriculture, Abeokuta, Nigeria
- b. British Council, Kumasi, Ghana
- c. University of Cape Coast, Ghana
- d. Higher Education Institutions in Sierra Leone
- e. Higher Education Institutions in Benin Republic
- f. CSIR Institutes, Ghana
- g. Ministry of Food and Agriculture, Ghana
- h. University of Texas A&M, USA

## **RESEARCH**

### **EXTERNALLY FUNDED RESEARCH SUPPORT AND GRANTS**

1. The Department, through the initiative of Dr. Ben K.B. Banful, secured a grant of Gh¢192,200.00 from the Export Development and Agricultural Investment Fund (EDAIF) for the Renovation and Upgrading of Facilities and Equipment for Effective Teaching, Research and Training in Ornamental Horticulture.
2. Dr. Ben K.B. Banful secured funding for a research project on plantain titled “*Effect of HYT bio-stimulants and protectants on growth, yield and postharvest quality of two varieties of plantain in a bush fallow system*”. The total funding is GH¢87,880.00 for a period of three years and provided by AGRINOS AS of Norway.
3. Dr. Ben K. B. Banful secured funds totaling GH¢55,000.00 to train farmers and extension staff in improved technologies of plantain production. The training is on behalf of Amanfrom Farms Ltd., a private crop production enterprise in the Nkoranza South District of the Brong Ahafo region. The funding was provided by EDAIF.

### **ON-GOING RESEARCH ACTIVITIES**

Academic staff at the Department continued to conduct research as a key component of their core responsibilities to generate new information to enhance teaching and learning.

#### **Dr. B. K. B. Banful**

1. Effect of HYT bio-stimulants and protectants on growth, yield and postharvest quality of two varieties of plantain in a bush fallow system

2. Effects of magnesium and calcium fertilization on yield and fruit quality of two varieties of tomatoes.
3. Effects of poultry manure and oil palm bunch ash on the growth and yield of chili pepper.
4. Effects of poultry manure and carbonated rice hull on the growth and yield of aubergine (*Solanum melongena*).
5. Effect of poultry manure and plant spacing on growth and yield of exportable Okra.
6. Determining the biological efficiency and productivity of onion-cabbage intercropping system.
7. Growth and yield response of tomato (*Solanum lycopersicon*) to application of Moringa leaves, Tithonia leaves and inorganic NPK fertilizer.
8. Growth and yield response of sweet pepper (*Capsicum annum*) to combined application of *Tithonia diversifolia* leaves and inorganic fertilization.

**Prof. P. Y. Boateng**

1. Effect of cultural practices on growth, yield and quality of some vegetables
2. Studies into the use of soil amendments in the control of nematodes in vegetable crops
3. Studies into vegetative propagation of some difficult to root horticultural crops.
4. Evaluation of four exotic and two local cultivars of tomato for pests and diseases resistance.

**Prof. (Mrs) N. S. Olympio**

- a. Development and Assessment of Post harvest technologies of fruits and vegetables
- b. Seed yield, quality and seedling evaluation studies of field, horticultural and industrial crops

**Mr. P.Y. Adjei**

1. Research studies on patterns of flowering and fruiting of some selected avocado (*Persea Americana* L. Mill) species.
2. Hot water/fungicide treatment of avocado seeds prior to germination
3. Size/cut length of the seed of the avocado before germination

**Dr. B. K. Maalekuu**

1. Enzymes associated with fruit cell wall and cell membrane degradation during postharvest storage.
2. Mode of water loss in horticultural commodities during postharvest storage.
3. Pre-harvest and postharvest factors affecting postharvest quality and shelf-life of produce.
4. Cell membrane lipids and postharvest fruit longevity
5. Screening of crop plants (tomato and sweet potato varieties etc.) for suitability to the local environment
6. Genetic and Molecular screening of plant materials for disease resistance and improved quality traits.

**Mrs. H.V. Adzraku**

1. Development of an appropriate soil mix and turf for sports fields in Ghana in the face of climate change
2. Effect of landscaping on teaching and learning in basic schools in the Kumasi Metropolis.
3. Effect of grass clippings accumulation on lawn improvement.
4. Control of nut grass (*Cyperus rotundus* L.) using different concentrations of glyphosate.
5. Evaluation of some indigenous tree species for street planting in the Kumasi Metropolis.
6. Evaluation of biochar as soil amendment for lawn establishment.

**Dr. Laura Atuah**

1. Preliminary investigations into the use of biochar as an amendment for soil from artisanal mining sites in Obuasi.
2. Preliminary investigations into the use of laterite and clay as soil amendments for remediation of soil from disused mine sites of Anglo-Gold Ashanti – Obuasi.
3. Effect of compost from lawn clippings, cabbage waste and *Gliricidia sp.* on remediation of heavy metals contaminated soil.
4. Design concepts and designing of secret gardens for prayer and meditative purposes in the KNUST Botanic garden.
5. Turf mix formulation for effective suppression of oxalis weed on lawns.

**Mr. P. Kumah**

1. Quality assessment of organically and conventionally grown bananas.
2. Determination of crown rot causing pathogens and mapping of affected areas in Ghana.
3. Use of botanicals in controlling crown rot disease of banana.
4. Development of ripening colour charts for some selected horticultural produce.
5. Quality and shelf-life of solar-dried onion powders.
6. Postharvest challenges of the banana industry: A case study of the commercial farms in Ghana.
7. Effect of pre-drying treatments and different solar dryers on the quality and shelf-life of dried leafy vegetables (*Xanthosoma sagittifolium* and *Colocasia esculenta*).
8. Comparative study of the quality and shelf-life of okra powder from the major markets in the Kumasi Metropolis.

**Dr. F. Appiah**

1. Production of pepper powder using Legon 18 and Scotch Bonnet pepper varieties
2. Optimization of tomato powder production
3. Studies into the production of indigenous spice powders
4. Postharvest loss assessment of selected indigenous vegetables
5. Evaluation of maize value chain in the Sissala District of Ghana
6. Assessment of some storage technologies used for cowpea storage in the Nadowli District of Ghana
7. Determination of optimum peduncle cut length for enhanced shelf life of Solo papaya varieties.



**Ms. P.D. Kaledzi**

1. Laboratory studies to develop cassava bait to control insect infestation of cocoa beans using coffee bean weevil (*Araecerus fasciculatus* (De Geer) (Coleoptera; Anthribidae) as model species.
2. Breeding and Development of high yielding wilt resistant varieties of tomato (*Solanum lycopersicum* L) with good qualities in Ghana.
3. Agro-morphological characterization of tomato (*Solanum lycopersicum* L.) accessions collected from two Districts in Ghana.
4. Assessment of Okra production and constraints, Marketing and Consumption in the Atwima Nwabiagya District of Ashanti Region of Ghana.
5. Morphological screening of tomato genotypes for resistance to Fusarium wilts pathogens.
6. Evaluation and analysis of growth parameters in D x P oil palm (*Elaeis guineensis* J.) seedlings with scientists of CSIR-OPRI.

**PUBLICATIONS**

In the year under review members of staff published in several refereed journals.

**CONFERENCES ATTENDED**

FAO and ISHS, 6-9 December 2010. Dakar.

Abubakari, A.H., M.R. McDonald, D. Ceplis, K.G. Mahunu, J. Owen, I.A. Idun, **P. Kumah**, M. Pritchard, G. Nyarko and F. Appiah Conference of *Young People, Farming and Food*, 19-21 March 2012, Accra

The Academic staff at the Department attended the 13<sup>th</sup> Annual General Meeting and Scientific Conference of the Ghana Institute of Horticulturist (GhIH) from 20<sup>th</sup> – 22<sup>th</sup> September 2012 at University of Ghana, Legon, Accra.

Dr. Francis Appiah and Mr. P. Kumah attended the All Africa Horticultural Congress at Skukuza, South Africa from 15-21 January 2012.

**COMMUNITY SERVICE****Dr. Ben K. B. Banful**

- Awarded the Silver Category Award for Best PhD thesis (2004-2009) by the Ghana Academy of Arts and Sciences.
- External Examiner in the Department of Crop Science, University of Ghana.
- Appointed Head of the Department of Horticulture from 1<sup>st</sup> August, 2012.
- Reviewed proposals as an International Peer Reviewer for HortCRSP funded by USAID.
- Reviewed manuscripts for Cameroon Journal of Experimental Biology; Agro-forestry Systems Journal; Ghana Journal of Horticulture; Journal of Enterprising Communities: People and Places in the Global Economy; Ghana Journal of Agricultural Science.
- Appointed to Proof-read Volume 7 of Ghana Journal of Horticulture containing 16 articles
- Chairman of committee for the Development of MSc programme under NPT/NUFFIC/CANR Project

- Member of committee to organize the International conference on use of INRM principles in higher education
- Participated in the ESDA Induction workshop for Teaching faculty in Nairobi, Kenya from 19-23 March, 2012
- Member, Governing Council of Ghana Institute of Horticulturists
- Member, College of Agriculture and Natural Resources Examination Questions Vetting Committee
- Member, Department of Horticulture Examination Questions Vetting Committee

#### **Mr. P. Kumah**

- Awarded the 2012 Norman Borlaug International Agricultural Science and Technology Fellowship Program Award by USDA to undertake a 12-week research at Mississippi State University, USA, October-December, 2012.
- Awarded the Erasmus Mundus Scholarship to join teaching staff of the International Master in Horticultural Science in France. June 28-July 11, 2012.
- Member of the Editorial committee of the 2<sup>nd</sup> All Africa Horticulture Congress, 2012.
- Reviewed manuscripts for ISHS Acta Horticulturae, Notulae Scientia Biologica and International Journal of Agricultural Sciences
- Departmental Coordinator for Distance Learning – MSc Post harvest Technology programme
- Member, Governing Council of Ghana Institute of Horticulturists

#### **Ms. P.D. Kaledzi**

- Honorary Treasurer of Ghana Institute of Horticulturists

#### **Mrs. Hannah-Vic Adzraku**

- Continued to serve as the Landscape Consultant to the University.

#### **Dr. F. Appiah**

- Departmental Exams Officer for regular BSc and MSc programmes
- Honorary Secretary of Ghana Institute of Horticulturists

#### **Dr. Laura Atuah**

- Departmental representative on the 60<sup>th</sup> Anniversary College Planning Committee.
- Departmental Coordinator for Vacation Training for 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year- BSc Agriculture students
- Departmental Exams Officer for Distance Learning – MSc Post harvest Technology programme
- Departmental Seminar Organizer for BSc and postgraduate programmes

## DEPARTMENT OF CROP AND SOIL SCIENCES

### INTRODUCTION

The Department of Crop and Soil Sciences is one of the four Departments of the Faculty of Agriculture. The Department provides students with excellent knowledge and practical skills, and with options for specialization in Soil Science, Plant Breeding, Plant Protection and Agronomy. The mission of the Department remains teaching, research and transfer of technology in Agriculture as well as income generation through crop production and consultancy services.

At the moment, the Department runs a Tissue Culture/Plant Biotechnology facility in the University which is being expanded to include molecular genetics work. It has satisfactorily equipped the Soil Science, Plant Pathology and Entomology laboratories. There are also an Insectary, Plant-houses, teaching/research and model farms with cocoa, coffee, rubber, coconut, citrus, and oil palm plantations.

### UNDERGRADUATE AND GRADUATE PROGRAMMES

The Department continues to contribute to the running of the composite BSc (Agriculture), BSc (Post Harvest Technology), BSc (Landscape Design & Management), BSc (Meat Science) and BSc (Agric Biotechnology) degree programmes through a number of courses it offers. BSc Agriculture (Crop and Soil Sciences Option) students conduct research in Agronomy/Crop Physiology, Plant Breeding and Genetics, Soil Fertility, Plant Nutrition, Forage Crop Production and Management, Entomology, Plant Pathology, Nematology and Biotechnology (Tissue culture) for their dissertation in partial fulfilment for their degrees. A four-year BSc Agriculture (Biotechnology) degree programme has been introduced since 2009 and is progressing well. The number of undergraduate students pursuing the Crop and Soil Science option stood at 42 during the period under review.

The Graduate studies leading to the award of MSc, MPhil and PhD degrees are offered in the above courses. Postgraduate number of students enrolled in the Department during the year under review is 38. The Department is privileged in training foreign and local students leading to MSc degrees sponsored by AGRA (Alliance for a Green Revolution in Africa). The special 4-year PhD programme in Soil Science for 20 foreign and local students, funded by AGRA began in the 2010/2011 academic year and is still in progress. The research conducted by the postgraduate students aims at solving basic crop and soil problems as well as building their capacity. During the period under review, 12 students completed their postgraduate studies.

### STAFF MEMBERS

The list of staff with their specialties is as follows:

Name	Research Areas
* Prof. R.T. Awuah	Plant Pathology, Mycology, Diseases of Field & Vegetable Crops, Botanical Fungicides; Preservation of groundnut with plant products; Aflatoxins

*Prof. Rev. Fr. Mensah Bonsu	Soil Physics, Soil Hydrology, Soil Management, Environment and Climate change
*Prof. E.Y. Safo	Soil Chemistry and Fertility; Plant Nutrition
*Prof. C. Quansah	Soil Management & Conservation; Domestication of Medicinal Plants
Prof. R. Akromah	Genetics; Plant Biotechnology; In-vitro Production of Plants. Domestication of Medicinal Plants
Dr. E. Asare	Crop Physiology/Agronomy; Mineral nutrition on growth and Yield of Arable Crops; Cropping Systems. Domestication of Medicinal Plants
<sup>+</sup> Dr. J.V.K. Afun	Entomology, Integrated Pest Management, Botanical Insecticides
Dr. J. Sarkodie-Addo	Crop Physiology/Agronomy; Physiology & Agronomy of Arable, Crops; Farming Systems; Nitrogen Fixation; Organic farming
Dr. C. Kwoseh	Plant Pathology/Nematology; Root & Tuber Crops Nematodes; Integrated Disease Management; Host Plant Resistance, Botanical fungicides and Nematicides
Dr. A. Opoku	Soil Fertility and Chemistry
Mr. T. Adjei-Gyapong	Pedology
S. Duku, (Mrs.)	Forage Husbandry and Ecology
Dr. E.A. Osekre	Entomology, Plant-Insect
Dr. V. Logah	Soil Fertility
Dr. N. Ewusi-Mensah	Soil Microbiology
Mr. A. W. Kena	Genetics
A. W. Kena	Genetics
<sup>+</sup> On Sabbatical Leave *On Contract	

## MAJOR RESEACH ACTIVITIES

Research activities of Senior Members include the following:

### Prof. R.T. Awuah

1. Biological control of blackpod disease of cocoa with a yam rhizobacterium.
2. Identification and management of *Fusarium* basal rot of onion in the Kwahu South District of Ghana.

### Prof. Rev. Mensah Bonsu.

1. Carbon Sequestration under different land use systems.
2. Soil Fertility management and Greenhouse Gas Emissions.
3. Assessment of soil heterogeneity using geostatistics and scaling techniques.
4. Development of drought indices for some tropical crops
5. Development of activity data and emission factors for greenhouse gases inventory in Ghana.

6. Use of soil amendments for improving hydro-physical behaviour of some tropical soils.
7. Development of salinity index for rice cultivation.

**Prof. C. Quansah:**

1. Agronomy of *Artemisia annua* in Ghana.
2. Modelling siltation and nutrient export in some small reservoirs in the Upper East Region.

**Prof. Richard Akromah**

1. Transfer and genetics of seed size in peanuts
2. Marker-assisted selection of ACMV-Resistant lines in Cassava.
3. Inheritance of resistance to flower bud thrips (*Megalurothrips sjostedti*) in cowpea
4. Evaluation of newly released maize varieties in Ghana for yield and stability under three nitrogen application rates in two agro-ecological zones
5. Genotype by environment interaction and grain yield stability of extra – early maize hybrids evaluated at three locations in Ghana
6. Induction of phytoalexin accumulation in the cotyledons of selected legumes following treatments with biotic elicitors
7. Comparative study of cowpea germplasm from Ghana and Mali using morphological and molecular markers

**Dr. Joseph Sarkodie-Addo**

1. Bambara groundnut agronomy and environmental responses.
2. Soybean Nitrogen fixation.
3. Mulching in Cassava production.

**Dr. Charles Kwoseh**

1. Host plant resistance studies of nematodes, fungi and viruses
2. Integrated pest/disease management
3. Evaluation of phytochemicals/essential oils for nematodes and disease management
4. Airborne fungi in indoor and outdoor environments
5. Seed Pathology
6. Fungi and bacteria contaminants in drinking water
7. Diversity of nematodes in farming systems

**Mr. Thomas Adjei-Gyapong**

1. Distribution of Macro-nutrient (Fe, Ma, Zn and Cu) in the Ashanti Region.
2. Simulating site specific optimal fertilizer recommendation for maize production in Ghana.
3. Soil fertility evaluation of selected inland valleys in Ghana.
4. Site characterization of farmlands and experimental sites.

**Dr. E. Asare**

1. Agronomic and physiological studies in arable crops.
2. Media and hormonal studies in arable crops and medicinal plants

3. Farming system models in cereals, legumes, and root and tubers.
4. Mineral nutrition of arable crops.

**Dr. E.A. Osekere**

1. The use of botanicals for the control stored product insect pests.
2. Evaluation of some accessions of eggplant for their resistance/tolerance to field insect pests.

**Dr Nana Ewusi-Mensah**

1. Enhancing the quality of manure through composting.
2. Biological nitrogen fixation.
3. Biochar management for soil fertility improvement.

**Dr. A. Opoku**

1. Nutrient cycling and balances in crop-livestock systems
2. Crop residue and manure management in crop-livestock systems
3. Optimization of biological nitrogen fixation for enhanced legume productivity
4. Use of natural and synthetic nitrification inhibitors to control N leaching
5. Appraisal of the sustainability of nutrient management options.
6. Integrated nutrient management in cereal legume systems

**Mr. Alexander Wireko Kena**

1. Botanic seed behaviour and meristem tolerance to cryopreservation in cassava (*Manihot esculenta* Crantz)
2. *In vitro* propagation and conservation of water yam, *Musa* sp and cocoyam cultivars
3. Production of virus-free cassava plantlets from already infected plants through cryotherapy

**PUBLICATIONS**

Academic members of staff continued to publish in several international refereed journals.

**CONFERENCES/WORKSHOP/SEMINARS ATTENDED**

Senol, Y., Teal, T., Mkandawire, R., Ravansway, J. van, Thuo, A., **Kwoseh, C.**, Adjei-Gyapong, T., Saka, V., Lowole, M., Karuku, G. N., Wachira, P. M., Gathaara, V. N., Kimenju, J.W., Qi, J., Schmidt, T. and Melakeberhan, H. . Society of Nematologists, 51<sup>st</sup> Annual Meeting, Marriot Riverfront Hotel, Savannah, Georgia, USA. August 12-15, 2012.

**Kwoseh, C.** Institutionalisation of quality assurance mechanism and dissemination of top quality commercial products to increase crop yields and improve food security of smallholder farmers in sub-Saharan Africa – COMPRO-II. IITA/KNUST. Airport West Hotel, Accra. **(2012)**

**Kwoseh, C.** International conference on the use of integrated natural resources management principles for improving higher in agriculture and natural resources. International centre for innovative learning, KNUST Campus, Kumasi ( **2012**)

**Opoku, A.** Monitoring and Evaluation Training for AGRA Grantees Based in Ghana at M Plaza Hotel, Accra, Ghana (14-15, May, 2012)

**Opoku, A.** International conference on the use of integrated natural resource management principles for improving higher education in agriculture (14-16, March 2012)

**Opoku, A.** First WANOART training of trainers workshop in Organic Agriculture at KNUST, Ghana (5 -15, August, 2012).

**Opoku, A.** Organic Agriculture seminar at Njala University, Sierra Leone on 23<sup>rd</sup> February, 2012.

**Opoku, A.** Training workshop for research and extension staff on integrated crop-livestock production at CSIR-ARI, Tamale on 22<sup>nd</sup> September, 2012. Potential of bio-fertilizers for smallholder farmers in West Africa: The Case of Sierra Leone and Ghana

#### **COLLABORATION:**

The Department continued its collaboration with:

1. Ministry of Food and Agriculture (MOFA), Ghana.
2. Department of Agriculture, University of Guelph, Canada under Faculty Exchange Programme
3. Alliance for a Green Revolution in African (AGRA), Bill Gates Foundation and The Rockefeller Foundation, Nairobi, Kenya in the establishment of Postgraduate in Plant breeding and Seed Science Centre.
4. United States Department of Agriculture, Faculty Exchange Programme on New Plant Sanitary and Phytosanitary Issues.
5. Department of Plant Pathology, The Ohio State University, OARDC, USA on International Plant Diagnostic Activities sponsored by IPM Collaborative Research Support Programme (CRSP).
6. The Department is collaborating with Intra-ACP Mobility Scheme and is supervising one PhD student from Ethiopia under the Scheme.
7. The Department has also benefited from the Collaboration between the CANR and the Michigan University in Soil Science and Pathology with a number of equipments to enhance studies in the Department.
8. Agribusiness for Sustainable Natural African Plant Products (ASNAPP).
9. The International Atomic Energy Agency (IAEA), Vienna, Austria and the Biotechnology and Nuclear Agricultural Research Institute (BNARI), Kwabenya..
10. International Institute of Tropical Agriculture, Ibadan, Nigeria.
11. Soil Research Institute and Crop Research Institute of CSIR, Kumasi..

#### **GRANTS TO THE DEPARTMENT**

The Department's various grants to support academic and research activities includes the following:

1. A third Cohort to train 10 students has also been approved for funding by AGRA at a cost of US\$383,200. Five (5) students each from Liberia and Sierra Leone are benefiting on

this Cohort and are being trained in Plant Breeding and Seed Science. A special PhD in Soil Science degree for 20 foreign and local students has also begun in the Department, funded by AGRA at a cost of US\$2,100,000 ( on-going).

2. A GH¢34000 for Soil Fertility Management Technologies for Efficient and Profitable Production of cocoyam comels and leaves from the Root and Tuber Crops Improvement and Marketing Project (a GoG/IFAD-sponsored project).
3. A US\$21000 integrated management of onion leaf browning disease project from the Food and Agriculture Budgetary Support (FABS) implemented by the Ministry of Food and Agriculture, Ghana.

## **SERVICE TO THE COMMUNITY**

### **Prof. R.T. Awuah**

- Provided disease diagnostic services for onion farmers in the New Oworobong area of the Kwahu South district. *Fusarium* basal rot was diagnosed to be the most important disease in the area. This diagnostic service has now paved the way for research on control of the disease.

### **Rev. Prof. Mensah Bonsu**

- Review of Manuscripts for Journal of Science and Technology, KNUST and Journal of Natural Sciences, University of Cape Coast.
- External Assessor for Theses, Department of Crop and Soil Sciences, Faculty of Agriculture, University of Ghana, Legon and School of Agriculture, University of Cape Coast. Chairman,
- Promotions Committee of Cocoa Research Institute of Ghana (CRIG).
- External Assessor of Promotions to Senior Research Scientists, CSIR – SARI and SRI. Priest-in-charge, ArchBishop Cranmer Anglican Church, KNUST.
- A representative of KNUST to the National Accreditation Team to review programme accreditation at University of Cape Coast, University of Ghana, Legon.

### **Prof E.Y. Safo**

- Has been the Chairman for many of the postgraduate oral examinations on behalf of the Dean, School of Graduate Studies.
- He was appointed the Chairman of the Internal Accreditation Team for the College of Sciences in 2011/2012 academic year.

### **Prof. C. Quansah**

- External Examiner in the Faculty of Agriculture, University of Development Studies (UDS), Tamale.

### **Prof. R. Akromah**

- Appointed the Dean of Faculty of Agriculture on August, 17<sup>th</sup> 2011



- Representative of KNUST on the Academic Board of the Graduate School of Governance and Leadership in Accra which is affiliated to KNUST from 1<sup>st</sup> November, 2011 to 31<sup>st</sup> October, 2013 and
- Co-ordinator of the AGRA (Alliance for a Green Revolution in Africa) MSc. Programme in Plant Breeding and Seed Science, which is training 10 students from Liberia and Sierra Leone 5 West African countries.
- He continues to serve on the Centre of Specialization Management Committee (COSMAC) at Crop Research Institute (CRI) for the Council or Scientific and Industrial Research (CSIR).
- A representative of KNUST to the National Accreditation Team to review programme accreditation at University of Cape Coast, University of Ghana, Legon and School of Nuclear and Allied Sciences

**Dr. E. Asare**

- Collaborates with Prof. C. Quansah on the Agribusiness for Sustainable Natural African Plant Products (ASNAPP) project on the conservation and utilization of selected medicinal plants.
- External Examiner and Moderator – (Ho Polytechnic, Bolgatanga Polytechnic, Sunyani Polytechnic) National Board for Professional and Technician Examinations, Ghana. External Examiner, University of Education, Mampopng Campus

**Dr. J. Sarkodie-Addo**

- Involved in onion agronomy and pathology for Brong Ahafo Region.
- He is part of the team collecting both local and international germplasm for tomato improvement.
- Review of manuscripts for Journal of Science and Technology, Kumasi, and Ghana Science Association Journal.
- Chairman and Member of Vice-Chancellor Committees of investigation.
- Member of Health Management and Services Board, Dean of Students Board, Welfare Services. Board, Transport Management Organisation Board.
- Chairman, Committee of Hall Administrators. Member, Council of Convocation.

**Dr. Charles Kwoseh**

- Sectional Head of the Plantation/Arable Crops Section,
- Examinations Officer and a coordinator of the Vacation Practical Training of the Department of Crop and Soil Sciences.
- Moderation of examination questions and marking schemes for two Polytechnics.
- College of Agriculture and Natural Resources representative on the Senior Members Housing Committee.
- Reviewed manuscripts for Crop Protection, JUST, Journal of Ghana Science Society and Agricultural and Food Science, Journal of Ghana.
- Chairman of the Agric. Staff Welfare Scheme of KNUST.

**Dr. E.A. Osekre**

- Representative of the TALIF Committee for the Department
- Reviewed two papers for publication in the KNUST's JUST Journal.
- Vice President, Agric Staff Welfare Scheme, KNUST.
- Member, Committee on the Anwomaso Land.
- Presented o “Discipline” at a forum as part of the orientation programme for level 100 students organized by the Faculty of Agric.

**Mr. T. Adjei-Gyapong**

- Team member of Participatory Technology Development for Sustainable production of Root and Tuber Crops (Cassava, yam and Cocoyam) in the Ashanti Region – under the MOFA/IFAD Root and Tuber Crops Improvement and marketing programme (RTIMP).
- Participated in training farmers in integrated crop management for sustainable onion production in the Brong-Ahafo Region. Supports training tour of International travel course for students of Iowa State University in Ghana.
- Co-ordinator of production operation at Anwomaso Research Farm.

**Dr. V. Logah**

- Internal Coordinator, Finatrade Model Farm

**Dr. Nana Ewusi-Mensah**

- External Examiner and Moderator – (Ho Polytechnic, Bolgatanga Polytechnic, Sunyani Polytechnic) National Board for Professional and Technician Examinations, Ghana.
- Supporting COMPRO II (Institutionalization of quality assurance mechanism and dissemination of top quality commercial products to increase crop yields and improve food security of smallholder farmers in sub-Saharan Africa) project implementation.
- Chairman, management committee for the Faculty of Agriculture Computer Laboratory, Kwame Nkrumah University of Science and Technology, Kumasi.
- Sectional coordinator, Practical Vacation Training Committee.
- Technical Editor, South Asian Journal of Experimental Biology (SAJEB). ISSN: 2230-9799. Editorial Board Member, International Journal of Plant Physiology and Biochemistry. Academic Journals. ISSN: 2141-2162.
- Manuscript Reviewer, Journal of Science and Environmental Management.
- Member, Committee for the Development of Certificate/Diploma Curriculum in Agriculture.

## **DEPARTMENT OF ANIMAL SCIENCE**

**INTRODUCTION**

The Department of Animal Science was established to provide instruction, conduct research and extend knowledge and technology in Animal Science. It is one of the 13 Academic Departments that constitute the College of Agriculture and Natural Resources. The Department is located on a 40-hectare plot of land and is one km from the Faculty of Agriculture. The Department has two Sections and two units namely, Poultry and Livestock Sections and Meat Science Unit, Nutrition

and veterinary diagnostics laboratories respectively. The Meat Processing Unit has the capacity to process 60 metric tons of meat yearly. These facilities are used for students practical and some animal products and breeder pigs sold. The Nutrition and Veterinary diagnostic laboratories provide services for students, farmers and industry through the assay of feed resources for their nutrient composition.

### **MAJOR SERVICE TO THE COMMUNITY**

The farms of the Department have served the practical training needs of farmers with the on-hands training model. It operates as well as giving students of both the Faculty of Agriculture and other agricultural institutions the opportunity to appreciate the science that backs animal production.

Students are allotted to the various Sections of the Department's farm for a "hands-on" training on raising of birds and pigs, and processing of milk and meat for an 8-week period during the long vacation.

Several students from many Junior and Senior Secondary Schools as well as other sister Universities, such as the University for Development Studies, Tamale and the University of Education, Mampong Campus have visited the various sections of the farm during the year. The Department also hosted students and Professors from North Carolina State University and a nutritionist from Ireland.

The Department still operates the model farm established with the grant from FINATRADE Group of Companies where students have continued to have practical experiences of raising broilers and fattening pigs with profit as a motive.

Several institutions, private organizations, and many farmers continue to use the services provided by the Nutrition and the Veterinary Diagnostic Laboratories to solve industrial and farm level problems.

Animal product such as eggs, chickens and several processed meat products were provided on a more stable basis this year. The breeder pigs from the Department's farm are the first choice of farmers in the Ashanti Region and as far as Sefwi in the Western Region.

### **UNDERGRADUATE, POSTGRADUATE PROGRAMMES AND SERVICES RENDERED BY THE DEPARTMENT**

The Department has since its establishment continued to contribute to an undergraduate programme leading to the award of the composite BSc Agriculture degree. The Department hosts the newly introduced BSc. (Meat Science and Dairy Processing Technology) programme. There are several graduate programmes leading to the MSc. MPhil., and PhD degrees. The areas of specialization for graduate students are in Animal Nutrition, Animal Breeding and Genetics, Meat science and Reproductive Physiology. Seminars, tutorials, field trips and laboratory practical training form important components of the teaching programme. The Department also provides service courses to two Departments; the Department of Biochemistry and Biotechnology and the Department of Agroforestry. The painting and Sculpture and Physics Departments use the facilities of the Farm for student work.

## **STAFF MEMBERS**

Prof. Emmanuel Lartey Kwame Osafo –  
**Head**

Prof Daniel Boye Okair

\*Prof. Stephen Alfred Osei

\*Prof. Comfort Cecilia Atuahene

Prof. Armstrong Donkoh

+Oscar Simon Olympio

Mr. Paul Kofi Karikari

\* On contract + Part time

Mr. Worlah Akwetey

Dr. Christopher Antwi

Dr. Kwaku Adomako

Dr. Michael Boateng

Dr. Jacob Alhassan Hamidu

Dr. Victoria Attoh-Kotoku (Mrs.)

## **MAJOR RESEARCH BY DEPARTMENT AND STAFF**

Owing to the global shift of focus from basic agriculture to advanced research to ensuring food security to meet the animal protein demand of the ever increasing population, the Department has revised its objectives to include three thematic research areas as follows:

## **RESEARCH THEMATIC AREA AND RESEARCH TEAM MEMBERS**

### ***Animal Biotechnology Research Group***

Prof. A. Donkoh – Lead investigator

Dr. J. A. Hamidu – member

Dr. K. Adomako – member

Dr. C. Antwi – member

Dr. O. S. Olympio - member

### ***Animal Agriculture and Climate Change Research Group***

Prof. E.L.K Osafo – Lead investigator

Dr. V. Attoh Kotoku - member

Dr. C. Antwi - member

### ***Organic Agriculture Research Group***

Prof. S. A. Osei – Lead investigator

Dr. M. Boateng - Member

The thrust of the Department's research interests is finding ways to increase the productivity of small animal holdings, through efficient and cost effective ways of feeding farm animals through the use of non-conventional feed resources as well as the use of genetically improved breeds. The Poultry research group continues to collaborate with poultry farmers to identify the potential of the local and breeds of birds that can adapt to and perform well in high temperatures. This strategic research is in anticipation of the effects if climate change on animal production. Members of the Department collaborate with colleagues in other Departments, Colleges of the University and Research Institutions. These include the Faculties of Pharmacy and Pharmaceutical Sciences, Renewable Natural Resources, the Colleges of Science and Engineering and Council for Scientific and Industrial Research. The Department believes such collaborations would help improve the livelihoods of the small animal holding farmers in a

holistic way. As part of the University's mandate of disseminating knowledge to outside persons, research outputs are extended to farmers through workshops organized by some senior members.

Collaborations outside the University during the year include a close relationship between the Department and the Ministry of Food and Agriculture.

The research interests of the academic staff are as outline below:

**Prof. D. B. Okai**

1. Utilization of exogenous enzymes in pig and poultry diets in Ghana –
2. Dawadawa (*Parkia biglobosa*) fruit pulp as a feed ingredient in swine diets.
3. Improving the nutrient composition and nutritive value of cassava peels using slaughter house by-products.
4. On-farm feeding trial using Direct-Fed-Microbials/Probiotics
5. Nutrient composition and nutritive value of new feed resources : water melon rind and pawpaw peels
6. Methods of swine manure disposal in the Ejisu-Juabeng district of the Ashanti region.

**Prof. S. A. Osei**

1. The growth performance of broiler chicken fed cotton seed meal.
2. Response of broiler chickens fed on diet containing armato leaf meal.
3. Dietary synthetic methionine effects on broiler performance.
4. Analysis of the performance of Lohmann layers and breeders raised in Ghana.
5. Effects of diet-fed microbials on the performance of layers and breeders.

**Prof. A. Donkoh**

1. The nutritional value of dried cocoyam (*Xanthosoma sagittifolium*) leaf meal in broiler chickens' diets
2. Carcass characteristics and organ weights of broiler chickens fed dried cocoyam (*Xanthosoma sagittifolium*) leaf meal-containing diets
3. Evaluation of performance of commercial layer chickens in some selected farms in the Asante Region of Ghana.
4. Growth response of Guinea fowls fed diets containing blend of bovine blood and cassava meal.
5. Nutritive value of *Samanea saman* seed and pod meals as feed ingredients for broiler chickens.
6. Health and performance response of poultry to direct-fed microbial (DFM) administered via drinking water under hot humid environment.

**Prof. (Mrs) C. C. Atuahene**

1. The effect of garlic (*Allium sativum*) as a natural feed additive on growth performance and carcass characteristics of broiler chicken.
2. The effect of garlic (*Allium sativum*) as a natural feed additive on the hematological and biochemical characteristics of broiler chicken.
3. Tiger nut (*Cyperus esculentus*) residue as feed ingredient for broilers: its effect on primal cuts.
4. A survey to consider factors that may affect early chick mortality

5. Factors affecting snail production in Ghana.

**Prof. E. L. K. Osafo**

1. Direct Fed Microbial on the Immunology, haematology and the growth performance of sheep
2. Evaluation napier grass as ruminant feed.
3. Assessment of tropical forages for greenhouse gas emissions

**Dr. O. S. Olympio**

1. Naked neck and frizzling genes in egg laying
2. The effect of naked neck and frizzle genes on the growth of the domestic fowl in the tropics.
3. Factors that affect the quality of stored egg.
4. Use of Microsoft excel in poultry management
5. A cash flow budget for a Kumasi based commercial layer farmer
6. Microsoft excel as an analytical tool for table egg production estimates

**P. K. Karikari**

1. A study of drinking yoghurt using different levels of sodium benzoate as a preservative.
2. Feed intake and growth performance of weaner and female adolescent rabbits fed a blended leaf meal of *Chromolaena odorata*, *Gliricidia sepium* and *Leucaena leucocephala*

**Dr (Mrs.) V. Attoh-Kotoku**

1. Causes of lamb mortality from parturition to weaning in the Ejura Municipality
2. and possible solutions for its reduction.
3. Causes of kid mortality from parturition to weaning and its effect on chivon harvest at the Kintampo goat breeding station.
4. The use of fruit and vegetable waste as livestock feed. A review
5. The use of dried and roasted breadfruit flour as a binder in meat loaf.
6. The effect of different levels of whole cotton seed on N-intake, digestibility and N-retention in sheep fed jasmine rice straw basal diet.

**Mr. Worlah Akwetey**

1. Effect of pre rigor and post rigor on quality of hamburger
2. Pre and post rigor treatment effects on tenderness, cooking loss and water holding capacity of roast pork loin steaks.

**Dr. Christopher Antwi**

1. Direct Fed Microbial on the Immunology, haematology and the growth performance of sheep
2. Sustainable crop-livestock integration in the Amantin-Attebubu Districts
3. Greenhouse mitigation and measurements in the ruminant livestock

**Dr. Michael Boateng**

1. Utilization of exogenous enzymes in pig and poultry diets in Ghana –

- Evaluation of fruit pulps as a feed ingredient in swine diets.
- 2. Improving the nutrient composition and nutritive value of cassava peels using slaughter house by-products.
- 3. On-farm feeding trial using Direct-Fed-Microbials/Probiotics

**Dr. Jacob Hamidu Alhassan**

- 1. Hatchery practices and management.
- 2. Addressing incubation challenges such as overheating and chick quality in Ghana.

**PUBLICATIONS**

Members of the Department continue to make findings of their research available through several peer reviewed and conference proceedings.(Refer to Quality Assurance Bulletin

**ATTENDANCE AT WORKSHOPS**

- 1. **Osei, S.A. (2012).** State of organic agriculture in Ghana. West African Network for Organic Agriculture Research and Training Organic Certification Workshop. Université d'Abomey-Calavi, Benin, November 25 – December 1, 2012.
- 2. **Osei, S.A. (2012).** African Virtual University (AVU) Policy Harmonization and Curriculum Contextualization Workshop, Nairobi, Kenya, July 9 – 12, 2012
- 3. **Osei, S.A. (2012).** Organic livestock production: principles and practices. 1<sup>st</sup> West African Network for Organic Agriculture Research and Training (WONOART) International Training of Trainers Workshop in Organic Agriculture. Theme: Organic Agriculture Food Safety and Sustainable agriculture for the Future. Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, August 5 – 15, 2012.
- 4. **Osei, S.A. (2012).** How to get the best out of feed. Nutristar Poultry Feeding Workshop. Miklin Hotel, Kumasi, Ghana, February 25, 2013

**MAJOR SERVICE TO THE COMMUNITY**

**Prof. D. B. Okai**

- Continues to serve on many international and local animal related organizations.
- He continues to be the editor-in-chief of the Ghanaian Journal of Animal Science and was one of the editors for the Ghana Society of Animal Production Conference Proceeding 2009.
- He still serves as a member of the Ashanti Region Research-Extension-Farmer Linkage Committee (RELC)

**Prof. S. A. Osei**

- Serves on the Board of Education of the Assemblies of God Church.
- He serves as External Examiner to several sister Universities and is also a reviewer of the Ghanaian Journal of Animal Sciences.

**Prof. A. Donkoh**

- Member of the Steering Committee of the West African Agricultural Productivity Programme (WAAPP)
- Reviewer for several scientific journals including the Journal of Animal Feed Science and Technology, the Netherlands, Ghana Journal of Agricultural Sciences and the Ghanaian Journal of Animal Sciences.

**Prof. (Mrs) C. C. Atuahene**

- Serves as External Examiner to several sister Universities.
- Continues to serve on the Board of the Council for Scientific and Industrial Research (CSIR) Member of the University Council of the Presbyterian University.
- Reviewer for the Ghanaian Journal of Animal Sciences.

**Dr. O. S. Olympio**

- Reviewer for the Ghanaian Journal of Animal Science.

**Prof. E. L. K. Osafo**

- Head of Department of Animal Science
- External Examiner for University of Development Studies
- Member of the National CODEX Committee on animal feeds.

**Mr. P. K. Karikari**

- Head the Boadi Cattle research project of the university.
- Board member for several university committees
- Reviewer for the Ghanaian Journal of Animal Sciences.
- External Examiner to several sister Universities.

**Dr. (Mrs) V. Attoh-Kotoku**

- Assistant Faculty of Agriculture Examination Officer
- Head of Livestock Unit.
- Reviewer of Ghanaian Journal of Animal Sciences.
- Member of CSIR-CRI and CANR-KNUST Gender Working-Group.

**Mr. W. Akwetey**

- Sectional Head of the Meat Science and processing unit of the Department of Animal science

**Dr. Christopher Antwi**

- Head of the Animal Nutrition and Veterinary Diagnostic Laboratories
- Member of Livestock Emissions and Abatement Research Network, New Zealand.
- Secretary of the Editorial Board of the Ghanaian Journal of Animal Science and the examination officer for the Department.



**Dr. K. Adomako**

- Head of Poultry section
- Reviewer of the Ghanaian Journal of Animal Science

**Dr. M. Boateng**

- Students' seminar coordinator in the Department.
- He on a couple of occasions served as a panelist on a Farmer based program on radio Mercury.

**Dr. Jacob Alhassan Hamidu,**

- Secretary and member of the Vice Chancellors committee to draft a concept note on a collaborative research with the Association of African Universities (AAU) on adaptation to climate change in the semi-arid region of Ghana.

**RESEARCH GRANTS AND OTHER SUPPORT**

The Department of Animal Science signed a two-year memorandum of understanding with BEST Canada Inc. to investigate the influence direct fed microbial on the haematology, immunology and the growth performance of sheep, pigs and chickens. The Department had a support to the tune of US \$80,000.00 to execute this ongoing project.

The Department also received a support in kind from Evonik industries, an amino acid Company to run a three-month feeding trial with broilers.

The Department awarded Ms. Alice Karikari GHC 5,000.00 for her project work under the Beauchemin-McGinn Award of Excellence in Agriculture. Through this \$45,000.00 grant from Dr. C Beauchemin, applicants are invited annually from female candidates with a First Class or Second Class upper degree in Agriculture, Biochemistry or Biology interested in studying for Master's degree in Animal Science or Sustainable Agriculture. The Department is in negotiations with AKATE Farms and Trading Ltd for the establishment of a Public-Private Partnership to provide top of the line poultry production facility for the training of students and also for commercial purposes.

**STAFF VISITS**

Six staff of the Department travelled abroad on various engagements as follows:

**Prof. S.A. Osei** attended the first WANOART workshop on curriculum development in organic agriculture for higher education institution in West Africa, Abeokuta, Nigeria from March 5 – 15, 2012 and again attended the WANOART organic certification workshop, Abomey-Calavi, Republic of Benin from November 25 – December 2, 2012. From March 15 – 22, 2013 he participated in the Research conference on organic Agriculture Njala University, Sierra Leone.

**Dr. Antwi** was awarded a Norman E. Borlaug - USDA Fellowship Program on greenhouse gas emissions and mitigation in livestock at the University of California – Davis, California in the United States of America from October 15 – January 31<sup>st</sup> 2013. He was able to complete his

research on methane measurement and published two papers resulting from the research. His visit earned the faculty Agronomy and Soil Science Journal from the 1970's to date, ANKOM fibre analyser for the nutrition laboratory and text books (statistics and animal nutrition books)

**Dr. M. Boateng** participated in the EDULINK-Staff & Student mobility exchange programme on organic agriculture. Dr. Boateng and one of his post graduate students embarked on a one month tour to the Federal University of Agriculture, Abeokuta Nigeria under auspices of the above programme. The programme offered them the opportunity for further training and exchange of ideas on organic Agriculture with other scientist in Nigeria. He also participated in the fourth Nigerian International Poultry summit under the Auspices of World Poultry Science Association.

**Prof. E. L. K. Osafo and Dr (Mrs) Victoria Attoh-Kotoku** made oral presentations at the British Society of Animal Science Annual meeting in Nottingham, UK in April, 2012.

**Dr. K. Adomako** was nominated to participate in a short course organized by Israel's Agency for International Development (MASHAV) on Poultry Production and Management: Veterinary and Nutritional Aspect – Protein Enhancement to help Combat Hunger from 8<sup>th</sup> April, 2013 to 2<sup>nd</sup> May, 2013. This offered him new ideas and current trends in poultry science.

## **FACULTY OF RENEWABLE NATURAL RESOURCES**

### **INTRODUCTION**

The Faculty of Renewable Natural Resources of the Kwame Nkrumah University of Science and Technology remains a major training ground for medium to high level professionals in the sustainable management and utilization of the nation's renewable natural resources. The Faculty is renowned for its high quality education and impeccable contribution to scientific research in development and preservation of the country's natural resources. The Faculty also conducts development-oriented research towards the improvement of the agricultural and fisheries sectors.

The Faculty reaches out to society to promote and create awareness in the need to sustainably utilise the natural resources without sacrificing the integrity of the environment. The contributions of the Faculty's activities are crucial for the socio-economic development of Ghana and the sub-region. The Faculty achieves its mandate through teaching, research and service to the community. It offers opportunity to students at the tertiary level to acquire the necessary knowledge and experiences that enable think critically and to develop the needed leadership competencies to embark on scientific activities that are development-oriented..

The Faculty has five academic Departments namely; Agroforestry, Fisheries and Watershed Management, Silviculture and Forest Management, Wildlife and Range Management and Wood Science and Technology. The Faculty offers degrees at BSc, MSc, MPhil and PhD levels in all its five Departments. The faculty also accommodates the offices of the Provost of the College of Agriculture and Natural Resources (CANR) and remains a focal contact for visitors to the CANR.

## **FACULTY ADMINISTRATION**

The Faculty's Central administration consists of the following:

Dean	Prof. S. Amisah,
Chief Administrative Assistant	Mrs Cecilia Owusu
Senior Administrative Assistant	Mrs Dora Mensah
Senior Administrative Assistant	Mr Kwame Kyei-Ampong

## **DEPARTMENTS AND HEADS**

There are five Departments headed by the following persons:

Dr. Kwame Twum-Ampofo	Head, Department of Agroforestry
Dr. Nelson Winston Agbo	Head, Department of Fisheries and Watershed Mgt
Dr. BoatengKyere	Head, Department of Silviculture and Forest Management
Prof. William Oduro	Head, Department of Wildlife and Range Management
Dr. Charles Antwi-Boasiako	Head, Department of Wood Science and Technology

## **STAFF STRENGTH**

The Faculty consists of twenty-nine permanent teaching staff. They are made up of three Associate Professors, five Senior Lecturers and twenty-one Lecturers. In its plan of expansion in response to growing student numbers and changing needs of the country, the Faculty embarked on recruiting additional academic staff including Dr. Regina Edziye and Dr. Samuel Partey Tetteh.

## **STUDENT POPULATION**

The Faculty has an undergraduate student population of 523 males and 243 females. At the postgraduate level there are 68 males and 18 females. Overall the Faculty is working towards achieving a student gender balance of 50:50 of the population.

## **FUNDING OF RESEARCH ACTIVITIES**

The Faculty continues to receive support from the Canadian International Development Agency (CIDA) for the APERL Project. Provision of funds from the National Forest Programme Facility, through the Food and Agriculture Organisation of the United Nations (FAO) to Faculty of Renewable Natural Resources for provision of services for the "Registration of 20,000 Modified Taungya Farmers" in the Ashanti, Juaso, Bekwai, New Edubiase and Kumawu Districts continues.

## **TEACHING AND RESEARCH ACTIVITIES**

The Faculty has established a teak plantation on the KNUST land at Kwamo near Ejisu. Over 20,000 teak trees have been planted and are doing well. The Faculty is in the process of finalising the establishment of a Modern Integrated Fish Farm at the Faculty Demonstration Farm to conduct training programmes for fish farmers, and also run short courses for professionals to update their skills. To this effect, a borehole had been sunk and electrical power supply restored at the farm. The Faculty has acquired 5000 fingerlings for fish breeding.

The Faculty runs an additional BSc programme in Aquaculture and Water Resources Management in response to a national demand.

The Faculty purchased a brand new 58-seater Tata Bus to facilitate the organisation of student field trips.

### **UNIVERSITY OF EAST FINLAND (UEF)–KNUST STUDENT-STAFF EXCHANGE PROGRAMME**

The Faculty of Renewable Natural Resources has completed agreements with the University of East Finland to commence a student and staff exchange programme aimed at enhancing the scientific capacity building of both staff and students and for cultural diversity experiences. The first batch of four students from the Faculties of Renewable Natural Resources and Forest Resources Technology selected from BSc year 3 will spend a semester at the University of East Finland commencing September 2013. The students include 3 males and one female. The UEF will also send students to FRNR for a semester over the same period. The collaboration exchange arrangements will be repeated in 2014 with exchange of academic staff and students. KNUST signed an MOU with the UEF about a year ago.

### **INTRODUCTION OF NEW PROGRAMMES**

The introduction of new undergraduate and graduate programmes in response to changing socioeconomic needs of the country has started. The details are provided in the sections that follow:

#### ***Department Of Fisheries and Watershed Management***

The Department of Fisheries and Watershed Management has started a BSc programme in the Aquaculture and Water Resources Management during the 2012/2013 academic year. The Department is also in the process of introducing a taught plus research programme in M.Sc. (Aquaculture).

#### ***Department of Silviculture and Forest Management***

The Department of Silviculture and Forest Management commenced a M.Sc. in Natural Resource and Environmental Governance in the 2012/2013 Academic Year.

#### ***Department of Wildlife and Range Management***

The Department has written a draft to run B.Sc. Degree Programme in Conservation and Wildlife Management.

#### ***Department of Wood Science and Technology***

The Department has drawn two proposals to run the following undergraduate programmes:

i) B.Sc. Wood Production Engineering and (ii) B.Sc. Furniture Design Technology.

#### ***Department of Agroforestry***

The Department is in the process of writing proposals for the introduction of Graduate programmes and professional training courses in Agroforestry. These drafts are being discussed at the College Board level

### **SERVICE TO THE COMMUNITY**

The Faculty continues to offer professional advice to the Ghana Forestry Commission. As a scientific authority the Faculty offers expert advice to the Ghana Timber and sawmillers Association and the Forestry Commission (Wildlife Division) on Convention on International Trade of Endangered Species (CITES) issues. The Department of Fisheries and Watershed Management remains a national central hub for information dissemination and consultation by the general public on matters relating to fish production in captivity (fish farming).

### **BOOK AND LABORATORY EQUIPMENT DONATIONS TO THE FACULTY**

Over the past year more than 1,000 books and periodicals were donated by Dr. Hillary Egna of the University of Oregon and Director of the AquaFish Collaborative Research Support (AquaFish CRSP) programme to the Faculty to facilitate the training of Fisheries and Aquaculture students at KNUST. In January 2013, over 800 books and periodicals were again donated by the same to facilitate teaching in the newly introduced BSc Aquaculture and Water Resources Management programme at KNUST. Dr. Kojo Afrifah of the Department of Wood Science and Technology, on return from his PhD studies at the University of Michigan, East Lansing, donated several hundreds of test tubes and glassware worth several thousands of USD to the faculty through a collaborative initiative between him and his department in Michigan.

## **DEPARTMENT OF AGROFORESTRY**

### **INTRODUCTION**

The Department of Agroforestry is one of the five Departments of the Faculty of Renewable Natural Resources providing support to FRNR in the teaching of undergraduate courses in Soil Science, Technical Communication, Agroforestry, Agriculture, Natural Resources Extension and Economics, Social and Urban Forestry. The Agroforestry option in BSc Natural Resources Management Programme continues to be attractive to students with the current third and fourth year Agroforestry option classes being 56 and 47 in number, respectively. In the year under review six (6) MSc/MPhil students registered for graduate programme.

### **ACADEMIC STAFF**

The Academic staff strength of the Department is seven. Dr. Samuel T. Partey (V.C. Initiative PhD product) joined the Department as a lecturer.

#### ***LIST OF ACADEMIC STAFF***

Dr. K. Twum-Ampofo - Head of Department  
Dr. (Mrs.) Olivia Agbenyega  
Dr. Victor R. Barnes  
Dr. Evans L.K. Dawoe  
Dr. A. Adutwum Abunyewa  
\*Dr. C. Oti-Boateng  
Dr. Samuel Tetteh Partey  
\*On Contract

### ***RESEARCH***

The academic Staff in collaboration with other colleagues and graduate students continued to conduct research in the Agroforestry, Natural Resources and the Environment.

**Dr. K. Twum-Ampofo**

1. Rhizobial and Mycorrhizal studies on indigenous tree legumes
2. Agroforestry in community development
3. Use of multipurpose trees biomass for soil fertility improvement.

**Dr. (Mrs) Olivia Agbenyega**

1. Socio-economic Assessments of Agroforestry systems
2. Gender mainstreaming in natural resources management
3. Participatory approaches to natural resources management
4. Socio-economic impacts of biofuels

**Dr. Charles Oti-Boateng**

1. Agronomic studies on *Jatropha curcus* established from seeds and from cuttings
2. Weed control studies on *Jatropha curcus*
3. Agronomic studies on the influence of Biochar on the growth and yield of Yams *Dioscorea rotundata*.

**Dr. Evans Dawoe**

1. Nutrient Management in shaded cocoa systems
2. Agrarian Communication Network and Consequences for Agroforestry

**Dr. Rex Barnes**

1. Climate Change effects on Vegetation Distribution, Composition and Increment in Different riparian Ecosystems of the Ghanaian Northern Savanna.
2. Optimizing Productivity and Perennial Intercrop Diversity Tradeoffs in West and Central African Cocoa farms.
3. Effects of pesticides on quality of surface and ground water in agricultural and forest land uses in Akomadan in Offinso District.
4. A comparative study on public perception on climate change in urban and rural communities in Ghana.

**Dr. Samuel Tetteh Partey**

1. Plant residue decomposition and nutrient release dynamics
2. Plant-soil relation in Agroforestry systems
3. Soil fertility and organic residue management in agro-ecosystems

**COMMUNITY SERVICE**

Academic staff of the Department continued to offer their services both to Local and International Institutions.

**Dr. (Mrs) Olivia Agbenyega** is the lead Author for Global Energy Assessment, coordinated by the Energy Program at the International Institute for Applied System Analysis (IASA) Vienna, Austria. Furthermore, Mrs Agbenyega is the coordinator for Gender mainstreaming workshops

for APERL Project communities in the Brong Ahafo Region. She is also a trainer for the Africa Lead project for Food Security in Africa.

**Dr. Twum-Ampofo** is a member of Technical/Management Committee of APEL Project funded by CIDA at FRNR-CANR and also as Agroforestry Specialist/Consultant on Agriculture and Food Security projects to Local and International NGO's. Dr. Twum-Ampofo is a Steering Committee Member on FORIG/ KNUST/ITTO Project on rehabilitation of degraded forests in Ghana. He is a member of the Independence Hall Council, KNUST and also serving on the Ashanti Regional Disaster Management Committee of the National Disaster Management Organization.

**Dr. Victor Rex Barnes** is a resource person and a facilitator on Agroforestry Practices to Enhance Resource-poor Livelihoods Project being implemented in Fiapre, Dumasua and Ayakomaso communities around Tain II Forest Reserve by FRNR, CANR in collaboration with University of Guelph with support from the CIDA. He is also a member of the Ashanti Regional Disaster Management Committee of the National Disaster Management Organization. Dr. Barnes also a resource person (Ecologist) for FSC/Kumasi Wood Cluster Association Forest Certification Project to Identify High Conservation Values in Six Timber Utilization Contract Forest Reserves in Ghana, and a member of National Inter-Ministerial Pesticides Technical Committee of the Environmental Protection Agency, Ministry of Environment and Science. He is also serving as a member of working group on Pesticide Residues under CODEX a joint body formed by World Health Organization and Food and Agriculture Organization on the United Nation for the protection of health of consumers and ensure fair practices in international food trade.

**Dr. Evans Dawoe** served as reviewer for Plant Biosystem Journal, Journal of Soil Science and Environmental Management and Journal of Agric Extension and Rural Development.

**Dr. Samuel Tetteh Partey** served as reviewer for Agroforestry systems Journal, Journal of Environmental Management and Journal of Agricultural Research.

**Dr. A. Adutwum Abenyewa** is a Convener/Facilitator- AGRA-DANIDA Agricultural Value Chain Mentorship Project at Tamale, Bimbilla and Yendi and is also involved in Training of Farmers and MOFA Staff on Integrated soil fertility and integrated pest management on yam in the Northern and Upper East Regions. He is a member of Education Committee of S.D.A. Church at Atwima Koforidua, Atwima Nwabiagya District in Ashanti Region.

## **COLLABORATION**

The Department continues to collaborate with local and International Institutions in enhancing teaching and research activities of academic staff and students. In collaboration with University of Guelph, members continue to provide support to the Ghana – Canada APERL Project funded by CIDA. The Project seeks to enhance resource poor livelihood using Agroforestry technologies. In addition, the APERL Project has provided the Department a state of the art Plant and Soil Analysis Laboratory, trained two laboratory technicians and also provide internship training at University of Guelph for MSc/MPhil of Agroforestry students.

The Department is collaborating with the Natural Forest Division of Forestry Research Institute of Ghana (FORIG) Kumasi on ITTO funded Project on Rehabilitation of Degraded Forest Reserves in Ghana (Phase II). Dr. Twum-Ampofo is on the research team as Agroforester.

The Department is collaborating with the Kumasi Centre for Collaborative Research (KCCR) in their socio-economic studies in Tropical Medicine Human Behavior as determinants for coronaviral zoonoses. Dr. (Mrs.) Olivia Agbenyega is the facilitator.

The Department is also in collaboration with Africa Lead/USAID Non-State Actor 9NSA) Dialogue Platform Action Plan on Food Security and Comprehensive African Agriculture Development Program (CAADP) and International Institute for Applied Systems Analysis (ILASA) Vienna, Austria; Global Energy Assessment. Dr. (Mrs.) Agbenyega is their Lead Author and Principal Investigator.

The Department through Dr. Rex Barnes is collaborating with Universite Felix Houphouet Biogny (HFHB) de Cocody, Cote D'ivoire and University of Bonn/Rostock Under WASCAL Project, and also in collaboration with CORAF/L'*Institut de Recherche Agricole pour le Development* (IRAD) Yaounde, Cameroun/The World Bank under Optimizing productivity and Perennial Intercrop Diversity Tradeoffs in West Africa and Central African Cocoa Farms Project.

The Department is collaborating with the Energy Centre of the College of Engineering on Biofuels and also with United Nations Environmental Programme (UNEP) on management of Invasive Alien Plant species in Africa. Dr. Charles Oti-Boateng is on the research team.

The Department through Dr. Evans K. Dawoe is collaborating with University of Toronto, Canada researching into Social Networks and Natural Resources Management.

The Department is collaborating with Africa Rice Centre (AfricaRice) Benin. Dr. Samuel Tetteh Partey is on the research team. He is also in collaboration with some researchers of the environmental research group of the University of Manchester in assessing the role and management of organic residues on the soil microbial community structure and biomass, enzyme activities and nutrient dynamics.

## **PARTICIPATION IN CONFERENCES AND WORKSHOPS**

### **Dr. Samuel Tetteh Partey**

- International Training Program on Decision Support Tools for Agricultural Production, Fertilizer Recommendations and Climatic Variability, Arusha, Tanzania, October 3 – 10, 2012.

### **Dr. (Mrs) Olivia Agbenyega**

- Preparing Information for REDO as Climate Change Mitigation Strategy in Sub-Saharan African Countries. July, 2012.
- Promoting a value chain approach to climate change adaptation in agriculture in Ghana. Start-up Workshop, held in Sunyani, 27<sup>th</sup> – 28<sup>th</sup> March, 2013.

### **Dr. Twum-Ampofo**

- Promoting a value chain approach to climate change adaptation in agriculture in Ghana. Start-up Workshop, held in Sunyani, 27<sup>th</sup> – 28<sup>th</sup> March, 2013



## **PUBLICATIONS**

Members of the Department continue to make findings of their research available through several peer reviewed journals.

## **DEPARTMENT FISHERIES AND WATERSHED MANAGEMENT**

### **INTRODUCTION**

The Department has a mandate to train students and personnel for fisheries management, aquaculture, watershed and wetlands management to facilitate sustainable utilization and management of fisheries and aquatic resources.

### **ACADEMIC STAFF**

The staffing situation has improved considerably over the years with the following members currently employed in the Department. They are:

**Prof. Steve Amisah** - Dean of Faculty of Renewable Natural Resources

**Areas of research:** aquatic pollution, fisheries and watershed management.

**Dr. Nelson Winston Agbo** - Head of Department

**Areas of research:** aquaculture systems; fish nutrition; development of indigenous fish species for aquaculture; wastewater aquaculture.

**Dr. Daniel Adjei-Boateng**

**Areas of research:** aquaculture, fish nutrition, culture of Volta clam.

**Dr. Benjamin Betey Campion**

**Areas of research:** aquatic pollution and bioremediation; ecology and management of wetlands; climate change and water resources; environmental resource conflicts

**Mr. Godfred Owusu-Boateng**

**Areas of research:** Biodiversity Conservation, Limnology, Mathematical Modelling of Environmental Systems, Wetland Conservation.

**Dr. Regina Edziyie**

**Areas of Research:** Water Quality, Aquaculture, Aquatic Ecology, Aquatic Toxicology, Environmental Education.

### **SUPPORTING STAFF**

The department has four supporting staff.

### **TEACHING**

The Department continues to effectively teach the composite BSc (Natural Resources Management) degree programme through a number of courses it offers and also service other departments in the Faculties of Agriculture and Engineering. Students offering the Fisheries and

Watershed Management option stood at 56 and 26 for the third and fourth years respectively during the year under review. In 2012/2013 academic year the Department introduced a new four-year BSc programme in Aquaculture and Water Resources Management in response to a growing demand for more practical-oriented personnel and professionals in aquaculture and water resources management for Ghana and the sub-region. 17 students have since been enrolled. Undergraduate student research topics are largely centered on Fish Farming, Fish Nutrition, Freshwater Ecology, Aquatic Pollution, Effects of Aquatic Habitat Modification, Watershed Management, Fishing and alternative Sustainable Livelihoods.

Graduate studies leading to the award of MPhil and PhD degrees are offered in the Department. The number of postgraduate students enrolled in the Department during the year under review is 14. Postgraduate research is mainly focused on Aquaculture, Aquatic Ecology, Pollution, Climate change and impacts on livelihoods, watershed management. A proposal for M.Sc. Programme in Fisheries/Aquaculture and Water Resources is almost completed for submission.

### **RESEARCH ACTIVITIES**

Research activities in the Department are focused in the following areas:-

1. Aquaculture and environment
2. Fish nutrition in aquaculture
3. Best management practices for effluent control from fish farms
4. Habitat modification and fish population dynamics
5. Broodstock management and fingerling production
6. Ecology of cichlids and freshwater clams
7. Ecology and management of wetlands and watersheds
8. Community water resources management and conflicts

### **COLLABORATIVE RESEARCH**

Professor Amisah served and continues to serve as the Principal Investigator of the “AquaFish Collaborative Research Support Initiative in Sub-Saharan Aquaculture” with funding from The University of Purdue and Virginia State University, the USAID. A memorandum of understanding was signed between the department and Purdue University and Virginia State University. A collaborative research with Virginia Tech and Purdue University is ongoing and studies have been conducted on impacts of fish farm effluents on receiving streams in mid-southern Ghana, assessment of Aquafish CRSP experimental pond unit and effect of water re-use and feed type on the growth performance of Nile Tilapia.

A previous study evaluating the efficacy of indigenous fish species as aquaculture candidates, with funding from AquaFish CRSP, the USAID and Virginia Tech and State University benefited 3 MPhil students. Two of the MPhil students have already graduated one from Virginia Tech and the other from KNUST. Three other MPhil students are also being sponsored by AquaFish CRSP one in Virginia Tech and the other two in KNUST. As a result of these collaborations over two hundred fish farmers and fish processors have been trained on short courses through several workshops based on our findings.

Through the initiatives of Mr. Ben Campion and also Prof. Amisah, the Department received equipment for water quality determinations and some teaching aids worth over USD 20,000 from

Germany and the USA. Similar equipment including hand held GPS units have been received by the Department and this is enhancing research and teaching in the Department.

Waste management and sanitation has been a big challenge to African governments and institutions. As part of the solution to these challenges a research is being carried out to evaluate wastewater aquaculture production as a management tool for sustainable sanitation in Ghana. Through the initiative of Dr. N. W. Agbo a research is being conducted in collaboration with International Water Management Institute, IWMI. An MPhil student enrolled in KNUST on the programme and he will be completing this academic year.

The Department has also put in three proposals in relation to Growth and Employment Platform (GEP) under the Building Stronger Universities (BSU) programme and we are very optimistic that we will be successful.

### **SCIENTIFIC PUBLICATIONS OF SENIOR MEMBERS**

Academic members of staff in the year under review continued to publish in refereed journals.

### **CONFERENCES AND WORKSHOPS ATTENDED**

#### **PROFESSOR S. AMISAH**

1. Amisah S., Adjei-Boateng D., Frimpong E. A. and Ansah Y.B. (2013) Effect of water re-use and feed type on the growth performance of Nile Tilapia, *Oreochromis niloticus*. World Aquaculture Society Conference, 21-25 February 2013 Nashville, Tennessee, USA
2. Moderator, Women in Aquaculture, AquaFish Collaborative Research Support Program, Workshop Programme 8-9th January 2013, International Centre for Innovative Learning Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
3. Participant, Sustainable Aquaculture Value Chains in Ghana. Project development and proposal writing workshop sponsored by Growth and Employment Platform (GEP) under the Building Stronger Universities (BSU). Copenhagen, Denmark 5-11 November 2012
4. Participant, Sustainable Intensification of Cereal-based Farming Systems in the Sudano-Sahelian Zone of West Africa. Project Design Workshop sponsored by AquaFish (CRSP) of the (USAID). Modern City Lodge, Tamale, Ghana. 9-12 January 2012.

#### **DR. NELSON WINSTON AGBO**

1. Resource Person, Women in Aquaculture, AquaFish Collaborative Research Support Program, Workshop Programme 8-9th January 2013, International Centre for Innovative Learning Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
2. Participant, Environmental management for sustainable cage aquaculture development. Workshop funded by the Leverhulme Royal Society Africa Award, UK. Water Research Institute, Accra, 26 February to 1 March 2013.

3. Participant, Sustainable Aquaculture Value Chains in Ghana. Project development and proposal writing workshop sponsored by Growth and Employment Platform (GEP) under the Building Stronger Universities (BSU). Copenhagen, Denmark 5-11 November 2012
4. Participant, Sustainable Intensification of Cereal-based Farming Systems in the Sudano-Sahelian Zone of West Africa. Project Design Workshop sponsored by AquaFish (CRSP) of the (USAID). Modern City Lodge, Tamale, Ghana. 9-12 January 2012.
5. Agbo N. W. (2011). An assessment of water resources in the Ashanti Region and their contribution to socio-economic development and Ghana's future. Resource Person and Paper presentation at the Ashanti Region Policy Fair Dialogue Series, Kumasi, Ghana. October 26-29, 2011.

**DR. BENJAMIN B. CAMPION**

1. Participant, Building Stronger Universities, GEP Strategizing Outreach for Sustainable Agriculture and Aquatic Products in Ghana, 25th March, 2013, International Centre for Innovative Learning, Kumasi, Ghana

**DR. DANIEL ADJEI-BOATENG**

1. Resource Person, Women in Aquaculture, AquaFish Collaborative Research Support Program, Workshop Programme 8-9th January 2013, International Centre for Innovative Learning Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
2. Participant, Sustainable Aquaculture Value Chains in Ghana. Project development and proposal writing workshop sponsored by Growth and Employment Platform (GEP) under the Building Stronger Universities (BSU). Copenhagen, Denmark 5-11 November 2012
3. Adjei-Boateng D., Agbo N.W., Agbeko N. A., Obirikorang K. A. And Amisah S. (2012) The current state of the Clam, *Galatea paradoxa*, Fishery at the Lower Volta River, Ghana. Poster presentation at the International Institute of Fisheries Economics and Trade (IIFET), Dar es salaam, Tanzania. 16-20 July 2012

**DR. REGINA EDZIYIE**

1. Participant, Building Stronger Universities, GEP Strategizing Outreach for Sustainable Agriculture and Aquatic Products in Ghana, 25th March, 2013, International Centre for Innovative Learning, Kumasi, Ghana
2. Co-moderator, resource person, attendee, Women in Aquaculture, AquaFish Collaborative Research Support Program, Workshop Programme 8-9th January 2013, International Centre for Innovative Learning Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.
3. Co-Moderator, Resource person, attendee, Women in Aquaculture, AquaFish Collaborative Research Support Program, Workshop Programme 11th January 2013, Aquaculture Research Development Centre, Akosombo, Ghana

## **DEPARTMENT OF SILVICULTURE AND FOREST MANAGEMENT**

### **INTRODUCTION**

During the year under review the Department strategized to strengthen the delivery of its courses through improved peer learning and developed plans for the establishment of a commercial fuelwood plantation within the FRNR forest plantation project. Staff from the Department contributed to the development of curricula for new undergraduate and post-graduate programmes in the College of Agriculture and Natural Resources.

### **SENIOR MEMBERS**

There are seven full-time senior members, one post retirement part-time senior member and four supporting staff at post:

Dr. Boateng Kyereh - Head of Department

Dr. K. A. Nkyi

Dr. P.D. Kumapley

Dr. Emmanuel Acheampong

Dr. Daniel Dompreeh

Miss Nana Ama Asare

\*Miss Joana Ameyaw

\*\*Dr. E.A. Abeney

\*On study leave \*\* Part-time

### **SUPPORTING STAFF**

Napoleon Jackson Mensah

Kofi Essibu Ansah

Edmund Adzagbre

Janet Yeboah (Miss)

### **STAFF RECRUITMENT**

Two senior technicians joined the Department during the year.

### **STUDENT POPULATION**

The student population is made up of 123 undergraduates (third and final year students) and 16 post-graduates.

### **DEPARTMENT RESEARCH WORK**

The Department's research programme is focused on the following areas:

#### ***Dr Boateng Kyereh***

1. Forest fuel management in dry forests
2. Regularization of the domestic lumber market

3. Developing mechanisms for sustainable management of timber trees outside forest reserves in the forest zone of Ghana.
4. Alien species invasion of forest reserves in Ghana
5. Forest conflicts in the forest zone of Ghana

**Dr. K. Appiagyei Nkyi**

1. Tree species' responses to different forest nursery practices
2. Tree growth and development under various plantation development models in Ghana
3. Relative abundance and distribution of *Albizia zygia* on fallow lands in Ashanti Region of Ghana
4. The potential of leafy mulch in soil amelioration

**Dr Emmanuel Acheampong**

1. Developing the potential of climate change mitigation activities as alternative livelihoods for chainsaw dependent communities in Ghana
2. Forest-related livelihoods and forest governance in the high forest zone of Ghana
3. Illegal chainsaw milling and the domestic lumber market in Ghana
4. Socio-economic implications of industrial biodiesel plantations: the case of *Jatropha curcas* on rural land use alienation and conflict escalation in Ghana and Ethiopia

**Dr. P. D. Kumapley**

1. Wood fuel production and marketing

**Dr Daniel Dompseh**

1. The ecology and genetics of fragmented populations of the critically endangered tree *Talbotiella gentii*

**INSTITUTIONAL COLLABORATION**

The Department collaborated with key forest sector institutions and overseas universities on various development and research projects in the country. Senior members who participated on such projects and the roles they played are presented.

**Dr. Boateng Kyereh:**

1. Member, Building Stronger Universities Platform on Environment and Climate (BSUEC), a staff capacity building facility between Danish, Ghanaian and Tanzanian universities.
2. Scientific Coordinator of Tropenbos International Ghana. Responsible for the scientific direction and quality of all Tropenbos supported research projects in the country.
3. Member of the working group on Small and Medium Forest Enterprises Development in Ghana (Implementing Agency: Tropenbos International)
4. Local supervisor of two PhD students of Wageningen University and Research Centre, the Netherlands. The students' research topics are (i) Scenario analysis of sustainable forest management in Ghana (ii) Effects of climate change on regeneration of forest tree species in Ghana
5. Member of the Network of MSc European Forestry Erasmus Mundus Programme, with focal point at School of Forest Sciences, University of Eastern Finland

**Dr Emmanuel Acheampong:**

1. A member of a consortium of five organizations implementing the project “Assessing the socio-economic implications of industrial biodiesel plantations: Repercussions of *Jatropha curcas* on rural land use alienation and conflict escalation in Ghana and Ethiopia”.
2. Member, Forest Connect Working Group. This Project seeks to reduce poverty by linking small and medium forest enterprises (SMFEs) with market and service providers.

**SERVICE TO COMMUNITY**

Staff of the Department played various roles in community service as individuals and team members.

**Dr. E Acheampong**

- Member, committee for developing new programmes and curriculum for the proposed Faculty of Natural Resources
- Member, Administrative Instruments Committee, College of Agriculture and Natural Resources
- A member of a consortium assessing the socio-economic and ecological implications of industrial biodiesel plantations in Ghana and Ethiopia. This Project is under the Conflict and Cooperation over Natural Resources in Developing Countries (CoCooN) Programme, funded by the Directorate General of Development Cooperation (DGIS) of the Ministry of Foreign Affairs of the Netherlands and the Netherlands Organisation for Scientific Research (NWO).
- Member, forest connect working group. An initiative of the International Institute of Environment and Development (IIED) and FAO that seeks to reduce poverty by linking small and medium forest enterprises with markets and service providers.
- International Baccalaureate Organization (IBO): Examiner of Environmental Systems and Society.

**Dr. Boateng Kyereh**

- Chairman, committee for developing new programmes and curriculum for the proposed Faculty of Natural Resources
- Coordinator of the FRNR Forest Plantation Project
- Member of the project management team of the European Union Supported Project on Developing Alternatives for Illegal Chainsaw Lumbering through Multi-stakeholder Dialogue in Ghana and Guyana. (Implementing Agency: Tropenbos International)
- Project coordinator, ‘Linking local communities and forest concession holders to produce legal lumber for the domestic market. ’ The project was implemented between January 2012 and December 2012 to address a weak link in the supply chain of legal timber to the domestic market.
- Team leader, registration and capacity building of modified taungya farmers in four forest districts in the Ashanti Region.
- Member, forest connect working group. An initiative of the International Institute of Environment and Development (IIED) and FAO that seeks to reduce poverty by

linking small and medium forest enterprises with markets and service providers.

**Dr. E.A. Abeney:**

- Chairman National Working Group on Forest Certification
- Member of the Multi-stakeholder Implementation Committee of the Voluntary Partnership Agreement on legal timber between Ghana and the European Union.

**WORKSHOPS/CONFERENCES ATTENDED BY STAFF**

**Dr Boateng Kyereh**

1. Close up workshop of the Project 'linking communities with concession holders to produce legal lumber for the domestic market. Organised by Tropenbos Int. Ghana 19<sup>th</sup> Dec, 2012 NODA Hotel, Kumasi
2. Regional Conference on the experiences from the voluntary partnership agreement process in West and Central African countries. Organised by FAO/ACP FLEGT Support programme 23-25<sup>th</sup> October 2012 Alisa Hotel Accra
3. Match-making workshop on cooperation or conflict in the management of climate change. Organised by WOTRO Science for Global Development 6-8 September, 2012 Nairobi, Kenya
4. Forest sector research and dialogue programme development workshop. Organised by Tropenbos Int. Ghana. 15<sup>th</sup> May, 2012 Anita Hotel Kumasi
5. Stakeholder consultation workshop on draft public procurement policy on timber and timber products. Organised by TIDD of Forestry Commission 16 May, 2012 Erata Hotel Accra
6. Forest law enforcement, governance and trade training workshop for Anglophone African Countries. Organized by the EFI's EU FLEGT Facility and the IDL Group 16-18<sup>th</sup> April 2012 Coconut Groove Hotel Elmina
7. Forest Investment Programme Focus Group Consultative Meeting for National Validation Workshop. Organised by the Ministry of Lands and Natural Resources 23 March, 2012 Coconut Groove Hotel Accra
8. International Conference of Integrated Natural Resource Management (INRM). Organized by the College of Agriculture and Natural Resources KNUST, 14-16 March, 2012 Kumasi.
9. FLEGT/VPA impact monitoring workshop. Organised by European Forestry Institute and EU FLEGT Facility 22-23 February Capital View Hotel Koforidua

**Dr Emmanuel Acheampong**

1. Forest law enforcement, governance and trade training workshop for Anglophone African Countries 16-18<sup>th</sup> April 2012 Coconut Groove Hotel Elmina
2. International Workshop on Capacity Building and Skills Development in Forest-based Climate Change Adaptation and Mitigation. Organized by the African Forest Forum (AFF), Nairobi, Kenya, 12-16 November 2012.
3. International Conference of Integrated Natural Resource Management (INRM). Organized by the College of Agriculture and Natural Resources, KNUST, Kumasi, Ghana, 14-16 March, 2012.



## **PUBLICATIONS**

Members of staff continued to publish in refereed journals.

## **FUNDING FOR COMMUNITY SERVICE**

The Department received an FAO support of US\$ 17000 under the National Forest Programme Facility to register farmers working under the modified taungya scheme in four forest districts in the Ashanti Region.

# **DEPARTMENT OF WILDLIFE AND RANGE MANAGEMENT**

## **INTRODUCTION**

The Department continued to offer courses leading to the award of BSc Natural Resources Management, MPhil and PhD in Wildlife and Range Management degrees. Plans are underway to diversify the postgraduate degree programmes offered by the department and also to start a taught Masters. The department also houses the MSc programme in GIS for Natural Resources Management, collaboration between KNUST and ITC, Enschede, The Netherlands. There are **28** graduate students in the department with **9** pursuing PhD degrees.

## **ACADEMIC STAFF**

#Prof. S. K. Opong

Prof. William Oduro/ Head of Department

Mr. Emmanuel Danquah

Mr. Louis Addae-Wireko

\*Mr. Moses K. Sam

\*Dr. Bright Obeng Kankam

\*Part-time Lecturer

## **TECHNICAL STAFF**

Mr. Mac Elikem Nutsuakor

Mr. Collins Kessey

Ms. Gloria Owusu Ansah

## **ADMINISTRATIVE STAFF**

Nii Amon-Kotei

## **MAJOR RESEARCH BY STAFF**

Virus biology, host ecology and human behaviour as determinants for coronaviral zoonoses in Ghanaian Bats. Research Team: S. K. Opong, Yaw Adu-Sarkodie, Christian Drosten and Elizabeth Kalko

## **PUBLICATIONS/CONFERENCES**

Members of staff in the year under review published in several international refereed journals.

## **CONFERENCES ATTENDED**

**Danquah, E.** STEM-Africa International Conference. International Centre for Innovative Learning, KNUST, Ghana.

### **MAJOR SERVICE TO THE COMMUNITY**

Members of staff continued to offer their services to many national and international agencies.

#### **Prof. S. K. Oppong**

1. Joint Course Coordinator, ITC/KNUST MSc in GIS for Natural Resources Management programme, 2005 to date
2. Management Team, Agroforestry Practices to Enhance Resource-Poor Livelihoods (APERL), Project No. S63440, Funded by Canadian International Development Agency
3. Reviewer, Ghana Journal of Agricultural Science, 1999 to date
4. Reviewer, Journal of Ghana Science Association, 1999 to date
5. Reviewer, Journal of Science and Technology, 2008 to date
6. Reviewer, Pachyderm , 2006 to date
7. Moderator, Faculty of Renewable Natural Resources, UDS, Tamale, 2006 to date
8. External examiner, Faculty of Renewable Natural Resources, UDS, Tamale, 2006 to date
9. Principal Investigator, Virus biology, host ecology and human behaviour as determinants for coronaviral zoonoses in Ghanaian Bats. Collaboration with KCCR, University of Bonn, Medical Centre and Ulm University, Germany, Germany. 2010 to date.
10. Principal Investigator, Malaria Vector Control Project. Collaboration with KCCR and Bernhard Nocht Institute for Tropical Medicine

#### **Prof William Oduro**

1. KNUST representation on the scholarship review committee, scholarship secretariat. Accra. 2008 to date
2. Member, Embedding Changes Group. Responsible for embedding changes in College of agriculture and Natural resources culture and analysing Strategic choices (E&S). NPT 278 project. 2009 to date
3. Coordinator, CIDA -APERL (Agroforestry Practices to Enhance Resource-Poor Livelihoods). 1 October 2008 to date
4. Dean, Faculty of Renewable Natural Resources, CANR, 3 October, 2008 to date
5. Member, FC/FFRT, CANR, KNUST Sawmill Sub- Committee. 2008 to date
6. Patron, agency for Health and Food Security. Ntonsu, Kwabre District, Ashanti Region. January, 2010 to date
7. Trustee, RAINFOREST FRIENDS, GHANA-RAFFS/G (affiliated to Forest Friends Ireland FFI). RAFFS/G 2008 to date
8. Member serves on TROPENBOS International Ghana Bi-National Steering Committee. 2008 to date
9. Served as Specialist on Interview panel for 9 job applicants in FORIG, CSIR. Wednesday, 24 February 2010

10. Served as specialist on interview panel for 8 job applicants for research grade positions in plant physiology, wildlife management and chemical technology in FORIG, CSIR. FORIG Conference Room, Tuesday, 23 March 2010.
11. Member, UNESCO-MAB Sub-Committee. 2009 to date
12. Reviewer, African Journal of Ecology. 28 May 2009 to date
13. Reviewer, African Academy of Sciences, 2010 to date
14. Reviewer, African Journal of Biotechnology, [www.academicjournals.org/aajbc](http://www.academicjournals.org/aajbc), 2010 to date
15. External Assessor Department of Wildlife and Entomology, University of Cape Coast, 2009 to date

#### **Mr. Emmanuel Danquah**

1. **Optimal Development Consult** (2012). Environmental and Social Performance Compliance in Kibi and Nyinahin Concessions. Progress Report For Vimetco Ghana Bauxite. Technical Report submitted to Vimetco Ghana (Bauxite) Limited.
2. **Optimal Development Consult** (2011). Environmental Impact Assessment and Hydrological Survey with Liability Estimate of the Kibi and Nyinahin Bauxite Concessions. Technical Report submitted to Vimetco Ghana (Bauxite) Limited.
3. **Optimal Development Consult** (2011). Strategic Stakeholder and Resource Mapping in and around the Songhor Lagoon. Technical Report submitted to Electra (West Africa) Limited.
4. University of Michigan African Presidential Scholar (UMAPS) 2010 to date
5. IUCN World Commission on Protected Areas (WCPA) 2009 to date
6. IUCN SSC African Elephant Specialist Group (AfESG) 2005 to date
7. Society for Conservation Biology (SCB) 2009 to date
8. Ghana Science Association (GSA) 2009 to date
9. Ghana Institute of Professional Foresters (GIPF) 2010 to date
10. A Rocha, Ghana (ARG) 2005 to date
11. Optimal Development Consult (OPDEC) 2010 to date
12. Ghana Association for the Conservation of Nature (GAICON) 2009 to date
13. University Teachers Association of Ghana (UTAG). 2005 to date
14. Manuscript Reviewer *Pachyderm* 2008 to date and *African Journal of Ecology* 2010 to date
15. Mentor- *African Women in Agricultural Research & Development (AWARD) Project*

#### **PROFESSIONAL WORKSHOPS**

##### **Mr. Emmanuel Danquah**

1. **October 12-18, 2012:** AWARD Science Workshop, Nairobi, Kenya (Gender and Diversity Program, CGIAR/ICRAG, Nairobi, Kenya).

## **DEPARTMENT OF WOOD SCIENCE & TECHNOLOGY**

### **TEACHING**

The Department provides support to the FRNR in the teaching of several other undergraduate courses including Basic Genetics, Pathology and Microbiology, Environmental Physiology and General Entomology. The Department also undertakes Postgraduate programmes in MSc., MPhil., and PhD in Wood Science and Technology, Timber Engineering, Furniture Design and Production.

#### **STAFF**

Dr. C. Antwi-Boasiako - Head of Department

Mr. Jonny Osei Kofi

Dr. K. A. Afrifah

Prof. Nana K. Frimpong-Mensah

**\*\*Dr. N. A. Darkwah**

***\*Staff on Contract. \*\*Staff on Part-time***

#### **MAJOR RESEARCH BY STAFF**

##### **DR. CHARLES, ANTWI-BOASIAKO**

1. Comparative wood Anatomy of Secondary (Lesser-Known and Utilized) Ghanaian Timber Species.
2. Natural Durability Studies of Secondary and related wood species using: a. Field tests, and b. Laboratory tests.
3. Studies on the use of different strains of decay organisms (e.g. decay-fungi) in natural durability and the significance of biotechnology of decay.
4. Preservative-treatment of Wood and laminates involving Identification, Characterization and Assessment of the use of Extractives as 'Natural Preservatives' in Wood protection.
5. Propagation, chemo-mechanical analyses, protection and potential utilization of bamboo and rattan - A Research Programme in conjunction with ICBR in Beijing, China.
6. Biomass (Wood) Energy Technology.
7. Growth performance and wood properties of the "Miracle Tree" (*Moringaoleifera.*).
8. Microbiology and Pathology (of forest/wood).
9. Forest Botany and Systematics.

##### **MR. JONNY OSEI KOFI**

1. Microbiological applications in wood preservation.
2. Investigations into non-timber industrial materials as supplements to traditional timber species.
3. Bamboo anatomy and its influence and response to preservative methods.
4. Bamboo preservation with candidate plant extracts.
5. Local oil/fat based plant products as potential water repellent materials for bamboo products.
6. Strength properties of laminated bamboo composites for structural applications.
7. Studies on *Borassus aethiopum* as a potential commercially viable woody constructional material.
8. Investigation into plants with high yielding tannin production and optimum use of harvested residual materials.

### **PROF. K. FRIMPONG-MENSAH**

1. Forest Policy on Wood Residue Utilization in the timber Industry.
2. Identification of durable Lesser Utilized Species for Construction (Bridges, Timber Frame Houses).
3. Sawing Accuracy of Stellite-tipped Saws.
4. Surfacing and finishing of Wood.
5. Furniture Design for Interior Decoration.
6. Wood Packaging material requirements for the International Plant Protection Convention (ISPM 15).
7. Utilization of lesser utilized timber species for light bridge construction.
8. Solid timber waste utilization for briquettes and biomass energy.
9. Utilization of timber for construction.
10. Furniture design in non-timber wood products.
11. Remnant trees on cocoa farms.

### **DR. N. A. DARKWA**

1. Pulping Characteristics of Lesser utilized Plantation Species (*Gmelinaarborea*).
2. Physical and Chemical Properties of *Gmelinaarborea* wood.
3. Paper recycling techniques.
4. Tannin extraction from indigenous plant species for formaldehyde-free wood adhesive production.

### **DR. K. A. AFRIFAH**

1. Biodegradable and compostable wood plastic composites (WPCs) - WPC properties and applications in construction, automobile and packaging industries.
2. Optimization of formulations and processing variables of composites with design of experiments (DOE).
3. Modification of the physico-mechanical properties of bio-based thermoplastic polymers.
4. Sustainable furniture production. Design, surfacing, finishing and construction of decorative and school furniture pieces with lesser utilized timber species.
5. Development of timber drying techniques for small scale furniture producers.
6. Sustainable packaging systems, life cycle assessment, packaging materials (plastics and lesser utilized timber species), packaging waste scenarios, biodegradation and compostability.
7. Food Packaging. Food product/package compatibility and interaction, high barrier packaging and modified atmosphere packaging.

### **SEMINARS, CONFERENCES AND WORKSHOPS**

#### **DR. C. ANTWI-BOASIAKO**

1. Workshop on: Raising Standards for 21<sup>st</sup> Century University Education: 21<sup>st</sup>-24<sup>th</sup> August, 2012, KNUST, Kumasi – Ghana
2. Workshop on: Leadership, Financial Management, discipline of Staff and Students (Workshop for Provosts, Deans and Heads of Department): 19<sup>th</sup>-21<sup>st</sup> February, 2013, KNUST, Kumasi - Ghana

## **BUREAU OF INTEGRATED RURAL DEVELOPMENT (BIRD)**

### **INTRODUCTION**

The Bureau has been busy in the 2012/2013 academic year. Our core business of research, consultancy, teaching and outreach all saw the injection of challenging but exciting activities. And despite our precarious staff strength which has only recently been enhanced, and our limited logistics, the Bureau was able to meet all commitments to our clients on time and to execute initiated programmes with success. The activities undertaken by the Bureau during the Academic Year have included the following broad areas: research, teaching/training, outreach and consultancy. Details of the activities are summarized below.

### **STAFF STRENGTH**

The Bureau had until late March, 2013 a research staff strength of five (5) made up of three (3) Senior Research Fellows and two (2) Senior Research Assistants. The research staff was supported by technical, administrative and ancillary staff totaling twelve (12). This limited research staff strength was a major constraining factor in the expansion and development of the Bureau. We are happy to state that our staff situation has been enhanced from three senior members to seven (7) including two females.

### **RESEARCH**

Within the reporting period, the department prioritised research on general community development based on community-university engagement. In this area, the underlisted proposals were submitted to the Building Stronger Universities (BSU) Platforms on Environment & Climate (EC) and Growth & Employment (GEP) Research Grants of the Danish Government. Three proposals under the themes: “Taking the University to the Poor and Grassroots People for Sustained Local Level Growth and Development”; “Adaptive Collaborative Approaches to Meet Change Challenges in Natural Resource Governance in Ghana – Integrating Scientific and Traditional Knowledge”; and “Partnering Local Communities For Sustained Development Through Outreach And Networking”. All three proposals have been approved and a total of US\$230,000 research grant has been awarded. Dr Paul Sarfo-Mensah and Prof Jens Emborg of Institute for Food and Resource Economics (IFRO), University of Copenhagen are the lead researchers.

Work has already started on the first two awards and two collaborators of Prof Jens Emborg, Prof Greg Walker and Prof Steve Daniels from Oregon State University, United States of America have participated in a two-day (13-14<sup>th</sup> May, 2013) Proposal Development Workshop facilitated by BIRD and IFRO at the International Centre for Innovative Learning, KNUST for 20 participants from the Faculties of Agriculture, Renewable Natural Resources, Planning and Social Sciences as well as Forest Research Institute of Ghana (FORIG) and CARE Ghana.

As part of the research, eight selected participants of the above-mentioned Workshop undertook a four-day (14-17<sup>th</sup>, 2013) exploratory fieldwork in two study sites, Sekyere South and Asutifi North Districts, to interact with the District Assemblies and some communities on the prospects for university- community engagement.

Other research proposals that were developed and submitted to various calls for proposals are listed below:

- *“Development and Implementation of Local Health Promotion Strategies for Improved Maternal Health Outcomes in Rural Ghana*, a joint research project prepared by BIRD in collaboration with the Department of Health Promotion and Development, University of Bergen, Norway in response to NORHED call for proposal. The Principal Investigators are: Mr. Ebenezer Owusu-Addo and Prof. Maurice Mittelmark, University of Bergen
- *“The Impacts of Mining on Access to Land and Rural Livelihood”* Submitted to Call 2013 of Danish Ministry of Foreign Affairs: Consultative Research Committee for Development Research; *“Assessment of Climate Change and its Impacts on Rural Livelihood”* Submitted to CALL 2013 Norwegian Programme for Capacity Building in Higher Education and Research Development); *Study of the Impacts of Rubber Development on Food Security in Ghana*, Submitted in response to call by Ministry of Food and Agriculture. The principal facilitator was Mr. Obeng-Okrah

Other research collaborations of the Department included *“Tackling Deforestation and Poverty for a Sustainable Livelihood in Northern Ghana”* a joint research collaboration being developed with Forest and Livelihood Programmes of Centre for International Forestry Research (CIFOR) with Kwaku Obeng-Okrah and Dr. Terry Sunderland of FLP, CIFOR as the lead facilitators. Joint research publications in peer review journals are targeted from these collaborations.

The Department was also able to secure a contract research through complete bidding from the Newmont Ghana Gold Limited to undertake “Follow-up studies on stakeholder perception survey of the Ahafo Mines Area” between January and April, 2013. It was a sequel to a study done by the Department in 2009. A contract sum of GHC 73,000 was awarded.

## **COMMUNITY SERVICE**

The Department undertook a pilot outreach preparatory programme in the Sekyere South District Assembly of Ashanti Region. A link, facilitated by Dr Paul Sarfo-Mensah and Dennis Donkor, has been developed through consultative engagements between BIRD and the District Assembly for the latter to be used as a social laboratory which will ultimately become the first site for the university-community engagement outreach programme of BIRD. It must be noted that a concept paper and a draft memorandum of understanding have been prepared for the programme. The three proposals submitted for the BSU funding mentioned above were partly originated from the concept paper.

## **LOCAL AND INTERNATIONAL COLLABORATIONS**

At the local level, BIRD is collaborating with the Ministry of Local Government and Rural Development for the former to build the capacity of the Rural Development Department of the Ministry. The Department has held discussions with the Focal Person at the Ministry to revive the process which has stalled since mid 2012. Dr Nana Edusah and Mr Owusu Addo have done extensive work on the collaboration which is an extension of earlier joint activities in technical workshops and political forum on rural development undertaken by the Department in 2007/2008.

Dr Paul Sarfo-Mensah is leading the Department to provide support to the Technical Working Group (TWP) on Innovative Adaptive Technologies (Livelihoods and Rural Development), in the ‘Promoting a value chain approach to climate change in Agriculture in Ghana’ (ProVACCA)

Project. It is collaboration with the Root and Tuber Improvement and Marketing Programme (RTIMP) of the Ministry of Food and Agriculture. An invitation was extended to Dr Paul Sarfo-Mensah to participate in the project launch and to co-facilitate its first technical workshop in Techiman and Suyani respectively in March, 2013.

As described under the section on research, the Department has stepped up its international collaboration in research and development through joint proposal writing and facilitation of research programmes. BIRD also has a Visiting Scholarship and exchange programme facility with the Institute of Rural Development, University of Venda (UNIVEN), and Republic of South Africa.

### **TEACHING AND SUPERVISION OF THESIS**

As part of her mandate, the Bureau provides teaching and supervision of Student's Theses.

Nana Dr. S E Edusah lectures in Project Management at the Department of Geography and Rural Development at the Post Graduate level. The library/conference hall facility of BIRD is used to support the teaching and learning of the students.

During the period under review, Dr. Paul Sarfo-Mensah and Dr Nana Edusah in collaboration with Prof Jens Emborg of University of Copenhagen facilitated the Adaptive Management in Natural Resources Management Interdisciplinary PhD Taught Course for selected faculties of KNUST under the Building Stronger Universities (BSU) Programme. The collaboration with Prof Jens Emborg has been stretched to joint proposal writing by him and Dr Paul Sarfo-Mensah (see section on Research above).

### **INTERNAL AND EXTERNAL EXAMINERS**

Dr Nana Edusah continues to act as an External Examiner for the Institute of Development Studies (IDS), University of Cape Coast and Centre for Sustainable Development at the University of Ibadan, Nigeria. Mrs. Ernestina Fredua Antoh, Dr Nana Edusah and Dr Paul Sarfo-Mensah acted as internal examiners for Master's Students, 2012 at the Faculty of Planning, KNUST. Dr Sarfo-Mensah has continued to act as external examiner of Masters and PhD programmes for the Centre for Rural Development and Poverty Alleviation, now Institute of Development Studies, School of Agriculture, University of Venda, Thohoyandou, Republic of South Africa.

### **NPT/GH/ NPT 278PROJECT**

The NUFFIC funded project NPT/GH/278 which was implemented from 2008 officially ended in July 2012. The final report on the project was submitted to NUFFIC in September 2012. The implementation of the project offered BIRD and the College of considerable opportunities in staff and programme development. Currently, two staff members pursuing their PhD programmes in Wageningen University and Research and at KNUST. Three MSc programmes were designed and are to be delivered in the 2013-14 Academic Year. Additionally, Five short courses were designed and being run by BIRD in collaboration with Centre for Development Innovation (CDI) of Wageningen University and Research. Two of the courses attract international participant from the different parts of the World. One of the flagship courses, the



Rural Entrepreneurship Course has been selected for full sponsorship by NUFFIC starting from 2014.

One of the gains of the NPT project was the construction of the International Centre of Innovative Learning (ICIL). The Centre is being managed by BIRD on behalf of CANR and has of late hosted number of academic programmes and number of high profile National and International Conferences and Workshops. The Centre aims at becoming a Centre of Excellence for Integrated Natural Resource Management (INRM) Principles and Approaches and Innovative Learning.

### **SHORT COURSES**

Between July and November 2012, Mr. Yaw Amo Sarpong has been the leader of the marketing, organization and logistics team for six International Short Courses at the International Centre for Innovative Learning (ICIL):

1. Genetics of Roots and Tubers
2. Rural Entrepreneurship
3. Gender Issues on Value Chain
4. Value Chains Management for Rural Development
5. Adaptive Management in Natural Resources
6. Participatory Social Monitoring and Evaluation (PSM&E) for staff of Guards of the Earth and the Vulnerable

Mrs. Fredua Antoh has also been offering support to the short course programmes. She was a resource person for gender issues in value chain for the International Short Course organised by CANR at ICIL in 2012.

The Department has also developed a Concept Note on running short courses on Cocoa Certification with Sustainable Development Consult. This was in request from the latter to partner the Department to run the Courses in lieu of demand from the International Cocoa Certification Project with sponsorship from Cadbury Group of Companies.

### **CONFERENCE(S) AND WORKSHOPS ATTENDED**

During the reporting period, members of staff participated in the following workshops and conferences. Mrs. Fredua Antoh attended an international workshop on Electricity and Rural Roads for Irrigation at Erata Hotel Okponglo, East Legon, Accra from 28<sup>th</sup> to 29<sup>th</sup> March 2012. The workshop led to the production of a document on 'Linkages between irrigation and electricity and rural roads policies' for the consideration of Cabinet and the Parliament Select Committee on Food and Agriculture. She also participated in the 7<sup>th</sup> Microfinance Conference, organised by the Faculty of Social Sciences, University of Cape Coast from 7<sup>th</sup> – 8<sup>th</sup> February, 2013 on the theme: Microfinance and Poverty Reduction: Taking Stock of Achievements and Challenges Towards 2015.

Dr Paul Sarfo-Mensah participated in the Project Launch and Start-up Workshop on Promoting a Value Chain Approach to Climate Change Adaptation in Ghana (ProVACCA) in Techiman and Sunyani respectively between 26<sup>th</sup> and 28<sup>th</sup> of March, 2013. The project is a Special Climate Change Facility (SCCF) with support from Global Environmental Fund (GEF) and International

Agricultural Fund (IFAD). The Root and Tuber Improvement and Marketing Programme (RTIMP) of Ministry of Food and Agriculture (MoFA) organised the programme and Dr Sarfo-Mensah was the lead facilitator of the technical workshop.

Mr Yaw Amo Sarpong in April, 2013 participated in the Integrated Seed Sector Development (ISSD) Africa Programme Workshop as the Team Leader, Local organization and logistics. Mr. Yaw Amo Sarpong presented a paper at the Sixth International Conference on Environmental Science and Technology held on June 25-29, 2012 at the Hilton Hotel, Houston, Texas, USA. The paper written with Prof. Bas Arts of Wageningen University is entitled; *Inter-sectoral Policy Coordination in the Forestry and Agricultural Sectors of Ghana*.

Dr Sarfo-Mensah has been invited to participate in the 11<sup>th</sup> Biennial Conference on Communication and the Environment at the Agricultural University of Sweden – SLU, Uppsala, Sweden between 6<sup>th</sup> and 12<sup>th</sup> of June, 2013. Dr Sarfo-Mensah is participating in the conference as part of the BSU Collaboration with Prof Jens Emborg and Prof Gregg Walker and would be on the panel, “Improving Participation in Environmental Policy Decision Making: Applying the Unifying Negotiation Framework”.

Two papers of Mr. Ebenezer Owusu-Addo have been accepted for presentation at the 21st IUHPE World Conference on Health Promotion slated for 25 – 29 August, 2013 in Pattaya, Thailand. He has been awarded a scholarship by the Conference organisers to enable him attend the conference.

## **STAFF DEVELOPMENT**

Mr Yaw Amo Sarpong is pursuing a PhD programme in Development Policy, Department of Planning, KNUST, Kumasi, Ghana. He is in the second year of the programme which is being funded by the Institutionalisation of Integrated Natural Resource Management (INRM) project (NPT-GHA-278) in CANR/ KNUST. Under the PhD scholarship, he has received training on many topics including project planning and time management, policy theories, working in interdisciplinary groups, short course organisation and logistics, qualitative and quantitative research methods.

Mrs. Ernestina Fredua Antoh is also pursuing a PhD programme at the Institute for Development Studies (IDS), University of Cape Coast. She is in her third year of research on the topic ‘Microfinance Services of Sinapi Aba Trust and Human Capital Development of Beneficiaries in Ashanti Region of Ghana’. She has over the years made presentations on her topic at seminars organised by her department. Field data collection has been completed and data entry is at the final stage.

## **CHALLENGES OF THE BUREAU**

The department does not have adequate computers and printers. Presently, there is only one functioning but old printer which makes work difficult. There are only two desk top computers for senior members, whose staff strength has been enhanced recently (2013) from three to seven. All senior members are compelled to use their own laptop computers because the two desk top computers have been installed for the Secretary and Administrator. The situation is not only inconveniencing but undermines the security of departmental data.

The Bureau has been grappling with the problem of office accommodation for several years. The problem is hampering expansion and development of the Bureau. Some senior members are paired up in their office and some supporting staff including national service persons do not have offices. We have been compelled to use our library as temporal office space for our national service persons, a situation which does not argue well for the effective use of the library for research.

### **PROJECTIONS FOR THE YEAR 2013/14**

The Bureau has made tremendous efforts in establishing herself as a key Development Consultant in Rural Development for several ministries, departments and agencies including Ministry of Local Government and Rural development (MLGRD), Ministry of Food and Agriculture (MoFA), the Rural Enterprises Project and Root and Tuber Improvement and Marketing Programme. It also has excellent working relationship with Newmont Ghana Gold Limited (NGGL). Although the Department has built capacity in consulting services which will be tapped to earn more income, it is of the view that its core mandate in basic and applied research may suffer if it overstretches its limited resources on contract research. Therefore, moving forward, it has decided to place emphasis on seeking for research grants through deepening her research proposal writing activities.

Already, indications from our participation in the BSU programme point to the fact we can make substantial impact in winning research grants and by so doing bring substantial resources to the Department and the College, and enhance its visibility. We also hope to implement a programme on university-community engagement in at least two districts, Sekyere South and Asutifi North in Ashanti and Brong Ahafo regions respectively. This is in the start-up stages with seed monies received under the BSU Programme for outreach. The Department will also collaborate with the Sustainable Development Consult to run at least two short courses on Cocoa Certification during the 2013/14 Academic year.

### **CONCLUSION**

The department will very shortly put together a research strategy document to guide it to revamp her research activities. BIRD has continued to make major contribution to creating visibility for the university by the numerous linkages it has developed with clientele in various fields of development in the country through outreach, training and consultancy services. The Bureau has the potential to grow to be

## **DAIRY/BEEF CATTLE RESEARCH STATION**

### **INTRODUCTION**

The Station was established in 1974 as a teaching and research facility in the Faculty of Agriculture. It is presently keeping rabbits, cattle, sheep and goats for research purposes. The main research areas are livestock production and dairy processing.

### **RESEARCH**

The Station completed the following research programmes during the academic year under review.

- Assessing the yield, quality and acceptability of soft cheese produced with three different vegetable rennets..
- Household consumption of rabbit meat in the Mampong municipality of the Ashanti region.
- Profitability of yoghurt production in the Kumasi metropolis.

The Station's on-going research programmes include the following.

- *Leucaena leucocephala* and *Moringa oleifera* leaf meals in the nutrition of broiler rabbits.
- Evaluation of graded levels of fish-meal on feed intake, nutrient digestibility and blood profile of growing rabbits.
- Oestrogen and progesterone profiles of postparturient N'Dama cows.
- *Leucaena leucocephala* in the nutrition of N'Dama calves.

## **TEACHING**

The Station provided facilities and some inputs for the practical training of students in the area of livestock production and milk processing. Some final year students of this university undertook their final year projects at the Station. Several continuing students did their vacation training on the Station during the year.

## **SERVICE TO COMMUNITY**

The Station trained many individuals, including students, in yoghurt production in the course of the year. Advisory services were also provided by the officers of the Station to some livestock farmers in the Kumasi metropolis. The Station's officers also helped some final year students from outside the Faculty of Agriculture to undertake their final year project works. Also, many second cycle institutions paid educational visits to the Station during the year.

## **INCOME GENERATION**

About GH¢ 190,000.00 was generated by the Station during the year under review, which enabled the Station to continue its research and renovation works.

# **COLLEGE OF ARCHITECTURE AND PLANNING**

## **INTRODUCTION**

The College of Architecture and Planning comprises four Teaching Department and two Research Centres. These are:

- Department of Architecture

- Department of Building Technology
- Department of Planning
- Department of Land Economy

## **DEPARTMENT OF ARCHITECTURE**

### **Research Centres**

- Centre for Land Studies
- Centre for Settlements Studies

The College's vision is to promote excellence in the advancement of knowledge in the Built and Natural Environment. To achieve this vision, the College has provided the environment for teaching and training, research and service in Architecture, Planning, Building Technology and Land Economy for the creation of wealth and poverty reduction in Ghana.

All the teaching Departments in the College except the Department of Architecture run two undergraduate programmes. The Departments and the programmes they offer are as follows:

#### Department of Architecture

- ❖ *B.Sc. in Architecture*

#### Department of Building Technology

- ❖ *B.Sc. Building Technology*
- ❖ *BSc. in Quality Surveying and Construction Economics*
- ❖ *BSc. in Construction Technology and Management*

#### Department of Planning

- ❖ *BSc. in Development Planning*
- ❖ *BSc. in Human Settlement*

#### Department of Land Economy

- ❖ *BSc. in Land Economy*
- ❖ *BSc. in Real Estate*

All the Departments run Postgraduate programmes and it is one of the leading Colleges in presenting Postgraduate students during congregations for the conferment of degrees.

The College has two thousand, nine hundred and twenty five (2925) Students during the 2012/2013 Academic Year, comprising of four hundred and fourteen (414) postgraduate students and two thousand five hundred and eleven (2511) undergraduate students.

## **ADMINISTRATION OF THE COLLEGE**

The following constitute the administrative personnel of the College:

Provost	Prof. E. Badu
College Registrar	Mr. O. A. Debrah
College Finance Officer	Mr. George E. Asamoah
College Librarian	Mr. Agyen- Gyasi

**ACTIVITIES**

To achieve its mission and vision, every year, the College undertakes a host of activities needed to provide a sound environment for teaching and research. These activities span across human resources, provision of multi- purpose desks, renovation of lecture theatres, upgrading the ICT equipment, introduction of new courses, accreditation of existing course and undertaking of research and publications.

**HUMAN RESOURCE DEVELOPMENT**

In the recent years, the demand of post graduate courses in on ascendance. This requires academic staff with terminal degree to respond to the challenge. In responding to the challenge, the College has been supporting its lectures to obtain their terminal degrees in their areas of specialization. Two of such beneficiaries have completed their PhD. programmes in the period under review. This action would strengthen the capacity of the College to introduce new courses to meet the demand for post graduate education.

In addition to that, the College has been implementing a succession plan of replacing staff that are near the retirement with new ones. Under this programme, outstanding master degree graduates have been recruited, and being supported to undertake their terminal degrees. The College also recruits new lecturers to beef up its manpower base. In the year under review, five new lecturers were employed. The College also submitted six application documents for promotion to Senior Lecturer and Associate Professorial grade.

**PROVISION OF FURNITURE FOR THE LECTURES THEATRES**

The College of Architecture and Planning continues to find the innovative ways of providing decent academic environment for students in the lecture theatres. The College is pioneering an initiative of producing customize furniture from its own workshops. This initiative has enabled the College to provide over 260 multipurpose desks for the studios of the Department of Building Technology. These desks can be changed to drawing boards when students are drawing in the studio and to normal desks when students are having lectures. The desks have enabled the College to accommodate more students and thereby maximizing the use of space in the studio without creating congestion. The Department of Architecture is being provided with 500 multipurpose desks as part of the preparation toward s Commonwealth Re-accreditation.

Funding for the Architecture Department desks was obtained through the College's share of the fees from Ghanaian fee paying and international students. The design and the production of these desks were done by the ingenuity of the Building Technology Workshop.

**RENOVATION OF STUDIO BLOCK**

Last year, the College reported that a contract was awarded to C-Deck Company Ltd for the innovation of the studio block in the College. The project is still ongoing.

**THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN THE COLLEGE**

The College places importance to the use of ICT in teaching and learning. The key strategies are to upgrade the existing ICT infrastructure and also establish Electronic library.

The College has procured a new proxy server to replace the old one. The new server has higher memory, bigger capacity hard disk and multi-task processors that could handle large data transmission.

Furthermore, the College is setting up a computer studio for the students. This has become necessary because designing of buildings and analyzing their architectural sciences are now computer based. In relation to this, Forty new Computers are being procured. The provision of the studio would enable student to do advance analysis of building designs which are manually impossible.

### **PROVISION OF E LIBRARY**

The accessibility of electronic literature through ICT has led to a shift from manual source of information to the open source by students. Students can now access data far beyond the boundaries of their campuses. This development has led to establishment of E- Library by the University. Responding to this development, the College is establishing its own E Library to compliment that of the University. The first phase of the process which involves the procurement of the equipment for the library is in the advance stage. The College is putting resources to ensure that the project is completed on schedule. Provision of the above mentioned facilities would enhance teaching and learning as they would lead to easy access to data, easy transmission and sharing of data among students and lecturers and opportunity for students and staff to do advance analysis of their designs and complex problems relating to the Built environment.

### **PROVIDING ACCESS TO FURTHER EDUCATION**

Expanding access to tertiary education to the door step of the professionals and students of the Built Environment continues to engage the attention of the College of Architecture and Planning. In the period under review, the College in conjunction with the Institute of Distance Learning has amounted both M Sc and M Phil programmes in Building Technology at the Accra Campus of the Institute of Distance learning. Plans are far advanced to introduce MPhil in Settlement Studies which would be a joint programme between the Centre for Settlement Studies and Department of Planning. The Department of Architecture has introduced B Sc in Architectural Science at the Institute of Distance Learning. The programme is in the maiden year. The mounting of the three new programmes would enable professionals to have the privilege to be on the job while accessing tertiary education.

### **RE-ACCREDITATION OF PROGRAMMES**

The College, as a centre of excellent for training profession in the Build Environment, keeps on reviewing and re-designing its academic curricula to keep pace with emerging trends national and international standards. This is done through renewal of accreditation with international and local regulatory bodies as well as professional's bodies. The Department of Architecture is renewing its accreditation with the Commonwealth Association of Architects. In the same vein, the Department of Building Technology is also renewing its accreditation with Africa Association of Quantity Surveyors and Chartered Institute of Builders. These reviews and their subsequent accreditation would enable the College to provide cutting edge courses for stakeholders in the industry.

## **RESEARCH AND PUBLICATIONS**

The provision of the above infrastructure has created the enabling environment that promotes teaching and research. In the period under review, the faculty staff published 228 publications in a number of referred journals, book chapters and conference proceedings across the world. The departmental distribution is as follows:

Department of Architecture	31
Department of Building Technology	44
Department of Planning	26
Department of Land Economy	25
Centre for Settlement Studies	16

The research undertaken in the College and the publications out of them have in no small way contributed to the extension of frontiers of knowledge in the Built Environment.

## **CONCLUSION**

The College as a pioneer in the training of professionals in the Built Environment continues to maintain the lead as a centre of excellence. Through research, conferences and seminars the College is advancing the course of the University as a Centre for Excellence in providing the needed technology for the transformation of Ghana and Africa.

## **DEPARTMENT OF ARCHITECTURE**

### **INTRODUCTION**

The Department of Architecture is one of the Departments in the College of Architecture and Planning.

### **AIMS AND OBJECTIVES**

The Department aims at developing programmes which will make it a Centre of Excellence in architectural education both in scholarship and professional practice and respond to the needs of society.

The Department also aims at offering quality and versatile training to students to become leaders through internationally accredited degree programmes which produce competent professionals and a sound theoretical basis for higher academic pursuits.

### **ACTIVITIES**

#### **TEACHING**

The Department has two programmes at the undergraduate and graduate levels. At both levels, the studio programme (architectural design studio) is the core around which the theory courses are structured and taught.

The undergraduate programme offers a solid academic basis for a broad architectural education which produces architectural scholars and leaders in technical teams responsible for the development of the built environment. This is done through critical consideration of climate, culture and construction.



The graduate programmes provide students with the required skills for comprehensive research, analysis, design and implementation of various projects at the rural and urban scale.

## NEW PROGRAMMES AND COURSES

The Department intends to introduce new courses at both the undergraduate and graduate levels. At the undergraduate level, the Department is in consultation with the Departments of Painting and Horticulture (College of Arts and Social Sciences and College of Agriculture and Renewable Natural Resources respectively) to mount **new courses in Interior Design and Landscape Design at the undergraduate level in the near future.**

In addition to the two-year M. Arch. professional degree course, the Department has started a one year M. Sc. (Arch) programme for architects who have already completed the erstwhile Post Graduate Dip. Arch course. The Department has also introduced M. Sc. (Arch) degree programmes and continues with M. Phil. programmes in various areas in architecture. These new programmes are intended to strengthen the theoretical and academic components of the graduate programmes in the Department and prepare graduates for higher degrees and terminal degrees in the field of architecture. They will further enable architects to specialize in various areas in the architectural profession.

Furthermore, the Department has through the Institute of Distance Learning (IDL) introduced a new two-year Diploma course in Architectural Draughtsmanship for draughtsmen and women who had successfully completed the erstwhile Certificate course offered by the IDL and have the WASSCE certificate.

## STAFF

The following are the Academic Staff of the Department:

NAME OF STAFF	AREA OF SPECIALISATION
Prof. G. W. K. Intsiful	Architectural History and Appreciation Environmental Behaviour Studies, Housing Urban Design
Prof. S. O. Afram	Housing Construction Technology
Mr. B. G. O. Odame	Building Services, Professional Practice
Dr. Rexford Assasie Oppong	Urban Design, Arch. History & Theory
Dr. V. Kootin-Sanwu	Building and Environmental Technology
Mrs. Christiana Asmah	Settlement Planning, Architectural Science
Mr. Charles Essel	Urban Design, Structural design, Housing
Mr. E. A. Botchway	Construction Technology, Project Planning and Control
Mr. G. F. A Olympio	Conservation
Rev. (Dr.) Victor Quargrain	Urban Design, Indoor Air Science, Landscape Design, Construction Mgt.
Mr. Daniel Addai Duah	
Mr. Jacob Afrim	Building Services
Dr. Christian Koranteng	Housing, Computers in Environmental Design, Architectural Science

Dr. Samuel Amos Abanyie	Architectural Science
Mr. Sam Sarkodie Mensah	Landscape Architecture
Mrs. Norma O. Laing	Computers in Environmental design
Mr. Michael Mensah	Landscape, Finance

Staff strength of the Department was boosted by the return of the Dr. Rexford Assasie Oppong, who completed his Ph. D studies in the United Kingdom. Dr. Samuel Amos-Abanyie also successfully completed his Ph. D studies from the KNUST. Both of them are Senior Lecturers.

### **SERVICE TO THE COMMUNITY**

Prof. G. W. K. Intsiful was appointed a Member, Examination Board to evaluate the Ph. D thesis of Ms Viviana d'Auria titled "DEVELOPING URBANISM(S) IN DEVELOPMENT: FIVE EPISODES IN THE MAKING OF THE VOLTA RIVER PROJECT IN (POST)COLONIAL GHANA 1945- 1976", at the Katholieke Universiteit, Leuven, Belgium in July, 2012

He was also a founding member, (representing West Africa) of the ArchiAfrika Educational Network, a network of African Architecture Schools formed in June 2012 in Accra.

### **INTERNATIONAL AFFILIATIONS/LINK/INTERNATIONAL RELATIONS**

This Department's link with the University of Michigan, Ann Arbor, USA which has been in existence for over fifteen years, was further strengthened during the year when Faculty and students from the University of Michigan arrived at the Department in May 2012 and May 2013 for field trips and joint charette exercises.

There was also a visit by faculty and students of Columbia University, New York, USA for collaboration.

Additionally, a delegation from the Department was in Frankfurt, Germany to explore possibilities for a joint Masters course with the University of Applied Sciences in Urban Agglomerations in January 2013 in the very near future.

A contingent of students from the Federal Polytechnic of Nasarawa in Nigeria also visited the Department and interacted with the students and staff of the Department.

### **PUBLICATIONS**

The list of publications from the Department and Senior Members for the past academic year can be found in the other KNUST documents for the Congregation.

## **DEPARTMENT OF PLANNING**

### **INTRODUCTION**

The Department of Planning is the premier professionally recognized institution by government in the country which trains skilled personnel to promote, co-ordinate and manage development at the national and sub-national levels. The Philosophy of the Department of Planning is an 'integrated process of political, social, economic and spatial dimensions which affect the quality

of life of all people'. The Department's approach in tracking development problems is therefore interdisciplinary, reflecting the multi-dimensional nature of development problems.

The Department's main mission is therefore to train skilled personnel required to formulate and manage various development policies and programmes at all levels of national development such as national Vision on Socio-Economic Development which is required by the 1992 Constitution. The Department looks forward to a more dynamic future in which its activities –teaching, research and outreach programmes as well as community work- would become more directly relevant to the socio-economic and spatial development needs of Ghana, Africa and other development economies.

## **ACADEMIC PROGRAMMES AND ENROLMENT**

<i><b>Programme</b></i>	<i><b>No.of Students</b></i>
BSc. Development Planning	348
BSc. Human Settlement Planning	201
MSc. Development Policy and Planning ( DEPP)	49
MSc. Development Planning & Management (SPRING)	37
MPhil in Development Studies	12
PhD in Development Studies	18
MPhil in Planning	5
PhD in Planning	3
<b>GRAND TOTAL</b>	<b>673</b>

## **STAFF STRENGTH**

The Department is staffed with 16 highly trained and experienced permanent faculty members with diverse academic backgrounds and research interests. These currently comprise one Associate Professor, three Senior Lecturers and fourteen Lecturers. The Lecturer student Ratio (STR) of the Department stands at 1:43 as against the average approved lecturer student ratio of 1:18. This implies that the staff in the Department of Planning is overloaded. We hope to recruit more qualified staff in the coming year to improve the STR.

One member of staff has been awarded a Commonwealth Scholarship and is therefore pursuing Doctoral studies in the University of Sussex, England.

## **COLLABORATION AND MEMBERSHIP OF BODIES**

The Department of Planning collaborates with other institutions and organizations such as:

- i. Technical University of Dortmund, Germany.
- ii. Minnesota State University, Mankato , USA
- i) The Community Water and Sanitation Agency (CWSA) to build capacity of people in 85 communities of four administrative regions in the country.
- ii) In partnership with the National Population Council and United Nations Fund for Population Activities (UNFPA), the department has prepared a training manual captioned "Integration of Population Variables into Development Planning". This has been published by the UNFPA and has become one of the United Nations training manuals for worldwide capacity building.

- iii) The Department is a founding member of the Association of African Schools of Planning (AAPS) which is made up of over fifty (50) Planning Schools in Africa. The head of Department, Dr. Daniel K. B. Inkoom, serves on the Steering Committee of the Association.

## **PUBLICATIONS/CONFERENCES**

In the past year, staff of the Department made significant contributions in terms of conferences, workshops and publications.

## **CONCLUSION**

We are happy to note that the Department of Planning in spite of all its challenges is making every effort to fulfill its mission to train skilled personnel required to formulate and manage various development policies and programmes at all levels of national development. With the introduction of the B.Sc. Human Settlement Planning Programme the department has heeded the national call to train professionals to man the nation's ailing Town and Country Planning Department.

Again with the mounting of our Sandwich M.Sc. programme in Development Policy and Planning (which is in its third year), the Department is providing the opportunity for high level managers who are unable to leave their work places to attend full time courses, to upgrade themselves.

It is our hope that it would be possible for us to do more, in spite of the challenges facing the Department, especially in terms of training high caliber personnel to help in the socio-economic development of Ghana.

## **CENTRE FOR SETTLEMENT STUDIES**

### **INTRODUCTION**

In 1957, a United Nations technical assistance team who reported on housing to the Government of Ghana recommended the establishment of an independent centre for research and development in housing, planning and building in the country. A subsequent team, invited by the Council of the Kumasi College of Technology (now Kwame Nkrumah University of Science and Technology, Kumasi) to advise on architectural education, supported the United Nations team's recommendation and further suggested the Centre's intimate functional association with the Department of Architecture of the University. On the basis of these recommendations, the Centre was established in 1959 as the Building Research Group. In 1963, it was made a Department of the Faculty of Architecture and the name Department of Housing and Planning Research (DHPR) was adopted. During the restructuring of the Departments and Faculties of the University in 2005 to operate a collegiate system, the Department was renamed the Centre for Settlement Studies (CSS).

### **MANDATE**

The Centre for Settlement Studies is mandated to conduct research into the human settlements and planning issues generally and to devise interventions targeted primarily towards addressing the socio-economic and housing needs of the rural and urban poor. To achieve this goal, the Centre focused on development oriented research leading to the formulation of policy guidelines,

extension services to the community through field demonstration units, and problem-solving consultancy.

With changing trends in the world, the Centre broadened its research focus beyond this scope to include issues of other aspects of human settlements in tandem with the Ghana National Development Policy framework on poverty reduction, wealth creation and Shared Growth Agenda. The current issues of concern of the Centre with related research and development of the human habitat include: population and employment, urbanization, housing, vulnerability, livelihood analysis, gender, poverty, infrastructure and service, land use planning and physical development, governance and decentralization, and settlements management.

The Centre outreach programmes comprise the development and management of settlements and services for capacity building of relevant institutions. The Centre is involved in both undergraduate and postgraduate teaching and research in the College of Architecture and Planning of KNUST, Kumasi.

### **RESEARCH STAFF**

The research staff of the Centre is as follows:

Prof. Romanus D. Dinye - Head

Dr. Rudith S. King

Mr. Joseph Edusei

Dr. Divine K. Ahadzie

Mr. Paul K.B. Asamoah

Mr. Henry Boafo

The Centre has 11 supporting staff comprising, administrative personnel, technicians, artisans and labourers. The Carpentry and its allied workshops play a pivotal role in the University as a whole. Apart from assisting students to undertake their project work, it supplies furniture and wood products on demand.

### **TEACHING ACTIVITIES**

The Research Fellows of the Centre for Settlement Studies participate in the teaching programmes (including students' project supervision) of the Departments at the College of Architecture and Planning, KNUST, Kumasi. These comprise the Departments of Architecture, Building Technology, Planning and Land Economy.

### **M.Phil Programme in Urban Management Studies**

The Centre has completed and submitted proposals for the above programme and intends running it during the 2012/2013 academic year.

### **Short Courses**

The Centre has successfully developed and runs two (2) short courses for lecturers, researchers, postgraduate students, staff of other tertiary institutions as well as practitioners in the construction industry comprising the following:- *i) Course on Contemporary Issues in Research Methodology and the Use of Factor Analysis in Social Science and Management Research; and Building Construction Regulations and Environmental Management.* So far the Centre

successfully organised a training workshop in Building Construction Regulations and Environmental Management for Building Inspectors and Construction Technician Engineers of the various Metropolitan, Municipal and District Assemblies nation-wide.

### **PROMOTION OF KNOWLEDGE**

The Centre for Settlements Studies participated in a Workshop on African Urban Research Initiative organised by the Africa Centre for Cities and Cities Alliance with support from Rockefeller Foundation. The need for the formation of an African Urban Initiative emerges (AURI). Specific suggestions and inputs were made on the need for the following:

#### **Purpose**

- To promote research excellence in Africa
- To identify and promote alternative sources of research knowledge
- To promote the emergence of the next generation of researchers and intermediaries to drive a sustainable urban transition in Africa

#### **Modes and Objectives**

- Create a framework to empower research centres to access sustainable sources of information and financing for their work.
- Develop protocols and methodologies of engagements
- Strategize about how to engage with organisation and regional networks
- Promote the exchange of research outputs in addition to research practices and ideas

As steering committee was set up to represent all the linguistic regions to oversee the functions of the AURI. The Centre of Settlements Studies, represented by Dr. Divine Ahadzie who attended workshop, is a member of the said steering committee.

### **INCOME GENERATING ACTIVITIES**

The Production Units of the Centre (i.e. Carpentry, Welding and Masonry Moulding Workshop) produce door and window components and furniture for sale to the public and on order from the various units of the University. These activities do not only generate income for the Centre but publicise the research and value added by the Centre.

### **PUBLICATIONS**

During the year under review members of staff published in several refereed journals.

### **CONFERENCES ATTENDED**

1<sup>st</sup> International Conference on Infrastructure Development in Africa. College of Architecture and Planning Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana March 22- 24

2<sup>nd</sup> International Conference on Infrastructure Development in Africa

4<sup>th</sup> West Africa Built Environment Research (WABER) Conference, 24 -26 July 2012, Abuja, Nigeria

## **CENTRE FOR LAND STUDIES**

### **INTRODUCTION**

The Centre for land studies is a research department within the College of Architecture and Planning of the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

It was formerly known as the Land Administration Research Centre (LARC) when it was established in 1971. The name was later changed to the Land Resources CENTRE WITHIN THE Institute of Land Management and Development (ILMAD) in 1996 and was finally changed to the Centre in 2005, with the advent of the collegiate system in the University.

### **FUNCTIONS**

The functions of the Centre are primarily in the realm of land administration, land management and development. The focus is on:

- a) Land Tenure and Policy Studies;
- b) Land Law and the Environment
- c) Land Use Planning and Management; and
- d) Urban Land Economics, Development Appraisal and Valuation.

The Centre also carries out the dissemination of its research output through seminars, workshops, conferences and the direct research reports mailing to appropriate organisations, institutions and the general public.

### **STAFF**

Prof. Romanus D. Dinye - Head  
Mr. K. Oppong Nkrumah  
Mr. Mark Owusu Yeboah

The Centre has only one supporting staff who serves as a Research Assistant to the Centre.

### **RESEARCH SERVICES**

Since establishment in 1971, the Centre has been providing direct research services to the Government of Ghana through the Ministry of Lands and Natural Resources in particular as well as other Ministries and Departments, Traditional Authorities and Non-Governmental Organisations. At the international level, the Centre has provided services for agencies such as United Nations Development Programme (UNDP), German Technical Cooperation (GTZ), Department for International DEVELOPMENT (DFID), United States Agency For International Development (USAID), World Bank, International FOOD Policy Research Institute (IFPRI), etc

The Centre has also carried out collaborative research with a number of international universities including the University of Wisconsin, USA; Greenwich, UK; University of Wallingford, UK; University of Birmingham, UK, and the University of Munich, Germany; etc.

### **SELECTED RESEARCH OUTPUT**

Some of the major research works that have been accomplished so far include the following;

- Land Ownership and Acquisition in all the Ten Regional Capitals of Ghana – A Study funded by the then Ministry of Lands and Natural Resources under the mandate of the Centre to investigate ownership and tenurial arrangements in the capital cities of Ghana.
- A Review of Integrated Rural Development Projects in Ghana. This was commissioned by USAID for the evaluation of the impact of developmental assistance to selected communities
- Women's access to Land in Selected Communities in Ghana. This piece of research was sponsored by DFID with the objective of establishing the vulnerability of women in land for agricultural production.
- Valuing peri-urban natural resources is a study of relative costs and benefits to stakeholders in land conversion in peri-urban Kumasi. This study was undertaken in collaboration with a team of experts from the U.K. and sponsored by DFID.
- Legal institutions and Protection of Land Rights. This was a collaborative research with Dr. Richard Crook of IDS, University of Sussex, U.K. and funded by DFID. It was a study into land ownership, tenure and dispute resolution mechanisms.
- Kumasi Natural Resources Management Research Project, towards Sustainable Livelihoods of People in the Kumasi Peri-Urban Areas. This project was sponsored by DFID and coordinated by the Natural Resources Institute of Greenwich, U.K. It focus was on the effect of urbanisation on the control of and access to natural resources.
- Further knowledge of Livelihoods affected by Urban Transition in Kumasi. This was sponsored by DFID in collaboration with the University of Birmingham, UK. The principal objective of this study was to explore new knowledge base to fill any gaps in existing knowledge on livelihoods affected by urban transition.
- Documentation of literature on customary land law. This project involved the documentation of the available literature on the various customary land laws within in various ethnic groups in Ghana. This was done for the National House of Chiefs and the Law Reform Commission.
- Land Rights and Vulnerability Assessment. This project examined various rights/interests in land in the established Customary Land Secretariat offices in the country and the study areas.
- Education and Awareness Creation on the Implementation of the new Lands Commission Act 2008, Act 767. This project was undertaken under the Small Grants Program of the Land Administration Project (LAP). The aim was to support activities of Civil Society and Non-Governmental Organisations in institutional building, advocacy, governance and participatory efforts in national land issues. The project focused on the education and awareness creation in the registration/documentation procedures and implications of the new Lands Commission Act 2008, Act 767 for Traditional Leaders and Land Owning Communities.



- Equitable Forest Reserve Plantation Revenue Sharing in Ghana. The Centre in collaboration with the Forest Research Institute, Kumasi, successfully completed and published a research report on the Equitable Forest Research Plantation Revenue Sharing amongst all stakeholders in Ghana

## **SPECIAL PRACTICAL ACHIEVEMENTS**

- **Land Title Registration in Ghana**  
The Centre initiated and developed a concerted and systematic research effort towards the introduction of Deeds/Title registration in Ghana. It has successfully created the awareness of the essence of Title/Deeds registration as a means of securing valid title to land. The positive effects of this are being felt by the government, chiefs and the public as evidenced by an increasing volume of Title and Deeds Registration by the Lands Commission over the years.
- **Land Tenure Reforms**  
Through its systematic research and dissemination of information, the Centre has been able to confirm the fact that the country's indigenous land tenure arrangements have certain positive ingredients worth preserving as they form part and parcel of the total socio-cultural heritage of Ghanaians. As a result, land nationalisation, which hitherto had been a thorny and rather politically sensitive issue, is no longer part of the debate in the land reform process in Ghana. The 1992 Constitution positively appreciates this fact since 80 percent of the ownership/Land holdings in Ghana are recognised and vested in the stools, clans, skins, families and individuals. The Government/public land holdings/ownership amount to only 20 percent of the total land holdings in Ghana.
- **Halting Land Desertification**  
In collaboration with the Council for Scientific and Industrial Research (CSIR) and the United States Agency for International Development (USAID), the Centre conducted a research project in North-Eastern Ghana. With appropriate policy recommendations submitted to Government, a national awareness for the need to halt the invasion of the Sahara Desert into Northern Ghana has been created. Tacit efforts are being initiated by some United Nations and Government agencies towards protecting and conserving the Northern Savannah ecological zone and preventing the advancement of the desert southwards.
- **Land Policy Reforms**  
Research of immense policy value and practical applications carried out by the Centre are in the area of Housing and peri-urban research, Rural Development, Land Taxation, and Land Use Planning. The Centre is one of the focal points of the Land Administration Project (LAP) of the Ministry of Lands and Natural Resources which is currently implementing the land reform programme in the country

## **PUBLICATIONS**

During the year under review members of staff published in several refereed journals.

## **CONFERENCES ATTENDED**

1st International Conference on Infrastructure Development in Africa College of Architecture and Planning Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana March 22- 24

## 2<sup>nd</sup> International Conference on Infrastructure Development in Africa

The Centre is currently undertaking research in the following areas

- **Towns in Ghana**

This research in collaboration with the department of planning in relation to a review of a book, Towns in Ghana written in 1965 by Groove and Houzer has been completed. The study is to find out the changes in the hierarchy of towns since 1965 when the book was first published.

- International concerns on Land Grabbing in Developing countries: the case of Ghana. This is being researched into, in collaboration with Mr. Kidido of the Department of Land ECONOMY
- Women in Land Management in Kumasi Traditional Area. This research is being submitted for publication in the University Journal.

### **TEACHING SERVICES**

The Staff of the Centre participate in teaching programmes, including students' supervision at the Departments of Land ECONOMY, Planning, Community Health, Biological Science and Civil Engineering.

### **CONCLUSION**

The Centre has progressively achieved its mandate over the years. It is now uniquely positioned to do self-marketing in order to generate enough funds for future research. This is linked with efforts to recruit and revamp the staffing situation in the Centre.

In sum, the Centre will continue to impact positively on land related research matters in the country for the foreseeable future.

## **COLLEGE OF ART AND SOCIAL SCIENCES**

### **INTRODUCTION**

The College of Art and Social Sciences is constituted of the Faculty of Art, Faculty of Law, Faculty of Social Sciences, KNUST School of Business and a Research Centre (the Centre for Cultural and African Studies). The College runs 21 departments and provides services to the entire University. The rationale is that graduands of a Science and Technology University need some knowledge in the Social Sciences for the world of work. During the year under review the College vigorously pursued its mandate of training graduate manpower in the humanities and social sciences through teaching, research and service to community. The College has over the years turned out thousands of graduates, some of whom occupy very positions in the financial, commercial, industrial, planning, legal, economic and other sensitive sectors of the economy.

### **FACULTIES**

- Faculty of Art
- Faculty of Law
- Faculty of Social Sciences
- KNUST School of Business
- Centre for Cultural and African Studies

## **COLLEGE ADMINISTRATION**

The Office of the Provost is responsible for the coordination of teaching, research, students' welfare and other activities. The Provost's office is made up of the following personnel:

Provost	Prof. Sam Afrane
Ag. College Registrar	Mr. Y. Owusu-Asamoah
Ag. College Accountant	Mr. G. Sarfo
Ag. College Librarian	Mr. E.M. Borteye
College Asst. Registrar	Mr. G. Gawugbey
Principal Admin. Asst.	Mr. S. Afriyie

## **ACTIVITIES**

In the course of the year, significant efforts have been made by the College in areas of research, industrial and professional linkages, capacity building, infrastructure development, teaching methods, exhibitions and participation in conferences.

## **RESEARCH AND PUBLICATIONS**

The College has produced a policy document to promote and encourage research and publications. A College Research Council was formed to oversee the implementation of the policy guidelines. The idea was to generate activities to whip up research activities and publications to improve the professional advancement of academic staff in the College. Among the activities were Intra-college seminars, workshops, research retreats and colloquia etc. The College has also instituted a research fund and other incentive packages to promote interdisciplinary research activities and publications among staff in different faculties of the College. The incentives include funding for research, procurement of journals, and financial support for presentation of papers at conferences and professional development skills and capacity building. The College is happy to report that within the year under review it has funded nine (9) research projects and has paid publication fees for over fifty (50) journal articles. The College Journal-CASS Journal of Art and Humanities – has been revived and has since turned out its second publication. These measures put in place continue to yield results. As reported at the last congregation, the College academic staff produced forty-eight (48) journal articles; forty-six (46) papers of conference proceedings; nine (9) papers being contributions to chapters of books and one published book. The College continues to see much improvement in research publications. During the year under review, the College academic staff produced seventy-three (73) journal articles; eleven (11) papers of conference proceedings; seven (7) books; ten (10) papers being contributions to chapters of books; and thirty (30) conference papers.

## **INTER/INTRA-FACULTY LECTURES**

The College of Art and Social Sciences has sustained the Inter/intra-Faculty Lectures. During the year under review the College had four (4) inter-faculty lectures.

*“Expanding the Frontiers of Micro-Finance in the service of the Poor: An Experiment with Sanitation and Water Supply”* delivered on 13<sup>th</sup> September 2012 by Prof. Sam Afrane, Provost, CASS.

*“Revisiting the Finance-Growth Discourse: Does Financial Intermediation Promote Economic Growth?”* delivered on 9<sup>th</sup> October 2012 by Michael Adusei, KNUST School of Business.

*“The Trend of Reported Defilement Cases at the Domestic Violence and Victim Support Unit of Ejisu-Juabeng Municipality in Ghana”* delivered by Dr. (Mrs.) Renee Aku Sitsofe Morhe, Faculty of Law

*“Presidential Succession in Ghana: The Emergence of Electoral and Default Presidents”* delivered on 26<sup>th</sup> February, 2013 by Dr. (Mrs.) Lydia Apori Nkansah, Faculty of Law.

## **CONFERENCES**

The College is preparing to organize its first international conference under the theme *“The Emerging Oil and Gas Industry”* from August 28<sup>th</sup> – 31<sup>st</sup>, 2013. The conference is to provide a platform for the academia, Oil and Gas Industry practitioners, legislative bodies, service providers, policy planners, government agencies and trade groups to understand the social dimension of the emerging issues in the Ghanaian Oil and Gas Industry. The College in collaboration with the Faculty of Art and the Centre for Cultural and African Studies is organizing a 2 day conference on *“Design, Development and Research”* from July 18<sup>th</sup> – 20<sup>th</sup>, 2013 then on *“Culture and Conflict Resolution”* from October 22<sup>nd</sup> – 24<sup>th</sup>, 2013 respectively.

## **WORKSHOPS**

During the year under review the College organized the following workshops for its staff as part of its policy on capacity building:

- A day’s workshop for Deans and Heads of Department on the theme *“Leadership Empowerment”* at Noda Hotel on 24<sup>th</sup> August, 2012.
- A day’s workshop on the theme *“Developing a Successful Academic Career”* for the newly recruited academic staff at KCCR Conference Room on 18<sup>th</sup> January, 2013.
- A day’s workshop on research proposal writing for academic senior members of the College at the Law Auditorium, KNUST.

## **LINKAGES WITH INSTITUTIONS AND INDUSTRY**

The College continues with its remarkable performance of establishing linkages with industrial and professional organisations locally and internationally. As a result of this, the Provost and other College officers have undertaken a number of trips to meet authorities of other institutions abroad. The Provost and the Dean of KNUST School of Business visited Universiti Kebangsaan Malaysisa from November 10<sup>th</sup> – 13<sup>th</sup>, 2012. Also the Provost and the Deans of Faculty of Art and KNUST School of Business visited University of Cape Town and Cape Peninsula University

from September 4<sup>th</sup> – 11<sup>th</sup>, 2012, South Africa. Memoranda of Understanding have been signed by the University in partnership with the College through the instrumentality of the departments. The results of these linkages with other institutions and organizations continue to show. The collaboration between the Faculty of Art and Cape Peninsula University, South Africa led to a visit by Prof Gronje from the Peninsula University to deliver two lectures on the topic '*Promotion of Research and Publication*' in the College. The Department of Painting and Sculpture through its collaboration played host to the Director of Graduate Studies of Painting and Printmaking, Yale University School of Art and Dr. Rochelle Feinstein, who had a seminar with staff and students. The Department of Sociology and Social Work continues to enjoy a fruitful collaborative relationship with the University of Utah, Salt Lake City, USA.

### **STAFF RECRUITMENT AND DEVELOPMENT**

The College, with the support of the University authorities, continues to hire new staff to augment its staff strength. The College during the year under review hired twenty-eight (28) new academic staff to augment its staff strength.

The College continues to look for avenues for staff development and staff capacity building to ensure professional advancement for efficient and effective academic work. The College has, through the consortium approach, established linkages with some Professors outside the University in support of local doctoral programmes. Currently nine (9) lecturers from KSB are benefiting from the programme. The College is happy to report that the concept is about to be replicated in other faculties and departments.

### **INFRASTRUCTURAL DEVELOPMENT**

Although the College continues to face challenges in infrastructural development, efforts are being made to overcome that to promote effective teaching and learning. The College continues to support funding of the Faculty of Art building. The College is happy to report that the building is nearing completion and hopefully would be ready for use by September, 2013. Plans are far advanced for the commencement of construction work on the proposed Faculty of Social Sciences building. The KNUST School of Business' ultra-modern auditorium was completed in October, 2012 and is yet to be handed over to the School.

### **TEACHING METHODS**

Faculty members continue to make improvements in pedagogy. Some members prepared courses on modules for students. Students were guided to search for information through the use of IT and library search. The use of power-point in teaching has caught on with many lecturers. Arrangements are in place to ensure that all lecturers use power-point in the delivery of their lectures.

### **NEW PROGRAMMES**

Proposal for mounting the following programmes have been submitted to the University's Planning and Resources Committee and the Graduate School Board for consideration and approval:

- One Year M Sc. in Business Administration
- One Year MA in Religious Studies

- PhD Religious Studies
- MA History/MA Political Studies
- M Phil History/M Phil Political Studies
- PhD History/PhD Political Studies
- M Phil Akan

The College, during the year under review rolled out new academic programmes and also ran short professional courses through its departments. The Department of Information Systems and Decision Sciences (ISDS) of the KNUST School of Business in collaboration with the Public Procurement Authority (PPA) has introduced a three-month programme leading to the award of a certificate in Procurement Management. The School in collaboration with the Chartered Institute of Logistics and Transport (UK), the world's leading professional body in Logistics and Transport, has rolled out the following professional programmes:

- Certificate in Logistics and Transport
- Diploma in Logistics and Transport
- Advanced Diploma in Logistics and Transport

Arrangement has been concluded with the Department of Publishing Studies and National Vocational Training Institute (NVTI) to mount an up-bridge certificate programme for holders of certificate of Level 2 in General Printing.

### **EXTENSION SERVICES**

The College, through the IPR organized a six-week entrepreneurship clinic for all final year students of KNUST. The programme was to help students to initiate their own private ventures so as to reduce pressure on employment in the public sector. Speakers included Mr Agambire, the Best Entrepreneur for the year 2012.

As reported at last year's Congregation, the College conducted a study for Goldfields Ghana Limited on Impact Assessment of their Infrastructure Projects in the catchment area. We are happy to report that the good work done by the College has made the company award another contract to the College.

### **AWARDS**

The College, in line with its programmes to improve high performance and excellence, has instituted an award package for its students and staff. This year's Awards Day under the theme '*Celebrating Excellence*' was held on 20<sup>th</sup> December 2012 at the Great Hall Conference Room where individual students who have distinguished themselves in various disciplines as well as the most responsive Heads of Departments were recognized for their outstanding performance.

### **FIRE DISASTER**

The Administrative block and other offices of the Department of Industrial Art of the Faculty of Art were gutted by fire in April, 2013.

## **CONCLUSION**

In spite of the successes chalked, we would not say all is well with the College. The College has some challenges which include inadequate infrastructure, high student-teacher ratio and snail-paced professional advancement of academic staff. The provision of spacious lecture halls, laboratories, studios, workshops could go a long way to improve teaching and learning. In the case of staff, the provision of staff offices with internet facility and staff common rooms could serve as motivation for professional advancement to put the College on a higher pinnacle of academic excellence.

## **FACULTY OF ART**

### **INTRODUCTION**

The Faculty of Art, formally College of Art is one of the academic units in the University. The Faculty has six academic Departments, a small scale Printing Press (Design Press) (which serves as a laboratory for students of the Departments of Communication Design/Publishing Studies), and a Jewellery training centre. The Faculty also has a library which seats 56 users at a time.

The Faculty offers graduate and undergraduate (and occasionally short courses) in varied areas in visual, fine and literary arts.

### **DEANSHIP AND HEADSHIP POSITIONS**

Dr. Kwasi Opoku-Amankwa	-	Dean
Nana Afua Opoku-Asare (Mrs.)	-	Vice-Dean and Head, Department of General Art Studies
K.G. deGraft-Johnson	-	Head, Department of Communication Design
Dr. Charles Frimpong	-	Head, Department of Industrial Art
Mrs. Vesta Adu-Gyamfi	-	Head, Department of Integrated Rural Art and Industry
Mr. Kwaku Boafo Kissiedu	-	Head, Department of Painting and Sculpture
Dr. Smith Esseh	-	Head, Publishing Department
Mr. Edward Mensah Borteye	-	Ag. College Librarian

### **STAFFING**

The Faculty has total staff strength of 157, comprising 81 senior members including three Associate Professors and seven senior lecturers, 33 senior staff and 43 junior staff.

### **STUDENT POPULATION**

The Faculty of Art has a total student population of 1,800. This is made up of graduates and undergraduates.

### **STAFF DEVELOPMENT**

The Dean's office in collaboration with the Quality Assurance and Planning Unit and with support from the Provost organised a three day workshop for senior members in "Assessment Practices in Higher Education". A total of 70 Senior Members from the Faculty of Art, and 10 from other Colleges participated in the workshop. The workshop was facilitated by Prof. E.Y. Estey, of the Institute of Education University of Cape Coast.

## **FACULTY OF ART LIBRARY**

*Equipment:* The Library has eight Personal Computers which are all in good working condition. There is however no internet connectivity as a result of the breakdown of the system. The Library also has a printer and a scanner but the scanner is not functioning at the moment. The Library is also fitted with 4 air conditioners but they are unable to function properly as a result of frequent power fluctuations.

*Books:* The Library has a total stock of two thousand, nine hundred and ninety one (2991) books.

### **Needs of the Library**

- a. *Space:* The Library needs a much bigger place to serve both as storage and reading area.
- b. *Books:* More current and relevant books are needed to be purchased to augment the exiting stock.
- c. *Personal Computers:* Additional Personal Computers with Internet connectivity are needed in the Library to be used by both the students and lecturers to access electronic information.
- d. *UPS:* New UPS are needed to replace the old ones.
- e. *Air-conditioners*
- f. *Steel cabinet*
- g. *Internet connectivity*

## **LINKS WITH OTHER INSTITUTIONS**

The Faculty has established links with a number of institutions. They include the following:

1. Cape Peninsula University of Technology - Cape Town, South Africa.
2. Ecole National Supeneure des Beaux – Arts, Paris, France.
3. Kolding School of Design, Denmark.
4. Arkeshus University, Norway.

## **VISITS**

A number of Basic Schools and Senior High Schools particularly students offering Visual Arts continue to visit the faculty for the year under review close 30 schools including Nsuta Ashanti Senior High, Perseverance International Preparatory School, Adventist Junior High etc. visited the faculty to learn more about our programmes; how to access them and career opportunities they offer.

## **DEPARTMENT OF PAINTING AND SCULPTURE**

### **RESEARCH ACTIVITIES**

The research in the use of Reinforced Resin for Outdoor Sculpture going on at the Sculpture Section continues and in the academic year under review, and in line with the Vice Chancellor's vision of outreach, some final year students with the supervision of lecturers mounted Reinforced Resin sculptures in some institutions in Kumasi including Ashfoam and the Kumasi Abattoir. The durability of these sculptures will be monitor.



Some lecturers in the Department are also researching in “New Media Art in Contemporary Ghanaian Art.”

### **EXHIBITION**

Dorothy Akpene Amenuke took part in ‘Time, Trade and Travel’ , an international Art exhibition resulting from the collaboration between Stedelijk Museum Bureau Amsterdam and Nubuke Foundation, Accra, this happened between 25<sup>th</sup> August, 2012 and 10 February 2013, in Amsterdam and Accra. This exhibition involved four Amsterdam based artists and 5 Ghanaian artists.

### **STAFF ACTIVITIES**

Mr. George Ampratwum and Mr. K. B. Kissiedu participated in “Across Board”, an art conference which took place in Accra in February, and organized by Tate Modern in UK. Mr. K. B. Kissiedu presented a paper on “Politics and Counter Politics in Art: Developments at the Department of Painting and Sculpture, K.N.U.S.T.”

Mr. K. B. Kissiedu continues to serve as an External Examiner for Makerere University, Kampala Uganda. He went there in June 2012.

Prof. R.T. Ackam participated in the College Art Association (CAA) 100<sup>th</sup> Annual Conference in LA, USA in February 2012 and Chaired a session on “Confrontation in Global Art history”. He also presented a paper on “Confrontations in Projecting African Art and Artists in the World”.

Dr. Mantey Jectey-Nyarko was elected the National President, Ghana Art Teachers Association in November 2012. He also presented a paper on “Strategies for Teaching and Learning Visual Art in the 21<sup>st</sup> Century” at the National Conference for Visual Art Students and Teachers in Ghana in February 2013.

### **COLLABORATIONS**

In October 2012, the Department had a joint project with forty three students and four lecturers from the Kolding School of Design, Denmark for four weeks. The theme for the project was “Art and the Environment”. Students from both schools worked in groups exploring the Kumasi environs and came up with artistic solutions to waste in the environment.

The Department continues to collaborate with the following organizations:

1. Sansa International Artist’s Association, Ghana
2. Foundation for Contemporary Art, Ghana
3. Nubuke Foundation, Ghana
4. Stedelijk Museum Bureau (SMBA), Amsterdam

### **ADMISSIONS**

The Department of Painting and Sculpture admitted 112 students in the year under review. They were made up of 108 first year students and 4 MFA students.

### **GRADUATION**

A total of 65 graduands were presented for graduation at the 46th congregation. They were made up of 39 BFA Sculpture students and 26 BFA Painting students.

## **DEPARTMENT OF COMMUNICATION DESIGN**

### **INTRODUCTION**

Major reviews of the structures at the College of Art, following the introduction of the Collegiate System, plus rationalisation inspired by many emerging directions in design practice and design studio pedagogy, compelled the Department to change its name to the Department of Communication Design.

### **TEACHING STAFF**

K.G. deGraft-Johnson - Acting Head of Department

Prof. D.A. Ohene-Adu

F. E. Eshun

E. Appiah

K. Kusi –Appouh

A. Rahman

A.K. Badu

R.D. Debrah

#### **Part-Time**

J.W.A. Appiah

### **INFRASTRUCTURE/FACILITIES      ENHANCEMENT      PROGRAMMES      AND PROJECTS**

A modern digitised Media Centre is still under construction. It will serve as the embryo for the development of a mini-TV studio and pilot broadcast station. For its first phase, a well-equipped, world-class animation studio, with high-spec PCs, large video monitors, 22-inch screen iMacs and Cintiq Wacom tablets, will be installed. Next, a sound recording studio with state-of-the-art digital recording equipment will be built to complement work in the animation studio. It is planned, that the 2013/2014 academic year would see the Department concentrating on its video production capacity-building programme, as well as on negotiations for the construction of a mini-TV studio.

Plans are afoot to relocate some of our classroom activities to the new site of the Faculty of Art, on the knoll behind the School of Engineering, where the Kumasi School of Business currently resides.

### **SPECIAL INITIATIVES**

- The entire curriculum of the Department is being overhauled to bring it in step with contemporary international Bachelor's and Master's curricula, and still accommodate Ghanaian cultural influences. To complete the review, stakeholders from industry will be given the opportunity to add their voice to the final document.
- The Department has embarked on a programme to increase collaboration with professionals and alumni of the Department. A series of workshops and seminars titled "Time with the Masters" invited the following: Steven Ababio, Emmanuel Bobbie, Stephen Tetteh, Michael Darkwa, Emmanuel Rock Hanson and Samuel Quartey.

- AnimAfrik, in the last eight months organised, two animation workshops with the Multimedia Section of the Department. Both events took place at the KNUST Museum under the generous patronage of the curator, G.W. Amegatcher.
- A new senior member with specialization in Editing/Video Production was recently hired. The Department has in recent months been compelled to embark on a staff recruitment drive to reduce the differences in the student lecturer ratio. The Vice-Chancellor, Provost of the College, and the Dean of the Faculty of Art, need to be commended for the efforts their putting in to recruit more faculty members.
- A Reprographic Centre has been set up to offer services in colour laser printing, colour photocopying, binding, lamination, and large format digital printing. The Centre, it is expected, will offer competitive prices, and provide easy access to reprographic services.
- A Visual Communication Research Centre has been planned for. Staffing challenges continue to hold back its development and operation.
- Tech TV, a development-oriented public TV station, like the PBS in the U.S., has also been planned. Much hinges on the success of the Department's lobby for support from the Government of Ghana, and AnimAfrik's appeal for support from the Government of Germany. Negotiations are ongoing.

## **NEW PROGRAMMES**

- Curriculum design and course material development will soon be completed for Distance Learning programmes in Graphic Design, Photography, Web Development and Animation.  
It is anticipated that the Distance Learning programme will commence in the 2014/2015 academic year.
- An *E-Learning Centre* with video-conferencing facilities will be set up for the M. Comm. Design programme. The e-learning centre will enable inter-departmental exchanges between the Department of Informatics and Design (Cape Peninsula University of Technology) and the Department of Communication Design (KNUST). In future, other departments will come on-line. Links with the Basel School of Design and Bournemouth University have been considered.

## **COLLABORATION**

- Cape Peninsula University of Technology (CPUT) and the Department of Communication Design have begun negotiations over a sustainable, mutually beneficial student-exchange programme. This follows the recent signing of a Memorandum of Understanding between CPUT and KNUST.
- AnimAfrik has deepened its collaboration with the department. K. Kusi-Appouh and Ms. R.D. Debrah have ensured that the Department's partnership with AnimAfrik expands exponentially.
- Qwik Images will soon be partnering the Department to establish a reprographic centre. The CEO of Qwik Images is an alumnus of the Department.
- The Department and its student wing, GASA (Graphic Arts Students' Association) rehabilitated the Third Year and Fourth Year Studio/Lecture Rooms.

## **AWARDS**

- G. Kushiator was the recipient of the University of Michigan African Presidential scholarship Award in 2011
- A. Rahman and I. Moro were participants in a Packaging Development workshop in Mumbai, India.
- E. Eshun was selected as international juror for the Reggae Poster competition.

## **DEPARTMENT OF GENERAL ART STUDIES**

### **INTRODUCTION**

Originally named Department of Art Education, the Department of General Art Studies has since 1962 functioned as the Department offering only postgraduate programmes in this University. Following the restructuring of KNUST into Colleges in 2004, the Art History section of the then Department of Design and General Art Studies was moved to become a section of the Department of Art Education. The two-section department was renamed Department of General Art Studies. The core mandate of the department remained the same: offering degree programmes at the Master of Arts, Master of Philosophy and Doctor of Philosophy levels in Art Education, and African Art and Culture. In addition to its graduate courses, the department supports teaching in the Faculty of Art with introductory courses in Art Education, Art Therapy, African Art and Culture, and Art History and Research Methodology.

The department plays a key role in the development of Visual Arts education in Ghana. Graduates of this Department mostly find employment as teachers of Visual Arts in Junior and Senior High Schools, Colleges of Education, the Polytechnics and the Universities of Education at Winneba, and KNUST. Some of our graduates also function as Researchers, Art Historians, Museum Curators, and Art Critics.

### **STAFF STRENGTH**

Staff of the Department are made up of three (3) Senior Lecturers, six (7) Lecturers and one (1) Graduate Assistant.

### **ACTIVITIES IN THE DEPARTMENT**

#### **COURSE MATERIAL WRITING WORKSHOP**

The Department partnered the Institute of Distance Learning to run a two-day course material writing workshop to develop textbooks to guide teaching and learning of the Master of Education, Master of Art Education and Master of Educational Technology programmes which have been on the drawing board for a while. Two teams of collaborators have already submitted three final draft textbooks to the Institute of Distance Learning (IDL) as follows:

- Mrs. Nana Afia Opoku-Asare and Dr. Estherlina Asare-Forjour submitted the final draft for Course ATE 637/638 RESEARCH METHODOLOGY;
- Dr. Harry Barton Essel and Mrs. Nana Afia Opoku-Asare submitted the final draft for Course ATE 677/678 INSTRUCTIONAL TECHNOLOGY;
- Dr. Barton Essel and Mr. John Opuni Amankwa submitted the final draft for Course MED 745/746 EDUCATIONAL TECHNOLOGY.

## **ICT EDUCATION AND TRAINING**

The Department currently runs an Information and Communication Technology Integrated curriculum that ensures that our postgraduate student-teachers acquire technology-enhanced research and pedagogical skills for effective delivery of the Visual Arts curricula at the secondary and tertiary levels of education. The knowledge and skills required to employ and deploy digital technologies is provided through courses ATE 707/708 ICT IN ART EDUCATION. The first semester course focused on standard and specialised applications for participatory information sharing, collaboration, interoperability and user-centred curriculum designs; Presentation solutions, Social Learning Management Systems for asynchronous delivery of lectures, Group Chat and Instant Messaging Systems; Cloud storage / File Management systems such as Dropbox, SugarSync and Google Drive; and Reference Management with the Mendeley software.

Course ATE 708 focused on hybrid learning and flexible course design structuring system; using online course frameworks with HyFlex course model; receiving tutoring online and using the classroom as a workshop; backchannel communication and open response systems using social media and synchronous messaging tools; online examination, assessment and analysis of students' progress. The amalgamation of these ICT products and online course design models was geared towards augmenting pedagogy and improving the interactive dynamics in the classroom.

The Department is very grateful to the E-Resources Unit of the University Library, and the University ICT Centre for readily providing the needed learning environment and expertise to help our Department fulfill our curricula objectives for the first-year MPhil and PhD Art Education, and African Art & Culture programmes.

## **CONFERENCES/WORKSHOPS/SEMINARS**

**Dr. (Mrs.) Mavis Osei** participated in the Trainer of Trainers workshop in PhD Supervision held at the Miklin Hotel from 1<sup>st</sup> – 5<sup>th</sup> October 2012.

## **AWARDS**

**Dr (Mrs.) Mavis Osei** won the 2010 Silver Award in the Humanities of the Ghana Academy of Arts and Sciences and was presented with Certificates of Merit and Participation at Accra on 24<sup>th</sup> November 2012 for her PhD thesis titled “The Influence of Temperament on the Artwork of Children”.

## **DEPARTMENT OF INDUSTRIAL ART**

### **INTRODUCTION**

The action plan embarked on by the Department in adopting innovative ways of improving skills and competencies in the execution of practical works with the view of whipping up and sustaining interest in Art was pursued with all vigour. First year students were taken on a field trip to expose them to the work of successful artists who once went through our programme. That experience has helped re-shape their approach and attitude to the programme.

Where non-existent, linkages with industry have been established and existing ones strengthened. This move has helped keep our curriculum abreast with modern trends in industry. Aside of these general achievements, the following specific ones are worth- mentioning.

### **CERAMICS SECTION**

This academic year has seen a pursuit on the agenda to ensure that equipment for teaching and research were repaired or purchased where they were non-existent. In this light, proceeds from our Pre – Christmas Bazaar was largely used in the repair of throwing wheels at the Ceramic Section of the Department. Until now, only one out of the six was operational and this was largely due to worn out parts and electrical malfunctioning. The situation led to frustration on the part of both students and lecturers resulting in low output. With all the six throwing wheels working, there is more flexibility in the planning and execution of practical demonstration and assignments.

Other vital parts of lab equipment necessary for research work have been purchased to ensure the equipment are in good working order. The stocks of glazes for surface decoration of ceramic wares have been beefed up to ensure variety in the use and application of such finishing treatments.

A face-lift of the physical structures of the section has also been carried out to boost the morale of both students and faculty and improve on the general scenic beauty of this part of the University campus.

### **TEXTILES SECTION**

The Fashion unit of the textiles section of the department has seen a great boost in the acquisition of industrial sewing machines, steam irons and other fashion related equipment and materials all geared towards enriching the quality of teaching and practical sessions of the unit. This is to strengthen its role as a reference for affiliation with private tertiary institutions seeking affiliation with KNUST.

### **METAL PRODUCTS DESIGN SECTION**

The section has made significant progress towards improving the technical staff situation. Identified suitable individuals have been presented, and indeed gone through interviews at the University Appointments Committee for Senior Staff Members.

## **DEPARTMENT OF INTEGRATED RURAL ART AND INDUSTRY**

### **INTRODUCTION**

The Department of Integrated Rural Art and Industry, one of the six Departments in the Faculty of Art, is a department which deals with an integrated approach to Ghanaian crafts and also researches into locally available raw materials. It is the only department in the whole of the nation which runs such a programme and is therefore proud of this special role. It ensures that

courses are designed to meet pressing needs of related industries and society, as well as help its graduates establish their own enterprises.

### **TEACHING**

The Department of Integrated Rural Art offers various courses as part of its four-year undergraduate Bachelor of Art degree programme. The courses cover areas of Rattan and Bamboo Technology, Leather Technology, Fibre and Fabric Technology, Metal Fabrication and Jewelry, Wood Technology and Upholstery, Claywork and Clay Technology and Product Design together with allied and elective courses.

The department has eleven Senior Members. Three (3) of them are Senior Lecturers, seven (7) Lecturers and one (1) Technical Instructor.

### **GRADUATE DEGREE PROGRAMME**

The graduate programme started this academic year (2012/2013). Currently there are eighteen (18) students. At the graduate level, the Department offers Master of Philosophy in Integrated Art, and is ready to run the PhD in Integrated Art come next academic year.

### **UNDERGRADUATE STUDENTS**

In the 2012/2013 academic year there were 663 students enrolled in the Department.

#### **Parallel students**

The number of parallel students in 2012/2013 academic year is 81.

### **MAJOR RESEARCH BY STAFF**

The Department continues its research in raw materials and how to integrate them in artworks produced by both students and lecturers. There has been findings on the manipulate of plant extracts as dyes and other preservatives, and how to make them useful in dyeing textiles, leather, wood, bamboo as well as rattan works in the department.

### **AWARDS**

Amadu Abdul-Latif, an undergraduate student received an award as the overall best student, and the department won the Internally Generated Fund (IGF) award during the CASS Awards of Honouring Excellence for the year 2012/2013 academic year. The Department also received the Most Innovative Award in KNUST SRC Tratech 2013.

### **ONGOING RESEARCH**

Boahin, B. O. J. and Asubonteng, K.,- Adding Value to Indigenous Sculpture Dolls through Integration of Leather, Wood and Beads.

Adu-Gyamfi E. A., Asubonteng K. and Boahin B. O. J., -Integrating Leather on Indigenous Pottery Wares.

Adu-Gyamfi, V. E., Oteng A. A. and Boahin J. O. B., - Taboos in the Craft Sector, Implications and Challenges towards the Craft Industry and National Development.

Kafui, K. A. and Quaye, H. A.,- Jewelry Charcoal Board- Tomorrow's Metal Mine.

Kafui K. A. and Quaye, H. A., - Salvaging Precious Metals from Pickle Solution.

Okpattah V., Steiner R. and Asmah E., - Reed Plant (*Cyperus articulatus*) and its Potentials in Basketry.

Okpattah V. and Steiner R., - *Cyperus articulatus* (Reed Plant) as a Complementary Material to *Panicum maximum*.

### **COLLABORATION WITH UNIVERSITIES**

A Memorandum of Understanding was signed between the Pennsylvania State University, USA and the Faculty of Art. This collaboration culminated in the Department mounting a new programme in Penn State University. Mrs. Vesta E. Adu-Gyamfi was invited to deliver a series of lectures. KNUST hosted five students and two professors from Penn State University for a week. This collaboration is now opened to all other programmes in the University, and those interested can take advantage and link up with the appropriate Programmes, Departments or Faculties.

The Department still collaborates with Aid to Artisans Ghana in the area of industrial attachment placements for students. The collaboration also brings in experts from the industries to do presentations on topical issues every week during seminar sessions.

### **CHALLENGES**

The major challenges the department faces are with infrastructure – studio spaces for the high number of students, equipments, reading material as well as the low voltage supply from the national grid. These are hampering the smooth running of duties. Furthermore, there is the need for upgrade of studio equipment (which are fabricated by students) to meet the growing needs of training undergraduates and post-graduate students.

### **CONCLUSION**

The Department has and will continue to re-structure and up-grade or review its courses to meet and fit into the changing trend in the national and industrial needs and international educational structure. The income generation activities that have already been initiated or re-activated will be vigorously intensified in scope to enable the Department to stand on its feet and become a centre of excellence for both academics and the industries.

## **DEPARTMENT OF PUBLISHING STUDIES**

### **INTRODUCTION**

The Department of Publishing Studies provides education, research and training and other services in Authorship, Editing, Publishing and Printing Management, Publication Design and Illustration, Book Marketing, Publicity, Sales and Rights and Electronic Publishing.



The Department also focuses on imparting a high sense of moral uprightness into students through a strong student –lecturer relationship and efficient monitoring and evaluation system. Alongside developing subject specifications, the students acquire other skills like teamwork, problem solving and communication, all valuable for the student’s future profession and personal life.

## **STAFFING**

The Department has competent teaching staff with varied expertise and research interest in books and literacy development, publication illustration and design, editorial practices and publishing and print management. The Department faces the challenge of inadequate lecturers, hence, needs lecturers to handle areas such as colour management, editorial practices and theory.

## **ACADEMIC PROGRAMMES**

The Department of Publishing Studies offers a 4-year undergraduate programme leading to Bachelor of Art in Publishing Studies with specialization in Publishing Administration, Printing Technology and Design and Illustration

### **Undergraduate Parallel**

The Department commenced a Parallel programme in the 2012/2013 Academic year. The decision to introduce the programme became necessary when a large number of qualified applicants could not gain admission to the programme because they did not meet the cutoff grade. The department admitted its first batch of 79 students on the Parallel Programme in the year under review.

The Parallel Programme is an innovative approach to converting the challenges of massification into opportunities for expanding access to qualified students who are prepared to finance their education at the University.

## **POSTGRADUATE PROGRAMME**

The Department currently runs a two-year Masters programme in Publishing. The Master of Publishing is the only postgraduate programme being run to educate and train students in the Sub-Saharan region.

## **LOCAL AND INTERNATIONAL COLLABORATION**

Through an initiative started in Canada by Dr. Smith Esseh, the Department of Publishing Studies, School of Business (KSB), and Jonkonpeng International Business School (JIBS), Sweden have begun a collaborative relationship. To further this collaboration the Head of Department, Dr. Smith Esseh and the Vice Chancellor’s representative, Prof. Obiri-Danso, (Dean of International Programmes) visited JIBS in October 2012. This visit was reciprocated by delegates from JIBS on April 15-17, 2013. At the end of the second visit, the two institutions agreed to sign an MOU to foster Student/Lecturer exchange programme. JIBS will also provide academic staff at KNUST School of Business the opportunity to upgrade their qualification to PhD level.

The Department is also in the process of signing an MOU that fosters international collaboration relationship with Stanford University (USA), Simon Fraser University (Canada), and University of British Columbia (Canada) with the goal of developing and mounting Online Programmes in

Publishing. The Online Publishing Programmes intend to support Scholarly Publishing activities in developing economies, particularly Africa.

The Department in collaboration with the Ghana Publishers Association of Ghana has secured funds (Business Sector Advocacy Challenge Fund) to run and facilitate an advocacy programme for the Publishing industry in Ghana. The programme aims at developing a fully functional and efficient implementation strategy for the enforcement of the provisions of the copyright laws of Ghana regarding book publishing.

## **SEMINARS AND WORKSHOPS**

Again, the department facilitated two workshops on Open Access Publishing, specifically on how to use the Open Journal System (OJS) to support scientific publishing. The two-workshop which were held at two Universities in Ghana (University of Ghana, Legon and KNUST) in October 2012, aimed at supporting editors of Scholarly Journals to be familiar with online publishing environment and how to take advantage of online publishing tools.

There was a conference/seminar presentation where a paper was presented on; “Language policies and the politics of local language publishing in Ghana.” The Paper was presented at the British Academy UK-Africa Academic Partnership Conference, University of Ghana, November 29-30, 2012 by Dr. K Opoku-Amankwa.

## **FACULTY OF SOCIAL SCIENCES**

### **INTRODUCTION**

The vision of the faculty is academic excellence in teaching and research to support socio-political and eco-cultural advancement of Ghana. Our mission therefore is to build the desired human resources and capacities to support the socio-economic development of Ghana.

The Faculty of Social Sciences is the largest faculty in the entire University in terms of number of departments and the number of undergraduate programmes. The seven academic departments of the faculty are:

- Department of Economics
- Department of English
- Department of Geography and Rural Development
- Department of History and Political Studies
- Department of Modern Languages
- Department of Religious Studies
- Department of Sociology and Social Work

The key officers of the Faculty are;

Dr. Kofi Osei Akuoko	-	Dean of the Faculty
Mr. Joseph Appiah Nkrumah	-	Vice Dean
Mr. Felix Asante	-	Faculty Examinations Officer
Ms. Cecilia Addison	-	Senior Administrative Assistant
Mr. Seth A. Grechie	-	Senior Accounting Assistant

Mr. Abraham Donkoh	-	Faculty Librarian
Mr. Nicholas Nyamekye	-	Principal Library Assistant

There are eleven (11) undergraduate programmes in the faculty. The Department of History and Political Studies runs undergraduate programmes in History and Political Studies. The Department of Geography and Rural Development offers two undergraduate programmes in Geography and Rural Development and Culture and Tourism. Department of Modern Languages offers two programmes in French and Akan. Department of Sociology and Social Work offers two programmes in Sociology and Social Work. The other programmes are Economics, Religious Studies and English. All the undergraduate programmes are also offered under our Part-Time/Parallel programmes.

### **POSTGRADUATE PROGRAMMES**

With the exception of History and Political studies, the following postgraduate programmes are run by the departments in the faculty: M.Phil Geography and Rural Development, PhD Geography and Rural Development, M.Phil French, Ph.D French, MA/M.Phil Sociology, M.Phil English, Ph.D English, MA Economics, Ph.D Economics and M.Phil Religious Studies.

### **STUDENT – LECTURER RATIO**

The student-lecturer ratio is still higher than the required mandatory ratio. We are therefore in the process of building greater staff capacity to reduce the teaching load per staff especially at the undergraduate level to enable lecturers have sufficient time to undertake advanced basic and applied research.

### **DONATIONS/COLLABORATION**

The Faculty has benefited from the benevolence and cooperation of institutions, national and international agencies, and private personalities. These have been featured in the ensuing Departmental Reports. We continue to collaborate with sister universities from Denmark, China (UEST), Canada, United Kingdom, the USA and a host of institutions across the African continent. The French Embassy in Ghana has provided technical and financial support to the Department of Modern Languages. The British Council is also supporting the English Department with technical facilities to enhance the teaching of English Language.

### **FACULTY OF SOCIAL SCIENCES BUILDING**

In December of 2011, the Faculty renewed its efforts towards the construction of a Faculty building to house all its departments in the near future. A three-man committee was put together to work on the Project.

The Provost led the Faculty's Building Committee to hold consultations with representatives of the Director of Works. In March, land was identified for the project and survey works had been completed.

New drawings have also been completed for the proposed Faculty Building and a meeting had been held to discuss the drawing with representatives of the Director of Works. It is our hope that work would commence as soon as approval is given.

## **DEPARTMENT OF RELIGIOUS STUDIES**

### **TEACHING**

Lecturers of the Department teach various courses in the broad areas of Christianity, Islam and African Traditional Religion.

### **FIELD TRIPS**

- Students and Lecturers of Islam and African Religions went on field trips to Laribanga, to see the first Mosque in Ghana, and the ‘mysterious stone’, an important religious object in both Islam and African Traditional Religion; and some shrines at Atwia and Nkoranza, to get first-hand information on how African traditional functionaries operate.
- In a similar vein, some lecturers and students of Christianity participated in a seminar on the theme: “Bible Interpretation and the Mother-Tongue Scriptures” organised by the Bible Society of Ghana in Kumasi.

### **RESEARCH**

During the year under review lecturers conducted researches in the areas of Christianity, Islam and African Traditional Religion, resulting in 14 Journal, 5 Book Publications and 1 Conference Proceedings; thus, increasing publications by 66.6 percent over that of the 2011/2012 academic Year.

### **CONFERENCE ATTENDANCE**

The Department organized a Conference on Religion, Politics and National Peace at KNUST, which attracted scholars from the length and breadth of Ghana. Eight (8) Lecturers of the Department presented papers.

Three (3) lecturers attended conferences in Ghana, Nigeria, Kenya, South Africa and India, where they presented papers.

Two (2) Second Year Master of Philosophy Students of the Department presented papers at the Ghana Association of Biblical Exegetes (GABES) Annual Conference in Accra.

### **COMMUNITY SERVICE**

Lecturers of the Department continue to serve on committees at KNUST; as Counselors to students of the Department; Moderators and External Examiners of Affiliated Universities; and as Pastors in the various churches where they minister.

### **COLLABORATION**

Monique Muller, a Graduate student from the Candler School of Theology, Emory University who has been at the Department since August 2012 on an exchange programme, will leave at the end of June 2013; haven spent two semesters at KNUST. It is the turn of the Department of Religious Studies, to send one Graduate student to study at the Candler School of Theology, for one academic year.

### **GRADUATE PROGRAMMES**

The Department increased post-graduate intake (M.Phil programme) from 19 in 2011/2012 to 26 in 2012/2013 Academic Year.

Plans are underway to start a One-Year (12 months) M.A. Religious Studies Programme in the 2013/2014 Academic Year, to increase access to our Graduate programmes.

The Department has submitted a proposal to the School of Graduate Studies to start a PhD programme in Religious Studies.

### **NOTABLE EVENTS**

- Very Rev. Dr. N. I. Samwini has been promoted from Lecturer to Senior Lecturer.
- Rev. J. E. T. Kuwornu-Adjaottor has been accepted as a Full Member of the Society of Biblical Scholars (SBS), to promote Biblical Scholarship in Africa.
- Rev. Kuwornu-Adjaottor has also been elected a Fellow of the Centre of Mother-Tongue Biblical Hermeneutics (Trinity Theological Seminary, Legon), to facilitate the writing of Bible Commentaries in the Ghanaian Languages.
- Rev. Kuwornu-Adjaottor was adjudged the runner-up of the most responsive Head of Department to correspondences from the Provost's Office, CASS.
- Rev. Dr. K. Opuni Frimpong, a part-time lecturer of the Department has been elected General Secretary of the Christian Council of Ghana.
- The Department has purchased books worth One Thousand Ghana Cedis (GHC1,000) from its Internally Generated Fund (IGF), to augment the stock of books in its Department's Library.
- The Department uploaded information about staff, students and programmes on its website, to increase its visibility.
- The Department organized a seminar for its Final Year and Post Graduate Students to orient them on what they can do after University Education, to be gainfully employed.
- Kabiru Ibrahim, a second year of the Department embarked on a voluntary journey across the 10 regions of Ghana, from June 6 to August 10, 2012, to awaken the patriotic consciousness of Ghanaians through religion. Ibrahim is embarking on a similar project in conjunction with the Abujah Environmental Protection Board in Nigeria, from July 5, 2013, under the theme: 'Let Your Religion Reflect Your Patriotism'.
- Felix Glikpo, a second year student was adjudged the best student of the department for the 2011/2012 academic year and was given an award by the College of Art and Social Sciences.
- The Religious Studies Students and Associates (RESSA) of the KNUST has donated a sign board to the Department.
- The Bible Society of Ghana donated a box each of the Hebrew Bible and New Testament Greek to the Department, to facilitate the study of the Biblical languages by students.
- The Department of Religious Studies, KNUST is hosting the 40<sup>th</sup> Anniversary Conference of the West African Association of Theological Institutions (WAATI) from August 5-9, 2013.

## **DEPARTMENT OF MODERN LANGUAGES**

## **INTRODUCTION**

The Department of Modern Languages, which is made up of two sections, French and Akan, conscientiously continues in its core mandate of equipping a great number of students to meet the developmental needs of the nation. Service to the community has equally engaged the Department in her bid to empower many through language.

## **TEACHING**

### **FRENCH AND AKAN: BACHELOR OF ARTS PROGRAMME**

Apart from our core business of teaching French (i.e. language, linguistics and Francophone literatures) and Akan (i.e. language, linguistics and literature), we have been encouraging and motivating students to think inter-disciplinarily and, in this direction, use both languages in connection with areas such as politics, theater arts, media and other practical programmes.

The French Section now has a complete Language Laboratory for comprehensive teaching and learning of the language.

The Akan Section continues to enjoy international patronage. We have had some students from the United States of America at various levels in the study of Akan. Plans are also far advanced to have collaborations with some universities abroad that offer Akan and Twi in particular, so that such students could come to KNUST to have a year-abroad or a semester-abroad period in the Department.

### **MPHIL, PHD PROGRAMME**

In the year under review, the Department had twenty-nine (29) MPhil (French) and fifteen (15) PhD (French) students. A proposal for the introduction of MPhil Akan has been forwarded to the appropriate quarters for approval and the Department is still waiting for this approval.

## **STAFF**

The number of academic staff of the Department has been improved, although more needs to be done to better postgraduate studies in the Department. At the French Section, one French Technical Assistant, Ms. Sophie Pecqueur, has arrived to replace Ms. Marie Legresy. Also, at the Akan Section, two Assistant Lecturers, Mr. Emmanuel Fordjour and Mr. Foster Adjei, have been appointed.

The strength of teaching staff for the year under review remains same, fourteen (14), of which twelve (12) are on full time and two (2) are on part-time. The Department also has two (2) Demonstrators and nine (9) National Service Persons who offer academic and administrative services.

### **STAFF DEVELOPMENT**

Efforts are still continuing to build up staff capacity through the MPhil and PhD Programme. Two of our PhD candidates have submitted their thesis for assessment and one is at the tail end of his PhD thesis. Two PhD students are half-way through their thesis. Through the Inter-University Conference for Doctoral Studies, the progress of these students is reviewed on regular basis.

## **SERVICE TO THE COMMUNITY AND OUTREACH PROGRAMMES**

The Department continues to offer effective service in various areas and capacities to other bodies; academic staff members have served on panels for public discussions, speakers at different functions and as resource persons at various platforms.

The Department also continues to offer a number of service courses to various Departments of the University, such as French for Communication (Beginners and Intermediate levels) and Akan (specifically, Asante-Twi) for some foreign students.

In her bid to add Chinese as a programme, the Chinese Club started last year to afford interested students of KNUST the opportunity to study Chinese, thanks to Mr. Melvin Nartey, the leader. It is expected that the Chinese programme will take off soon.

## **INCOME GENERATION ACTIVITIES**

With the approval from the University to run short courses and other programmes within the framework of income generation activities, the Department is set to run courses such as Teaching of French and Akan as functional courses, and a proficiency course in Chinese.

The Department's 'Transbureau' continues to undertake all types of translation of texts from French to English and from English to French or from English to Akan and from Akan to English.

## **COLLABORATION**

The Department's collaboration with a consortium of universities in the sub-region and Strasbourg, France, continues to be strengthened. Two Inter-University Seminars on Doctoral Studies were held; one right here in the Kwame Nkrumah University of Science and Technology and one at the University of Ghana, Legon. Our PhD students in the Department participated in both seminars.

With regard to the French Year Abroad Programme, the Department is now in partnership with Village du Benin, Togo, and Centre Béninois des Langues Etrangères (CEBELAE), Benin. Presently, the Department has fifty-eight (58) third year students with these two institutions.

## **BENEFACTORS**

The French Section of the Department of Modern Languages continues to receive support from the French Embassy. The Embassy continues to sponsor the Inter-University Seminars for Doctoral studies, from which the Department has been benefitting tremendously. The Embassy has also not failed in supporting the Department in the area of cultural activities. One cannot also overlook the French Embassy's support in the running of the Department's Language Laboratory and Resource Centre (Maison Française). This year, the Embassy financed the procurement of software for the Language Laboratory and Resource Centre to facilitate the teaching and learning of French. This is the first time the Department has had this facility. The French Embassy also made valuable donations in the form of basic texts and reference books that are particularly necessary for postgraduate studies.

The Department expresses great appreciation to the French Government for its unfailing support in activities that have to do with the French Section of the Department. We are also grateful to Latex Foam who normally sponsors our activities.

## **CONCLUSION**

The Department of Modern Languages is committed to training and equipping more students to meet the nation's developmental needs. The Department also endeavors to fit its graduates into the mainstream of sub-regional and world progress as agents of change and progress.

On the whole, both academic and administrative staff of the Department have worked assiduously to meet its core responsibilities in administrative work, teaching, research and effective service to the University and the larger community.

## **DEPARTMENT OF ENGLISH**

### **INTRODUCTION**

The 2012/2013 academic year saw a vigorous pursuit of the goals the department set for itself in the 2011/2012 academic year, viz, the review of the undergraduate and graduate programmes and also the institutionalization of the study of English for Francophone students of the University. The department succeeded to a very large extent in this effort.

### **NEW ACADEMIC PROGRAMMES**

In consonance with its policy of reviewing its programmes every five years the department successfully reviewed its programmes. The new undergraduate programme is in its second year and has been very successful as the academic staff were adequately sensitised about the new development well-ahead of time. Indeed, although the new programme is yet to enter the third year lecturers are being assigned courses for the third and fourth years to enable them hold themselves in readiness for the anticipated challenges.

Hitherto the main focus at the graduate level had been on literature. However, owing to the ever-growing number of applicants who are interested in language studies, the department undertook to introduce such studies, that is, the language option to accommodate those 'seeking to improve themselves in the teaching of English at the secondary and tertiary levels' as indicated in our last report. A consortium of experts from Sister Universities was formed with Dr. Esther Serwaah Afreh as the co-ordinator. The consortium was up and doing in its work and, happily, an excellent report has been submitted, placing the department in a position to mount the MPhil language option in the 2013/2014 academic year.

### **ENGLISH FOR FRANCOPHONE STUDENTS**

The department is able to report that as a demonstration of its seriousness in all its efforts the programme to assist non-English speaking students of the KNUST to improve themselves in English language usage has started in consonance with the responsibility assigned it by the Academic Board. Effort is on-going to build a well-equipped laboratory to ensure effective work. The department counts very much on the financial and other material support from the University as the programme would help enhance the image of the University.



## **INCOME GENERATION**

Sadly, the department is not in a position to generate any significant income for itself. The provision of Proficiency Certificate to students is the only source of income but this is so meagre and come in such trickles that it makes no significant impact. It is the fervent prayer of the department that the University would one day see the need to remunerate the department for its services to all academic departments of the University in the areas of the study of Communication Skills and Literature-in-English.

## **RESEARCH AND OTHER ACTIVITIES**

As indicated in our 2011/2012 report Dr. Esther Serwaah Afreh successfully completed her PhD studies and was awarded her degree in March 2012. We are happy to report that Dr. Afreh's PhD dissertation has won the Vice-Chancellor's award for the best PhD dissertation in 2012 at the University of Ghana, Legon. We consider this as an honour not only to Dr. Afreh and the Department of English but also to the Kwame Nkrumah University of Science and Technology. Drs. F. Dadson and Gbolo Sanka are still in pursuit of their project on an anthology of folktales and Mr. K.O.O. Armah would soon come out with a book titled **SPEAK AND WRITE THIS ENGLISH, A PRACTICAL COURSE IN ERROR ANALYSIS**, the result of his research into Street Language. Other lecturers are engaged in similar research activities while a number are pursuing PhD studies to improve them.

## **DEPARTMENT OF HISTORY AND POLITICAL STUDIES**

### **INTRODUCTION**

The Department of History and Political Studies in the Faculty of Social Sciences organised a series of activities and hosted a few visitors in the course of 2012/ 2013 academic year.

Currently the Department runs two undergraduate programs. These are:

1. B.A. History and
2. B.A. Political Studies.

However, the Department will be introducing post graduate programs in History and Political Studies. There will be:

1. MA History and MA Political Studies
2. MPhil History and MPhil Political Studies, and
3. PhD History and PhD Political Studies

### **STAFF MOVEMENTS**

Dr. W.J. Donkoh who was granted five months study leave to spend at the College of William and Mary at Virginia returned to the Department in February 2012.

Mr. Kwasi Amakye-Boateng is still on study leave at the University of Ghana.

Dr. Nicholas Yaw Amponsah from the University of Ghana took up a sabbatical leave appointment from September, 2012. He will be with the Department until 30<sup>th</sup> June 2013.

Mr. T. K. Anning's appointment as a part-time lecturer in archival studies was renewed for one year from 1<sup>st</sup> August, 2012.

Two new lecturers joined the Department. They are Dr. Edward Brenyah from the West Virginia University in the United States and Dr. Samuel Adu-Gyamfi, a product of the Vice-Chancellor's Initiative to train staff for the University.

### **RESEARCH ACTIVITIES**

Senior Members in the Department continue to conduct research in their various fields. These have led to publications and presentations at conferences.

### **OTHER ACTIVITIES**

1. The Department successfully hosted the 2<sup>nd</sup> Biennial Kwame Nkrumah International Conference (KNIC 2) at the Great Hall Complex from 22<sup>nd</sup> – 24<sup>th</sup> September, 2012.
2. The Department also hosted two International students from the Savannah State University in the United States, Immanuel Golden and Alayna Stovell.
3. Mr. Vincent Dodoo was invited to join an international panel to look at the holocaust at a seminar organized at Yad Vashem in Jerusalem from 2<sup>nd</sup> – 9<sup>th</sup> December, 2012. Thereafter on 7<sup>th</sup> February, 2013, the Department hosted the two deputies from the German and Israeli Missions in another seminar on the holocaust for KNUST students on campus. This second seminar was one of the three activities organized to observe the international holocaust remembrance day which fell on 27<sup>th</sup> January, 2012. The first was in Accra on the 29<sup>th</sup> January at the Goethe Institute. The second was at the Opoku-Ware Senior High School in Kumasi also on 7<sup>th</sup> February, 2013.
4. Dr. Donkoh participated in a conference at the University of Texas at Austin from 28 March – 11<sup>th</sup> April, 2013.
5. There was the official inauguration of the Historical Society of KNUST on 21<sup>st</sup> March 2013.
6. Finally, the Department hosted a second International Conference by the Ghana Studies Association from 23<sup>rd</sup> – 26<sup>th</sup> May, 2013 on campus.

### **CONCLUSION**

The 2012/2013 academic year was a fruitful year for the Department.

## **DEPARTMENT OF ECONOMICS**

### **INTRODUCTION**

The Department of Economics is one of the seven Departments of the Faculty of Social Sciences. The Department runs programmes in Economics at both undergraduate (BA) and graduate levels (MA, MPhil and PhD). The Department continues to offer Economics as an integral part of other undergraduate and graduate programmes in virtually every faculty of the University.

### **TEACHING AND SUPERVISION**

As stated in our report last year, large student numbers continue to pose challenges to the Department in its desire to maintain high quality teaching and learning. In addition to its regular students, the Department offers service courses to over 1000 undergraduate students of the Applied Sciences and Technology programmes who take Economics as a core or elective course. Postgraduate student population for the year was 68 made up of MA (ECON) 1 – 32, MA (ECON) II – 32 AND PhD (Econ) – 4.

### **STAFF STRENGTH**

The department has teaching staff strength of thirteen. These are made up of one (1) Associate Professor, three (3) Senior Lecturers and nine (9) Lecturers. The Department is making serious efforts to recruit PhD holders in the field to augment the number of senior members of the Department.

### **CONFERENCES/ SEMINARS/WORKSHOPS**

The Department hosted its first International Economic Conference under the broad theme: “Expectations for Ghana as a Middle Income Economy” at KNUST. Several academic papers were presented.

#### **Mr. J. D. Quartey**

Improving energy access through climate finance: picking the winners. University of Twente, The Netherlands, 26 – 28 March, 2013.

#### **Dr. A.K. Osei-Fosu**

1. Investment opportunities in Ghana a workshop organized by Ickthus Consulting Services Limited, under the auspices of AngloGold Ashanti Limited, February 18 – 21, 2013.
2. Developing entrepreneurial Skills at workshop organized by Ickthus Consulting Services Limited, under the auspices of AngloGold Ashanti Limited, November 14 – 16, 2012.
3. Subject Specialist Workshop and Retooling on Econometrics, AERC, in Nairobi, Kenya, April 24 – May 3, 2012

#### **Dr. (Sr.) Eugenia Amporfu**

1. Presenter, Institute of International Public Finance Conference, Dresden, Germany, August 2012

### **SERVICE TO THE COMMUNITY**

#### **Prof. J. Ohene-Manu**

- External Examiner/Moderator to Kumasi Polytechnic.
- External Assessor for Central University College (CUC) Accra, to evaluate promotion papers of staff from Lectureship position to Senior Lectureship, and from Senior Lectureship to Associate Professor.

#### **Mr. J. Appiah – Nkrumah**

- Chief Examiner (Economics), West Africa Examination Council, Ghana.
- Examiner/Moderator in Economics for the Institute of Chartered Accountants (ICAG).

**Mr. J. D. Quartey**

- Served as a resource person for the Modular MSc programme in Environmental Resource Management of the Department of Materials Engineering, KNUST, Kumasi.
- Participated in the Inception Meeting on the National Climate Change Policy Framework (NCCPF) of the Ministry of Environment, Science and Technology, as an Environmental Economist.

**Mr. Kwaku Boateng**

- Technical advisor to the Committee on Petroleum Revenue Management Oil and Gas Local Content and Local Participation Policy.
- Resource person for the Committee on Oil and Gas Extractive Industry Transparency Initiative (EITI).

**Mrs. Grace Ofori-Abebrese** served as:

- Board member – Ghana Cooperative College, Kumasi. Since 2009
- Examiner/Moderator/Team Leader: West African Examinations Council Ghana.

**Mr. Emmanuel Buabeng**

- Tutorial services to the Institute of Distance Learning (IDL) at KNUST and University of Ghana, Legon.
- Patron – Tertiary Advocate for the Right of Children, KNUST Branch.

**Dr. A.K. Osei-Fosu**

- Assessment of the impact of the Activities of Gold Fields Ghana Ltd on the Livelihoods of Abekoase Community submitted to Gold Fields Ghana Ltd/ Gold Fields Ghana Foundation, February, 2013
- Impact Assessment of Infrastructure Projects undertaken by Gold Fields Ghana Ltd at its Damang and Tarkwa sites in the Western region of Ghana Submitted to Gold Fields Ghana Ltd/Gold Fields Ghana Foundation, July, 2012
- Examiner (Team Leader) West African Examination council (WAEC), Accra Ghana January, 1998 – Date

**Dr. (Sr) Eugenia Amporfu**

- Reviewer for the following journals:
  - a. African Health Economics
  - b. Health Research Policy and Systems
  - c. International Journal of Health Equity
  - d. Global Journal of Political Science and International Relations
  - e. Cost Effectiveness and Resource Allocation.

**Mr. Eric Fosu Oteng-Abayie**

- Organized research seminars for Common Wealth Executive Master of Business Administration. (CEMBA) at the Institute of Distance Learning.

- Member of Accreditation Committee for the introduction of new MSc/MPhil programmes at the Institute of Distance Learning (IDL)
- Reviewed Conference papers for 2012 Arts and Social Sciences Conference for Koforidua Polytechnic.

## **COLLABORATION**

The Department continued its collaboration with the African Economic Research Consortium (AERC). Staff of the Department continued to take part in teaching on the collaborative Masters programme (CMAP) and the collaborative PhD Programme (CPP). Discussions have been initiated for collaboration with the Economics Section of the State University of New York at Geneseo.

## **DEPARTMENT OF SOCIOLOGY AND SOCIAL WORK**

### **VISION AND MISSION**

The vision of the Department is to promote excellence in Social Sciences for the socio-economic development of Ghana and the World at large. The Mission of the Department focuses on the training and the production of high level human resource capable of applying knowledge and purposeful research, relevant to the Ghanaian environment and the International community.

### **UNDERGRADUATE PROGRAMMES**

The Department now runs two undergraduate degree programmes: Bachelor of Arts in Sociology and Bachelor of Arts in Social Work for regular students. Additionally Students can pursue these degree programmes through Distance Education and Parallel/Part time (evenings). With the current student population of One Thousand Three Hundred and Forty Four (1344), the Department is one of the largest in the University.

### **GRADUATE PROGRAMMES**

The Department currently runs two postgraduate programmes in Sociology at M.A. and MPhil. The MPhil was introduced in the 2012/2013 academic year. The first batch of graduate students for the Department's M.A. in Sociology Programme graduated in 2011. The total number of Postgraduate students currently stands at Thirty Five (35) for both programmes.

The Department has submitted proposals for consideration by the School of Graduate Studies to offer PhD in Sociology. The PhD programme proposal, if approved, will facilitate staff development and create opportunities and access for interested staff and others at a lesser cost locally.

## **DEPARTMENTAL ACTIVITIES / EDUCATIONAL TRIPS**

The Department's Sociology and Social Work Students Association made donations of various consumable items to the Kumasi Children's Home in November 2012 during the Universal Children's Day.

Students in the Department also undertook an educational field trip in February, 2013 to the Eastern and Volta Regions.

### **SERVICE COURSES**

The Department continues to offer service lectures to other Colleges and Departments such as Publishing, Engineering, Science, Integrated Rural Art and Industry as well as Geography & Rural Development.

### **STAFF IN THE DEPARTMENT**

The Department has an academic staff strength of fifteen made up of one (1) Senior Lecturer, eleven (11) lecturers, one part-time Lecturer, and two (2) service course lecturers. In addition to these it has three supporting staff.

### **RESEARCH ACTIVITIES**

Senior Members in the Department continue to conduct research in their various fields. These have led to the publication of Book Chapters.

### **COLLABORATION WITH OTHER UNIVERSITIES**

The Department is currently enjoying a fruitful collaborative relationship with the University of Utah, Salt Lake City, U.S.A. As part of the Department's collaboration with the College of Social Work, University of Utah, USA, two students of the Department were awarded scholarships in 2010. They have completed their Masters programme in Social Work at the University of Utah, and are now pursuing their PhD. Two female students were also awarded scholarships in 2011 and are currently pursuing their Masters Degree programme in Social Work in the same University.

Furthermore, there have been current discussions with representatives from the University of UTAH. During these discussions, it was agreed that there will be an exchange programme for undergraduate Social Work students in KNUST and University of UTAH. Also Postgraduate students would be allowed to do their literature search in UTAH University.

The Department has also initiated collaborations with other Universities such as Savannah State University, USA, University of Suny Geneseo, USA, University of Pennsylvania, USA, University of Georgia and others. Efforts are being made to make these initiated collaborations a success.

### **INCOME GENERATION**

The Department is participating in the parallel/Part time B.A Degree Programmes in the Faculty and Distance Learning Programmes.

### **CHALLENGES**

The Department is one of the largest in the University but is faced with inadequate teaching staff, lack of bigger lecture rooms and supervision of large number of project students as critical

challenges. Office space to accommodate teaching staff is also inadequate. As such lecturers have to share small cubicles which do not augur well for academic work, research and student Project Supervision.

## **CONCLUSION**

In spite of these challenges, the Department is carrying out its duties with dedication. It is our hope that bigger lecture rooms would be provided and additional teaching staff would also be hired to relieve staff of some of their teaching load to make time for more research and service to the community.

## **DEPARTMENT OF GEOGRAPHY AND RURAL DEVELOPMENT**

### **INTRODUCTION**

The Department of Geography and Rural Development (DGRD) is one of the seven (7) Departments of the Faculty of Social Sciences. The demand for its delivery of Teaching, Learning and Research is high. The Department delivers over seventy-seven (77) courses on the average, per semester to an undergraduate student population of about one thousand, one hundred and eighty-eight (1,188) with staff strength of eighteen (18) excluding one (1) who is on leave of absence. This makes it one of the largest Departments in the University in terms of student numbers.

The department also provides service lectures to the following Colleges: The College of Science, the College of Health Sciences; the College of Agriculture and Renewable Natural Resources, and the College of Engineering.

In consonance with the University's core values and objective of offering top-notch teaching and research activities, the Department of Geography and Rural Development offers a wider range of courses from Geomorphology, Climatology and Biogeography, Cartography and Mapwork. It also offers courses in Gender and Population Studies, Decentralisation and Rural Development, Geography of Tourism and Transportation. Courses on the multi –disciplinary Culture and Tourism Programme include transport and Tourism, Events Management, Ethics and Etiquettes, African and Indigenous Architecture, Tourism Impact Studies and Destination management among others.

Teaching and learning activities in the Department are motivated by the expectation that the Department's quota of first grade students will be turned-out into outstanding and versatile graduates, ready to take higher responsibilities and challenges in all fields of endeavour for national development.

The Department continues to deliver courses leading to the award of the four (4)-year Bachelor of Arts Degree in Geography and Rural Development, and also Coordinates and runs the four (4)-year Bachelor of Arts Degree in Culture and Tourism concurrently as undergraduate programmes. It also offers a two (2)-year Master of Philosophy Degree programme and the Vice Chancellor's Initiative of MPhil/PhD at the Post-graduate level with the three (3) year PhD Geography and Rural Development Programme offered separately.

Senior Members in the Department consist of one (1) Full Professor, two (2), Senior Lecturers and sixteen (16) Lecturers. The Head of Department is assisted by coordinators of undergraduate and graduate programmes, a coordinator of the Culture and Tourism Programme, an Internship Coordinator, an examination officer and one (1) Senior Administrative Assistant.

### **STUDENTS' ACHIEVEMENT AND PARTICIPATION**

Staff and Students' participation in club activities and field trips to promote teaching and learning have been vibrant. Various lecturers have led student groups to undertake field trips and excursions to various places of Geographic and Touristic interest. These include selected areas in the Central, Eastern, Volta, Ashanti, Brong-Ahafo and the Northern Regions.

The Tourism Students Association (TOURSA) and the Geography Students Association (GEOSA) have presented resolutions to the Head of Department on their decision to purchase a bus to aid practical work and field trips through students' contributions and other fund raising activities. This is a laudable move from the student associations which needs to be commended and supported. Members of GEOSA were able to purchase a brand new photocopier for use by members of their association for copying lecture notes and handouts at subsidised rates. They have also donated a brand new Digital light Processor Projector to the Department worth One Thousand Eight hundred Ghana Cedis (GH¢1,800.00) on the 12<sup>th</sup> April, 2013.

GEOSA and TOURSA Week Celebrations saw high levels patronage which culminated in inter class sporting activities at the Paa Joe Stadium. The Department also supported teaching and research Assistants in a soccer challenge to their counterparts in the Department of Economics in which the Geography Team triumphed.

About fourteen (14) students passed their viva voce and graduated with Master of Philosophy degrees during the 2011/2012 period while three (3) have passed their oral defence and will be graduating during the 2012/2013 period. The Departmental Graduate Seminar series which comes off every fortnight has been revived and has received a lot of enthusiasm and support from colleagues and students.

We are expecting three (3) students to start research on Land Grabbing next academic year.

### **INFRASTRUCTURAL DEVELOPMENT/PROJECTS**

To solve the office space challenge facing the Department, steps have been taken towards repartitioning its office space which currently houses only seven (7) lecturers. After repartitioning, the same space can accommodate fourteen (14) lecturers. The Development Office of the University has completed works on the drawings and bill of quantities. Invitation to bid and award of contracts for works are awaiting the Vice Chancellor's approval so that our work spaces would become more congenial for academic work.

### **FUTURE PROJECTIONS**

The department hopes to enhance its research drive to a level that will facilitate the rapid promotion of members. Steps are afoot to recruit capable replacements for two (2) senior members who retired during the 2011/2012 period and another two who would be retiring next academic year.



The department intends to offer improved/modified and upgraded demand-driven courses on full-time, part-time and through distance education modules during the 2013/2014 academic year to be able to absorb qualified applicants. To this end a workshop has been organised to train senior members on course writing for distance mode teaching.

In conclusion, in spite of the pressures of increased academic workload on members, the Department of Geography and Rural Development is poised to maintain the status quo in the years ahead, and to position itself as one of the dynamic and progressive departments in the Faculty of Social Sciences, the College of Art and Social Sciences and in the University at large.

#### **STAFF OF THE DEPARTMENT**

##### **DR (MRS) EVA TAGOE-DARKO**

###### **Services**

- President, Ghana Geographical Association (GGA) 2011 to Date
- Fulbright African Senior Research Scholar at the State University of New York (SUNNY) Geneseo, U.S.A.(2009 to 2011)

##### **DR. ALEX YAO SEGBEFIA**

###### **Services**

- Head, Department of Geography and Rural Development, August 2011 to July, 2012.
- Member, Ghana Geographical Association (GGA)
- Coordinator, Culture and Tourism, September 2008 – July 2011
- Executive Member, KNUST Junior High School PTA, 2011 to Date

##### **MR. JOSEPH KOOMSON**

###### **Services**

- Moderator, Institute of Local Government Studies (ILGS), Madina, Accra, March 2012
- Head of Department (Geography and Rural Development) August, 2009 To 2011
- Ghana Geographical Association – First Vice President, August, 2009 to Date
- Member of the Governing Board, Wesley Senior High School, Konongo

##### **MR. KWADWO AFRIYIE**

###### **Services**

- Member, Ghana Geographical Association (GGA)
- Coordinator, Culture and Tourism Programme, February 2012 to Date.

##### **FELIX ASANTE**

###### **Services**

- Executive Member (KNUST Representative), Ghana Geographical Association (GGA)
- Faculty Examinations Officer, Faculty of Social Sciences, KNUST

##### **MR KABILA ABASS**

###### **Services**

- Member, Ghana Geographical Association (GGA)
- Patron, Geography Students Association, KNUST
- Coordinator, Institute of Distant Learning (Sociology and Social Work)

- Examinations Officer, Department of Geography & Rural Development

**DR. (MRS.) CHARLOTTE MONICA MENSAH**

**Services**

- Executive Member (National Treasurer) Ghana Geographical Association (GGA)
- Counsellor, Tutor, Patroness of KNUST Social Sciences Christian fellowship.
- Patroness of Ghana Fellowship of Evangelical Students (GHAFES)
- National Treasurer of Ghana Geographical Association (GGA)
- Chairperson, Staff Welfare, DGRD, KNUST

**MR. DIVINE ODAME APPIAH**

**Services**

- Fellow, the Energy Center, KNUST
- Member, Ghana Geographical Association (GGA)
- Chairman, Odum Methodist Church Co-operative Credit Union, Kumasi

**MS. LAWRENCIA POKUAH-NIMO**

**Services**

- Member, Ghana Geographical Association (GGA)

**MR. EMMANUEL KOFI GARSONU**

**Services**

- Member, American Congress on Surveying and Mapping
- Member, British Cartographic Society
- Member, Ghana Geographical association (GGA)

**DR. DACOSTA AKWASI ABOAGYE**

**Services**

- Member. American Association of Geographers (Student Member)
- Coordinator, School of Graduate Studies
- Member, Ghana Geographical Association (GGA)

**DR. PRINCE OSEI-WUSU ADJEI**

**Services**

- Member, Ghana Geographical Association (GGA)
- National Secretary, Ghana Geographical Association (GGA)
- Chairman, Department Publishing and Research Committee

**DR. SETH AGYEMANG**

**Services**

- Member, Ghana Geographical Association (GGA)
- Coordinator, Students Affairs, Dept. of Geography & Rural Development

**WORKSHOPS AND SEMINARS ATTENDED**

**Workshop for Distance Learning Course Writers. 1<sup>st</sup>-4<sup>th</sup> March, 2013,** at Ejura, Ashanti Region. Organised by Institute of Distance Learning, KNUST.

**Research Methodology Course, 28<sup>th</sup> January-8<sup>th</sup> February, 2013.** Organised jointly by University of Copenhagen and KNUST, Kumasi, under framework of the Building Stronger Universities Platform on Human Health, at KNUST, Ghana.

**Scientific Writing Course, 8<sup>th</sup>-10<sup>th</sup> January, 2013.** Organised jointly by University of Copenhagen and KNUST, under the framework of the Building Stronger Universities Platform on Human Health and Climate Change, at KNUST, Ghana.

**Workshop for CEMBA/CEMPA Thesis Supervisors, 31<sup>st</sup> October, 2012.** Organised by Institute of Distance Learning, KNUST, at Noda Hotel, Fumesua, Kumasi.

**Family Planning Summit, 10<sup>th</sup> October, 2012.** Sponsored by Johns Hopkins University, KNUST and the Ghana Health Service at the Golden Tulip Hotel, Kumasi. Under the theme 'Family Planning and the Development Goals of Ghana'.

#### **MR. FOSTER FREMPONG**

##### **Services**

- Member, America Association of Geographical
- Member, Ghana Geographical Association (GGA)
- Member, Staff Welfare Committee, Dept. of Geography & Rural Dev't

#### **PROF DR. DR. DANIEL BOUR**

##### **Services**

- Vice Chancellor, Valley View University, Accra
- Former Provost, College of Art & Social Sciences
- Member, Ghana Geographical Association (GGA)
- Member, Population Association of American (PAA)
- Member, American Geographers' Association (AGA)
- Former Member, Academic Board

#### **DR. PETER OHENE KYEI**

##### **Services**

- Rector, Pentecost University College, Ghana.
- Member, Ghana Geographical Association (GGA)

**MRS. RITA YEMBILLA BARRE** \* On leave of Absence

#### **DR. GABRIEL ESHUN**

##### **Services**

- Member, Ghana Geographical Association, (GGA)
- Assistant Coordinator, Students Affairs, Dept. of Geography and Rural Dev't

#### **DR. DAVID FORKUOR**

##### **Services**

- Member, Ghana Geographical Association, (GGA)
- Board Secretary, Department of Geography and Rural Dev't

### **CONFERENCE ATTENDANCE**

**Forkuor, D.,** Mahama, C., Kyei, P. O. (2012). Enhancing Land Administration in Ghana through De-Centralized Local Government System. *Ghana Geographical Association (GGA) / Ghana Geography Teacher Association (GGTA)*. August 1 – 4, 2012 at KNUST, Kumasi.

## **FACULTY OF LAW**

### **INTRODUCTION**

The Faculty of Law is in its 10<sup>th</sup> year of existence and plans are far advanced to commemorate this historic event in a series of activities planned to commence in September this year. The Faculty continues to offer the undergraduate degree programme leading to the award of Bachelor of Laws (LL B) degree and in collaboration with the Ghana Institute of Advanced Legal Studies (GIALS) the first cohort of students will be admitted to the LLM of the University of London International Programme in October 2013.

The LLB is a taught course with emphasis on both theory and practice. The practical aspects include moot court sessions, field trips, public outreach and vacation training programmes which are meant to enrich students' practical experience and orientation.

The Faculty also continues to admit students from jurisdictions other than Ghana with Nigerian students constituting the majority of foreign students. For the 2012/2013 academic year six (6) foreign students were admitted into the Faculty.

Students from the Faculty continue to put up excellent performance at the Ghana Law School. At the 2012 Enrolment and Call to the Bar of new lawyers at the Ghana School of Law, eight (8) out of thirteen (14) students who were awarded prizes were from the KNUST Law Faculty.

### **RESEARCH AND PUBLICATION**

A significant number of academic papers and books have been published by Senior Members of the Faculty.

### **SERVICE TO THE COMMUNITY**

The Faculty members continue to offer their skills and expertise, through consultancies, legal advice and training programmes to members of the University community and the outside public. Lecturers continue to serve on investigatory committees set up within KNUST.

In addition, the Faculty offers service courses to several other Faculties/Departments in KNUST including School of Business, Department of Building Technology, Department of Land Economy, School of Veterinary Medicine, Faculty of Biosciences and Faculty of Social Sciences.

Outside the University, the Dean serves on the General Legal Council, the body responsible for legal education in the country. He is also a member of the Joint Committee on Ascertainment of Customary Law Reform in Ghana.

### **STAFFING**

The Faculty of Law has suffered less than some other departments from high levels of staff turnover, but nonetheless has undergone significant changes in personnel during the course of recent sessions. As at present the staffing is made up of one (1) Professor, five (5) Adjunct Professors, two (2) Senior Lecturers, nine (9) Lecturers, four (4) Assistant Lecturers, and three (3) Principal Research Assistants. Three more lecturers are expected to join the teaching staff for the academic year commencing August, 2013. Five (5) lawyers and alumni of the Faculty who were called to the Bar in 2012 have been engaged as Teaching Assistants to support the teaching staff. With increase in the number of teaching staff and decrease in student numbers, the teacher student ratio has improved considerably to maintain quality of output.

### **ADMINISTRATIVE STAFF**

The Faculty also has efficient and effective administrative staff with an additional transfer from the Publications Unit, an Assistant Registrar in the person of Mr. Seth Kojo Mbra Assan to strengthen the Faculty's administration.

### **STAFF TRAINING AND DEVELOPMENT**

The Faculty is very much alive with its staff development initiatives. Currently three academic staff members are pursuing PhD studies in the United Kingdom( two full time and, one part-time).Also five adjunct professors have been recruited under the VC Consortium initiative to assist teaching and research. Three former students of the faculty are studying for the LLM and PhD in the UK and USA respectively and will be joining the faculty on completion of their studies. The Dean continues to be recognized as Professorial Research Fellow at the University of London, Institute of Advanced Legal Studies.

### **OPENING OF NEW CENTRE**

With the help of the University of Michigan program for Sexual Rights and Reproductive Justice, the Faculty of Law has introduced a reproductive justice programme. The programme at the Faculty was born out of concern that only few citizens were aware of the many laws and policies on sexual health and reproductive rights in Ghana. In addition was the realization that only few lawyers were involved in the fight for sexual health rights and reproductive justice. KNUST Faculty of Law therefore took the initiative as the first law faculty in Ghana to introduce legal education on sexual health and reproductive rights in Ghana.

The introduction was done in two phases. The first phase was the establishment of a Law Students for Reproductive Justice Club (LSRJ). The second phase was the establishment of the Centre for Human Rights and Reproductive Justice to promote scholarship on human rights and reproductive justice issues. Human rights are fundamental rights - like the right to life and liberty, the right to be free from discrimination- that we all have by virtue of being human. Reproductive justice is part of human rights. Reproductive justice means access to legal rights and freedoms relating to reproduction and access to health care and services.

The aim of the Law Students for Reproductive Justice Club is to train a new generation of lawyers ready to protect and expand reproductive rights as fundamental civil and human rights. The Centre for Human Rights and Reproductive Justice focuses on teaching and research. From next academic year, work at the Centre would involve research and dissemination of research findings. It is hoped that later, a Masters (LL.M) program in Human Rights and Reproductive Justice would be instituted at the Faculty.

### **THE LAW CLINIC**

The Law Faculty recognises the importance of imparting practical legal skills to our students before they enroll for the professional stage of their legal training or embark on any career path of their choice. To this extent, the Kwame Nkrumah University of Science and Technology Community Legal Clinic (KCLC) was established under the auspices of the Law Faculty. It is hoped that the Faculty will achieve the following objectives:

1. To teach KNUST law students lawyering skills, including critical thinking, interviewing and counseling, advocacy, and effective communication (both writing and oral skills) as well as client care, ensuring that students will appreciate legal training as an avenue to render service to the community
2. To organize community legal outreach and education programmes for KNUST student groups and associations, the communities surrounding KNUST as well as the people of Kumasi in the long run
3. To provide free legal services to prison/pre-trial detainees, low-income earners and marginalized persons in Kumasi
4. To develop materials on legal issues and policies for legal outreach and also to disseminate legal information, using simple, non-legalese English and where necessary, the local language of the audience
5. To work with governmental and non-governmental institutions with similar aims
6. To complement the efforts of the overburdened Legal Aid Board of Ghana, especially the Kumasi office
7. To serve as a model for clinical legal education in Ghana

### **SIR ARKU KORSAH LAW LIBRARY**

The Faculty has made significant improvement by procurement of additional text books, law journals and law reports to the stock of the Sir Arku Korsah Library.

## **THE KNUST SCHOOL OF BUSINESS (KSB)**

### **OVERVIEW OF THE SCHOOL**

The KNUST School of Business (KSB) was established in 2005 as an outgrowth of the 29-year old Department of Economics and Industrial management which began by offering a Post-graduate Diploma in Industrial Management, followed by an M.A. in Industrial Management and an MBA programmes since 2002. KSB has been established to fulfill the vision of KNUST to provide the environment for excellence in teaching, learning, and research in management and entrepreneurship in science and technology for the industrial and socio-economic development of Ghana and Africa. In effect, KSB seeks to attain global recognition as a centre of excellence in Africa for the development and the production of high calibre graduates with hands-on

knowledge and expertise in management to support the industrial and socio-economic development of Ghana and Africa.

In order to attain its vision as a world-class School of business, KSB has the following as its thrusts: Integrating Business Courses into all University Programmes; Recruitment of Qualified, Experienced and Competent Staff; Excellence in Academic and Industry Research; Centre for Management Consulting and Business Research; Strong Links With The World Of Business, Government, and Society; International Partnerships: Strong Links With The World Of Learning; Developing The Leadership And Management Competencies Of Students; Professional Business Degree Programmes; A Modern Management Library; Modern ICT Resources; Performance & Quality Assurance.

The programmes of study available include:

- Full Time BSc & Masters in Business Administration
- Part-Time BSc & Masters in Business Administration, and
- Week-End Masters in Business Administration

The KNUST School of Business has five approved academic departments, the fifth, however, is not operational at the moment. The concentrations for Award of Bachelor of Science in Business Administration (BSc in Business Administration) and Master of Business Administration (MBA) degrees on offer at the various departments are as follows:

1. The Department of Managerial Science:
  - BSc in Business Administration
    - i. Human Resource Management Option
    - ii. Management and Organisational Development Option
  - Master of Business Administration in:
    - i. Human Resource Management
    - ii. Management and Organisational Development
2. Department of Accounting and Finance
  - BSc in Business Administration
    - i. Accounting Option
    - ii. Banking and Finance Option
  - Master of Business Administration in:
    - i. Accounting
    - ii. Finance
3. Department of Marketing and Corporate Strategy
  - BSc in Business Administration
    - i. Marketing Option
    - ii. Entrepreneurial Management Option
  - Master of Business Administration in:
    - i. Marketing
    - ii. Strategic Management and Management Consulting
    - iii. Entrepreneurial Management

4. Department of Information and Decision Science
  - BSc in Business Administration
    - i. Business Information Technology Option
    - ii. Logistics and Supply Chain Management Option
    - iii. Procurement Management Option
  - Master of Business Administration in:
    - i. Business Information Technology
    - ii. Logistics and Supply Chain Management
5. Department of Service Management
  - Hospitality and Tourism Management

## **CONFERENCES ATTENDED WHERE PAPERS WERE SUBMITTED**

### **P. K. OPPONG-BOAKYE**

International Journal of Arts and Social Sciences Conference for Academic Disciplines in Florence, Italy from 19<sup>th</sup> – 22<sup>nd</sup> June, 2012.

### **KWASI POKU**

Attended the 12<sup>th</sup> International Conference on Knowledge, Culture and Change Management, held in Chicago from 6<sup>th</sup> – 8<sup>th</sup> July, 2012

### **BYLON ABEEKU BANFUL**

Attended and presented a paper at the International Journal of Arts and Science Conference in Florence, Italy from the 19<sup>th</sup> and 22<sup>nd</sup> June 2012.

### **PROF. J. M. FRIMPONG, MR. JONATHAN ANNAN AND MR. DAVID ASAMOAH**

The Dean, Prof. J.M Frimpong, Mr Jonathan Annan and Mr David Asamoah, all Chartered Members of the Chartered Institute of Logistics and Transport (CILT) participated in the Annual International Conference of CILT in England in 2012 representing KNUST.

## **SPECIAL RECOGNITION**

The Institute of Chartered Accountants of Ghana invited Prof. J.M Frimpong as Guest of Honour at the last Graduation and Admission Ceremony of the Institute held at the Accra International Conference Centre on Saturday 13<sup>th</sup> April, 2013.

## **EDUCATIONAL TRIPS AND TOURS**

### **Educational trip to the United States of America**

The KNUST School of Business in collaboration with ACE Consult a privately owned company organised an educational trip for some MBA students to the USA between the 12<sup>th</sup> -25<sup>th</sup> of February 2013. They partook in the African Business Conference at Harvard University and also visited the following places:

- A tour of Wall Street ,Statue of Liberty in New York City
- Delaware State University
- George Washington University
- Ghana Embassy in Washington.



### **WAISCL annual industrial tour**

As part of efforts to expose our students to the other side of the world, an industrial tour to South Africa was organised for our students in 2011. The tour was very successful and in view of this, an industrial Tour to China is also been packaged for MBA students for the month of July 2013.

### **Educational tour to Takoradi Harbour and Tullow Oil**

The MBA first and second year students of the Department of Information Systems and Decision Sciences, offering Logistics and Supply Chain Management option went for an educational tour to Takoradi Harbour and Tullow Oil on Thursday 7th February, 2013 and Friday 8th February, 2013 respectively.

### **Visit to Guinness Ghana Brewery Limited Kumasi**

The final year students of the Department of Information Systems and Decision Sciences, offering Logistics and Supply Chain Management option went to Guinness Ghana Brewery Limited Kumasi, for an educational trip on Friday, March 15th, 2013.

### **Industrial tour to Coca-Cola Bottling Company & MTN Ghana**

The final year students of the Department of Information Systems and Decision Sciences, offering Business Information Technology option embarked on an industrial tour to Coca-Cola Bottling Company Kumasi and MTN Ghana, on Friday, October 19th, 2012.

### **Industrial tour to Anglogold Ashanti**

The third year students of the Department of Information Systems and Decision Sciences, offering Logistics and Supply Chain Management option embarked on an industrial tour to AngloGold Ashanti on Wednesday, April 3, 2013.

### **Industrial tour to Coca Cola Bottling Company Limited**

Final year BSc students of the Marketing and Corporate Strategy Department on the 27<sup>th</sup> of February 2013 visited Coca Cola Bottling Company where they were taken through the activities of the company with emphasis on the Marketing and Sales Department.

### **Visit to Ghana Nuts Company Limited**

Post graduate Marketing students visited the Ghana Nuts Company Limited as part of their course in International Business to observe and familiarise themselves with the International Business activities of the Company.

## **INFRASTRUCTURAL DEVELOPMENT**

### **Completion of Ultra-Modern Auditorium**

Work on the Ultra-Modern Auditorium which began in May, 2011 was completed in October, 2012.

## **NEW PROGRAMMES OR COURSES INTRODUCED**

The School has proposed to introduce a one (1) year MSc. Business Administration Programme and the proposal has been forwarded for the consideration of the Graduate School Board and Academic Board's approval.

## **COLLABORATIONS WITH INDUSTRY AND EDUCATIONAL INSTITUTIONS**

### **WORLD COCOA FOUNDATION AGRICULTURAL LOGISTICS SKILL DEVELOPMENT PROGRAM (Partnership with World Cocoa Foundation and ADM Cocoa)**

The World Cocoa Foundation (WCF) as part of its ongoing ECHOES Alliance program selected the ISDS Department of KSB to plan, develop and implement an Agricultural Logistics Skill development training program geared at Post-Secondary graduates. The program was sponsored by WCF and its partners. KNUST as a partner served as the educational lead responsible for curriculum development, program hosting and training delivery.

Thirty students (30) were selected to participate in the first training program which begun in June 2011. The duration of the program was seven (7) months comprising a four months academic training period at KNUST and a three (3) months internship period with the program sponsors (ADM and Safmarine) as well as other companies within the cocoa industry.

Participants of the programme were given training in the areas of logistics, transportation, supply chain, warehousing, information technologies, and socio-economic issues to help qualify them for employment as logistics/warehousing technicians, especially in the cocoa industry. A graduation ceremony was held for the trainees in November, 2012. The graduation was well attended with representation from all program partners and parents of the trainees. Currently, graduates of the programme are having their internships with Cocobod (5), Safmarine (2) and ADM (2).

#### **Current state of initiative**

Phase I of the program has successfully come to an end with the posting of the program graduates to various companies for their internships. Program partners are currently working on designing phase II of the program which will go beyond targeting just post-secondary graduates to include a wider target group including HND graduates and Cocobod workers.

#### **Impact of initiative**

This project fulfils the University's mandate of providing service to community and KSB's own vision of impacting society. Through this program, KSB has been able to reach an important group that otherwise would never have benefitted from KSB's activities. This project/collaboration with the World Cocoa Foundation also confirms KSB's position as a World Class Provider of business education.

#### **(a) Programme in Certificate in Logistics and Transport (CILT)**

The Chartered Institute of Logistics and Transport (UK) the world's leading professional education body in Logistics and Transport, collaborated with KNUST School of Business to run the following Professional Programmes:

- Certificate in Logistics and Transport
- Diploma in Logistics and Transport

➤ **Advanced Diploma in Logistics and Transport.**

The first batch of the participants of the Chartered Institute of Logistics and Transport at the certificate graduated on 8<sup>th</sup> March, 2013, and currently the first batch for the Diploma and Advance Diploma level as well as the second Batch for the certificate level are underway.

**(b) The West African Institute of Supply Chain Leadership (WAISCL)**

This centre, housed at the Department of Information Systems and Decision Sciences, aims to provide innovative, practical, and tailored Supply Chain Management (SCM) education, training and sector specific research.

WAISCL in collaboration with the Business school has designed 30 Industry based training models to enhance the Industry-Academia collaboration and these courses would be rolled out during the semester break. WAISCL participated in the Supply Chain Management forum for Africa in Lagos with the Deputy Director Mr Jonathan Annan as one of the guest speaker.

**(D) Public Procurement Authority and KNUST procurement programme**

Student in the first Batch of the Public Procurement Authority and KNUST procurement program graduated on 9th February, 2013, successfully. Participants were drawn from the district assemblies across the country.

**INCOME GENERATION**

Income generation is from the part-time programmes run by the School.

**DONATIONS RECEIVED**

Dr. Sam Agyei-Ampomah from the Surrey University in the United Kingdom donated some books on Accounting, Finance, Marketing, Economics and some Journals on Finance to the Department of Accounting and Finance.

**AWARDS WON**

**Institute of Chartered Accountants Ghana (ICA, Gh) Awards**

At the 20th graduation & admission ceremony held in Accra on Saturday, 13th April, 2013 by the Institute of Chartered Accountants, a candidate from KNUST School of Business- Bright Adu Bonsu received four awards which comprise:

1. Overall best student in Financial Reporting
2. Overall best student in Cost and Management Accounting
3. Overall best student in Financial Management
4. Overall best student in Level/Part 3

Samuel Baah Junior also won the Best student award in Advance Financial Reporting and Advance Taxation in part four of the November 2012 examination.

### **Association of Chartered Certified Accountants-Ghana Awards**

Maxwell Appiah, a third year student of the Department of Accounting and Finance won the ACCA award for attaining the highest mark nationally in paper F7 of the June 2012 ACCA examination.

### **SEMINARS/WORKSHOPS**

#### **Department of Information Systems and Decision Sciences**

- The Department organised a one day workshop for MBA 2 students offering Logistics and Supply Chain Management option, on Manufacturing Operation Management. The Director of Capacity Building at Guinness Ghana Limited, in the person of Mr. John Tandoh facilitated the workshop on Saturday, November 10<sup>th</sup>, 2012.
- There was a workshop for both the undergraduate and postgraduate students offering Management Information Systems option on the theme “**The Role of the MIS Manager in Modern Organization**”. The Information Systems Manager of SIC Ghana, Mr. Romeo Bugyei facilitated the workshop on Friday, February 15<sup>th</sup>, 2013.
- The Department organised a one day seminar for MBA second year students offering Logistics and Supply Chain Management option, on Global Logistics. The sea freight manager of Ballore Africa Logistics, Mr. Dolphyne Benny Atta facilitated the seminar on Saturday, March 23, 2013, and he also used the opportunity to talk about the job prospects in the area of Logistics and Transport in Ghana.

## **CENTRE FOR CULTURAL AND AFRICAN STUDIES (CeCASt)**

### **PREAMBLE**

The Centre for Cultural and African Studies (CeCASt), the research wing of the College of Art and Social Sciences continues to address itself to the promotion of the performing arts – music, dance and drama and African cultural practices. Our focus is to help present and promote cultural practices that are beneficial to academia and society, and to help eliminate and negative and/or outmoded and unfriendly customs.

As the only one of its kind in a Science and Technology University, the centre seeks to create a synthesis between the performing arts and African cultural practices, and scientific and technological findings and inventions to meet contemporary societal needs.

### **STAFFING**

The Centre has the following senior members on its staff:

- |                                |   |                           |
|--------------------------------|---|---------------------------|
| 1. Anthony A. Aidoo            | - | Director/Research Fellow  |
| 2. Very. Rev. S. Kojo Enninful | - | Research Fellow           |
| 3. Rev. Martin O. Adi-Dako     | - | Research Fellow           |
| 4. Hesper K. Adesua            | - | Research Fellow           |
| 5. David Asomaning             | - | Research Fellow/Part-Time |
| 6. Henry Asare-Baah            | - | Research Fellow/Casual    |

### **RESEARCH**

To enhance research activities at the Centre, a one-day “vision and mission” crafting seminar was organized for staff to enable them consider a 5- year proposal to restructure programmes and activities at the Centre.

Consequently, the various sections are working on the following research topics:

**Anthony A. Aidoo/David Asomaning: *Drama***

- *Concepts of drama in African Societies*
- *African performance Theories*

**Baffour Okyere-Darko/Reginald M.A. Sackey: *Dance***

- *The place of dance and drumming rhythms in scientific and technological discoveries (in Africa).*

**Very Rev. S. Kojo Enninful/Rev. Martin O Adi-Dako/Hesper K. Adesua: *Music***

- *Impact of musical instruments on the growing child*
- *Trends and recording challenges – scientific and technological.*

**Anthony A. Aidoo/Henry Asare-Baah: *African Cultural Practices:***

- *The changing roles of the traditional chief in Ghana/African*
- *Performance as catalyst to social development*

## **TEACHING**

As part of their teaching mandate, the staff of CeCAST handled an average of fourteen (14) different courses (in the performing arts and African cultures) for undergraduate students during the two (2) semesters of the 2011/2012 academic year. A total of ***three thousand, six hundred and ninety-six (3,696)*** students registered for the Vice-Chancellor’s initiative (elective) courses at the Centre during the period.

The staff organized tuition for private groups and individuals of the University community in keyboard skills, guitar playing, drumming, dancing and traditional cloth wearing on request. In September, 2011 and again in February, 2012, the Centre hosted some students from School of International Training from Vermont, USA to a one week cultural drumming and dancing.

## **SERVICES TO DEPARTMENTS AND INSTITUTIONS**

Research Fellows and technicians rendered various services to departments, institutions and organizations:

**Anthony A. Aidoo:**

- Submitted a write-up on a document on Proposed Theatre Art Programme in tertiary institutions which the National Accreditation Board sent to the Quality Assurance and Planning Unit of KNUST for review
- Gave a lecture on “*Language and Culture*” at the Special Orientation for First Year International Students at KNUST

- Addressed students of the Armed Forces Senior Technical, and the Yaa Asantewaa Girls Senior High School, on “*How to Pass WAEC English Language and Literature in English*”.
- Zonal Leader (Examiner) in Literature-in-English with the West Africa Examination Council (WAEC) for Senior High Schools
- Elected as the Ashanti Chapter Chairman of Credit Unions for two (2) years. He was invited to speak on various themes at the Annual General Meetings of Credit Unions in the Ashanti Chapter.
- Elected as the 2nd National Vice-Chairman of CUA National Board of Directors
- Received a *Citation for Visionary Leadership* from the Ghana Cooperative Credit Union Association (CUA) Limited at its 17th Biennial Conference held at CUTraC, Kasoa.

#### **Very Rev. S. Kojo Enninful**

- Adjudicated at Zonal Choral Competition of Ghana Union of Methodist Singing Bands at Ahinsan.
- Presented Papers on *The Power of Praise in Worship* and *Ministering Unto God through Hymns and Choral Music* at Mount Zion and St. George's churches respectively.

#### **Hesper K. Adesua**

- Taught Western and African Music, and Culture and Cultural Practices at the Department of Culture and Tourism
- He is on a Part-time PhD programme in Ethnomusicology at the University of Cape Coast.

Other staff members, Henry Asare-Baah, Baffour Okyere-Darko and Reginald M.A. Sackey continue to assist students in their courses at the Departments of Integrated Rural Arts and Industry, and Geography and Rural Development. In music, Ernest Amparbin has been the trainer of matriculants for the rendering of the *Gaudiamus* and *University Anthem*, and featured as the organist at KNUST matriculation programmes on/off-campus and at the Institute of Distance Learning (IDL).

#### **COLLABORATIONS AND COORDINATING ACTIVITIES**

- Kumasi Metro Brass Bands Association
- Agya Koo Nimo and Adadem
- Akan Film Producers Association
- Cultural Centre Folkloric Group
- Association of Ashanti Choral Groups
- Springverve Drama Group

**Prof. Royal J. Hartigan**, an acclaimed American Musicologist paid a one-week visit to the Centre and interacted with the staff during which he promised to help promote research and documentation of traditional musical types, dances and concepts in drumming.

The Centre submitted a Proposal document to Chanade Consultancy in the Netherlands on “Facilitating the Development and Growth of the Culture & Arts Sector under EU-ECOWAS Economic Partnership Agreement”. When selected, the Centre for Cultural & African Studies of the Kwame Nkrumah University of Science & Technology, Ghana would be the Lead Partner for the project which would include Sierra Leone, Arterial Network, Liberia Chapter, Plateforme Culturelle du Burkina Faso, National Center for Arts & Culture, Gambia and the Gambia Ministry of Culture, as Associate Partner.

### **DONATION(S) FROM THE PROVOST OFFICE**

The directorate received an amount of *Nine thousand, five hundred and thirteen Ghana Cedis, thirty-eight pesewas (Gh¢ 9,5113.38)* as the first donation of seed money from the Provost's Office to assist the Centre purchase musical instruments to form the resident CeCAST Live Band.

### **CHALLENGES**

Finance is the greatest challenge to the Centre. The only source of income is the **GH¢5.00** paid on behalf of each student for accessing an elective course at the Centre in a Semester, which comes to an average of *Ten thousand Ghana Cedis (GH¢10,000.00)* per semester. The rate has never been varied since it was fixed by the Academic Board in 2006. The production of drums and other musical instruments for academic and commercial purposes has been suspended due to unavailability of funds to rehabilitate the workshop, and to replace or repair the machines and equipments which were burnt down in April, 2007.

### **THE WAY FORWARD**

CeCAST intends to re-introduce its six-week *Proficiency Certificate Course in Performing Arts*, and up-grade it to a Diploma, and then to an undergraduate programme. In addition, a comprehensive research and documentation of indigenous aspects of African Performing Arts and customary practices would be undertaken. Our resident performing groups would embark on programmes to educate, entertain and inform students and the communities with a view to bringing the University to the doorsteps of the public as well.

## **COLLEGE OF ENGINEERING**

### **VISION AND ORGANIZATION**

Within the overall vision of the University, the College seeks to become an internationally acknowledged centre of excellence in engineering education but focused on national industrial development.

The College is now organized under a two-tier system under the leadership of the Provost who provides among other things, leadership in the College to achieve this vision.

### **DEPARTMENTS AND PROGRAMMES**

The College of Engineering comprises nine (9) Teaching Departments and two (2) Research Centres as listed below. Among the teaching Departments in the College, the Department of Chemical Engineering which runs three (3) undergraduate programmes, Mechanical Engineering, Electrical and Electronics Engineering, Computer Engineering and Materials Engineering, both run two undergraduate programmes each. The remaining five departments run one (1) undergraduate programme each. The Departments and the programmes on offer are as follows:

<b>DEPARTMENTS</b>	<b>UNDERGRADUATE PROGRAMMES</b>
Department of Agricultural Engineering	+ B.Sc. in Agricultural Engineering
Department of Chemical Engineering	+ B.Sc. in Chemical Engineering + B.Sc. in Petrochemical Engineering + B.Sc. in Petroleum Engineering
Department of Civil Engineering	+ B.Sc. in Civil Engineering
Department of Computer Engineering	+ B.Sc. in Computer Engineering + B.Sc. in Biomedical Engineering
Department of Electrical and Electronics	+ B.Sc. in Electrical and Electronics Engineering + B.Sc. in Telecommunication Engineering
Department of Geological Engineering	+ B.Sc. in Geological Engineering
Department of Geomatic Engineering	+ B.Sc. in Geomatic Engineering
Department of Materials Engineering	+ B.Sc. in Materials Engineering + B. Sc. in Metallurgical Engineering
Department of Mechanical Engineering	+ B.Sc. in Mechanical Engineering + B.Sc. in Aerospace Engineering
<b>RESEARCH CENTRES</b>	
Technology Consultancy Centre	
The Energy Centre	

All the Departments run Postgraduate programmes in the College. During the year under review the College introduced two Professional Masters programmes in Oil and Gas and in Industrial Operations. The College has a total enrolment of four thousand seven hundred and forty four (4,744) undergraduate students and one hundred and seventy six (176) postgraduate students during the 2012/2013 Academic Year.

### **ADMINISTRATION OF THE COLLEGE**

The following are the administrative personnel at the Provost office.

Provost	Professor Samuel Innocent Kofi Ampadu
College Registrar	Mr. Kwame Yeboah Jr.
College Finance Officer	Mr. Abdulai Suglo
College Librarian	Mrs. Agatha Tawiah Frempong
Assistant College Registrar	Mr. Benjamin Boampong Owusu

### **ACTIVITIES**



During 2012/2013 Academic Year, the College undertook a number of activities, a few of which are detailed below:

### **COLLEGE MANAGEMENT RETREAT**

In furtherance to the key objectives set for the College by the Provost on assumption of office, the College Board went on a retreat at the Beige Cottage, New Abirem from 2<sup>nd</sup> to 4<sup>th</sup> November 2012. The retreat, a sequel to two previous one held in the preceding years, took stock of progress of activities that had earlier been set out and their implementation.

The objectives as stated at the start of the Provost's tenure were:

- Improving and maintaining the quality of products from the undergraduate programme;
- Increasing the number of academic staff and providing opportunity for improving themselves;
- Increasing the number of post graduate programmes and improving quality;
- Improving the efficiency of college administration and management.

Activities to be undertaken and timelines for the completion for each of the objectives had already been set out and management of the College thoroughly reviewed the implementation process set in motion at the last retreat and recommended new approaches to ensure success.

Key strategies already adopted included monitoring lecturer delivery, increasing practical training component of programmes, improving and modernising equipment in the laboratories, workshops and the library. Additionally, performance targets and activity standards to improve efficiency of College administration were also set.

Considerable progress has so far been made by the College in the implementation of the activities it set out towards achieving the set targets.

### **COLLEGE AWARD'S DAY**

As part of activities for the 2012/13 academic year, the College held an Award's Day in honour of its outstanding students on Wednesday, 21<sup>st</sup> September 2012. The ceremony was supported by the following companies which honoured the students with cash prize: Vodafone Ghana, Baker Hughes, Genser Power Ghana Limited, Toyota Ghana Limited and Educational Pathways.

Additionally, the Professor Jonas Addai Mensah's Award was also presented to a student of the Department of Chemical Engineering in a form of cash prize.

### **CAREER FAIR**

The College organised a week-long Career Fair from 27<sup>th</sup> February to 2<sup>nd</sup> March 2013 for students. As has been the practice over the years, the event aims at bringing industry closer to the College. Participating firms included EUGO TERRANO LTD., CUMMINGS GH. LIMITED, SILVER STAR AUTO LIMITED, TULLOW OIL GHANA LIMITED, TECHNIP, TENARIS, GOLDEN STAR RESOURCES and SCHLUMBERGER. These firms took turns to address students on their operations, career opportunities and what is expected of employees. Students were interviewed by participating firms and some selected to first serve their national service with them before formally employing them.

### **COLLEGE OF ENGINEERING RESEARCH RETREAT (CERR)**

The College of Engineering research Retreat (CERR) is an annual event that started in 2001 to provide Senior Members of the College the opportunity to share their research and Development activities and findings with colleagues and also to build linkages with industry. The 2011/12 academic year's event (**CERR 9**) took place at the Busua Beach Resort from 3– 6 July, 2012 themed '*Reliable Energy, the Engine for Accelerated Economic Development*', CERR 9 featured Scientific and Technical Sessions and Industrial presentations with the participation of industrial collaborators Schlumberger, Volta River Authority (VRA), GridCo and Electricity Company of Ghana. We are grateful to these companies for the sponsorship they provided for the Research Retreat.

## **VISITORS TO THE COLLEGE**

During the academic year under review, the College hosted officials of the Universities of Aberdeen and Johannesburg. There were also visitors from industry which included the CEO of Eugo Terrano. During the year, the College continued to work with Tullow through the British Council in defining a strategic direction for petroleum education at KNUST.

## **DEPARTMENT OF AGRICULTURAL ENGINEERING**

### **INTRODUCTION**

Agricultural Engineering is the application of engineering and biological principles to develop technologies and solutions to problems in agriculture to remove drudgery, and to increase productivity and efficiency of farmers. The Agricultural Engineering Department is currently organised into **four sections** including Agricultural Machinery Engineering, Soil and Water Engineering, Food and Postharvest Engineering and Agro-environmental Engineering. The Department is under the College of Engineering. Staff members are actively engaged in the three areas of research, teaching and service to the community in various capacities. Presently, the academic staff of the Department consists of five associate professors, eight senior lecturers and two lecturers as shown below with their respective areas of competences.

### **ACADEMIC STAFF**

<b>NAME</b>	<b>STATUS</b>	<b>AREA OF SPECIALISATION</b>
Prof. S. K. Agodzo	Associate Professor	Soil & Water Engineering
Prof. N. Kyei-Baffour	Associate Professor	Soil & Water Engineering
Prof. E. Mensah	Associate Professor/Head	Soil & Water Engineering
#Prof. A. Bart-Plange	Associate Professor	Agric. Structures and Env'tal Control
Prof. K. A. Dzisi	Associate Professor	Food & Postharvest Engineering
Dr. E. Y. H. Bobobee	Senior Lecturer	Farm Machinery Engineering
Dr. J. O. Darko	Senior Lecturer	Food & Postharvest Engineering
Dr. A. Addo	Senior Lecturer	Food & Postharvest Engineering
Mr. J. Aveyire	Senior Lecturer	Farm Machinery Engineering
Dr. E. Ofori	Senior Lecturer	Soil & Water Engineering
Dr. W. A. Agyare	Senior Lecturer	Soil & Water Engineering
Mr. S. H. M. Aikins	Senior Lecturer	Agricultural Machinery Eng.& Mgt.

+Mr. Albert Yawson	Senior Lecturer	Agricultural Machinery
*Mr. F.Kemauor	Lecturer	Energy and Env'tal Management
Mr. J. O. Akowuah	Lecturer	Food & Postharvest Engineering

+Ended his Sabbatical from UDS \*On Study Leave

#Prof. A. Bart-Plange, is on sabbatical leave at Cape Coast University, Agricultural Engineering Department.

### **ACADEMIC ACTIVITIES**

During the period under review, the Department continued to run the BSc Agricultural Engineering Degree Programme as well as offer service courses in Agricultural Mechanisation to students at the Faculty of Agriculture. The Department also offers service courses to MSc/MPhil Programmes in Seed Science and Technology, Postharvest Physiology and Landscape Studies, all at the Department of Horticulture, and Water Resources Engineering at Civil Engineering Department.

### **GRADUATE DEGREE PROGRAMMES**

The seventh batch of graduate students was admitted this academic year since the graduate programme started in 2004/2005 academic year. Currently, there are seven (8) PhD students and twenty-three (23) MSc students in the following areas of study:

- Soil and Water Engineering,
- Food and Postharvest Engineering,
- Agricultural Machinery Engineering, and
- Agro-Environmental Engineering.
- Bioengineering

Four (4) MSc students and one PhD student went through a successful viva and will graduate this year.

### **PROVISION OF SERVICES**

The Department provided the following services to the University and other organisations:

- Production of Skip Containers for the University
- Production and installation of metal grates for Unity Hall, KNUST
- Production of Ago-Processing machines under the APERL Project being executed by IRNR in collaboration with the University of Guelph and funded by CIDA, Canada.
- Installation of oil service line systems at the Accra Workshop of Mechanical Lloyd Company Ltd.

## **DEPARTMENT OF CHEMICAL ENGINEERING**

### **INTRODUCTION**

The Department of Chemical Engineering offers three four-year degree programmes leading to the award of BSc. (Chemical Engineering), BSc. (Petroleum Engineering), and BSc.

(Petrochemical Engineering). Graduate programmes leading to the award of MSc, MPhil or PhD in Chemical Engineering are also offered in the Department.

## ACADEMICS

### STUDENT ENROLMENT

The tables below summarize the student population in the department at the beginning of 2012/2013 academic year. They include Ghanaian regular, fee paying, and foreign students to show admission trends in the department.

#### BSc Chemical Engineering Programme

<i>Year</i>	<i>Ghanaian Regular</i>	<i>Ghanaian Fee Paying</i>	<i>Foreign</i>	<i>Total</i>
<i>1</i>	59	17	10	<b>86</b>
<i>2</i>	68	3	13	<b>84</b>
<i>3</i>	93	3	12	<b>108</b>
<i>4</i>	88	3	13	<b>104</b>
<i>Total</i>	<b>308</b>	<b>26</b>	<b>48</b>	<b>382</b>

#### BSc Petrochemical Engineering Programme

The programme entered into its final year this academic year.

<i>Year</i>	<i>Ghanaian Regular</i>	<i>Ghanaian Fee Paying</i>	<i>Foreign</i>	<i>Total</i>
<i>1</i>	54	19	7	<b>80</b>
<i>2</i>	38	1	12	<b>51</b>
<i>3</i>	23	4	6	<b>33</b>
<i>4</i>	22	4	9	<b>35</b>
<i>Total</i>	<b>137</b>	<b>28</b>	<b>34</b>	<b>199</b>

#### BSc Petroleum Engineering Programme

<i>Year</i>	<i>Ghanaian Regular</i>	<i>Ghanaian Fee Paying</i>	<i>Foreign</i>	<i>Total</i>
<i>1</i>	46	16	8	<b>70</b>
<i>2</i>	45	2	7	<b>54</b>
<i>3</i>	40	3	11	<b>54</b>
<i>4</i>	53	9	9	<b>71</b>
<i>Total</i>	<b>184</b>	<b>30</b>	<b>35</b>	<b>249</b>

#### MSc/PhD/MPhil Chemical Engineering Programme

	<i>MSc</i>	<i>MPhil</i>	<i>PhD</i>	<i>Total</i>
<i>1<sup>st</sup> Year</i>				
<i>2<sup>nd</sup> Year</i>				
<i>On extension</i>				
<i>Submitted thesis and waiting to defend</i>				

<i>Graduated</i>				
<i>Total</i>				

### TEACHING STAFF

Name	Status	Remark
Dr. M. Y. Woode	Senior Lecturer	HOD from 1 <sup>st</sup> Aug 2012 till date
Zs. Momade	Senior Lecturer	Immediate past HOD
Dr. B. Afotey	Lecturer	Departmental Exams Officer
Dr. E.G. Ankudey	Lecturer	PG Coordinator
Mr. N.Y. Asiedu	Lecturer	Resumed from study leave on 8 <sup>th</sup> Dec. 2011, expecting to finish his PhD process
Mr. E.K. Baah-Ennumh	Lecturer	WB Project Coordinator for the Department
Dr. L. Darkwah	Lecturer	International Student Officer for the College
Dr. M. Mensah	Lecturer	Field trip and vacation training officer
Dr. S.K. Donyinah	Senior Lecturer	Coordinator, Petroleum Engineering
Mr. D.A. Anang	Assistant Lecturer	Appointed and resumed on 1 <sup>st</sup> September 2011
Mr. S. Afari-Asante	Assistant Lecturer	Assumed duty on 6 <sup>th</sup> September, 2012
Mr. K. Sarkodie	Assistant Lecturer	Assumed duty on 6 <sup>th</sup> September, 2012
Mr. W. N. Aggrey	Assistant Lecturer	Assumed duty on 6 <sup>th</sup> September, 2012
Nana Dr. Baah-Boakye	Senior Lecturer	On Part time
Dr. B.Y. Ababio	Visiting Scholar	Arrived on 11 <sup>th</sup> March 2013 and taught for 3 weeks
Dr. H. Bote-Kwame	Visiting Senior Lecturer	Appointed for the 2012/13 academic year.
Dr. G.F. Oluyemi	Visiting Lecturer	Appointed for the 2011/13 academic year.

- Dr. Peter Achireko, the former Petroleum Engineering Coordinator, submitted his resignation on 1<sup>st</sup> December, 2011 and officially left the Department in September, 2012.
- Mr. E. C. Bentum applied for study leave and left in April, 2012 for Canada.

### STAFF DEVELOPMENT

Through the World Bank Capacity Building in Oil and Gas Industry Project in Ghana a number of people have been sponsored to further their studies and others have returned from further studies. These are:

#### MSc Studies:

1. Mr. Ernest Ansah Owusu — left for Hanbat National University in February 2013 for two years.
2. Mr. Kwame Sarkodie — returned from Heriot-Watt University, UK in August 2013.
3. Mr. Samuel Afari-Asante — returned from Heriot-Watt University, UK in August 2013.
4. Mr. Wilberforce Nkrumah Aggrey — returned from Heriot-Watt University, UK in August 2013.

5. Miss Enna Sherifa Cudjoe — left for New Mexico IMT, USA in August 2012 for two years
6. Mr. Jonathan Adzokpe — left for University of Stavanger, Norway in August 2012 for two years
7. Mr. Abdul Hameed Mustapha — left for Heriot-Watt University, UK in September 2012 for one year

#### **PhD Studies:**

1. Mr. Emmanuel Christian Bentum —left for University of Calgary, Canada on 25 April 2012 for three years
2. Miss Mizpa Ama Dziedzorm Asase — has submitted her PhD thesis and defended at KNUST. However, she has not applied yet.
3. Mr. Abel Kuntu Blankson Ansah — has submitted his PhD thesis at KNUST waiting for the assessment and thesis defence

The MEng in Oil and Gas Engineering with Management Option programme will start in September 2013. Dr. Ankudey is the Department's Postgraduate Coordinator.

## **DEPARTMENT OF CIVIL ENGINEERING**

### **INTRODUCTION**

The undergraduate programme in Civil Engineering was one of the first programmes that KNUST ran jointly with the University of London until the former attained an independent University status in 1961. The Civil Engineering Department focuses on undergraduate and postgraduate training and it is the main source of Civil Engineers in Ghana. This report presents an overview of the developments that have occurred in the Department during the 2012/2013 Academic Year in relation to teaching and research.

### **AIMS AND OBJECTIVES**

The Civil Engineering programme aims at providing a challenging and stimulating educational programme that will create a lasting learning experience for the student. It also prepares the student to offer competent professional services in the field of civil engineering and other related professional disciplines in the society. At the end of the programme the student shall be expected to:

- Develop the understanding of the physics and mechanics of the physical world to appreciate the approximating and simplifying nature of the idealizations that are used in the formulation and solution of engineering problems.
- Develop the ability to make rational civil engineering decisions on the basis of available relevant evidence.
- Appreciate the conceptual and creative aspects of civil engineering design.
- Appreciate professional obligations, responsibilities and ethics in relation to the needs of society and how the quality of life can be sustained and improved through advances in technology.

- Develop clarity and style in professional communication and to develop simple skills of management, planning, organization and teamwork.
- Appreciate the impact of various civil engineering activities on the quality of the environment.

## **PROGRAMMES OFFERED IN THE DEPARTMENT**

### ***Undergraduate Programme***

The Department continues to run the four-year undergraduate B.Sc degree programme in Civil Engineering. The enrolment in the BSc. Civil Engineering programme for the academic year is 599 as shown in Table 1.

**TABLE 1: UNDERGRADUATE ENROLMENT IN CIVIL ENGINEERING FOR 2012/2013**

<i>Year</i>	<i>Number</i>		<i>Year</i>	<i>Number</i>
Year 1	198		Year 4	139
Year 2	135		Year 5	5
Year 3	119		Year 6	3
Total				599

Admission to the Department continues to be highly competitive and the “cut-off” depends on the number and caliber of candidates applying in a particular year. The overwhelming majority of students enter from the SSS stream in accordance with the entry requirements. A small percentage of students entered as mature students who satisfied the minimum conditions for that category of applicants.

In accordance with the University regulations, the main undergraduate programme was also subjected to a review process. Consultations were made with key industry players and other stakeholders and a revised course structure has been approved by the Departmental Board for implementation.

## **POST GRADUATE PROGRAMMES**

The Department runs three taught MSc courses in addition to MPhil and PhD programmes by research. In collaboration with UNESCO-IHE, in The Netherlands, a joint MSc Programme in Water and Sanitation has been introduced where students would spend six months of the course programme in The Netherlands. The total enrolment in post graduate programmes currently stands at 85 at the Second Semester of the academic year. The breakdown of the enrolment in the individual programmes for the 2012/2013 academic year is shown in Table 2. Enrolment in postgraduate programmes now accounts for about 12.5% of total enrolment in the Department.

**TABLE 2: POSTGRADUATE PROGRAMMES AND ENROLMENT**

<b>Post graduate Programmes</b>	<b>Year one</b>	<b>Year two</b>	<b>Total</b>
MSc, Water Supply and Environmental Sanitation	10	14	24
MSc, Water Resources Engineering and Management	5	6	11
MSc, Road and Transportation Engineering	16	6	22
Mphil, (Civil Engineering)	2	2	4
PhD, (Civil Engineering)	1	2	3

PhD, WASCAL Climate Change and Land Use Programme	11	10	21
<b>Total</b>			<b>85</b>

In addition to the regular programmes above, the Department benefitted from major internationally sponsored programmes of research and training, bringing in vital resources for postgraduate level training of professionals for the sanitation sector and climate change research and management. The first was collaboration with UNESCO-IHE to start a project titled *Stimulating Local Innovation on Sanitation for the Urban Poor in sub-Saharan Africa and South-East Asia (Smart Sanitation)* over a five (5) year period. This project is funded by the Bill and Melinda Gates Foundation (BMGF) to the tune of Three Hundred and Eighty-five thousand US dollars (US\$385,000). Overall, the project aims to:

1. Increase the number of sanitation professionals in developing countries.
2. Provide adequate research education and training for the new generation of “all-round” sanitary engineers.
3. Make (Post-Graduate) education in sanitation engineering more accessible to individuals from developing countries.
4. Further strengthen the pro-poor sanitation component at the academic institutions involved.

These outputs shall be achieved through specially packaged research programme involving faculty members and the enrollment and successful graduation of three (3.) PhD and fifteen (15.) MSc students. Through an internationally competitive process the three PhD students have already been selected.

The Climate Change programme hosted by the Department of Civil Engineering is dubbed the **WASCAL Climate Change and Land Use Programme**. The programme officially started in October 2011 with funding of almost *Two Million Euros (i.e. €1.9M)* by the German Federal Ministry of Education and Research (BMBF) for the first five-year term. KNUST and WASCAL are jointly sponsoring the construction and establishment of the WASCAL Climate Change and Land Use Centre expected to be fully functional by early next year. The establishment of this Centre is expected to facilitate research and mobility of seasoned international academic staff and students.

For the initial five (5) year period the programme will focus on capacity building at the PhD level to help develop the necessary knowledge for sustainable land use and management in the face of Climate Change. The programme is on its second year stage and twenty one (21) students from West African countries have already been selected through a very competitive process and admitted to pursue the PhD programme. The first year students are currently going through the taught course stage while those in second year are on the field for data acquisition and analysis, interpretation of spatial data using of remote sensing, GIS and mathematical modelling tools as related to climate change and land use. The ultimate objective is to develop adequate human resource capacity in the sub-region for crafting appropriate adaptation strategies and sustainable management of the impact of Climate Change on land and land use systems. Ten West African countries and two German institutions are responsible for the delivery of courses and supervision



of students, making the WASCAL programme easily one of the most complex collaborative system of postgraduate education in KNUST.

### ACADEMIC AND SENIOR SUPPORT STAFF

The academic staff strength in the Department during the reporting year was 23. Four out of this number are on study leave pursuing their PhDs and two on sabbatical leave.

**TABLE 3: STATUS OF ACADEMIC STAFF**

<i>Regular Continuing</i>	<i>Staff on Full Time Study Leave</i>	<i>Sabbatical</i>	<i>Total</i>
17	5	1	23

Over the period, the student: lecturer ratio for the Department, based on undergraduate student enrolment has declined compared with the previous year of 21:1 to 26:1. This was due mainly to a sharp increase in enrolment of students. Currently, more than half of academic staff is above the rank of lecturer while the Professorial rank has improved from 24% the previous year to about 26%.

<i>Rank</i>	<i>Number</i>
Full Professor	1
Associate Professor	5
Senior Lecturer	7
Lecturer	10
Total	23

The academic work is supported by technical staff consisting of six technicians led by a Principal Technician with a BSc degree in civil engineering. The administrative work is organized by the departmental administrative officer of Senior Administrative Assistant grade.

### RESEARCH

For the purposes of organizing teaching and research, the Civil Engineering Department is organized into five main sections with specialization in Civil Engineering practice.

1. Structural Engineering
2. Geotechnical Engineering
3. Highway and Transport Engineering
4. Water Resources Engineering
5. Environmental Quality Engineering

### STRUCTURAL ENGINEERING SECTION

Dr. Mark Adom-Asamoah continued to head the section during the year under review.

#### STAFF:

Prof. C.K. Kankam	Structural Analysis, Structural Design, Concrete Structures
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Dr. M. Adom-Asamoah	Earthquake Engineering, Structural Design
Dr. G. Sossou	Structural Design
Dr. J. Wiafe Ampofo	Structural Design

## RESEARCH

The research focus has not changed. Research is on structural and material engineering. The research area includes the theoretical and experimental analysis of strength characteristics of reinforcing steel rods milled from scrap metals; the use of these construction steels for the improvement of structural durability and reliability characteristics of reinforced prestressed concrete beams, columns and slabs, especially slabs reinforced in both directions and subjected to long-term service loads. Some of the current structural engineering research involves the use of low density polyethylene sheets to strengthen reinforced concrete beams and slabs. Other important research activities include the use of local materials (bamboo, palm kernel additives etc) as reinforcement material for concrete, investigating the engineering properties of sandcrete blocks and the performance of pavement blocks. There is also research work on the suitability of weathered granite, recycled concrete and phyllite aggregates for structural concrete design and analysis. Furthermore, the section is conducting research into the numerical simulation of the seismic behaviour of existing reinforced concrete frame buildings subjected to earthquake loads in Ghana.

## GEOTECHNICAL ENGINEERING DIVISION

The section was headed by Mr. V.A.K. Acquah

### STAFF:

Prof. S.I.K. Ampadu	Geotechnical Engineering, Development Engineering
Mr. V.K.A. Acquah	Rock Mechanics and Engineering Geology
Dr. F. Owusu Nimo	Geophysics, Environmental Geotechnics, Geotechnical Engineering
Dr. S. K. Ahiamadi (on study Leave)	Geotechnical Engineering

## RESEARCH ACTIVITIES

During the period, research on the use of the Dynamic Cone Penetrometer as a simple and economical in-situ testing equipment for foundation design of simple structures continued. .

The Division also combines with the Highway and Transportation Engineering Division to constitute the Geotechnical and Transportation Research Group which is conducting various studies into the use of local resources for the construction of rural roads. The study, which is on-going seeks to support employment creation in construction through the promotion of the use of labour-based methods. The section is collaborating with the ILO and the Department of Feeder Roads to conduct research into an alternative surfacing technology for feeder roads in view of the high life cycle costs of gravel and earth surfaced feeder road as the high initial construction cost of “chip sealed” feeder roads. The section continued its research collaboration with the

GHA into the use of the DCP to determine the resilient moduli of subgrade through a correlation with the Falling Weight Deflectometer.

## **HIGHWAY AND TRANSPORTATION ENGINEERING**

During the year, the section was headed by Dr. Y.A. Tuffour

### **STAFF**

Prof M. Salifu	Traffic and Highway Engineering Road Safety
Dr. Y.A. Tuffour	Asphalt Technology, Highway Eng. Development Engineering.
Dr. C.A. Adams	Traffic, Pavement Management, Maintenance, Transport Economics
Dr. D. A. Obeng	Transportation Planning, Investment Appraisal, Road safety

### **RESEARCH**

The division continued its research into traffic operations and road safety engineering and management in Ghana. Considerable work was done on the capacity analysis of signalized intersections as well as roundabouts. The safety records of rotary intersections with truck aprons were assessed relative to conventional designs and recommendations made for improving performance. Various studies were also carried out on the quality, availability and affordability of public transport services in Accra and Kumasi. Driver behavior and attitudes towards seatbelt use and motor-cyclist use of crash helmets were also evaluated and recommendations made to inform policy, road safety strategy formulation and enforcement.

## **WATER RESOURCES ENGINEERING**

During the 2011/2012 academic year the section was headed by Prof. S.N. Odai

### **STAFF**

Prof. S. N. Odai	Irrigation & Hydraulics, Hydro-informatics
Dr. F.O.K. Anyemedu	Hydraulics & River Engineering
Dr. G.K. Anornu	Irrigation & Hydraulics
Dr. F.O. Annor	Water Resources
Dr. K. Amanin Agyei	

### **RESEARCH**

The Section continued its research in the following areas:

1. Assessment of water resources in river basins in Ghana.
2. Urban flood modeling
3. Update of the Water Audit of the Volta Basin.
4. Climate Change and integrated water resources management.

5. GIS and Remote Sensing for Water Management in the Volta Basin.

6. Ground water modeling

## **ENVIRONMENTAL QUALITY ENGINEERING**

During the year, the section was headed by Dr. K. Britwum-Nyarko

### **STAFF**

Prof. Esi Awuah	Environmental Microbiology, Pollution Control, Water and Sanitation
Dr. K. Biritwum Nyarko	Water Supply & Utilities Management
Dr. S. Oduro Kwarteng	Water and Sanitation
Mrs. Helen Essandoh	Water and Sanitation
Dr. Richard A. Buamah	Biochemist, Water Treatment
Emmanuel A. Donkor (On study leave)	Sanitary Engineering

### **RESEARCH**

1. Water Quality Assessment of selected surface water bodies in the Kumasi metropolis
2. Rain water harvesting
3. Water quality monitoring and assessment of wastewater treatment plants of mining Industries.
4. Adsorptive removal of contaminants (fluoride, arsenic, manganese and iron) in groundwater used for drinking water supply.
5. Water Quality fluctuations in distribution lines of GWCL – causes, effects and repercussions.
6. Wastewater treatment and re-use in aqua-culture
7. Municipal solid waste management
8. Energy generation from combustion of plastic waste bags and sachets
9. Pathogen removal mechanisms in macrophyte and algal waste stabilization ponds.
10. Life cycle costing of water, sanitation and hygiene services
  - a. Cost and functionality of community managed piped systems –
  - b. Cost of water service delivery for various technological options
  - c. Cost and services received from various water technologies
11. Water pricing, subsidies and cost recovery for sustainable water service delivery.
12. Public private partnerships and regulation for water supply service delivery
13. Public private partnerships for solid waste management

### **SUPPORT TO THE DEPARTMENT**

The Department continues to benefit from the benevolence of certain institutions and organizations. Key amongst these institutions are as detailed below:

Description	Nature of Assistance
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The Ministry of Transportation	Support for the MSc in Road and Transportation Engineering. Under the Government's Urban Transport Project (UTP) and Transport Sector Project (TSP).
NUFFIC, Netherlands	Establishment of a joint MSc programmes in Water and Sanitation
UNESCO-IHE Global Partnership Fund (UPaRF),	Support for postgraduate research into various areas in water supply and sanitation.
EU- support for SWITCH	Support for training, research and best practice demonstration to water sector practitioners.
CAPWA	Grant to capture water and energy auditing
SNOWS	Support for capacity building in environmental health and water supply.
CPWF	Support for MSc and PhD research work in the area of water resources management.
WASCAL	Support for PhD research work on land and climate change
ESA-TIGER	Research support of a Data Dissemination System
ABP Consult	Support for Civil Engineering Design Course in the BSc programme
Comptran Engineering Services	Support for Transportation Design Project course in the MSc. Road and Transportation Engineering Programme

The Ghana Highway Authority, Department of Urban Road and the Department of Feeder Roads of the Ministry of Road and Highways as well as WBHO continued to support our student vacation training programme.

## **COLLABORATIONS**

The Department, during the year under review, signed the following memorandum of understandings detailed below:

1. Stockholm Environmental Institute (SEI)  
Challenge Programme for Water and Food (CPWF) Volta V1: "Targeting and scaling out" with other partners including Institut National de l'Environnement et de Recherche Agricole (INERA), The Savanna Agricultural Research Institute (SARI), and the Department of Geography of the University of Ouagadougou
2. European Space Agency (ESA)-TIGER  
Provision of Data Dissemination System for transfer of satellite imagery for research in the field of remote sensing for water management. This is in partnership with the Volta Basin Authority based in Ouagadougou
3. Welcome Trust Funded Project  
This is in collaboration with eight (8) other institutions in Africa and Europe that seeks to build research capacity in environmental health and water supply in some selected Universities and Research institutions in Africa.

4. The Bill and Melinda Gates Foundation project on “SMART Sanitation”

## **DEPARTMENT OF COMPUTER ENGINEERING**

### **INTRODUCTION**

The Department of Computer Engineering offers four-year B.Sc. Degree programmes in the following areas:

- Computer Engineering
- Biomedical Engineering

The B.Sc. Degree programme in Biomedical Engineering is new. The first batch of students to the programme was admitted during the first semester of the 2008/2009 academic year.

The Department also offers the following postgraduate programmes:

- MPhil and PhD Programme in Computer Engineering

The programmes continue to enjoy high patronage from both Ghanaian and foreign students. The current undergraduate student population of 424 is made up of 376 Ghanaian students and 48 foreign students. The student population for postgraduates is 9.

### **STAFFING**

As a result of arrangements to improve the number and quality of teaching staff, the Department has added a PhD holder to the staff of Computer Engineering programme, and enrolled two former National Service Personnel onto a PhD programme under the Vice-Chancellor's Special Initiative.

The population for academic staff now stands at 10. The drive to further increase the Department's strength to the required levels continues.

### **PROFESSIONAL TRAINING**

The Faculty hosts a Cisco Local Academy that provides opportunity for students to enhance their employment skills in the field of Computer Networking.

### **RESEARCH**

Active Research areas during the year under review include optimisation of efficiency of earth electrodes, applications of ANN to power systems, application of RNS in bioinformatics, digital signal processing, logic test economics, sensor networks, surface plasmon resonance, smart metering, and product design and development for local applications. In the area of product development, prepayment meter, designed and developed by staff and students of the Department for local application, was improved upon.

### **CONFERENCES**

Academic members of staff attended and presented papers at several conferences.

## **DETAILS OF LINKS WITH OTHER UNIVERSITIES AND INDUSTRY**

The Department maintained its links with Texas Instruments. Under this linkage programme, six students are currently pursuing postgraduate programmes at the Texas A & M University.

Again this year, Texas continued to support three final year students of the do their final year first semester studies at the Texas A & M University. Plans are also under way for three students to be supported by Texas to do their first semester studies in Texas in their final year class.

With the support of Texas Instruments Inc (Dallas TX), the Department has established a VLSI laboratory for both teaching and research.

The Department continued its collaboration with the VRA and the ECG and initiated collaboration with GRIDCO

The Department is in an agreement with Ghana Robotics Academy Foundation (GRAF) to lease Lego NXT robotic kits for students training in robotics. The GRAF initiative is supported by United States' Government, Embassy of Denmark, DANIDA, Lego Education and Tigo Ghana Ltd.

In connection with the above agreement, a resource person of GRAF was invited to give a seminar to students who are interested in robotics.

## **SERVICE TO THE COMMUNITY**

Staff of the Department continued to render services to the nation through consultancy services to the University and outsiders in areas of electrical, electronic, computer and telecommunication engineering and through membership on the National Board of Professional and Technicians Examinations (NABTEX) and the National Digital Broadcasting Migration Technical Committee. Three members of the academic staff are currently serving as moderators and/or external examiners for a few universities. In March 2013 a senior member of the Department was appointed the ICT consultant to the University.

## **INCOME GENERATION AND DONATIONS**

Texas Instruments Inc. continues to support the Department with funds and plans are underway to wire US\$38,000 to support various activities of the Department and its sister department, Department of Electrical and Electronic Engineering.

# **DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING**

## **INTRODUCTION**

The Department of Electrical and Electronic Engineering runs a four-year B.Sc. Degree programme in Electrical & Electronic Engineering, a four-year B.Sc. Degree programme in Telecommunication Engineering as well as a two-year MPhil programme in Telecommunication Engineering. The Department also offers doctoral degree programmes based purely on research in Electrical and Telecommunication Engineering.

The undergraduate programmes enjoy high patronage from both Ghanaian and foreign students. The total undergraduate student enrolment for the two programmes in the year under review stood at 710, twelve per cent (12%) being females. The foreign students constituted twelve per cent (12%) of the student population.

### **STAFFING**

Under the University Staff Development Scheme, one (1) academic staff left for China on study leave to pursue PhD programme. Three (3) others are also pursuing PhD programme at KNUST under a special VC's Staff Development Initiative. The drive to further increase the staff strength to the required establishment levels still continues.

### **RESEARCH**

Academic staff continued to engage themselves in research activities. Active research areas during the year under review include optimal design of isolated power systems, electrical impact assessment of solar photovoltaic distributed generation in grid-connected networks, transient stability status prediction in power systems, tracking of maximum power point of solar panels, wireless communication, information theory and coding, and digital signal processing.

### **SERVICE TO COMMUNITY**

Members of staff continued to render services to the Nation through consultancy services in areas of electrical, electronic, and telecommunication engineering, acting as external moderators for the National Board for Professional & Technician Examinations (NABPTEX) and through membership on NABPTEX board and National Technical Committee on Energy Meters. Laboratory services were also rendered to tertiary institutions, namely Kumasi Polytechnic, Sunyani Polytechnic, Takoradi Polytechnic and the Regional Maritime University (RMU).

### **INCOME GENERATION**

Production units and consultancy services constitute the main income generating activities. The active production units are motor rewinding unit which rewinds electric motors, generators, transformers and similar electrical devices which depend on energising coils for their operation, and public address unit which provides public address and sound system for public functions on campus.

### **INTERNATIONAL LINKS**

The Department maintained its links with Texas Instruments. Under this linkage programme, Texas Instruments continued to support two (2) final year students of the Department to do their Final Year First Semester studies at the Texas A & M University. The MOU signed between KNUST and the University of Electronic Science & Technology of China (UESTC) also continued to yield benefits, with the UESTC again this year awarding full scholarship to one (1) academic staff to pursue PhD programme in China.

### **LOCAL COLLABORATIONS**

The Department continued its collaboration with the VRA, GRIDCO, ECG, VODAFONE GH and TIGO. Benefits accrued to the Department from the local collaborations during the year under review included a donation of two (2) Power Quality Analysers, Models CA 8335 and CA



8334B worth about Seven Thousand Euros from the VRA, and a cash donation of Three Thousand US dollars from TIGO for the purchase of TV Signal Analyzer.

## **GEOLOGICAL ENGINEERING DEPARTMENT**

### **INTRODUCTION**

The Geological Engineering programme aims at providing expertise in the exploration and exploitation of natural resources and finding effective solutions to geo-environmental problems associated with the exploitation and utilization of these natural resources as in mining, construction, water, petroleum and related industries.

### **PROGRAMMES OFFERED BY THE DEPARTMENT**

The Department offers a four-year programme leading to an award of BSc Degree in Geological Engineering. Postgraduate research programme with emphasis in Groundwater studies, Engineering and Environmental Geology, Mineral Exploration and Mining Environmental Management leading to an award of MPhil and PhD degrees are also offered. The enrolment in the programme for the academic year is as follows:

#### **BSc**

<b>Year</b>	<b>Number of Students</b>
One	105
Two	73
Three	95
Four	65
<b>Total</b>	<b>338</b>

#### **Post Graduate**

<b>Year</b>	<b>Number of Students</b>
One	1
Two	2
<b>Total</b>	<b>3</b>

### **ACADEMIC STAFF**

The Academic Staff strength of the Department is eight (8), out of which two (2) are part-time lecturers and one (1) is on study-leave. The current average staff-student-ratio of 1:51 is a decrease over last year's ratio of 1:44. Efforts are being made to recruit more academic staff.

### **RESEARCH ACTIVITIES**

During the period some modest research work continued to be carried out by members of staff in various areas from which some journal and conference publications were derived.

## **DEPARTMENT OF GEOMATIC ENGINEERING**

### **BACKGROUND**

The Department of Geomatic is one of the nine Departments in the College of Engineering with a mission of being a Centre of excellence for Teaching, Research and Community Service in all aspects of Geo-information acquisition, archiving and dissemination.

Geomatic Engineering is a field of activity that integrates the acquisition, processing, analysis, display and management of spatial information. It includes the disciplines of Photogrammetry and Remote Sensing, Land and Engineering Surveying, Geographic Information Systems (GIS), Cartography, Geodesy, Hydrography, Cadastral Surveying and Land Information Management. It is an exciting grouping of subjects in the spatial and environmental information sciences with a broad range of employment opportunities in as much as it is the labyrinth that integrates many disciplines, as well as one with challenging pure and applied research problems in a vast range of (largely interdisciplinary) fields.

Geomatic Engineers use sophisticated measurement and data collection techniques (e.g. satellite positioning and digital imaging) and modern computer-based data management and visualization tools to play a key role in a wide range of important practical projects in fields such as:

- Design, construction and management of complex civil engineering projects.
- Acquisition of data for, and production of, digital and paper maps and charts.
- Management of assets, such as land, property, and transportation infrastructure (especially through the use of GIS)
- Monitoring of our changing environment using satellite, non-topographic photogrammetry and airborne remote sensing management of natural resources, both on land and offshore
- Planning urban environments (e.g. location of schools, hospitals and supermarkets)
- Understanding and predicting earthquakes by measuring very small land movements.
- Ensuring the safety of man-made structures (such as bridges, dams and large buildings) by monitoring their deformation.
- Exploration and engineering for the production of oil and gas, especially offshore.
- Dimensional control of industrial components
- Measurement in hazardous environments such as in the nuclear power industry and on oil platforms.
- Provision of measurement information in medicine, spatial distribution and patterning of diseases, archaeology and architecture.

The very practical nature of Geomatic Engineering as recognized by our Department has required a considerable number of subjects to be taught, together with an uncommonly lengthy field practical hours, with a view to producing sufficiently professionally skilled graduate Geomaticians.

The Department currently has four Sections namely;

1. Land Surveying and land management
2. Geodesy
3. Photogrammetry and Remote Sensing

#### 4. GIS, Cartography and IT section

##### **ACADEMIC STAFFING**

The table below indicates the strength of the teaching members of staff. The efforts of the teaching staff are complemented by an Administrative Assistant, a Secretary, a Clerk and Survey Assistants.

<b>Name</b>	<b>Area of Specialisation</b>
Prof. A. A. Duker	Cartography/ Remote Sensing
Dr. B.E. K. Prah	Remote Sensing
Dr. Collins Fosu	Geodesy
Dr. E. K. Forkuo,	GIS/ Photogrammetry
Mr. John Ayer	GIS/ IT/ Geodesy
Dr. E.M. Osei Jnr.	Remote Sensing
Dr. Isaac Dadzie	Geodesy/Land Surveying
Dr. A. Arko-Adjei,	Geo-Information Management
Mr. A. B. Agyemang	Photogrammetry
Mr. Cosmas Y. Asante	Hydrography
Mr. E. O. Akrofi	Land Management
Mr. J. A. Quaye Ballard	Cartographic Visualisation
Mr. S.A. Andam-Akroful,	Geodesy
Mr. Akwasi A. Afrifa	Geodesy

The Department is currently offering postgraduate degrees, undergraduate degrees and special programmes categorized as follows:

1. Doctor of Philosophy (PhD) –3-4 years
2. Master of Science (MSc) - 2 years
3. Bachelor of Science (BSc) Honours - 4 years
4. Short Courses in various aspects of Geomatic Engineering - 3 to 6 months

The PhD programmes are research-based, the MSc comprises of taught course components and a project whiles the undergraduate programmes are all taught courses. Practical components are essential components of all courses. Field trips and vacation training programmes are integral parts of our training and this enriches the practical orientation of our students. Short courses are organised for various Departments/Organisations with special needs.

##### **SERVICE COURSES**

Due to the inter-Disciplinary nature of Geomatic Engineering, the Department provides service courses in both undergraduate and postgraduate programs to other Departments. Some of these include:

##### **POSTGRADUATE MSC DEGREE PROGRAMMES**

For the postgraduate MSc degree programmes the following Departments continue to benefit from one or more of our service courses:

1. Department of Civil Engineering

2. Department of Land Economy
3. Department of Environmental Science
4. Department of Planning
5. Department of Geography and Rural Development.
6. Faculty of Agriculture.
7. Faculty of Renewable Natural Resources.

### **UNDERGRADUATE BSC DEGREE PROGRAMMES**

For the undergraduate BSc degree programmes the following Departments benefit from one or more of our service courses:

1. Department of Architecture
2. Department of Geography and Rural Development
3. Department of Planning
4. Department of Land Economy and Real Estates.
5. Department of Agriculture Science
6. Department of Environmental Science
7. Department of Renewable Natural Resources
8. Department of Physics
9. Department of Civil Engineering
10. Department of Building Technology
11. Department of Petroleum Engineering
12. Department of Agricultural Engineering

In all, over one hundred (100) postgraduate students are involved in the postgraduate service courses and over one thousand (1,000) undergraduate students are involved in the undergraduate service courses per semester, which requires practical field surveying with the use of GPS, Theodolites and Total Station instruments; as well as the use of the GIS laboratory for GIS and Remote Sensing practicals.

Despite the increased number of students, the Department has to cope with the crippling problem of inadequate and dwindling Surveying equipment. This is a major setback for effective teaching and learning. The equipment situation requires urgent upgrading to enable the Department continue to offer the required practical training for both its own courses and service courses in the coming years.

### **RESEARCH**

Various members of the Department have been carrying out research in the following areas:

- Global Positioning Systems (GPS) and its related application;
- Geographic Information Systems (GIS) as a management tool for efficient: Land Registration and Management, Natural Resource Management, Utility Services Development and Management, and Health.
- Mapping and Cadastral Surveying.
- Cartographic Visualization and Computer Programming
- Photogrammetry and Remote Sensing applications.

## **COLLABORATION**

The Department of Geomatic Engineering, the Faculty of Renewable and Natural Resources (FRNR), the International Institute for Geo-Information Science and Earth Observation (ITC) and The Netherlands continue to jointly run a MSc. programme in applications of GIS and remote Sensing to Natural Resource Management dubbed GISNaturem.

Currently the Department is training some MSc. Students in Geomatic Engineering in collaboration with the Government of Liberia.

## **SERVICE TO THE COMMUNITY AND INCOME GENERATION**

Members of staff continue to provide services through their membership of Academic societies and professional bodies. Members of staff of Department of Geomatic Engineering are affiliated to the Ghana Institution of Surveyors (GhIS). Two members of the Department are on the Governing Council of the Ghana Institution of Surveyors.

## **SERVICE TO THE NATION**

1. Two members of the Department staff are members of the National Continental shelf Committee.
2. One member of the Department is currently on the Ghana Government's Advisory Committee on Land and Forestry.
3. A member of the Department serves on the Board of the School of Mapping and Surveying.
4. Several other Members of the Department serve as Examiners for various tertiary institutions and for the Board for Professional and Technician examinations.

For the year under review, the Department undertook the following tasks as:

## **SERVICE TO THE UNIVERSITY**

1. Infrastructural map for the College of Engineering
2. Utility Mapping on Campus

## **BENEFACTORS**

We are thankful to all firms and establishments, who welcomed our students on their field trips and technical attachments. Special thank you goes to Newmont Ghana Gold, Survey Department, Rudan Engineering Limited, Sambus Limited, etc., for, without your benevolent support our training would not be complete.

# **DEPARTMENT OF MATERIALS ENGINEERING**

## **INTRODUCTION**

The Materials Engineering programme (formerly Materials Science and Engineering) was established in 1984 as a section under the Department of Mineral Processing, Extractive Metallurgy/Materials Science and Engineering, at the then Institute of Mining and Mineral Engineering, KNUST. The programme remained as a section until October 2002, when it was transferred to the College of Engineering as a full-fledged Department.

## **PROGRAMMES OFFERED BY THE DEPARTMENT**

### **UNDERGRADUATE PROGRAMS**

The department currently runs two undergraduate programmes, that is, the B.Sc. Materials Engineering and B.Sc. Metallurgical Engineering of which the latter was given approval two years ago.

### **POST-GRADUATE PROGRAMMES**

The department currently runs **three (3)** post graduate programmes: PhD in Materials Engineering which is based on research, MPhil in Materials Engineering which is also based on research and MSc. Environmental Resources Management which is a combination of taught courses and research. The department is actually drawing up a curriculum for a Master of Science in Materials Engineering.

### **STATISTICS**

The student membership currently stands at **four hundred and sixteen (416)** undergraduate students and **forty-two (42)** post-graduate students. The breakdown is as indicated below:

#### ***B.SC. MATERIALS ENGINEERING***

<b>a.</b> Year one (1)	-	107
<b>b.</b> Year two (2)	-	77
<b>c.</b> Year three (3)	-	65
<b>d.</b> Year four (4)	-	51

#### ***B.SC. METALLURGICAL ENGINEERING***

<b>a.</b> Year one (1)	-	67
<b>b.</b> Year two (2)	-	49

#### ***M.SC. ENVIRONMENTAL RESOURCES MANAGEMENT***

<b>a.</b> Year one (1)	-	16
<b>b.</b> Year two (2)	-	21

***M. PHIL MATERIALS ENGINEERING*** - 2

***PHD MATERIALS ENGINEERING*** - 3

### **STAFF MEMBERS (ACADEMIC/TEACHING)**

The Department currently has an academic staff strength of eight (8) and its made up of two (2) Associate Professors, one (1) Senior Lecturer, three (3) Lecturers and two (2) Assistant Lecturers.

## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **INTRODUCTION**

The Department of Mechanical Engineering exists to produce engineers capable of designing, manufacturing, installing, operating, servicing and maintaining mechanical machinery and

equipment. The vast scope of such machinery means the training offered needs to be broad yet thorough and focused on immediate national needs, which involve creating fundamental machine tools and other equipment to increase the productivity of our workforce in various fields of endeavour. The emphasis is on focused, in-depth, high quality training that will equip our graduates with the knowledge, preparation, and confidence they need to effectively tackle problems in various specific industries within the framework of a national development agenda.

Great challenges face the Department in its execution of the above responsibilities. These include inadequacy of resources and supporting infrastructure. For example, the Mechanical Workshop (encompassing the machine shop, the welding and fabrication shop, and the foundry), Heat Engines Laboratory, Mechanics of Machines Laboratory, the Metrology Laboratory, and the Strength of Materials Laboratory which together have been the bedrock of the practical aspects of our training over the years, have all run down and need to be completely replaced with new and modern machines to reflect emerging trends in industry. New facilities to provide training and enhance intensive research in foundry, welding, sheet metal fabrication, plastic injection moulding, integrated circuit boards manufacturing, computer numerically controlled (CNC) machining practices are necessary additions that will require substantial injections of cash to set up.

## TEACHING

Currently, the Department offers two four-year undergraduate programmes leading to the award of B.Sc. Mechanical Engineering and B.Sc. Aerospace Engineering degrees. The Department also runs a two-year top-up programme for HND holders leading to the award of the same BSc. Mechanical Engineering degree as above.

At the post-graduate level the Department offers MSc. and PhD in Mechanical Engineering with options in *Thermo-fluids and Energy Systems Engineering*, *Applied Mechanics*, and *Design and Manufacturing*. This enables the Department to produce high-level professional manpower in these areas for teaching, research and outreach activities in universities, research institutes, and polytechnics.

## STAFFING

The Department is grateful for the appointment of Dr. Richard Opoku and Mr. Faisal Wahib Adam as Lecturer and Assistant Lecturer, respectively, to complement the Academic Staff. The current staff strength is as indicated below:

### ACADEMIC STAFF

Status	No.
Associate Professor	1 ( on sabbatical )
Senior Lecturers	3 ( one on sabbatical)
Lecturers	12( two on contract)
Research Fellow	1 ( on contract)
Assistant Lecturers	3
Technical Instructor	1
<b>Total</b>	<b>21</b>

## CURRENT STUDENT POPULATION

### MECHANICAL ENGINEERING UNDERGRADUATE

Year	Total Registered Students
First	156
Second	90
Third	91
Fourth	104
<b>Total</b>	<b>441</b>

### AEROSPACE ENGINEERING UNDERGRADUATE

Year	Total Registered Students
First	40
Second	24
Third	24
Fourth	19
<b>Total</b>	<b>107</b>

### MSC MECHANICAL ENGINEERING

Year	Total Registered Students
First	4
Second	7
<b>Total</b>	<b>11</b>

## DEVELOPMENT OF PROGRAMMES AND COURSES

Our strategy in the long term is geared towards embracing emerging trends in industry. Consequently, our Action Plan calls for some new programmes and courses to be developed. These requirements in industry and national development are creating considerable needs for specialists who have been given in-depth training in specific areas of mechanical engineering to be able to meet current challenges. Ghana needs to be able to manufacture various simple tools and machines to remove physical drudgery in the everyday activities of artisans in the informal sector. These challenges can only be addressed with focused training and the creation of new programmes such as Energy Systems Engineering, Industrial Engineering and Automobile Engineering to focus on design of machinery, development of processing technologies, and creation of mechanisms for infusion into design and manufacture of machinery. Two final year options have thus been introduced into the BSc. Mechanical Engineering programme namely, Industrial Engineering, and Automobile Engineering in addition to the three traditional one which are *Applied Mechanics*, *Design and Manufacturing Engineering*, and *Thermodynamics and Energy Systems Engineering*.

The Department has broadened the undergraduate programme options available in the final year to include Industrial Engineering, and Automobile Engineering to address the need for specialists in those fields. But unlike students in the Top-Up stream, those in the mainstream will not get to



opt for these specialisations until the 2012/2013 entrants are in Final Year. Notwithstanding the above, a proposal is being finalised for consideration in the near future by the College Board for the introduction of a 4-year BSc Industrial Engineering Programme to meet national needs

A one-semester course in Mechatronics has been introduced into the BSc. Mechanical Engineering programme to reflect the growing importance of electronics/computer based control systems in traditional electromechanical products and systems. Mechatronics deals with the design of products whose function relies on the synergistic integration of mechanical, electrical, and electronic components connected by control architecture. There are very few mechanical devices today that do not include those elements; and to practice mechanical engineering in the 21<sup>st</sup> century, one must understand new ways to process information and be able to utilize semiconductor electronics within products. The time when entering mechanical engineering students could assess their individual intellectual talents and restrict themselves only to their field as a profession, is all changing now as the impact of solid state electronics permeates the traditional fields of engineering both in the way engineers communicate and in what they design. In furtherance of these objectives, the Department is in the process of procuring low-value laboratory equipment to support its *mechatronics* and *automation* initiative.

Beyond undergraduate programmes, the Department of Mechanical Engineering offers graduate studies that lead MSc and PhD degrees in Mechanical Engineering in the following areas: *Applied Mechanics*, *Design and Manufacturing Engineering*, and *Thermodynamics and Energy Systems Engineering*. Within the last of the above three sub-disciplines, the Department now runs an 18-month MSc programme in Renewable Energy Technologies (RETs). Two batches of students are currently on the programme with the total student population standing at 60.

### **EXTERNAL FUNDS MOBILISATION**

During the period under review (i.e. 2012-2013), the Department submitted two separate proposals (one to COTVET, and the other to a private industrial concern) to solicit external funding to support re-tooling of sections of its workshops and laboratories. A re-submission of the COTVET proposal was done at the request of the Ministry of Environment Science and Technology, through which the call for proposals was first issued. At the request of our contacts in the private firm, modifications were being made to the second proposal to include justification of what benefits the private firm might get from the KNUST for funding our project under their Social Responsibility programme.

### **COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

- a) Prof. F. K. Forson serves as an External Examiner for University of Education, Winneba
- b) Dr. A. Sunnu is the Chairman of the Programme Advisory Committee (PAC) of the HND Automotive Engineering, Koforidua Polytechnic. He is also the Moderator of the Mechanical Engineering Programme at the Ho Polytechnic.
- c) Dr. Gabriel Takyi serves as the representative of the KNUST Academic Board on the Faculty Board of the Faculty of Automobile Engineering of Ho Polytechnic, an affiliate of KNUST.
- d) Dr. S. M. Sackey, serves as the KNUST's representative on the EU-Africa Tuning Project, which seeks to harmonise higher educational structures across Africa.

- e) The Department, through the College of Engineering, successfully executed a technical due diligence exercise on a Ghanaian engineering manufacturing company on behalf of AFREXIM Bank, Egypt.
- f) Prof. A. Brew-Hammond, now deceased, served as the Chairman of the Energy Commission of Ghana. He also served as the United Nations Secretary General's representative
- g) Dr. R. Opoku coordinated undergraduate research collaboration between the Department and Harvard School of Engineering and Applied Science, USA on "Appropriate Solar Water Heater Technology" for Ghana.

## **INTERNATIONAL LINKAGES**

Existing links have been maintained between the Department and the following institutions:

- North Carolina Agricultural and Technical University NCA&T, USA
- Southern University, USA
- University of Michigan, USA
- Embry Riddle Aeronautical University, USA
- 2IE International Institute for Water and Environment, Ouagadougou University.

## **BENEFACTORS**

A number of organizations and individuals have continued to give extremely valuable support to the Department to enhance teaching and research activities. We wish to express our profound gratitude to the following organizations:

- The Crocodile Matchets Ghana Limited, Tema; Volta River Authority; Aluworks Limited, Tema; Takoradi Naval Base; Tema Lube Oil; Tema Oil Refinery; and Ghacem, Tema; for their continuing support for our yearly students' industry visits.
- Toyota Ghana, for fulfilling its pledge to support brilliant but needy Mechanical Engineering students with an amount of GH¢ 2000.00.
- Silver Star Auto Limited donated one carburettor for demonstration and teaching at the Autoshop Laboratory

## **TECHNOLOGY CONSULTANCY CENTRE**

### **INTRODUCTION**

The Technology Consultancy Centre (TCC) of the College of Engineering was established in 1972 with a mandate to work in collaboration with KNUST's academic departments to research, co-develop and transfer appropriate technologies to support small and medium-scale industries in Ghana. To realize this objective, the TCC operates the following units:

1. Suame Intermediate Technology and Transfer Unit (ITTU)
2. Food, Agriculture and Natural Resource Development (FAND) Unit
3. Applied Industrial Ceramics and Rural Enterprise Development (AIC-RED) Unit
4. Entrepreneurship Development Unit with focus on International Development and Graduate Entrepreneurship Training
5. Consultancy

The TCC focuses on field-based research by carrying out baseline studies, needs assessment, feasibility studies, impact assessment to develop and transfer appropriate technologies aimed at enterprise development and poverty reduction.

## **RESEARCH AND TRAINING FACILITIES**

The TCC has a number of laboratories and workshops both on and off-campus. These include the Food Processing laboratory, Applied Industrial Ceramics laboratory, Intermediate Technology Transfer Unit (ITTU) workshop in Kumasi Suame Magazine, Brick manufacturing workshop at Afari and proposed site for Technology Park at Adako Jachie. In a bid to create facilities for collaborative research, development and training, the TCC has renovated senior members' offices, created a modern lecture/seminar room in the annex building as well as improved the facilities in its main office in Administration Block II.

## **RESEARCH AND DEVELOPMENT**

### **Suame Intermediate Technology and Transfer Unit (ITTU)**

The ITTU continues to provide technological expertise and equipment through prototyping and product development. The ITTU also provides workshop facilities for KNUST students to apply classroom learning in the workshop during their final year project work and attachment. During the period under review, the ITTU carried out the following activities:

- Installation of complete Jatropha Energy Facility (decorticator, oil expeller, diesel engines) for processing of Jatropha oil, training as well as enterprise development in Jatropha-based products at Kparigu in West Mamprusi district, Northern region.
- Production of three (3) Jatropha decorticators for de-husking Jatropha fruits into seeds. These machines have all been tested and will be installed and used for training in the extraction of oil and production of Jatropha-based products in 3 rural communities of Nasia, Wungu and Yama, all in West Mamprusi district, Northern region of Ghana.

- **Food Agriculture and Natural Resource Development (FAND) Unit**

In collaboration with students and faculty members of Chemistry Department, Department of Agricultural Engineering and Department of Agricultural Economics and Extension the FAND Unit of TCC extracted various seed crop oils from kapok seeds, neem seeds, castor seeds, coconut. The unit continues to work with Olin College, USA on R&D into beeswax-based products for lip balm, crayons, lotion and other cosmetic products etc. Other research areas include:

- Collaboration with KNUST's department of Herbal Medicine to develop technology with the potential for expanding beekeeping in Africa.
- Setting up of 10 hive apiary (bee farm) for the study of bee keeping technology by students of the Department of Agricultural Economics and Extension.
- Extraction of oil from waste mango seeds

### **Applied Industrial Ceramics and Rural Enterprise Development (AIC-RED) Unit**

Researchers at the AIC-RED Unit carry out research and development activities in water and sanitation with focus on household ceramic water filters, defluoridation of ground water and industrial waste treatment. Other research areas are facing and insulating bricks production, clean

energy development technologies for high efficiency cook stoves, bio-briquettes and bio-char for clean smokeless stoves and generation of fuel oil from plastic waste.

### **ENTREPRENEURSHIP DEVELOPMENT UNIT**

This Unit focuses on collaborative work in international development and graduate entrepreneurship training in sustainable technology development. It supports and offers students the opportunity to apply classroom learning in the field and communities so as to gain some insight into international development through the running of International Development Summer Institute (IDSI) with University of Pennsylvania, USA and International Development Design Summit (IDDS) with D-Lab of Massachusetts Institute of Technology, USA. The unit also assists in the placement of the students of College of Engineering who do their vacation training with small to medium scale firms in Kumasi and other locations in Ghana.

### **MAJOR RESEARCH BY STAFF**

The following research activities are being undertaken by academic staff of the Centre:

#### **Dr. Peggy Oti-Boateng (Sabbatical leave)**

- Human Nutrition
- Technology and Innovation Services for Setting up Science & Technology Parks
- Food processing and gender-related issues
- Science, Technology and Innovation Systems and Policy

#### **Dr. George Y. Obeng (Director)**

- Waste vegetable oil (WVO) as a potential feedstock for biodiesel production
- Study of Jatropha-based products: methods of extraction, quality improvement and price analysis
- Solar Photovoltaic Electrification and Impacts on Education.
- Needs assessment of metalwork and agricultural mechanization clusters in Kumasi
- Community Needs Assessment, Environmental Impacts and Apportionment

#### **Mr. Donald Amrago**

- Institutional stoves, kilns and furnaces
- Design and construction of institutional cookstoves
- Students entrepreneurship development
- Community Needs Assessment, Environmental Impacts and Apportionment

#### **Mr. Michael K. Adjaloo**

- Study of the pollination system of the cocoa tree
- Spatial distribution of insect communities in Ghanaian cocoa farm
- Evaluation of breeding substrates of cocoa pollinators
- Development of beeswax-based products
- Study of Jatropha-based products: methods of extraction, quality improvement and price analysis
- Community Needs Assessment, Environmental Impacts and Apportionment

**Mr. Michael K. Commeh**

- Study of household ceramic water filter candles
- Defluoridation of ground water in Northern Region of Ghana
- Development of bio-briquettes for clean smokeless cookstoves
- Investigation into the conversion of waste plastics into fuel

**CONSULTANCY**

In collaboration with KNUST departments, cognate local and international institutions, the TCC renders consultancy services to national government, non-governmental organizations, local communities, small firms and international agencies by conducting community needs assessment, entrepreneurship training, product and process development and technology transfer in intermediate and appropriate technologies for accelerating industrial and socio-economic development.

**NATIONAL COLLABORATIONS****TCC - Kenyasi No.1 Farmer-based Organization (Cooperative Group)**

The TCC is designing a 4-Burner Gari Roasting Furnace to complement the 2 tonne/hr capacity commercial-size cassava grater and 500 kg capacity screw press, which were produced for the Kenyasi No. 1 cooperative group in 2011/2012. The purpose is to provide knowledge-based processing facility to farmer-based organizations that have received financial support from UNDP for commercial processing of Gari at Kenyasi in Brong-Ahafo region of Ghana.

**TCC-Environmental Protection Agency (EPA) Community Assessment Work at Chirano Goldmine Catchment Communities, Western Region.**

Under a competitive bidding consistent with the procurement law of Ghana, the Environmental Protection Agency (EPA) secured the consultancy services of TCC to assist a National Liaison Group (NLG) in the apportionment and utilization of funds emanating from mining in the Tano Suraw and Tano Suraw Extension Forest Reserves for develop of communities in the Chirano Goldmine catchment area. The Terms of Reference for the consultancy specified a major challenge facing the NLG in the classification and packaging of community needs, apportionment and utilization of funds emanating from the mining activities. The TCC, in collaboration with some faculty members of College of Engineering, carried out a study, which resulted in the classification and packaging of the needs of the relevant communities as well as the development of criteria and model for the apportionment of funds. The next step is to organize a stakeholder workshop for about 60 participants including chiefs, MPs, district chief executives, opinion leaders, NLG members and EPA staff and thereafter submit a report.

**INTERNATIONAL COLLABORATIONS**

During the period under review, a number of faculty members and students from the following international Universities collaborated with TCC on international development and technology entrepreneurship.

**Ghana Jatropha Research Project (GHAJA)**

In collaboration with the Nucleo Ricerca Desertification (NRD), University of Sassari, Italy, the TCC is working with Savanah Agriculture Research Institute (SARI), Ministry of Food and Agriculture (MOFA), Tamale and New Energy, Tamale, on an EU eligible funding of €169,000

for TCC action in a project titled - Use of Jatropha plant to improve sustainable renewable energy development and create income-generating activities: an integrated approach to ensure sustainable livelihood conditions and mitigate land degradation effects in rural areas of Ghana. This project started in the year 2009 and will end in 2014. The TCCs main activities include the design and manufacture of Jatropha decorticator, expeller; study of Jatropha-based products with focus on extraction methods, quality improvements, and alternative uses and market analysis. The TCC is also to train farmers in the processing of the oil into other useful products etc. Among the products so far delivered include:

- development of four (4) Jatropha decorticators for processing of Jatropha fruits into seeds and technical design;
- installation and field testing of one (1) oil expeller, two (2) diesel engines and accessories for setting up energy facility at Kparigu
- literature review on Jatropha-based products, methods of extraction, quality improvement and market analysis
- 15 quarterly reports with data.
- Training manual on operation and maintenance

### **TCC-MIT Design Lab Collaboration**

From January 9 to 23, 2013 a team of twelve (12) students and a faculty member from the D-Lab of Massachusetts Institute of Technology (MIT), Boston, USA visited the TCC and Suame ITTU. This collaboration focuses on the provision of facilities for students to implement community impact projects in the niches of education, water and sanitation, health, agriculture, rural enterprises etc. The technicians of ITTU assisted the students to fine-tune their designs, and thereafter prototyped some products (Moringa sheller, Moringa oil press, reflective roof light, water pump), which were tested in New Longoro-a farming community in Brong-Ahafo region of Ghana.

### **TCC-MIT International Development Innovation Network (IDIN) Project**

The International Development Innovation Network (IDIN) is part of Higher Education Solutions Network (HESN), a ground breaking partnership between USAID and top US and foreign universities committed to developing innovative solutions to global development challenges. IDIN is run by a consortium of universities including MIT, USA; Olin College of Engineering, USA; Colorado State University, USA; University of California-Davis, USA; University of São Paulo, Brazil; and Technology Consultancy Centre (TCC), Kwame Nkrumah University of Science and Technology, Ghana. In implementing IDIN, TCC will set up Innovation Centers at the ITTU and a rural community in Ghana. Further, undergraduate and graduate students of cognate departments of KNUST will be engaged and financially supported in innovative technology development and entrepreneurship. The aim is to offer students the opportunity to transition classroom learning and final year projects into useful technologies and processes for enterprise development and/or community impacts. Student costs will include paid work and stipend. It is planned that both graduate and undergraduate students will receive monthly support for selected projects considered innovative with potential for scaling and commercialization. The total project grant is about USD 15 million with varying USAID support and institutional cost sharing. To get the project off the ground, two meetings have been

organized in Boston and Washington D.C. Dr. George Y. Obeng, (Senior Researcher and Director, TCC) participated in the launching meeting in November 2012 and also travelled with Mr. Crossman Hormenoo (Chief Technician and Manager, ITTU) to participate and make presentations in March 2013.

### **TCC-University of Pennsylvania (UPENN) International Development Summer Institute Africa Program (IDS-AP)**

In collaboration with Penn-Engineering and the Africa Center of University of Pennsylvania (PENN), the TCC co-hosted for the third (3rd) time the International Development Summer Institute (IDS-AP) class of 2012 from May 13 to June 9, 2012. In this programme, seven (7) KNUST undergraduate students comprising 5 females and 2 males were interviewed, competitively selected and provided with stipends to join 14 undergraduate students from UPENN, USA. The programme provides students with the opportunity to have applied learning and cross-cultural experience. It also gives students the chance to apply classroom learning in the field and gain some insight into the world of international development. The program consists of 5-weeks of pre-program preparation at University of Pennsylvania, USA and a 4-week long training program on the campus of KNUST, Kumasi. During the period under review, Dr. George Y. Obeng and Mr. Donald Amrago were invited from March 4-24, 2013 to University of Pennsylvania, Philadelphia as academic scholars. The purpose of the visit was to discuss among others, the strengthening of the collaboration, content of draft MOU, and scholarships for KNUST students to study Bio-engineering, computer science, urban planning etc at the PhD and MSc levels at the University of Pennsylvania, USA. It is envisaged that a draft MOU will be sent to KNUST for a review and signing this year 2013.

### **TEACHING**

Senior members of the Centre continue to provide service teaching for some academic departments of the University.

- **Dr. George Yaw Obeng** teaches MSc courses at the Department of Planning and Department of Agricultural Engineering, KNUST, Kumasi.
- **Mr. Donald Amrago** co-supervises 5 final year students of Department of Integrated Rural Art and Industry and 3 final year students of Department of Industrial Art (Ceramic Section).
- **Mr. Michael K. Adjaloo** is currently teaching Apiculture at the Department of Agribusiness. Faculty of Agriculture. He taught Entomology at the Department of Theoretical and Applied Biological Science.
- **Mr. Michael Commeh** co-supervises 3 final year students who are working on bio-briquetting and clean cookstoves at the Department of Agricultural Engineering and one student at the Department of Industrial Art (Textiles)

### **SERVICE TO COMMUNITY**

Senior members of the TCC continue to serve on various committees and boards in the University, Ghana and International.

**Dr. Peggy Oti-Boateng (Sabbatical Leave)** has been an external examiner for the Department of Community Health and Nutrition at University for Development Studies in Tamale. She also served on several committees and boards at national and international levels.

**Dr. George Yaw Obeng** continues to serve as a member of Research Innovation and Conference Committee (RICC), College of Engineering; Reviewer for the 5th and 6th Annual International Applied Research Conference, Koforidua Polytechnic, Koforidua; Panel Member for Renewable Energy Programmes, National Accreditation Board, Ghana; Consortium Member, International Development Innovation Network (IDIN), of USAID Higher Education Solution Network (HESN); Member, Intellectual Property Committee of KNUST, Kumasi; Member, Technical/Expert Committee for Renewable Energy Readiness Assessment in Ghana.

**Mr. Donald Amrago** is a member of the College of Engineering Guest house management board and a member of the College of Engineering maintenance committee. He serves on the KNUST United protestant Committee. He also served as KNUST representative on AGI INDUTECH Kumasi Exhibition Committee and a member of Career Fair Exhibition Committee, College of Engineering.

**Mr. Michael K. Adjaloo** served as a Member for Retooling of Laboratory Facilities, College of Engineering. Member, Committee for Naming of University Facilities. Member, Local Organizing Committee, Member, Local Organizing Committee, International Development Summer Institute (IDSI) for students of University of Pennsylvania (USA) and KNUST.

## **THE ENERGY CENTER**

### **INTRODUCTION**

The Energy Center (TEC) which commenced activities in 2006 but was formally approved by the Academic Board of Kwame Nkrumah University of Science and Technology (KNUST) in 2009 has over the years provided a platform for the pursuit of multidisciplinary research and development activities at KNUST. TEC pulls resources from the College of Engineering (CoE) as well as other Colleges of the university. Thanks to these activities TEC's vision to become "a globally-recognized centre of excellence for energy in Africa" is fast becoming reality and this report will highlight achievements over the last academic year, from about July 2012 to March 2013.

### **RESEARCH AND CONSULTANCY**

In the area of renewable energy technologies there are two research grants from the African Union (AU). One of the AU projects is on Grid-connected Solar PV Systems for which TEC is the main beneficiary with the University of Botswana and University of Flensburg, Germany as partners. The other AU project is on Solar Thermal Power Plant Manufacturing with the International Institute for Water and Environmental Engineering (2iE) in Burkina Faso as the main beneficiary and TEC as one of several partners.

There is also a Second Generation Biofuels Project with provision for a doctoral research student supported by DANIDA. Furthermore, work is ongoing to develop small wind turbines for deployment in moderate wind-speed regimes such as those encountered in Ghana



There are a number of approved projects awaiting commencement. These include the ECOWAS Renewable Energy Facility (EREF) Project with support from the Regional Centre for Renewable Energy and Energy Efficiency (ECREEE). The project is spearheaded by Kumasi Institute of Technology, Energy and Environment (KITE) with support from The Energy Center, KNUST and Universitat Politècnica de Catalunya.

There is also the UNIDO Biogas Project in which The Energy Centre, KNUST will be supporting UNIDO to undertake. This project is a partnership between UNIDO, the Korean Government and the Ghana Government.

The Renewable Energy and Energy Efficiency Partnership together with the Energy Commission of Ghana are jointly supporting a Renewable Energy and Energy Efficiency Project to be commenced in May 2013. UNEP is also committing funds to support a study into Solar Electricity Export from Ghana which is to be carried out by The Energy Center, KNUST.

There are two projects currently waiting for approval from the funding agencies and they include a Biomass Assessment Project and Renewable Energy Entrepreneurship Development Project.

## **RECENTLY COMPLETED PROJECTS**

The Center also successfully concluded the following projects and studies:

The ECOWAS Regional Study on Capacity Needs Assessment for Renewable Energy and Energy Efficiency. A €67,000 study that was jointly implemented by KNUST; the International Institute for Water and Environmental Engineering, Ouagadougou and the University of Cape Verde (UNICV). Funds were provided by the ECOWAS Center for Renewable Energy and Energy Efficiency. Mr. David Ato Quansah of the Mechanical Engineering Department coordinated this study from the KNUST side.

The Solar Capacity Upgrading Project (SolarCUP) which was funded by the World Bank with a US\$523,000 grant (closed in September 2012). This project provided solar energy research equipment and software tools, provided Research Assistantships among other high-impact activities. This 2-year project was coordinated by Mr. David Ato Quansah with support from Mr. I. A. Edwin of the Solar Energy Applications Laboratory (SEAL) and Dr. David Anipa of the Department of Computer Engineering.

The study on Energy Access for the Urban Poor (EAfUP) was also successfully closed following the final dissemination workshop in November 2012 and a visit by the Task Leader, Dr. VenkataRamana Putti of the World Bank Energy Sector Management Assistance Programme (ESMAP). Dr. S. Rudith King of the College of Architecture and Planning coordinated this project and supported by Mr. David Ato Quansah of the Mechanical Engineering Department. This project was supported with US\$75,000 by ESMAP.

A survey to address gaps in data on energy access for rural and urban areas in Ghana was commissioned by the UNDP-Senegal country office and implemented by The Energy Center, KNUST in three regions in Ghana viz. Northern, Greater Accra and Ashanti regions. Dr. Rudith King was the principal investigator while Mr. Owusu Amponsah served as the project

coordinator. The UNDP was required to support the project with an amount of USD29, 300. The final project report has since been submitted to the UNDP.

## **TEACHING AND RELATED ACTIVITIES**

The e-Learning MSc programme in Renewable Energy Technologies (RETs) which took off with a first batch of forty-seven (47) students now has a second batch of twenty-four (24) students. The e-Learning MSc RETs programme was developed under the EDULink Renewable Energy Education Project (REEP) with support from the European Union's Africa, Caribbean and Pacific (ACP) Secretariat. REEP had two (2) partners, 2iE and the University of Havre in France.

Other workshops and seminars during the period under review Clean Energy Entrepreneurship Development (CEED), a training programme organized for students in KNUST on clean energy, its technologies and how to start a clean energy business. The trainers included lecturers from the College of Engineering and School of Business, representatives from CalBank, KITE, Ghana Angel Investors Network (A subsidiary of Venture Capital).

The Smart Grid Seminar Series was also organized under the theme "Smart Grids in Ghana- Opportunities and Challenges" and brought together experts on renewable energy from various Institutions like: GRIDCo, ECG, NEDCo, Energy Commission and Ministry of Energy.

## **OTHER ACTIVITIES**

TEC Fellows and Associates have undertaken national as well as international service in various forms. With respect to national service two TEC Fellows, Prof. Abeeku Brew-Hammond (until his demise) and Dr. Rudith King, continued to serve as Board Chairman and Board Member, respectively, for the Ghana Energy Commission thus making significant contributions to public-sector governance in the country.

With respect to international service, the TEC Director (until his demise) was appointed by the United Nations Secretary-General Ban Ki-moon as a Technical Group Member within his High-Level Group on Sustainable Energy for All (SE4All).

MOUs have also been signed with the Clean Energy Research Centre (CERC) University of Botswana and the Energy and Environmental Management in Developing Countries, University of Flensburg, Germany with the aim of enhancing international cooperation in the areas of energy research and education.

The Energy Center, KNUST has begun discussions with the German State of North Rhine-Westphalia in a collaboration which will seek to provide Self-sufficient sustainable energy supply for the Kwame Nkrumah University for Science and Technology (KNUST), Kumasi/Ghana – a model project for renewable energies in Africa. The collaboration among other things will also seek to improve the quality of training at the College of Engineering and, for example, to strengthen a postgraduate engineering degree programme in renewable energies. This would also create a basis for a dedicated collaboration between universities in North Rhine-Westphalia and KNUST (initial discussion have been made with TU Dortmund and Westphälische Hochschule under this collaboration).

## **ORGANISATIONAL RESOURCES**

The Energy Centre, KNUST has operated to date as a virtual center with a lean office staffing structure consisting of the Director and a Senior Administrative Assistant supported by five (5) national service personnel.

TEC currently has about sixty (60) Fellows drawn from practically every College of KNUST and almost fifty (50) Associates of which a good number are graduate students in various disciplinary areas across the University.

TEC has a Management Board which is chaired by the Provost of the College of Engineering and has representatives from all five other Colleges of the university as well as the four main disciplinary areas in the CoE.

So far, TEC activities have been funded from projects undertaken by TEC Fellows and Junior Associates from the College of Engineering and the College of Architecture and Planning. Over one (1) million American dollars has been received or approved for payment during the period under review; approximate amounts for each project are summarized in the table below.

## **ACRONYMS**

2iE	International Institute for Water and Environmental Engineering
CoE	College of Engineering
DANIDA	Danish International Development Agency
ECG	Electricity Company of Ghana
ECREEE	ECOWAS Regional Centre for Renewable Energy and Energy Efficiency
EREF	ECOWAS Renewable Energy Facility
GEC	Ghana Energy Commission
GRIDCo	Ghana Grid Company
KITE	Kumasi Institute of Technology and Environment
KNUST	Kwame Nkrumah University of Science and Technology
NEDCo	Northern Electricity Distribution Company
TEC	The Energy Center
UNEP	United Nations Environment Programme
UNIDO	United Nations Development Organisation

S/No	Project Title, Coordinator and Sponsor	Partners	Amount Approved for TEC-KNUST (Euros)	Start of Project and Project Duration	Status
1	AU Gridsolar Project – Mr. Emmanuel Anto – African Union	<b>Lead Partner</b> - TEC-KNUST <b>Supporting Partners</b> - University of Botswana and University of Flensburg	379,768	29 <sup>th</sup> March 2012 – 3 years	<b>Confirmed</b>
2	AU-2iE CSP4Africa Project – Mr. Emmanuel Ramde – African Union	<b>Lead Partner</b> - 2iE <b>Supporting Partners</b> - TEC-KNUST + SireaEnergie + ECREEE	81,686	29 <sup>th</sup> March 2012 – 3 years	
3	EREF Project – Dr. Lawrence Darkwah - ECREEE	<b>Lead Partner</b> - KITE <b>Supporting Partners</b> - TEC-KNUST + Universitat Politècnica de Catalunya	8,283	May 2013 - 2 years	
4	UNIDO-Korea-Ghana Biogas Project – Mr. Edward Awafo – UNIDO and Korean Government	<b>Lead Partner</b> - UNIDO <b>Supporting Partners</b> - TEC-KNUST	1,280,000	3 years	
5	REEEP Project – Miss Gifty Serwaa Mensah – Renewable Energy and Energy Efficiency Partnership (REEEP) + Energy Commission, Ghana	<b>Lead Partner</b> - TEC-KNUST	90,923	1 <sup>st</sup> May 2013 – 1 year	
6	DANIDA-2GBIONRG Project - Mr Francis Kemausour - DANIDA	<b>Lead Partner</b> - TEC-KNUST	68,079	June 2012 – 4 years	
7	Solar Electricity Export from Ghana – Dr Lena Mensah – UNEP	<b>Lead Partner</b> - TEC-KNUST	50,000	June 2013 - 9 months	
	<b>Sub Total</b>		<b>1,958,739</b>		
8	Renewable Energy Entrepreneurship Development (REED) (Awaiting response to call) – Mr Edward Awafo – European Union and ACP	<b>Lead Partner</b> - TEC-KNUST	999,132.96		<b>Awaiting Response</b>
9	Biomass Assessment Project – Mr. Ayeh -	<b>Lead Partner</b> - TEC-KNUST	45,898.84		

# **COLLEGE OF HEALTH SCIENCES**

## **INTRODUCTION**

The College of Health Sciences comprises Faculty of Pharmacy and Pharmaceutical Sciences, School of Medical Sciences, Faculty of Allied Health Sciences, Dental School, School of Veterinary Medicine and Kumasi Centre for Collaborative Research in Tropical Medicine. During the year under review, the College vigorously pursued its mandate of training the specialized and graduate manpower for the health sector in Ghana and Africa, through teaching, research and service to the community.

## **COLLEGE ADMINISTRATION**

Provost	Prof. E. T. Agbenyega
College Registrar	Mr. H. H. Akosah
College Accountant	Mr. Johnson Owusu
Ag. College Librarian	Mr. V. K. Teye

## **ACTIVITIES**

### **INTRODUCTION OF NEW PROGRAMMES**

The following programmes have been mounted:

- BSc Disability and Rehabilitation Studies.
- BSc Physician Assistant (Anaesthesia)
- Doctor of Pharmacy (Pharm D)

Proposals for Diploma in Emergency Nursing programme has been submitted to the Academic Board through the Planning and Resources Committee for consideration.

## **INFRASTRUCTURE/PROJECTS**

- Plans are far advanced to put up a College Classroom and Laboratory Complex.
- The College is hosting the project ‘Platform on Human Health’ under the building stronger universities initiative. The project seeks to strengthen institutional capacity in the areas of research, research-based education and research dissemination.
- Work on stimulation /skills centre has been completed. The project was funded with both Ghana Government and internally generated fund.

## **EQUIPMENT/FACILITIES**

The following pieces of equipment have been procured to enhance teaching, learning and administrative work in the College:

- 20 Desktop Computers
- 10 LCD Projectors
- 15 Printers

## **PUBLICATIONS**

A Handbook for PHD Students and supervisors has been published by the College. The handbook is aimed at giving guidance to students, supervisors and staff on the management of PHD programme in the College.

## **HUMAN RESOURCE DEVELOPMENT**

- Three (3) former students who were sponsored to pursue MSc degree programmes have successfully completed their programmes and have been offered lectureship appointment.
- Three (3) persons have been sponsored to pursue the following programmes abroad.
  - ❖ MSc in Sports Science(2 students)
  - ❖ MChD (Oral Pathology)

## **VEHICLE**

The following has been procured

- A Toyota Land Cruiser Vehicle for the Faculty of Pharmacy and Pharmaceutical Sciences.
- A 30-Seater Toyota Coaster Bus for the School of Veterinary Medicine

# **FACULTY OF PHARMACY AND PHARMACEUTICAL SCIENCES**

## **INTRODUCTION**

The Faculty of Pharmacy and Pharmaceutical Sciences is a foundation Faculty of the University which was established by an Act of Parliament in 1961. It currently has six Departments namely, Pharmacognosy, Pharmaceutics, Pharmacology, Pharmaceutical Chemistry, Clinical and Social Pharmacy and Herbal Medicine. It offers two composite degrees in pharmacy and herbal medicine. This academic year, the former which is a 4-year degree programme, has been replaced with the 6-year Doctor of Pharmacy (Pharm D) programme. The introduction of the Pharm D programme has become necessary to equip pharmacy graduates with the requisite knowledge and skills to enable them provide contemporary pharmaceutical care.

The Faculty also provides training at the graduate level in all the pharmaceutical sciences leading to the award of MSc., MPhil and PhD degrees. It hopes to start the MSc Pharmaceutical Technology programme in the next academic year to provide opportunity for practitioners in pharmaceutical industries to acquire higher knowledge and skills to enable them function effectively.

During the year under review the Faculty efficiently carried out its primary responsibility of training healthcare providers in the area of Pharmacy and Herbal Medicine with all diligence and distinction, to maintain its role as the premier institution of pharmacy education in Ghana.

## **CAPACITY BUILDING**

Postgraduate training in the Faculty has significantly improved over the years. The Programmes offered include MPhil and PhD training in Pharmacology, Pharmacognosy,

Pharmaceutics and Pharmaceutical Chemistry. The Faculty also offers MSc. degree programmes in Pharmaceutical Analysis and Quality Control and Clinical Pharmacy. This year, two (2) Faculty-wide seminars/ workshops were organized for graduate students. A workshop on graduate supervision was also held for all Senior Members to remind supervisors of their roles and responsibilities.

During the year under review, two of our staff, Drs I. Ayensu and N. Kuntworbe, returned from study leave, having completed their studies. Dr. (Mrs) R. A. Dickson and Mrs V. E. Boamah visited the University College of London, UK and University of Michigan, USA, respectively, to enhance their research skills and update their knowledge in the field.

The Faculty continued to improve the capacity of its staff. Mrs C. Amaning-Danquah and Mr. G. K. Ainooson, all of the Department of Pharmacology, gained GETFund and DANIDA Scholarships to pursue full time PhD in the UK and Split-Site PhD in Copenhagen respectively. Mr G. Komlaga and Mrs V. E. Boamah, of the Departments of Pharmacognosy and Pharmaceutics respectively, gained awards to pursue Split-Site PhD degrees in the University of Paris in France, and the University of Copenhagen.

## **INFRASTRUCTURE**

The Faculty has procured and installed two computers and a Router DLink Wireless in the Faculty Library to encourage the use of e-learning facilities in the University including accessing of e-books and e-journals to facilitate teaching and learning, and research.

## **VISITS**

During the year under review, Prof. (Mrs) F. T. K. Owusu-Daaku visited the Raabe College of Pharmacy of the Ohio Northern University (ONU) to interact with the staff and the Pharm D students of the College in furtherance to the MOU signed with ONU. Later in the year, a team of lecturers made up of Drs David Kindair, Mark Olam and Jeff Allison visited the Faculty to interact with the staff and demonstrated integrative teaching of pathophysiology, pharmacology, medicinal chemistry and therapeutics in oncology. The experience gained will be used to develop modules on other diseases for implementation in the Pharm D curriculum.

The Faculty also had 10-member government delegation from the Gambia visiting to learn about the herbal medicine programme. Similarly, delegates from the Food and Drugs Board, Burkina Faso and Traditional Medicine Directorate of Ministry of Health, Cote D' Ivoire visited the Faculty.

## **SERVICE TO COMMUNITY**

The Faculty continued to provide service to the community at both local and national levels. Staff of the Faculty served on many statutory and non – statutory committees of the University. Professors K. Ofori Kwakye, Eric Woode, R. K. Adosraku and Prof. T. C. Fleischer continued to play the mentor role at the Central University College (CUC), Accra. Emer. Prof. Kwame Sarpong was elected President of the newly established Ghana College of Pharmacy and together with Prof. T. C. Fleischer, serve on the governing Council of the College. Other Senior Members of Staff continued to serve as

members of the Pharmacy Council, Traditional Medicine Practice Council, Food and Drugs Authority and the Council for Scientific Research into Plant Medicine.

### **INTERNATIONAL COLLABORATION**

During the year under review, the Faculty maintained its links with Universities and international organisations abroad. Staff of the Faculty continued to serve in various capacities on the West African Postgraduate College of Pharmacists, the West African Health Organization (WAHO), the International Federation of Pharmacists (FIP) and Commonwealth Pharmaceutical Association (CPA) to define the training needs of Institutions of Pharmacy and improve the quality of pharmacy education and practice globally.

This year some faculty members participated in FIP Education Initiatives's (FIP Ed's) Country Case Studies Mini Summit held in Accra. The aim of the summit was 'to provide an opportunity to develop sustainable and significant working partnerships between African Leaders in Education and Development and the International Pharmaceutical Federation (FIP). The summit accepted the introduction of the FIP-UNESCO UNITWIN cooperation to pharmacy leaders in Africa and set goals to seek opportunities for developing advanced pharmacy practice within an African context.

### **CHALLENGES**

The Faculty has grown in numbers over the years both at the undergraduate and graduate levels. Looking at the growth rate, our current student numbers are likely to double in the next ten years. However, the infrastructural development has not matched the growth rate. There is the need to put up large classrooms and laboratories which will conveniently accommodate students in the next twenty to thirty years. There is also the need to employ new academic and technical staff to train the increased student numbers. This recruitment has started but the process is rather slow. It is hoped that central administration will do more to decrease the time for processing applications drastically to reduce the time of application and the time of appointment.

### **BENEFACTORS**

During the year under review, we received some assistance from alumni and Friends of the Faculty. We are grateful to Mr. L. L. Crabbe, the CEO of Kis Health Industries Limited, for supporting our library project with 10 chairs at the cost of One Thousand Two Hundred Ghana cedis (GH¢ 1200.00). We are also grateful to Mr. Akwasi Appiah, the CEO of Oson's Chemist for the donating two laptop computers to the Faculty.

## **DEPARTMENT OF PHARMACOGNOSY**

### **INTRODUCTION**

The Department of Pharmacognosy is one of the six departments in the Faculty of Pharmacy and Pharmaceutical Sciences, College of Health Sciences. Pharmacognosy is a specialized area of Pharmacy and is defined as the study of the physical, chemical, biochemical and biological properties of drugs or potential drugs or drug substances of



natural origin as well as the search for new drugs from natural sources. It is a specialized area of applied science that represents one of the major disciplines of pharmacy education and deals with natural products that affect the health of humans and animals. Due to the widespread use of botanicals in developing countries as well as their resurgence in use in industrialized nations, significant concerns have been raised about their quality, safety and efficacy. Pharmacognosy plays a critical role in ensuring the authenticity, purity and consistency of the materials employed in this regard. It contributes significantly to the practice of Pharmacy and Herbal Medicine.

### **TEACHING**

The Department of Pharmacognosy offers various courses as part of the 6 year undergraduate Doctor of Pharmacy (Pharm D) and 4 year Bachelor of Science in Herbal Medicine (BSc. Herbal Medicine) degree programmes. The courses cover areas in botany and chemistry of medicinal plants, their cultivation and evaluation and their role in promotion and maintenance of health in both man and animals. At the graduate level, the Department also offers research training in various aspects of medicinal plants to its M. Phil and PhD students. Currently there are seventeen (17) postgraduate students: Five (5) MPhil and twelve (12) PhD students. A curriculum for a one year taught MSc Programme in Natural Products Science in the Department is underway. This is a 12 month full-time taught postgraduate course intended for those who wish to prepare for PhD-level research in natural products science or to pursue a career in the Phytopharmaceutical industry or in a Quality Control Agency etc.

During the year under review, one senior member of the Department in the person of Professor Abraham Yeboah Mensah who was promoted in the year under review had the opportunity to participate in the University of Michigan African Presidential Scholars Programme (UMAPS) organised by the African Studies Centre. He also won a Fellowship award from the Commonwealth Scholarship Commission, UK tenable at the University of Bradford, UK. Also, Mr Gustav Komlaga who was promoted to senior lecturer in the year under review was awarded a six-month French Embassy /KNUST Scholarship from October 1, 2012 to March 31, 2013 to undertake a research work at the L'Universite Paris XI, France as part of his PhD research. Dr (Mrs) Rita Akosua Dickson won a three month Fellowship award from the Commonwealth Scholarship Commission, UK tenable at the University College of London, School of Pharmacy. All senior members have since returned. The Department was happy to welcome Dr Kingsley Isaac Amponsah to add unto the staff strength. Altogether the Department has five (5) Senior

### **FACULTY MEMBERS**

Dr (Mrs) Rita Akosua Dickson - *Head*  
Emeritus Professor Kwame Sarpong  
Professor Abraham Y. Mensah  
Dr Kingsley Isaac Amponsah  
Gustav Komlaga

### **MAJOR RESEARCH BY STAFF**

The Department continued to strive to be the best by achieving excellence through its

research efforts by staff. A number of researches into natural products particularly those from medicinal plants have been carried in the year under review. Notable among these are standardization of medicinal plants, phytochemical evaluation of medicinal plants with respect to essential oil constituents and other secondary metabolites, and validation of various herbal remedies. In this regard, medicinal plants with antimalarial, antibacterial, antifungal and antioxidant activities as well as wound healing, antiinflammatory, antidiabetic, antihypertensive, antiasthmatic, anthelmintics, antipediculocidal and antifeedant effects and mosquito repellent properties among others have been investigated. Other research areas include veterinary medicine where anti tick agents from indigenous Ghanaian plants are also being investigated.

## **PUBLICATIONS**

Within the year under review, members of the Department made publications in peer reviewed/ refereed journals.

## **PRESENTATIONS AT CONFERENCES AND SEMINARS**

1. **Mensah, MLK, Dickson, RA**, Mills-Robertson, FC, Thomford, K.P, Sarfo, B.S. and Annan, K. - 5<sup>th</sup> Annual Conference of the Ghana Biomedical Convention, at the Noguchi Memorial Institute for Medical Research, University of Ghana, Legon, Accra, Ghana, July to August, 2012.
2. Ekuadzi, E., **Dickson R.A**, Fleischer T.C - 5th Western Africa Network Of Natural Products Research Scientists (Wannpres) & AAMPS Ethnoveterinary Symposium at MicCom Golf Hotels & Resort, Ibokun Rd, Iloko, Osun State, Nigeria on August 6-9, 2012.
3. Fleischer TC, **Amponsah I K, Dickson RA, Mensah A Y**, Annan K, Woode E. - 5th Western Africa Network Of Natural Products Research Scientists (Wannpres) & AAMPS Ethnoveterinary Symposium at MicCom Golf Hotels & Resort, Ibokun Rd, Iloko, Osun State, Nigeria on August 6-9, 2012.
4. K. Annan, **I.K. Amponsah, R. A. Dickson**. - 5th Western Africa Network Of Natural Products Research Scientists (Wannpres) & AAMPS Ethnoveterinary Symposium at MicCom Golf Hotels & Resort, Ibokun Rd, Iloko, Osun State, Nigeria on August 6-9, 2012.
5. Sarkodie J.A, Fleischer T.C, **Dickson R.A**, Mensah M.L.K , Annan K and Woode E -5th Western Africa Network Of Natural Products Research Scientists (Wannpres) & AAMPS Ethnoveterinary Symposium at MicCom Golf Hotels & Resort, Ibokun Rd, Iloko, Osun State, Nigeria on August 6-9, 2012.
6. F.M. Sarpong, T.C. Fleischer, M.L.K. Mensah, **R.A. Dickson**, K. Annan - 5th Western Africa Network Of Natural Products Research Scientists (Wannpres) & AAMPS Ethnoveterinary Symposium at MicCom Golf Hotels & Resort, Ibokun Rd, Iloko, Osun State, Nigeria on August 6-9, 2012.
7. **Dickson R. A**, Alhassan, A. T - 5th Western Africa Network Of Natural Products Research Scientists (Wannpres) & AAMPS Ethnoveterinary Symposium held at

MicCom Golf Hotels & Resort, Ibokun Rd, Iloko, Osun State, Nigeria on August 6-9, 2012.

### **WORKSHOPS ATTENDED BY SENIOR MEMBERS**

During the year under review, the following workshops were attended by Senior Members of the Department

1. **Dickson, R. A.** ‘Workshop on Building Stronger Universities (BSU) in developing countries: KNUST and Universities of Denmark- Platform on human health’-SMS conference room, March, 2012
2. **Dickson, R. A** ‘Workshop on postgraduate supervision’- Noda Hotel, Kumasi February, 2012

### **MAJOR SERVICE TO THE COMMUNITY**

Senior Members continued to offer services to the University in various capacities, serving on the College Board and its various Sub-committees, the Faculty Board and other committees in the Faculty. Emeritus Professor Kwame Sarpong continued to serve as the Chairman of the GUSS Management Board and Management Committee of KNUST Provident Fund Association. He is the Chairman of the Arch-diocesan Health Services Board, Kumasi and a Member of the Diocesan Health Services Board, Koforidua.

Professor A. Y. Mensah was appointed as the Pharmaceutical Society of Ghana’s representative on the Governing Council of the Centre for Scientific Research into Plant Medicines, Mampong-Akuapem and also serves as the Chairman of the Academic and Social Wing of the Pharmaceutical Society of Ghana. Dr. (Mrs.) Rita Akosua Dickson served and continues to serve as Council member of the Ghana Baptist University College. Mr. Gustav Komlaga served as a Board member, Faculty of Allied Sciences and also as a part-time Lecturer to the School of Pharmacy, University of Ghana and the Department of Pharmacy, Central University College.

The Department has been collaborating with the Food and Drugs Board in analysing and characterising herbal products prior to the issuing of license for sale on the market. At the international level, Emeritus Professor Kwame Sarpong served as the Chairman, Drug Advisory Committee, West African Postgraduate College of Pharmacist. Dr (Mrs) Rita Akosua Dickson continues to serve as the Country Coordinator for the West African Network of Natural Product Research Scientists (WANNPRES).

## **DEPARTMENT OF PHARMACEUTICS**

### **INTRODUCTION**

Pharmaceutics is concerned with the scientific and technological aspects of the design and manufacture of dosage forms. It encompasses physical pharmacy, biopharmaceutics, dosage form design, compounding, pharmaceutical technology and pharmaceutical microbiology. Pharmaceutics is the main basis of Pharmacy and is associated with steps

and processes used to convert a drug into a medicine. Pharmaceutics is normally divided into two sections, namely: General Pharmaceutics and Pharmaceutical Microbiology. General Pharmaceutics deals basically with subject areas such as dispensing, drug delivery Systems, packaging and storage science, formulation of dosage forms, rheology, pharmacokinetics, biopharmaceutics and physical pharmacy. Pharmaceutical Microbiology offers in-depth information on all major groups of micro-organisms and their relationship to man and animal. The subject covers areas such as Pathogenesis and Immunology, Chemotherapy, Sterilization & Disinfection and Preservation. Industrial fermentation and biosynthetic processes used for the production of compounds of both medical and industrial importance such as antibiotics, vitamins, blood expanders etc. are also covered. It also covers sterile products formulation, manufacture and quality assessment.

### **PROGRAMS OFFERED BY THE DEPARTMENT**

The Department teaches Dispensing theory, Dispensing laboratory, Sterilization and Disinfection, Infections, Basic Microbiology, Microbiology Laboratory in the BSc Herbal Medicine programme and the following courses in the Bachelor of Pharmacy/Doctor of Pharmacy (PharmD) programme: Orientation and dispensing, Dispensing laboratory I, Physical pharmacy, Dispensing laboratory II, Sterilization and disinfection, Pharmaceutical microbiology laboratory I, Pharmaceutical technology I, Pharmaceutical technology laboratory I, Applied pharmaceutics, Pharmaceutical technology laboratory II, Chemotherapy, Immunology, Pharmaceutical microbiology laboratory II and Industrial pharmacy.

The Department runs 3-year PhD and 2-year MPhil programmes in Pharmaceutics and Pharmaceutical Microbiology. An MSc Pharmaceutical Technology programme will commence during the 2013/2014 academic year.

### **SENIOR MEMBERS IN THE DEPARTMENT**

Dr Noble Kuntworbe returned from study leave from the School of Pharmacy, Faculty of Medical and Health Sciences, The University of Auckland, New Zealand, where he completed a PhD on a research titled '*Design and Evaluation of Cryptolepine Hydrochloride-Loaded Gelatine Nanoparticles Intended for Parenteral Administration*'.

Mr Raphael Johnson, on the other hand, left for study leave to pursue PhD programme at the Johannes Gutenberg Universitat, Mainz, Germany, under the scholarship of German Academic Exchange Service (DAAD).

Other senior members of the Department are:

K. Ofori-Kwakye - Associate Professor and Head of Department

Dr. M. T. Bayor

Dr. C. Agyare

Mr. F. Adu

Mr. S. Y. Gbedema

Mr. S. L. Kipo

Mrs. V. E. Boamah

Mrs. M. El Boakye-Gyasi

## RESEARCH IN THE DEPARTMENT

Mrs Vivian Etsiapa Boamah undertook research on '*Identification of Organisms, Mechanism of Resistance and Transfer of Resistant Genes*' at the University of Michigan, Ann Arbor, USA, (22<sup>nd</sup> August 2012 – 21<sup>st</sup> February 2013) under the Fellowship of the University of Michigan African Presidential Scholars Program (UMAPS). Mrs Boamah also won a US\$20,000 L'Oreal-UNESCO Regional Fellowships "For Women in Science" in Sub-Sahara Africa award for her PhD research work.

Prof. (Mrs) Oluwatoyin Odeku of the Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, University of Ibadan, Nigeria paid a 2-week visit to the Department to collaborate with senior members on research and other related academic activities.

The Department intensified its research activities in Pharmaceutical Technology, Formulation Science, Medicinal Plant Research and Quality evaluation of pharmaceutical products on the Ghanaian market. Some of the research topics currently under investigation in the Department are the following:

1. Evaluation of cashew tree gum as a directly compressible matrix system for controlled drug delivery
2. Physicochemical and *in vitro* dissolution properties of metformin tablet preparations on the Ghanaian market
3. Studies on the film coating potential of natural gums
4. Formulation and evaluation of oral sustained-released matrix tablets using hydrophilic polymer blends
5. Development of rectal suppositories of selected antimalarial drugs
6. Antimicrobial activities of some Ghanaian medicinal plants
7. Search for anti-parasitic and antimicrobial agents from medicinal plants and natural products
8. *In vitro* efficacy of some anti-boil herbal preparations on the Ghanaian market
9. Antibacterial, resistance modulation and wound healing activities of *Etandrophragma angolense* (Melicaceae)
10. Anti-malarial properties of some natural products
11. Search for wound healing agents from medicinal plants
12. Antibiotic resistance in poultry, piggery and other animals
13. Evaluation of antifungal activity of tablets made from the stem bark of *Magnifera indica*
14. Evaluation of antimicrobial activity of tablets made from the roots of *Paulina pinnata*
15. Identification of antimicrobial metabolite-producing microorganisms from water bodies in Ghana

During the year under review, Ernest Obese, Hilda Amekye (Miss) and Esther Oppong Eshun (Miss) graduated with MPhil (Pharmaceutics) while Nicholas Agyepong and Ugboduma Ogheneruno Anthonia (Miss) graduated with MPhil (Pharmaceutical Microbiology).

## **CONFERENCES, WORKSHOPS AND SEMINARS**

Senior Members in the Department attended and actively participated in local and international conferences, workshops and seminars during the year under review. Senior Members were active participants at the Annual General Meeting of Pharmaceutical Society of Ghana (PSGh) which was held at the New Examination Centre (NEC), University of Cape Coast from 17<sup>th</sup>-23<sup>rd</sup> September, 2012. Senior Members also attended the Pharmacy Council organized continuing education program for Pharmacists in the Northern Sector held at Miklin hotel, Kumasi.

## **CONFERENCE PROCEEDINGS/CONFERENCE PAPERS**

**Agyare, C., Saana, S. B. B. M., Adu, F., Gbedema, S. Y.** - 2<sup>nd</sup> European Conference on Antimicrobial Resistance and Infection Prevention, Vilnius, Lithuania, 4-5 October.

## **SERVICE TO THE COMMUNITY**

Senior Members of the Department served on various Boards and Committees of the University and other National Boards/Committees. Some members served as reviewers and editorial board members for local and international peer-reviewed journals. The Department continued to offer consultancy services in drug formulation, stability studies and quality control of pharmaceutical products to various pharmaceutical companies, herbal products manufacturing companies and hospitals in the country. The Department is seriously working out a relationship with industry to make results of research available to industry and to assist industry with Research and Development.

## **INCOME-GENERATING ACTIVITIES**

The Department generated some revenue through consultancy services offered to the Food and Drugs Authority and other pharmaceutical and herbal product manufacturing companies.

# **DEPARTMENT OF PHARMACOLOGY**

## **INTRODUCTION**

The Department of Pharmacology continues to play a key role in the University as the only department involved in the teaching of Pharmacology and Toxicology to almost all the students in the College of Health Sciences and to optometry students in the College of Science. In performing this unique role, the Department ensures that courses for the different categories of students in the biomedical sciences are designed to meet the exact needs of students without compromising on the basic principles that are essential to appreciate the implications of drug action and use in humans and animals.

## **TEACHING**

The Department offers courses in Physiology, Basic/Applied Pharmacology and Toxicology to undergraduate students studying for the following programmes in the College of Health Sciences and Science:

- Bachelor of Pharmacy (Honours) degree programme.
- BSc. Herbal Medicine
- BSc. Human Biology for Medicine and Dentistry
- BSc. Nursing (General, Emergency, Midwifery)

- BSc. Medical Laboratory Technology
- O.D Optometry
- B.Sc. Physician Assistant (Anaesthesia)
- Doctor of Veterinary Medicine

In addition, staff of the Department undertakes postgraduate teaching for students on the 2-year Master's and 3-year Doctorate programmes in natural products Pharmacology and Toxicology.

### **ACADEMIC MEMBERS AND STAFF DEVELOPMENT**

The pursuance of a vigorous staff development programme aimed at training PhD students locally has begun to yield dividends. We are pleased to announce that one of our Ph.D. graduates, Dr. Kwesi Boadu Mensah joined the teaching staff of the Department during the year under review. We are hoping to bring Dr. Priscilla Kolibea Mante, who graduated recently from the Department to join us in the coming year to augment the staff strength of the Department.

Below are the academic senior members of the Department.

Prof. E. Woode, - Head

(Rev) Prof. C. Ansah

Dr. D.D. Obiri

Dr. G.A. Koffuor

\*Mr. G. K Ainooson

\*Mrs. C.A. Danquah

Mr. E. Boakye-Gyasi

Mr. W.K.M Abotsi

Mr. K. B. Mensah

### **STUDY LEAVE**

Mrs. Cynthia Amaning-Danquah gained GETFund Scholarship to undertake a PhD programme at the Department of Pharmaceutical and Biological Chemistry, University College, London. Also, Mr. George Ainooson obtained a DANIDA Scholarship for a PhD programme at KNUST and Medical Sciences, University of Copenhagen. Mr. Felix Amissah, who left for a PhD. at Florida Agricultural and Mechanical University has completed his programme and is expected to join the Department in September.

### **CONFERENCES AND MEETINGS**

During the year under review, members of the Department took part in the Continuing Education for Pharmacists organized by the Pharmacy Council and the Pharmaceutical Society of Ghana. In addition, members of the Department participated actively in the Annual General Meeting and Conference organized by the Pharmaceutical Society of Ghana. One member of the Department Prof. Eric Woode participated in the West African Postgraduate College of Pharmacists Conference held in Sierra Leone, Freetown in March 2013.

## **POST-GRADUATE TRAINING**

The Department is actively involved in the training of post-graduate students. During the period under review six (6) of our PhD students and four (4) M.Phil students successfully defended their theses. We expect at least three (3) more to graduate in the coming year. Presently, the Department can boast of twenty (20) graduate students researching into various aspects of natural product Pharmacology and Toxicology.

## **RESEARCH AND COLLABORATION**

Departmental research involves pharmacological and toxicological investigations aimed at elucidating the scientific basis for the therapeutic efficacy and safety of indigenous medicinal plants of Ghana. The Department has specific interest in the area of medicinal plants with potential anti-inflammatory and analgesic, immunostimulant, anticonvulsant, antidiabetic, antiasthmatic, antioxidant and hepatoprotective actions and those that enhance learning and memory.

The Department has research links with the Departments of Theoretical and Applied Biology, Molecular Medicine and Medical Laboratory Technology of KNUST and strengthened its links with the Centre for Scientific Research into Plant Medicine over the past year. Additionally, the Department collaborates with the Molecular Toxicology Unit of Imperial College London in the area of possible anticancer agents from plant sources.

## **CELL/TISSUE CULTURE LABORATORY**

The equipment received under TALIF to enhance graduate teaching and learning have been installed in the new cell culture facility. With the new laboratory, we expect to cut down considerably on the overdependence on animal experiments. We hope to improve the molecular aspects of our research and look forward to publish some of our research findings in high-impact factor journals in the near future. We are also confident that we will be able to step up our graduate training considerably in the coming years.

## **SERVICE TO THE COMMUNITY**

The Department provides consultancy services to the local pharmaceutical industry, research establishments, clinics, traditional medicine practitioners and individuals on the therapeutic potential and toxicity profile of new drugs and medicinal plant products. Members of the Department continue to provide professional services to various Government Departments such as the Traditional Medicine Directorate of the Ministry of Health, the Pharmaceutical Society of Ghana, the West African Postgraduate College of Pharmacists and the Ghana College of Physicians and Surgeons. A member of the Department serves on the Council of the West African Postgraduate College of Pharmacists.

In addition, some members of the Department have continued to serve as External Examiners and Assessors to Universities and Polytechnics in and outside Ghana and also as assessors for scientific journals. Some members of the Department also served as resource persons for programmes organized by the Pharmacy Council for Pharmacists.



## RECENT PUBLICATIONS

Within the year under review, members of the Department made publications in peer reviewed/ refereed journals.

## DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

### INTRODUCTION

The Department of Pharmaceutical Chemistry teaches Organic, Inorganic and Physical Chemistry such as is relevant to the understanding of

1. molecular interactions at receptor sites in the body which result in effects and side-effects of drugs.
2. stability of drug molecules
3. formulation of drug products ie dosage forms.
4. Analysis of drugs and their products.
5. synthesis of drug molecules and inter-drug interactions.

Students are therefore equipped to apply such knowledge in diverse areas of the Pharmacy profession.

### RESEARCH

The Department of Pharmaceutical Chemistry researches in the Chemistry of drug molecules as they apply to interactions in body receptor sites, stability of drug molecules, pharmacokinetics, drug identification and quantification. Research also covers phytochemicals of medicinal interest, such as *piper guineense*, *griffonia simplicifolia*. The department has the following resources, which facilitate research and teaching: two liquid chromatographs, a UV and an IR spectrophotometer, a centrifuge among others.

The Department has been collaborating with Action Medeor a German Medical NGO with a view to acquiring consumables and other research inputs.

### SENIOR MEMBERS IN THE DEPARTMENT

Prof. Adosraku RK - Head

#Professor Okine N.N.A

\*Professor Ayim J.S.K

\*Prof. Kwakye J. K

\*\*Mr. Asare-Nkansah S

Dr. Ayensu I

\*\*Mr. Oppong Bekoe S

Mr. Adotey J. A.

Mr. Oppong Kyekyeku J

## Dr. Abena Karikari

# Sabbatical Leave \*Contract, \*\*Study Leave, ## Part-time Lecturer

### SERVICE

The Department continued its traditional role in providing analytical services to some hospitals and pharmaceutical companies in the country. Senior members served on various University, national and international bodies. Prof. Adosraku R.K. was a member

of a West African Health Organisation (WAHO) committee of expert persons who were tasked to develop medicines in the West African region. Prof. Okine NNA continues to undertake various assignments of accreditation in various tertiary institutions in Ghana.

### **INCOME GENERATION**

The Department earned some income from analytical services rendered to the public. Graduate bench fees have also provided some income that tremendously promoted postgraduate training in the Department.

### **GRADUATE STUDENTS**

The Department is currently training (12, M.Phil) graduate students who are working on various research topics. There is one Split-Site Ph.D Candidate.

### **TEACHING**

The Department teaches the following courses, among others, in the BPharm and Herbal Medicine programmes: 'Basic Pharmaceutical Chemistry' Organic Chemistry, Physical/Analytical Chemistry, Medicinal Chemistry and Spectroscopy. This Department is probably the foremost in the country in the application of high performance liquid chromatography in the analysis of drugs and other chemicals.

The Department has developed the ability to put together components from different makes and assemble a functional hplc system for use in research and teaching. This has enhanced the ability of the Department to carry out its teaching and research with minimal disruption.

### **CONFERENCES/WORKSHOPS**

Prof. Adosraku R.K. was a resource person in drug regulatory workshops organized by West Africa Health Organisation (WAHO) in Ouagadougou and Lome where he presented lectures on 'Ethics in Research' and "Bioavailability and Bioequivalence in Drug Regulation"

### **PUBLICATIONS**

Members of staff continue to conduct research which leads to publications in reputed journals.

## **DEPARTMENT OF CLINICAL AND SOCIAL PHARMACY**

### **INTRODUCTION**

The Department's aim is to achieve excellence in teaching and research in pharmacy practice. Patient-oriented practices and pharmaceutical care, the primary mission of pharmacy worldwide, is our focus. Teaching in the department therefore seeks to provide outgoing B.Pharm and present Pharm D students with core skills and knowledge required for the practice of pharmacy at all levels of health care delivery, both nationally and internationally.

## PROGRAMMES OFFERED

PhD in Clinical or Social Pharmacy: currently six (6) students have been enrolled in PhD programmes and are researching into the best ways to optimise interventions for the prevention, management and control of Non Communicable diseases like Heart Failure, Hypertension and Asthma, others are also researching into optimisation of tools and interventions for the prevention, management and control of malaria and HIV/AIDS.

## MSC IN CLINICAL PHARMACY

The department also offers an over-subscribed MSc programme in Clinical Pharmacy (by distance learning) for practitioners in addition to a residential one for full-time students.

At the undergraduate level, Clinical and Social Pharmacy courses are taught as part of a composite degree in the Bachelor of Pharmacy (currently being phased out) and Doctor of Pharmacy programmes. Students in the third year of the undergraduate studies also undertake 6 weeks industrial training to gain some practical experience on the field.

## FACULTY MEMBERS

The full-time Lecturers in the Department are

- Prof. (Mrs.) Frances Thelma Kwabea Owusu-Daaku- Head
- Professor Mahama Duwiejua
- Dr. Kwame Ohene Buabeng
- Dr. Berko Panyin Anto
- Afia Frimpomaa Asare Marfo

## TEACHING AND RESEARCH

The full time academic senior members are assisted by lecturers from the Department of Pharmaceutics as well as Pharmacology and part-time lecturers from Komfo Anokye Teaching Hospital, Suntreso Government Hospital and Korle-Bu Teaching Hospital. Senior Members are actively involved in pharmacy practice research to improve drug use in hospitals and at the community level. Other areas of research are society's attitude and health-seeking behaviours that impact patient and population health.

In the year under review, academic members of staff continued to publish papers in refereed journals as well as technical reports.

## CONFERENCE PROCEEDINGS

- Owusu-Daaku F.T* Getting to the Thesis. Workshop Speaker for Graduate Students of Faculty of Pharmacy and Pharmaceutical Sciences, 2<sup>nd</sup> February 2012
- Owusu-Daaku F.* First Association of Commonwealth Universities/ University of Kelaniya Gender conference, Sri Lanka 6<sup>th</sup> -8<sup>th</sup> March 2012
- Gillian Stynes, Moses Oketch, Richard Smith, Felicity Smith, Frances Owusu-Daaku and Mylene Lagarde.* - Annual Meeting of the Society for Social Medicine. London, 12-14 September 2012.
- Gillian Stynes, Felicity Smith, Richard Smith, Moses Oketch, Frances Owusu-Daaku and Mylene Lagarde.* - Annual Congress of the International Pharmaceutical Federation. Amsterdam, 3-8 October 2012.

- v. *Gillian Stynes, Richard Smith, Felicity Smith, Moses Oketch, Frances Owusu-Daaku and Mylene Lagarde.* - 2<sup>nd</sup> Global Symposium on Health Systems Research. Beijing, 31 October – 3 November 2012.
- vi. **Buabeng KO**, Rauf A, Anto B.P, Duwiewua M.- Centennial Conference of the International Pharmaceutical Federation (FIP) in Amsterdam, The Netherlands; 3<sup>rd</sup> -8<sup>th</sup> October 2012.
- vii. Agarko-Poku T, **Buabeng KO**, Adu-Sarkodie Y. - Conference of International Union against STI in Melbourne, Australia.

## **SERVICE TO COMMUNITY**

Service by senior members to the University has improved remarkably with the entire senior members serving on various committees in the college of Health Sciences and the University at large.

Senior Members in the Department have also been actively involved as Facilitators in workshops for practicing pharmacists in health systems and pharmacy practice research. Others have been engaged as consultants to various projects including Access to medicines for malaria and HIV/AIDs and healthcare financing. Some senior members are also involved in the writing and review of drug policy documents for the ministry of health. Some also serve as officers in international pharmaceutical organisations

## **BENEFACTORS AND INTERNATIONAL AFFILIATIONS**

The Department's affiliation with the Department for Practice and Policy, University of London School of Pharmacy is still ongoing. The link with the School of Pharmacy, University of Eastern Finland, Kuopio has resulted in the exchange of another three (3) undergraduate students from Finland to Ghana.

# **DEPARTMENT OF HERBAL MEDICINE**

## **INTRODUCTION**

The Department is to produce healthcare professionals who will provide healthcare using locally available plant medicine resources. The ultimate goal is to bring science and technology to bear on the practice of Traditional Medicine in the country, and thereby modernize and improve the quality of the practice, and thus make it more acceptable and accessible.

## **PROGRAMMES OFFERED**

The Department coordinates the 4-year multidisciplinary BSc Herbal Medicine Programme. It offers various courses related to phytotherapy, disease prevention and health promotion. We have completed the revision of the curriculum of the programme. The new syllabus will strategically position the graduates to excellently promote herbal medicine practice in the country and beyond.

## **DEPARTMENT MEMBERS**

The Department had a staff of four full time Senior Members, Dr. Kofi Annan (*Head*, on secondment from Pharmacognosy Department), Prof. T. C. Fleischer, Mr. G.H. Sam,

Prof. M.L.K Mensah (on contract) and one part-time lecturer Dr. Yaw Bio (Director, KNUST Hospital). The Department also enjoyed the services of Herbalist Kofi Asare Osafo who assisted with the practical orientation of students during their training.

### **MAJOR RESEARCH BY STAFF**

The Department was engaged in various aspects of the herbal medicine industry in Ghana, with emphasis on the quality of the practice of herbal medicine, use, misuse and abuse of herbal medicines. These were carried out in collaboration with other Departments in the Faculty and institutions outside the University. The external collaborators include Ghana Atomic Energy Commission. Global Institute for Bio-Exploration (GIBEX-Africa) and Agribusiness in Sustainable Natural African Plant Products (ASNAPP) and Department of Botany, University of Ghana, Legon, Ghana Federation of Traditional Medicine Practitioners Association (GHAFTRAM).

### **CONFERENCES AND MEETINGS**

Some Senior Members of the Department attended the Annual General Meeting of the Pharmaceutical Society of Ghana held in Cape Coast, and the 5<sup>th</sup> Scientific Congress of Traditional Medicine Practitioners and Conventional Medicine Practitioners held at Cotonou, Benin; papers presented included ‘Collaborative research involving TMPs and CMPs, the Ghanaian experience’.

### **SERVICE TO THE COMMUNITY**

During the year under review, Senior Members of the University offered services in various capacities to the University and the Nation. At the Faculty level they all served on the Faculty Board. Some members also served on the College Board, the Academic Board and some of their sub-committee.

The Department in collaboration with West African Health Organization (WAHO) and Ghana Federation of Traditional Medicine (GHAFTRAM) successfully organized training workshop for Herbalist and Traditional Medicine Practitioners in Ghana on the Theme: “Introducing Basic Science into Traditional Medicine Practice in Ghana” on July 18<sup>th</sup> – 20<sup>th</sup>, 2012. The Workshop was the 2<sup>nd</sup> of its kind following the first one organized in February, 2011.

Members continue to serve as resource persons or experts on various Technical/ Expert Committees of the Traditional and Alternative Medicine Directorate (TAMD), Traditional Medicine Practice Council (TMPC) and the Centre for Scientific Research into Plant Medicine (CSRPM), all under the Ministry of Health, the Ghana Standards Authority and West African Health Organization (WAHO).

### **VISITS**

During the year under review individuals, groups and international organizations visited the Department to learn about the programme. Among these were the delegation from the Traditional Medicine Practice Council (TMPC), 10-member government delegation from the Gambia, the Director of Food and Drugs Board of Burkina Faso, Dr. Eloi Some, Prof. Tony Elujoba of Ile Ife University, Nigeria, the Traditional Medicine Directorate of Ministry of Health of Cote D’Ivoire.

## **THE SCHOOL OF MEDICAL SCIENCES**

### **INTRODUCTION**

Established in 1975 as the second Medical School in the country, the School continues to train Physicians and is involved in the training of other allied health professionals for the country. We have made great strides in this respect and we are grateful to our stakeholders and the country for the recognition of our efforts. Currently the School runs 3 undergraduate programmes; BSc Human Biology leading to the MBChB (Bachelor of Medicine, Bachelor of Surgery), BSc Physician Assistantship (Anaesthesia) and BSc Disability and Rehabilitation Studies. Postgraduate programmes at MSc/MPhil and PhD level are also run by our departments of Community Health, Molecular Medicine, Clinical Microbiology, and Anatomy. The Department of Eye, ear and Throat will mount Masters programmes in Audiology and Speech Science beginning 2013/14 academic year. We are currently working on proposals from the Ghana Health Service for the training of various paramedicals at Bachelor level.

At KNUST, the school services courses in the School of Dentistry, Faculty of Allied Health Sciences, College of Engineering, and the Faculty of Pharmacy and Pharmaceutical Sciences. In collaboration with the Ghana College of Physicians and Surgeons, our faculty are involved in the training of specialist medical personnel for the country.

### **SCHOOL ADMINISTRATION AND DEPARTMENTS**

The School is headed by the Dean who is supported by an Administrative staff and Heads of Departments. Currently, the Principal Office holders of the school are;

Prof Yaw Adu-Sarkodie – Dean

Prof George Bedu-Addo –Vice- Dean

Mr. Kofi Appiah-Koranteng - Senior Assistant Registrar and School Secretary

There are 15 Academic Departments in the School; Anatomy, Molecular Medicine, Physiology, Behavioural Sciences, Clinical Microbiology, Pathology, Child Health, Obstetrics and Gynaecology, Internal Medicine, Surgery, Community Health, Anaesthesia and Intensive Care, Radiology and Eye, Ear, Nose and Throat. Courses in Pharmacology are offered by the Faculty of Pharmacy and Pharmaceutical Sciences.

Teaching and learning in these departments are organized by the Heads of Department.

### **ENROLMENT**

Currently there are 1128 undergraduate students on the Human Biology, 93 on the Disability and Rehabilitation and 10 on the Physician Assistantship (Anaesthesia) programmes respectively. The Human Biology programme which continues to be oversubscribed yearly has about 10% of foreign students who come from Nigeria, Togo, Canada, Mali, Pakistan, Angola and Cote d'Ivoire.

### **HUMAN RESOURCE**

The total number of senior members now stands at 115 which include 8 Professors and 8 Associate Professors. Most of the staff offer specialist clinical services to the Ghana Health Service/Ministry of Health.

### **SUPPORT FOR SISTER MEDICAL SCHOOLS**

The school continues to play its role in supporting the growth of the School of Medical Sciences, UCC and the School of Medicine and Hygiene, UDS. Our Vice-Chancellor has consistently granted permission for our faculty to support teaching and other academic activities in these institutions. Through an affiliation agreement with KNUST, the School also supports the Central University College and the Garden City University both private University Colleges in the training of some health personnel.

### **INITIATIVES FOR USE OF GHANA HEALTH SERVICE FACILITIES FOR TEACHING**

The School has successfully dialogued with the Ghana Health Service for the use of some of its facilities for teaching. Starting next academic year the school will be using all the Kumasi Metropolitan Hospitals as teaching sites. Adjunct faculty have been recruited by the University who together with faculty from the School will be teaching and offering specialist services from these sites. It is hoped with these specialist activities on offer at the sites, this will lead to a decongestion at the Komfo Anokye Teaching Hospital which has served and will continue serving as our main teaching hospital.

We will in future work towards the use of other health facilities in the region and beyond to support student teaching.

### **INFRASTRUCTURE**

During the academic year under review, some infrastructure to support teaching and learning were complete and also started. With funding from the GetFund, the Clinical Simulation Centre which will be an adjunct to the teaching of clinical skills was completed. Our students can thus practice what they are taught on the wards in this centre as well. Further, together with the College of Science, KNUST, we are refurbishing 4 teaching laboratories which should be ready for use before the next academic year. We are also seeking National Tender Board approval to build a classroom complex at the Komfo Anokye Teaching Hospital to take in our large classes proceeding to clinical teaching soon. We hope to get the support of the Government and industry for this.

We will be deploying the use of video-conferencing technology in the teaching of some of our classes in the coming academic year. This has been made possible by the supply of equipment to the school by the National Information Technology Agency (NITA) and some of our research partners.

### **EXTERNAL RESEARCH SUPPORT**

The hard work of our faculty continues to attract both local and international researchers for research collaborations. We are in the forefront of malaria vaccine research together with other countries with support from GSK. Other malaria research and capacity

building is being supported by the Wellcome Trust, EDCTP, Malaria Vaccine Initiative, DFID (UK) and the Gates Foundation. The Gates Foundation also supports research in Reproductive Health, and Child Survival including growth and stunting. We have funding from the World Health Organisation for research into Buruli Ulcer and other Neglected Tropical diseases. USAID has provided funding to support research into HIV Most at risk populations. The Fogarty Institute (US) is supporting research and capacity building in Injury prevention. Research into kidney diseases and lifestyle diseases (including obesity and hypertension) is supported by the NIH. Our recent research partner is the Royal Society which is supporting research and capacity building in Cancer and aflatoxins, and liver disease.

### **COMMUNITY SERVICE**

Apart from clinical service provision by our faculty at the Komfo Anokye Teaching Hospital and other Ghana Health Service facilities, we serve on many committees of the Ghana Health Service and the Ministry of Health. We are grateful to these Health training stakeholders for the recognition they give to us for our support.

### **CHALLENGES**

The School continues to experience challenges in the following areas:

- i. Inadequate academic staff to deal with the large student population;
- ii. Inadequate modern facilities for teaching and laboratory work;
- iii. Inability of the school to admit majority of the qualified applicants who apply to pursue the BSc Human Biology programme annually;

### **WAY FORWARD**

We will continue to pursue our recruitment drive to improve the number of academic staff for teaching. We are looking at various ICT facilities to improve our teaching and learning activities. In the coming year we will approach corporate Ghana to support participation in medical education especially supporting students from needy and difficult to reach parts of the country to enroll in our school. We will again knock on the doors of Governments and its partners to support infrastructure requirements in order to support our large student classes.

## **DEPARTMENT OF ANATOMY**

### **INTRODUCTION**

The Department plays a unique role in the University as the only department involved in the teaching of Human Anatomy to almost all the students in the College of Health Sciences and to Optometry students in the College of Science.

### **STAFFING**

The staffing situation of the Department remains at eleven senior members (academic staff), and 22 research, technical and supporting staff. We continue to depend on the support of the technical and supporting staff for the day- to-day running of the Department. In view of the unique role of the Department in providing teaching to



several Departments in the University, there is the urgent need for qualified lecturers to join the Department to augment the current staff strength. The Department has responded to this need by admitting 4 PhD students through the KNUST Vice-Chancellor's Staff Development Programme. These students are being supervised in collaboration with Prof Alistair M. Warren, Department of Biomedical Science, University of Sheffield, UK.

The breakdown of staff at post was as follows:

1 Professor	1 Visiting Lecturer
1 Associate Professor	5 Senior Staff
2 Senior Lecturers	8 Assistant Technicians
3 Lecturers	6 Mortuary men
1 Assistant Lecturer	3 Security men
2 Visiting Professors	

Out of the number, the Professor, the Associate Professor and the 3 Lecturers were on Part-time appointment.

## TEACHING

Staff continue to work tirelessly to improve teaching in the Department to higher standards. The Department encourages research-led teaching and promotes student-centred learning and independent learning by students. The Department has been very successful in motivating the students to develop an interest in Human Anatomy. This has been done through the identification of academically weak students and spending considerable hours with them on one-to-one basis. The result is the dramatic change in the perception of the subject.

Despite the large students' numbers, the Department continues to organise small group tutorials, table conferences, demonstrations and prosections, Computer-Assisted Learning (CAL), LAB Anatomy Tutorials and Virtual Microscopic Anatomy Tutorials to the students. The Department has introduced student-centred teaching and 'Integrated learning activities and strategies such as Group Assignments, Group Assessments and the use of video recording of practical lessons and/or demonstrations and lectures. The Department also promotes independent learning by students by allowing 24-hour access to the Dissection Hall and out-of-hours' use of the Osteology/Microscopic Anatomy Prep Room. The instituted measures to cope with the large numbers of students and dedication of staff is reflected in the results of the final Anatomy examination which shows a gradual but consistent increase in the number of students who pass their Anatomy examinations with distinction, credit and good pass.

Once again the students were given the opportunity to evaluate the lecturers and the courses offered at the end of each semester. This offered the Department a better chance to assess its teaching methods and programmes.

The Department offers courses at the undergraduate level in areas including **Medicine, Dentistry, Medical Laboratory Technology, General Nursing, Emergency Nursing, Midwifery, Sonography, Sports Science, Herbal Medicine, Veterinary Medicine, Top-up programmes in Midwifery, Emergency Nursing, Physician Assistant programme in Anaesthesia** and to Optometry students in the College of Science. The

Department also provides courses at the M.Phil. Level in Reproductive Anatomy, Reproductive Health, Disability and Rehabilitation and at the Medical Professional level (Primaries) for West African College of Surgeons and the Ghana College of Surgeons and Physicians.

In addition, the Department runs MPhil programmes in Human Anatomy and Cell Biology, Human Anatomy and Forensic Science, Mortuary Science and Management and a PhD programme in Human Anatomy and Cell Biology. These programmes combine research with taught courses in Gross, Microscopic and Developmental Anatomy, Cell Biology, Cytogenetics, Molecular Biology, Neuroscience, and Anatomical Techniques employed in the preservation and preparation of human material for teaching and research. The MPhil programme in **Mortuary Science and Management** is a unique programme that combines the study of behavioural, physical, and applied sciences with the intent of preparing graduates for careers as knowledgeable, skilled, and innovative as mortuary science and funeral service. The Human Anatomy and Forensic Science programme is to provide training in anatomically-based forensic anthropology, comparative forensic osteology and exposure to human form and function with direct relevance to the identification process.

## **RESEARCH AND COLLABORATION**

The Department has research links with the Departments of Anatomy, Obstetrics and Gynaecology (SMS), Pharmacology, Pathology (SMS & UGMS) and Biological Sciences, KNUST, **Department of Biomedical Science, University of Sheffield, UK and the Department of Anatomy and Neurobiology, University of Utah.**

The Department has also made progress on student thesis supervision and faculty are currently supervising 9 final year Medical Laboratory Technology students, 23 MPhil students and 5 PhD students.

## **PUBLICATIONS**

Academic members conducted research in various areas and this led to the publication of papers in various refereed journals.

## **CONFERENCES**

- i. Boateng, E., **Addai, F. K.**, Hottor, B. A. - 40<sup>th</sup> Annual Conference of the Anatomical Society of Southern Africa. Windhoek, Namibia. April 2012.
- ii. **Addai, F.K.** (2012) Cocoa and your health: the tip of the iceberg. 5<sup>0th</sup> Anniversary Celebration of the University of Ghana Medical School, 5<sup>th</sup> Lecture, British Council Auditorium, Accra, Ghana. May 30<sup>th</sup>, 2012.

## **BODY DONATION FOR MEDICAL EDUCATION**

The Department administers a body donation programme for Medical Education. The programme which started about 10 years ago is dedicated to provide for the needs of the ever-growing educational and research areas of medical science. Four people have donated their bodies to the Department. The generosity of these body donors adds

immeasurably to our quality of life. These body donations help in increasing knowledge which ultimately improves the quality of life of all people.

### **SERVICE TO THE COMMUNITY**

Members of the Department continue to give invaluable services as external examiners to sister Universities and consultancy services to the Ghana Police Service.

### **INCOME GENERATION**

The Department continues to generate income through embalming and storage of cadavers brought in by the public. Currently there is more storage space for the large numbers of student cadavers required for the increasing student population, for staff and their dependants and also for the public. The Department also hopes to continue to generate some income through the existing training programme for mortuary personnel of the emerging mortuaries.

## **DEPARTMENT OF CHILD HEALTH**

### **INTRODUCTION**

The Department of Child Health runs the Child Health Course for the MB ChB programme of the School of Medical Sciences, College of Sciences, at the Komfo Anokye Teaching Hospital. The Directorate of Child Health, as it is called at the Komfo Anokye Teaching Hospital, is a 210-bed paediatric health facility that provides tertiary care to the Ashanti, and Brong Ahafo regions as well as to some communities in the Western region and Northern Ghana. The directorate also provides primary care to surrounding communities in Kumasi.

The clinical directorate comprises three main Units, namely: a Mother-Baby Unit (MBU, which is a 100 bed facility for neonatal care), a Paediatric Emergency Unit (PEU), and three General Paediatric Wards that also provide subspecialty paediatric care in the areas of pulmonology, cardiology, haematology/oncology, nephrology and malnutrition. The directorate functions with a team of about 72 doctors including 26 specialists (11 seniors and 15 juniors. Six of the seniors are full time University staff and 2 are Part-Time lecturers), 96 nurses as well as about 80 ancillary and other support staff.

The facility is also accredited by the Ghana and West African Colleges of Physicians (GCPS, WACP) as well to train post graduate Specialist Paediatricians in Ghana and the sub-region to address effectively the challenges of child health care and practice. Currently, a total of 20 Residents are in training to qualify as Junior Specialists in Child Health.

### **STAFF**

The faculty comprises 6 full-time and two part-time lecturers who are all Senior Specialist/Consultant Paediatricians as follows:

Dr Alex Osei-Akoto

Dr E.O.D. Addo-Yobo  
Dr Gyikua Plange-Rhule  
Dr Sampson Antwi  
Dr Daniel Ansong  
Dr Joslin Dogbe  
Dr. Theresa Rettig  
Dr Charles K. A. Poku

The lecturers are supported by 13 clinical demonstrators who are specialist paediatricians in the directorate, namely: Drs Anthony Enimil, Frank Serebour, Charles Hammond, Vivian Paintsil, Larko Dormeyo Owusu, Serwaa Bonsu Asafo-Agyei, Sandra Kwarteng Owusu, Priscilla Wobil, Nicholas Agyei, Adwoa Pokuah Boakye-Yiadom, Benjamin Acheampong, Naana Wireko Brobby and Animah Attobrah Sarfo,. Together, they provide support in clinical tuition and supervision for 115 medical students on the course in Child Health.

The academic faculty is supported by an Administrative Assistant (Ms Ruth Owusu-Ansah) and a Messenger (Mr Paul Oduro).

## **TEACHING STUDENTS**

The class of 2012/2013 academic year is 115; made of 59 males and 56 females. Students are taken through a series of lectures in Child Health and regular bedside teaching in small groups during the training as patients are cared for. The lecturers officially do teaching with support of the demonstrators and informally by residents. Although the primary focus is on general paediatrics, students are exposed to sub-specialty paediatrics as they rotate through the 5 main units of the directorate in the areas of neonatology, paediatric nephrology, cardiology, pulmonology, haematology/oncology, neurology and emergencies.

## **ACTIVITIES**

### **MASTERS IN PUBLIC HEALTH COURSE**

The department runs the Child Survival and Development course of the Masters in Public Health programme organised by the Department of Community Health.

### **EMERGENCY NURSING PROGRAMME**

The Department of Child Health also partners with the Department of Nursing to run the newly established Emergency Nursing programme organised by the Department of Allied Health Sciences.

## **UTAH COLLABORATION**

We have a long-established collaboration with the University of Utah, which has grown since 2001. It started with a team of paediatric sub-specialists visiting yearly to provide updates and offer some teaching to medical students. In the last couple of years we have jointly organised 3-day conferences yearly for paediatric care givers on Paediatric Advanced Life Support (PALS), Neonatal Advanced Life Support (NALS) and topics in

child health care of maximum relevance to our sub-region in which faculty members from Utah paired with local faculty members to provide the updates. The conference in 2012 was held for 4 days and there were 200 participants from almost all the regions of Ghana. It is hoped that this will improve child health care in the region and strengthen links between the teaching hospital and the other health care institutions. The 2013 conference will be held from 22<sup>nd</sup>-26<sup>th</sup> April 2013.

### **ASSISTANCE TO UDS, TAMALE**

Members of our faculty continued to assist the School of Medicine and Health Sciences, University for Development Studies, Tamale in providing lectures and bedside teaching as well as assisting in their clinical examinations in Child Health for their medical students for the 2012-13 academic years.

### **VISITORS**

A team of paediatricians, nurse educators and social workers from The Children's Hospital of Philadelphia and University of Pennsylvania in USA in partnership with the Haemophilia Society of Ghana visited the department with the objective of helping to establish collaboration in Haemophilia work.

### **ELECTIVE STUDENTS**

The Department continues to be popular among European and American medical students for electives. A total of 40 elective students visited the Department within the academic year from UK, Germany, Belgium, Holland, US, Ukraine, Switzerland, Finland and Japan among others.

### **SERVICE TO THE COMMUNITY**

#### ***Collaboration with GHS on neonatal care in Kumasi***

The Neonatal Unit of the Department is in partnership with the Metro Health Services (Ghana Health Services), Kumasi and the Government of Israel to develop neonatal care centres and improves neonatal survival in the city of Kumasi. In this regard faculty members and doctors from the Komfo Anokye Teaching Hospital in partnership with Israeli paediatricians have developed training modules for neonatal care that are used in the training sessions since 2007. Two neonatal care centres have been developed in Kumasi at Kumasi South and Suntreso Government Hospitals to support services offered at KATH. Paediatricians from our department provide support to these facilities with the hope that they would eventually become autonomous in neonatal care.

#### ***Collaboration with Ghana Health Service and other Agencies***

The Department continues to collaborate with the Ghana Health Service on emerging concerns of child health care and service delivery in Ghana. Members of our faculty serve as facilitators on numerous child health training programmes and also on committees for review of various child health care policy documents and strategies including the Scaling up of Newborn Screening for Sickle Cell Disease, HIV/AIDS management and Poliomyelitis eradication. Being the only well-established neonatal care centre in Kumasi and the northern sector of Ghana, the Department provides the model for neonatal care for the northern half of Ghana.

Facilities at the Komfo Anokye Teaching Hospital continue to be used regularly for training of health staff on Breast Feeding and Lactation Management and Neonatal care. The department trained 91 nurses and midwives from the three northern regions on neonatal care during the year for the Christian Health Association of Ghana (CHAG). The Department participated in the biennial meetings of the Reproductive and Child Health Division of the Ghana Health Service.

Our faculty members also regularly play key roles in the Child Health aspects of Continuous Medical Education Programmes (CMEs) for the Northern Sector of Ghana as well as participate in radio programmes on Child Health issues in Kumasi. Faculty members have actively participated in the activities of the Paediatric Society of Ghana and faculty members have held the executive positions for the years 2010-2012.

## **RESEARCH**

Research continues to be a major activity in the Department. The following research activities were and are still in progress in the Department.

- Rotavirus Sentinel site Surveillance (as part of few selected sites in Ghana) (WHO/AFRO)
- Paediatric Bacterial Meningitis Surveillance Programme (WHO/AFRO)
- Paediatric Bacterial Strept Pneumoniae Septicaemia Programme (WHO)
- Intussusception Surveillance Study
- Arpec (Antibiotic) Surveillance Study
- Newborn screening for Sickle cell Disease (NCSD)
- Poisoning Surveillance in Children
- Barekuma Collaborative Community Development Programme (KATH-Univ of Utah-Atwima Nwabiagya District Assembly) (Community Support)
- Comparative, Open Label, Dose and Regimen Optimization Follow-up Study of Intravenous and Intramuscular Artesunate in African Children with Severe Malaria (SMAC-Artesunate Follow-up Study).
- Ocular changes in patients with cerebral malaria
- Prevalence Studies on childhood Epilepsy
- Response to ARV in HIV infected children

## **CONFERENCE ATTENDANCE**

The following are publications/Conference abstracts originating or involving faculty members for the year 2012/13:

1. **Antwi S.** - 12<sup>th</sup> Congress of African Association of Nephrology/5<sup>th</sup> congress of African Paediatric Nephrology Association/2<sup>nd</sup> Congress of Ghana Kidney Association held in Accra, Ghana in February 2013.
2. Carter M, Callegari J, **Antwi S**, Kotanko P, Levin N - 49<sup>th</sup> European Renal Association/European Dialysis and Transplant Association Congress, Paris, 2012

3. **Dogbe, J.,** - Community Intervention for Empowerment and Livelihood Workshop, November 15<sup>th</sup> -16<sup>th</sup>, 2012, Christian Village, Kumasi, Ghana.
4. **Dogbe, J.,** - National Mediators Conference of the SWEB/Lilian Foundation, February 28<sup>th</sup> –March 3<sup>rd</sup>, 2013, Diocesan Pastoral & Training Centre, Koforidua, Ghana.
5. Hammond, C., **Dogbe, J.,** Annan, A., Owusu-Dabo, E. - The WAHRNET 2<sup>ND</sup> Scientific Conference, March 5-7, 2013, Splendid Hotel, Ouagadougou, Burkina Faso.

## **CHALLENGES**

The student-lecturer ratio is still a challenge and there is also the challenge of limited space at KATH both for patient care and for coping with teaching large numbers of medical students. The department has been involved in the planning of establishing external clinical teaching sites and to appoint adjunct lecturers at these sites to address the challenges.

The department continues to provide excellent teaching and learning opportunities and strives to improve the environment for clinical practice and service provision which will in turn provide the appropriate environment for sound clinical training and research for both undergraduate and post-graduates students.

It is hoped that the coming year will find us well on course in the strides of realising our objectives in the service for our nation and mankind.

## **DEPARTMENT OF MOLECULAR MEDICINE**

### **INTRODUCTION**

The Department of Molecular Medicine consists of 8 senior members (1 Associate Professor, 3 Senior Lecturers and 4 Lecturers) and 2 part-time lecturers, 3 Senior/Junior Staff. The Department teaches Medical Students, Allied Health Science Students and Pharmacy Students all in the College of Health Sciences. Besides, the Department offers graduate training and research programmes leading to the award of M.Sc. /M.Phil. /Ph.D. in Chemical Pathology/ Clinical Biochemistry and Clinical Immunology.

The department has research collaboration with KCCR and also the following departments and units: Medicine, Anatomy, Behavioural/Psychiatry Sciences, Obstetrics and Gynaecology, Surgery, Urology, Oncology and Pharmacology.

In the 2012/2013 academic year, the number of research students graduating is as follows:

Ph.D - 1  
M.Phil. - 6

M.Sc. - 5

We currently have a total of 53 graduate students with 7 students pursuing programmes leading to the award of Ph.D Chemical Pathology, 1 Ph.D. Immunology, 18 M.Phil. Chemical Pathology, 2 M.Phil. Immunology, 23 M.Sc. Chemical Pathology and 2 M.Sc. Immunology.

#### **MEMBERS OF STAFF**

The Department has ten (10) academic members of staff. Out of these, there is one (1) Associate Professor who is on contract, three (3) Senior lecturers, and six (6) lecturers out of which one is on study leave and two are on part-time.

The academic staff above are supported by a technician, a senior clerk and a cleaner.

#### **ON-GOING RESEARCH IN THE DEPARTMENT**

Effect of potassium channel (Kv1.3) inhibitor PAP-I on glucose uptake in mice isolated soleus muscle - **Dr. Robert A. Ngala**

Is there correlation in anthropometrics with adipokine cytokine and some mineral elements in metabolic syndrome among type two diabetic patients? –

**Dr. Robert A. Ngala**

Antidiabetic properties of selected tropical plant extracts in Ghana. **Dr. Robert A. Ngala**

Effect of some Ghanaian vegetable oils on glycaemic control in diabetes Mellitus Management - **Dr. Robert A. Ngala**

Possible causes of infertility in patients visiting IVF clinic and the use of Basal Gonadotropins as predictive markers of ovarian response in IVF clients. -

**Dr. Robert A. Ngala**

*Type 2 Diabetes Mellitus in Ghana: An estimation of the prevalence rate, risk factors, and complications among Ghanaian population as a guide for integration of non-communicable diseases into national plans, policies and strategies* - **Dr. Robert A. Ngala**

Comparative Analysis of the Quantity of RA 13 Receptors on triple negative breast carcinomas and non-triple negative breast cancers and the possible development of anti-RA-13 monoclonal antibodies for diagnosis and/or treatment of triple negative breast cancers. 2010 to date: **Prof. (Mrs.) M. T. Frempong**

Immunological Studies on Malaria Vaccine Candidates: 2008 to date – **Prof. Mrs.) M.T. Frempong**

Relationship between Interleukin – 6 and Resting Energy Expenditure among obese and non-obese adults: 2009 to date - **Prof. (Mrs.) M. T. Frempong**



The Impact of Helicobacter pylori infection on Immune Regulation and Clinical course in HIV Patients in Ghana. – **Prof.(Mrs.) M. T. Frempong**

Immune Response to Mycobacterium Ulcerans infection– **Prof. (Mrs.) M. T. Frempong**

Prevalence of HBV Infection among children 1 – 10 years after the Implementation of HBV vaccine in Infant Immunization Policy in the Northern and Upper West Regions. – **Prof. (Mrs.) M. T. Frempong**

Prevalence of Hepatitis B and/or C, infections among HIV-infected pregnant women in the Brong- Ahafo Region. – **Prof. (Mrs.) M. T. Frempong**

The Role of MiR 29 in the T-Cell Response against Tuberculosis. – **Prof. (Mrs.) M. T. Frempong**

Serum Levels of Cholecalcefecol and Inflammatory factors (CRP & Interleukin – 6) in Rheumatoid Arthritis patients. 2012 to date. – **Prof.(Mrs.) M. T. Frempong**

Antioxidant status in Protein Energy Malnourished Children at the Maternal and Child Health Hospital, Kumasi before and after feeding therapy. – **Prof. (Mrs.) M. T. Frempong**

High sensitive C-reactive Protein as a Differential Marker for the Diagnosis of Breast Cancer – **Prof. (Mrs.) M. T. Frempong**

Alpha Amylase as a marker in Prostate Diseases – **Prof. (Mrs.) M. T. Frempong**

The role of oxidative stress in Tripple Negative Breast Cancer. – **Prof. (Mrs.) M. T. Frempong**

Delay Mathematical Modelling of the Immune Response to the growth of Breast Cancer. – **Prof. (Mrs.) M. T. Frempong**

Prevalence and distribution of HPV genotypes in an unscreened Population Of Ghanaian Women - **Dr. F. A. Yeboah**

Adipokines as Biomarkers of obesity among Women in a suburb in Accra, Ghana. - **Dr. F. A. Yeboah**

Serum Leptin and Adiponectin in Subfertile Women attending fertility clinic in Korlebu Teaching Hospital - **Dr. F. A. Yeboah**

The Role of Specific Adipokines: Resistin, Leptin and Adiponectin as predictive factors in aetiology and management of Hypertension - **Dr. F. A. Yeboah**

Metabolic syndrome-like effects in HIV patients on anti-retroviral therapy - **Dr. E.F. Laing**

Metabolic syndrome among Ghanaian patients presenting with chronic kidney disease - **Dr. E.F. Laing**

Prevalence of metabolic syndrome among hypertensive patients visiting Komfo Anokye Teaching Hospital, Kumasi. - **Dr. E.F. Laing**

Anthropometric variables in type I and Type II diabetes mellitus - **Dr. E.F. Laing**

Use of glycosylated haemoglobin as an index of glycaemia in the treatment of type II diabetes mellitus - **Dr. E.F. Laing**

Lithium nephropathy among psychiatric patients in Ghana - **Dr. E.F. Laing**

Sexual dysfunction and sexual quality of life among persons with physical disability in Ghana - **Dr. W.K.B.A. Owiredo**

Haemato-Biochemical basis of Anaemia in the Ashanti region, Ghana – **Dr. W.K.B.A. Owiredo**

Metabolic syndrome and Oxidative stress among patients presenting with Prostate cancer in the Kumasi Metropolis - **Dr. W.K.B.A. Owiredo**

Haemato-biochemical basis of primary postpartum haemorrhage - **Dr. W.K.B.A. Owiredo**

Haemato-Biochemical profile of psychiatric patients referred to Komfo Anokye Teaching Hospital, Kumasi - **Dr. W.K.B.A. Owiredo**

Quality control evaluation of Clinical Chemistry tests in the Kumasi metropolis - **Dr. W.K.B.A. Owiredo**

The effect of Lead on Haemato-Biochemical parameters in the Kumasi Metropolis - **Dr. W.K.B.A. Owiredo**

The effect of thyroid hormones on obesity indices, hypertension and diabetes - **Dr. W.K.B.A. Owiredo**

Inflammatory markers in Hypertension and Renal Disease. - **Dr. W.K.B.A. Owiredo**

The prevalence of metabolic syndrome among People Living with HIV/AIDS - **Dr. Christian Obirikorang**

The prevalence of Iron Deficiency anaemia among pregnant women - **Dr. Christian Obirikorang**

The predictors of adherence in Antiretroviral Therapy in People Living with HIV/AIDS. - **Dr. Christian Obirikorang**

The serum electrolyte profile in HIV/AIDS patients - **Dr. Christian Obirikorang**

## **CONFERENCES, /SEMINARS/MEMBERSHIPS**

Some members of the department had the opportunity to participate in the following Conferences/seminars/workshops:

MEPI Workshop South Africa 5 – 8 June 2012 - **Dr. Robert A. Ngala**

STEM Conference KNUST/Michigan - Kumasi May 29 – 31, 2012 - **Dr. Robert A. Ngala**

Third International Symposium of Breast Cancer Prevention: Models for Breast Prevention from Innovation to Action held at Purdue University, West Lafayette, Indiana, USA from October 10 – 12, 2012. – **Prof. (Mrs.) M. T. Frempong**

Clinic Pathological Conference on Gastrointestinal and Liver Pathology, Immunohistochemistry and Liquid Based Cytology held at Kumasi, Ghana from August 13 – August 17, 2012. – **Prof. (Mrs.) M. T. Frempong**

Scientific and Educational Symposium (organised in honour of Prof. F. K. Allotey to commemorate his 80<sup>th</sup> birthday) held on 15<sup>th</sup> Nov., 2012. Presented a paper on: Mathematical Modelling of Human Immune Response to Viral Infections – **Prof. (Mrs.) M. T. Frempong**

University of Ghana, College of Health Science Annual Scientific Conference held at GIMPA Accra 21<sup>st</sup> – 23<sup>rd</sup> Sept., 2012. Theme: Non communicable Disease and Impact on Ghanaian Society - **Dr. F. A. Yeboah**

Research proposal writing on HIV/AIDS Seminar organized by the College of Health Sciences and Browne University (USA) held at the Ghana College of Physicians & Surgeons, Accra, Oct., 2012 - **Dr. F. A. Yeboah**

University of Michigan STEM-Africa Conference in Collaboration with KNUST. Advancing African STEM Research, Education and Collaboration” KNUST, Kumasi. (29<sup>th</sup>-31<sup>st</sup> May 2012) - **Dr. E.F. Laing**

Scientific Conference on the use of DPP-4 inhibitors to regulate both insulin and glucagon in the treatment of Type 2 Diabetes Mellitus, organized by Novartis at the Miklin Hotel, Kumasi, Ghana. (20<sup>th</sup> June 2012). - **Dr. E.F. Laing**

College of Health Sciences, KNUST, Scientific Conference. Natural and Man made Disasters: Fire Outbreaks and Road Accidents: The Health Impact. (6<sup>th</sup>-7<sup>th</sup> September 2012) Great Hall, KNUST, Kumasi - **Dr. E.F. Laing**

## **PUBLICATIONS**

In the year under review, academic members off the department published over twenty five (25) papers and review articles in several journals.

## MAJOR SERVICE TO THE COMMUNITY

A. Members of the Department continue to supervise and validate Clinical Chemistry at the Clinical Biochemistry Department of the Komfo Anokye Teaching Hospital.

B. In addition members served in various capacities in and outside the University as follows:

Head of Department, Molecular Medicine - **Robert A Ngala**

Member, School Board- School of Medical Sciences K.N.U.S.T - **Robert A Ngala**

Member, School Education Committee. - **Robert A Ngala**

Member, Oath Swearing Committee - **Robert A Ngala**

Member, School Admissions Committee - **Robert A Ngala**

Visiting fellow - University of Buckingham, UK - **Robert A Ngala**

British pharmacological Society (BPS) - **Robert A Ngala**

Member, International Diabetes Federation - **Robert A Ngala**

Chairman, Sub-Committee of the Planning and Resource Committee for the Review of Proposals for the Doctor of Pharmacy (Pharm D) Programme – **Prof. (Mrs.) M. T. Frempong**

Acting Chairman, Board of Governors of KNUST Senior High School, Kumasi, 2002 to Dec., 2012. – **Prof. (Mrs.) M. T. Frempong**

Member, Board of Governors, Jackson's Educational Complex, Kumasi, 2010 to date - **Prof. (Mrs.) M. T. Frempong**

Supervisor Routine diagnostic Investigations at KATH - **Prof. (Mrs.) M. T. Frempong**

Member, Committee for Human Research, Publications and Ethics of the School of Medical Sciences/Komfo Anokye Teaching Hospital. - **Prof. (Mrs.) M. T. Frempong**

Member of the School Board, SMS - **Prof. (Mrs.) M. T. Frempong**

Member: Committee of Enquiry to investigate purchase of microtomes for Department of Anatomy (2011-2012) - **Dr. E.F. Laing**

Member: Committee of Enquiry to investigate allegation by a member of staff on publication of an article in the Journal of University of Science and Technology (2012-2013) - **Dr. E.F. Laing**

Head, Department of Biochemistry, Komfo Anokye Teaching Hospital, Kumasi (2013) - **Dr. E.F. Laing**

Lead Clinician, Directorate of Diagnostics, Komfo Anokye Teaching Hospital, Kumasi (2012-2013) - **Dr. E.F. Laing**

Three times Acting Head of Directorate, Directorate of Diagnostics, Komfo Anokye Teaching Hospital, Kumasi (2012) - **Dr. E.F. Laing**

Member: Committee to draft Equipment Policy for the Komfo Anokye Teaching Hospital (2012-2013) - **Dr. E.F. Laing**

Consultant Physician and Doctor-in-Charge, Aseda Clinic, Adum, Kumasi - **Dr. E.F. Laing**

Member, Volunteers Group, Central Charismatic Baptist Church, Gyinyase, Kumasi - **Dr. E.F. Laing**

Member: Counselling Team, Central Charismatic Baptist Church, Gyinyase, Kumasi - **Dr. E.F. Laing**

College of Health Sciences Examinations Officer - **Dr. W.K.B.A. Owiredu**

External Examiner in Chemical Pathology, Department of Medical Laboratory Sciences, School of Medicine and Health Sciences, University for Development Studies, Tamale - **Dr. W.K.B.A. Owiredu**

External Examiner in Chemical Pathology, Department of Medical Laboratory, University of Cape Coast, Cape Coast. - **Dr. W.K.B.A. Owiredu**

Chairman, Parent Teacher Association of Saint Monica's Senior High School, Mampong, Ashanti - **Dr. W.K.B.A. Owiredu**

Deacon and Secretary, Calvary Temple Assembly of God Church Board - **Dr. W.K.B.A. Owiredu**

Member, School Management Board, Calvary Temple Assembly of God School - **Dr. W.K.B.A. Owiredu**

Department Postgraduate Coordinator - **Dr. Christian Obirikorang**

Departmental Examination Officer - **Dr. (Mrs.) Linda Ahenkorah Fondjo**

Member, SMS Guesthouse Management Committee - **Dr. (Mrs.) Linda Ahenkorah Fondjo.**

## **PHYSIOLOGY DEPARTMENT**

### **PREAMBLE**

The Department of Physiology is one of the oldest in the School of Medical Sciences. From very humble beginnings, it has grown over the years in stature. Currently, it has one of the highest research profiles in the School of Medical Sciences.

### **STAFF OF THE DEPARTMENT**

Prof. Tsiri Agbenyega

Prof. J. Plange-Rhule- Head

Dr. K. Bedu-Addo

Mrs. Lorraine Sallah

### **SUPPORTING STAFF**

Ms. Rhoda Dufie Dwobeng

Mr. Emmanuel Amankwah Ntim

Mr. Emmanuel Nana Owusu

### **TEACHING**

The Department teaches the Physiology component of the BSc Human Biology programme (Human Biology I and Human Biology II) for Medical and Dental Students. It also provides teaching in physiology on the BSc Physician Assistant (Anaesthesia) Programme of the Department of Anaesthesia, School of Medical Sciences.

The Department also services the teaching of Physiology on the programmes of the Faculty of Allied Health Sciences. This comprises the BSc programmes in General Nursing, Emergency Nursing, Midwifery, Medical Laboratory Technology, Sports & Exercise Sciences, Sonography and also the Diploma Programme in Emergency Nursing.

In addition, the Department services the teaching of Physiology on the following: BSc Herbal Medicine programme of the Faculty of Pharmacy & Pharmaceutical Sciences and the DVM programme of the School of Veterinary Medicine.

### **POSTGRADUATE STUDENTS**

There are seven (7) Postgraduate (MPhil) students in the Department. Two out of the seven are in their first year. The rest are expected to complete their programmes this year.

### **ON-GOING PROJECTS BY MEMBERS IN THE DEPARTMENT**

1. Modeling the Epidemiology Transition: Energy Expenditure, Obesity and Diabetes (METS). This project which is funded by the National Institutes of Health (NIH) started in 2009 and is expected to be finished in June 2013.
2. Vitamin D Ancillary (VIDA) Study. This is a study that will run for three years starting from 2013. It is an ancillary study to the METS study. It is funded by the National Institutes of Health (NIH)
3. A phase III, double blind (observer-blind), randomized, controlled multi-center study to evaluate, in infants and children, the efficacy of the RTS,S/AS01E candidate vaccine against malaria disease caused by *P. falciparum* infection, across diverse malaria transmission settings in Africa. Funded by the Malaria Vaccine Initiative (MVI).
4. Phase III Randomized, Open, Controlled Study to Evaluate the Immune Response to the Hepatitis B Antigen of the RTS,S/AS01<sub>E</sub> Candidate Vaccine, when Administered as Primary Vaccination Integrated into an EPI regimen to Infants Living in Sub-Saharan Africa (MAL063). Funded by the Malaria Vaccine Initiative (MVI)
5. Comparative, Open Label, Dose and Regimen Optimization Follow-up Study of Intravenous and Intramuscular Artesunate in African Children with Severe Malaria. Funded by EDCTP
6. An epidemiology study to assess Plasmodium falciparum parasite prevalence and serological conversion rates in catchment areas of a Phase III trial of the candidate malaria vaccine RTS,S/AS01E in sub-Saharan Africa. Funded by GSK
7. Re-defining Cerebral Malaria. The Severe Malaria in African Children (SMAC) network Study. Funded by National Institutes of Health (NIH)
8. Efficacy and safety of rectal Artesunate in Paediatric patients a randomised-controlled study. Funded by WHO
9. Semen quality of male partners in infertile couples. Self funded.
10. Assessing the ovulatory causes of infertility among women visiting the infertility clinic at Komfo Anokye Teaching Hospital. Self funded.
11. 'Task Shifting and Blood Pressure Control in Ghana, A cluster-randomised Trial (TASSH Study)'. This is a three year research project which started in 2012 and is funded by the National Institutes of Health (NIH)
12. Epigenetic Mechanisms, Stunting and Poor Growth; Targets for Intervention'. This study started in February 2013 and is funded by the Bill & Melinda Gates Foundation.
13. H3 Africa Kidney Disease Research Network" Study. This is a multicentre collaborative study of the genetic basis of kidney diseases in Africa which started in February 2013 and is funded by the National Institutes of Health (NIH).

## **PUBLICATIONS BY MEMBERS IN THE DEPARTMENT 2012/2013**

1. Mortality patterns and site heterogeneity of severe malaria in African children.
2. Impact, challenges, and future projections of vaccine trials in Africa.
3. A phase 3 trial of RTS,S/AS01 malaria vaccine in African infants.
4. Genome-wide association study indicates two novel resistance loci for severe malaria.
5. Predicting the clinical outcome of severe falciparum malaria in African children: findings from a large randomized trial.

## **DEPARTMENT OF OBSTETRICS & GYNAECOLOGY**

### **ACADEMIC STAFF**

1. Prof. K. A. Danso
2. Prof. H. S. Opare-Addo - Head
3. Dr. A. T. Odoi
4. Dr. C. A. Turpin
5. Dr. B. K. Opoku
6. Dr. V. N. Addo
7. Dr F. Ankobea-Kokroe
8. Dr. G. O. Asubonteng
9. Dr. Abdul-Razak Abdul Mumin
10. Dr. R. E. Larsen-Reindorf

### **TEACHING**

In addition to teaching the fifth year students, who number 118 currently, general obstetrics and gynecology, the Department offers a course in emergency obstetrics and gynecology to the third-year B.Sc. Emergency Nursing and introductory course to the fifth year dental students. We also take part in teaching and supervising the projects of MPH students offering reproductive health.

Resident students for the membership and fellowship examinations of the Ghana College of Physician and Surgeons and the West African College of Surgeons are given both theoretical and practical training in the Department. The year under review saw four doctors pass the membership examination of the Ghana College of Physicians and Surgeons. Three others also passed the fellowship examination of the West Africa College of Surgeons.

Some senior members have introduced reflective writing exercises to the undergraduate students. This method of learning enables the student to retrospectively link the various processes of learning: defining a patient's problem, content analysis and choosing from various treatment options based on the patient's social and other characteristics. Reflective writing reinforces learning in a relaxed manner and exposes gaps which should be immediately addressed through feedback to the student. We hope all senior members will take it up in the coming year.

Senior members organize twice a year one-week workshop for new House Officers of KATH in Comprehensive Abortion Care, Repair of Episiotomy, and Manual Removal of

Placenta. Recently 'basic surgical skills' and 'operation notes writing' modules have been added to this course.

Two books (*SMS Handbook of Obstetrics* and *SMS Handbook of Gynaecology*) with contribution from all senior members of the department, edited by Opoku K.B., Odoi A.T, and Danso K.A, and published by the KNUST Printing Press were launched. We hope these books will enhance teaching especially at the undergraduate level.

We hope the skills laboratory will be fully operational in the coming year to enhance acquisition of skills by our students. The department continues to double mark all essays; this removes biases and offers a fairer assessment of students. We hope this process extends to other departments.

### **CONFERENCES/WORKSHOPS ATTENDED AT WHICH PAPERS WERE READ**

**Danso K.A.**- Workshop on 'Understanding the need and importance of improving physical access to maternal and neonatal health services for rural communities in Ghana' under the auspices of the National Ambulance Service in collaboration with the Transport Unit of the Ministry of Health of Ghana in partnership with a UK-based NGO, Transaid. Accra, 24<sup>th</sup> January, 2012.

**Danso K.A.** - 4<sup>th</sup> annual meeting and scientific conference of International Family Planning Fellowship Programme. Kumasi. 12 -14<sup>th</sup> March 2012.

Evelyn Hall, F. W. K. Anderson and **Kwabena Danso** - 60<sup>th</sup> Annual Scientific Meeting of the American College of Obstetricians and Gynaecologists. San Diego, California, USA. 5 – 9 May, 2012.

**Danso K.A** - Presentation at side meeting at '20<sup>th</sup> FIGO World Congress of Gynaecology and Obstetrics. Rome, Italy. 7-12 October 2012.

**Opoku Baafuor K** - XX FIGO Conference, Rome, Italy; 7-12<sup>th</sup> October 2012.

### **CONFERENCES/WORKSHOPS ATTENDED AS PARTICIPANT**

International multidisciplinary workshop on 'Headloading and effects on reproductive health.' Institute of Advanced Study, Palace Green, Durham University, Durham, UK. 16-18 January, 2012.

Fellowship in Family Planning Annual Meeting (2012). San Diego, California, USA. 4<sup>th</sup> – 6<sup>th</sup> May, 2012.

9<sup>th</sup> Annual General and Scientific Meeting of the Ghana College of Physicians and Surgeons, Accra. 28 – 30 November, 2012.

Annual General Meeting of the Society of Obstetricians and Gynaecologists of Ghana (SOGOG). Theme: Accelerating the achievements of MDG 5 for Ghana; the role of Obstetricians-Gynaecologists. Accra, 15<sup>th</sup> February, 2013.



53<sup>rd</sup> Annual Conference and scientific meeting of the West African College of Surgeons' in Lome, Togo. 10-16<sup>th</sup> March, 2013.

Danso K. A. - International multidisciplinary workshop on 'Headloading and the effects on reproductive health.' Institute of Advanced Study, Palace Green, Durham University, Durham, UK. 16-18 January, 2012.

Danso K. A. attended United States of America Fellowship in Family Planning Annual Meeting. San Diego, California, USA. 4 – 6 May, 2012.

Danso K. A. Opare-Addo H.S attended the. 9<sup>th</sup> Annual General and Scientific Meeting of the Ghana College of Physicians and Surgeons. Accra. 28 – 30 November, 2012.

Danso K. A. attended Annual General Meeting of the Society of Obstetricians and Gynaecologists of Ghana (SOGOG). Theme: Accelerating the achievements of MDG 5 for Ghana; the role of Obstetricians-Gynaecologists. Accra, 15<sup>th</sup> February, 2013.

Danso K. A. Opare-Addo H.S attended the 53<sup>rd</sup> Annual Conference and scientific meeting of the West African College of Surgeons' in Lome, Togo. 10-16<sup>th</sup> March, 2013.

Danso K. A. attended 2<sup>nd</sup> International multidisciplinary workshop on 'Headloading and effects on reproductive health.' In collaboration with University of Cape Coast and Durham University (UK). British Council, Accra, 27<sup>th</sup> March, 2013.

Odoi A.T attended Ghana Medical and Dental Council and Ghana Medical Association Seminar on Legal aspects a medical practice.

## **HONOURS**

Prof. K. A. Danso was elected Honorary Fellow of the American College of Obstetricians and Gynecologists (FACOG) at its 60<sup>th</sup> Annual Scientific Meeting of the College. San Diego, California, USA. 5 – 9 May, 2012.

## **MEMBERSHIP OF COMMITTEES**

1. Prof. K. A. Danso was appointed as Ghana Medical and Dental Council's inspector of medical and dental training institutions in Ghana in 2013.
2. Prof. K. A. Danso was appointed Chairman, KNUST Sub-committee to review the application of a KNUST affiliate, Medicare College of Applied Sciences.
3. Prof. H. S. Opare-Addo and Dr. A. T. Odoi are members of the Ghana College of Physicians and Surgeons Faculty of Obstetrics and Gynaecology Educational Committee.
  - Helped prepare a Comprehensive Syllabus for Advanced General Obstetrics and Gynaecology Fellowship Programme
4. Prof. H. S. Opare-Addo and Dr. A. T. Odoi were part of the Ghana Medical and Dental Council Accreditation Team that inspected Offinso – Maase Mission,

Techiman, and DormaaAhenkro Hospitals for suitability or otherwise for housemanship training of newly qualified medical doctors.

5. Dr. A. T. Odoion becoming the Chairman of the SMS Dean's Guest House Committee has helped expand the catering facilities to provide a full-time restaurant services. The SMS Guest House has also been upgraded with new furnishing and internet facility.
6. Dr R. E. Larsen-Reindorf was elected a member of Ghana Medical and Dental Council, the regulatory body for doctors, dentists and physician assistants in Ghana.
7. Dr R. E. Larsen-Reindorf has been Chairman of the Ghana Medical Association (GMA) Continuing professional development (CPD) Committee from 2008 to date. This Committee is responsible for educational activities of the GMA.
9. Dr R E Larsen-Reindorf was member of National Accreditation Board team accrediting the following University Colleges for BSc programmes in Physician Assistant Studies: Garden City University College, Radford University College and J- Prompt Institute.

## **EXTERNAL EXAMINERS**

- Prof. K. A. Danso, Prof H S Opare-Addo, Dr A T Odoi, Dr C A Turpin, Dr V N Addo are external examiners for University of Ghana Medical School, West African College Surgeons and Ghana College Physicians and Surgeon.
- In addition, Dr. C. A. Turpin and R. E. Larsen-Reindorf are external examiners for University of Development Studies Medical School and Nurses' and Midwife Council respectively.

## **SERVICE**

The family planning unit continues to play a leading role in reproductive health service provision, research, training and advocacy. All the locally available family planning methods are provided to over 12,000 clients annually in the unit. The centre provides pre-service practical training for undergraduate and postgraduate physicians, nursing, midwifery and public health students (504 in the 2012). In collaboration with the Ghana Health Service and NGOs, the unit also provides in-service training to update knowledge and skills of reproductive health providers (over 90 in 2012) from Ashanti, BrongAhafo, Northern, Upper East and Upper regions.

The unit is also involved in international collaborations notably, the University of Michigan- International Family Planning Fellowship Programme, which supports advanced training and research in Family Planning and contraception in the centre. Experts from the unit also contribute to review and update of national reproductive health service standards and protocols. Inter-disciplinary collaborative research in reproductive health with this unit is encouraged.

Dr. Baafuor Kofi Opoku organized training for 50 midwives, nurses and community health officers (CHO) from the Ashanti, BrongAhafo, Northern, Upper West and Upper East Regions in techniques of insertion and removal of 'Implanon', a long-acting implant contraceptive August 2012. This activity was repeated in April 2013 for 40 similar participants from the Ashanti Region.

## **DEPARTMENT OF SURGERY**

### **INTRODUCTION**

The Department of Surgery, School of Medical Sciences, is also referred to as the Directorate of Surgery of the KomfoAnokye Teaching Hospital, comprises the following subspecialties:

- General Surgery
- Paediatric Surgery
- Trauma and Orthopaedic Surgery
- Urology
- Maxillofacial Surgery
- Plastic and Reconstructive Surgery
- Neurosurgery

### **DEPARTMENTAL AIMS/OBJECTIVES**

The Department of Surgery has over the years aimed to:

- (a) Fulfil the general vision of the School of Medical Sciences through the pursuit of excellence in teaching, research and high quality service to the community. The training of doctors with high ethical, moral and social standards remains our goal.
- (b) Provide basic clinical training in all the subspecialties currently available in the department and expand training into other subspecialties such as Cardio-thoracic Surgery, Vascular Surgery, Endocrine Surgery and Laparoscopic Surgery.
- (c) Provide postgraduate training in surgery through the fellowship of the West African College of Surgeons and the Ghana College of Physicians and Surgeons as well as provide advanced training to doctors throughout Ghana through short term courses i.e. Continuing Medical Education (CME) and Continuing Professional Development (CPD) Courses.
- (d) Promote the conduct of research for improving the quality of teaching and service.

### **STAFF**

Prof. F.A. Abantanga- Head  
Professor Peter Donkor  
Dr. Pius Agbenorku  
Dr. M. Ohene-Yeboah

Dr. K. E. K. Aboah  
Dr. R.E. Quansah  
Dr. E. P. Amaning  
Dr. E. Adu

Dr. F.S.K. Aitpillah  
Dr. A. Gyedu  
Dr. J. Akpaloo  
Dr. J. Yorke  
Dr. P. Konadu  
Dr. C. K. Gyasi-Sarpong

Dr. Charles Mock Visiting Professor  
Dr. med. Richter-Turtur, Visiting Professor.  
Prof. A. M. Morris, Visiting Professor.  
Dr. med. Kurt Lennert, Visiting Professor.  
Prof Martin Webster, Visiting Professor

### **MINISTRY OF HEALTH STAFF**

The under-listed surgeons who are in the employ of the Ministry of Health are also active members of the department and partake in clinical teaching of students.

1. Dr. E.K. Addipa, Komfo Anokye Teaching Hospital, General Surgeon
2. Dr. R.K.A. Vowotor, Komfo Anokye Teaching Hospital, Neurosurgeon
3. Dr. B. Owusu, Komfo Anokye Teaching Hospital, Neurosurgeon
4. Dr. J.K. Oppong, Komfo Anokye Teaching Hospital, General Surgeon
5. Dr. R. Kumah-Ametepey, Komfo Anokye Teaching Hospital, Trauma/Orthopaedic Surgeon
6. Dr. D. Awariya, Komfo Anokye Teaching Hospital, Trauma/Orthopaedic Surgeon
7. Dr. C. K. Dally, Komfo Anokye Teaching Hospital, General Surgeon
8. Dr. P. Lamina, Komfo Anokye Teaching Hospital, Neurosurgeon
9. Dr. Oheneba Owusu-Danso, Komfo Anokye Teaching Hospital, Plastic Surgeon
10. Dr. Roland Azorliade, Komfo Anokye Teaching Hospital, Urology
11. Dr. KwakuAddae Arhin, Komfo Anokye Teaching Hospital, Urology

### **SUPPORTING STAFF**

The Department has four (4) supporting staff.

### **ACTIVITIES**

Specialists in the Department:

1. Organized teaching for 1<sup>st</sup> and 3<sup>rd</sup> clinical year medical students of School of Medical Sciences
2. Organized basic surgical skills courses for district and mission hospitals and residents of KomfoAnokye Teaching Hospital every year.
3. Treated children with cleft deformities together with a team of surgeons from Children's Surgery International.
4. Performed reconstructive surgeries in genito-urinary system with surgeons from International Volunteers in Urology.
5. Organized a workshop in 2011 on wound management.
6. Attended various conferences (both locally and internationally) to upgrade their knowledge and skills in surgery.

### **TEACHING**

Teaching continues to be of very high standards in the Department. Lecturers are encouraged to update their lectures to reflect the present state of affairs in medicine. Both undergraduate and postgraduate teaching has been intensified with the introduction of new concepts. All lecturers now use PowerPoint presentations. Handouts are made available to students.

The large increase in student numbers has necessitated a reorganization of our teaching programme. The quality of teaching, however, remains high. Our undergraduates performed well in the final examinations last year. The problem of two classes being combined together for teaching needs to be looked into seriously. This does not speak well for effective teaching.

The locally trained residents continue to perform creditably in the exit examinations. Six out of eight residents, under the tutelage of the consultants of the Department passed out last year (2012) as members of the Ghana College of Surgeons and are serving in various hospitals of the country as surgical specialists.

### **RESEARCH:**

Research continues to be a major focus of the Department and all consultants have research programmes. New and ongoing research programmes include:

1. Breast cancer (ongoing).
2. Aetiology of gastric outlet obstruction (ongoing).
3. Gastric malignancies (ongoing).
4. Prospective study in typhoid perforations (ongoing).
5. Buruli Ulcer (ongoing).
6. Epidemiology of trauma and violence in Ghana (ongoing).
7. Colonic cancers (ongoing).
8. Sigmoid volvulus (ongoing).
9. Prospective study into the causes of acute abdomen in sub-Saharan Africa Hospital (ongoing).
10. Neonatal malformations (ongoing).
11. Malformations in children (ongoing).
12. Hirschsprung's disease management (ongoing).
13. Prostate cancer (ongoing).
14. Male Infertility (ongoing).
15. Priapism (ongoing).
16. Cleft lip and palate deformity (ongoing).
17. Oral squamous cell carcinoma (ongoing)
18. Autogenous tissue for reconstruction in the maxillofacial region (ongoing)
19. CNS abnormalities (ongoing)
20. Aetiology of road traffic accidents at KomfoAnokye Teaching Hospital (ongoing)
21. Management of complicated leg injuries at KomfoAnokye Teaching Hospital (ongoing)
22. Buccal mucosa use in urethroplasty
23. The incidence of chest injuries in the ICU from 2003 in KomfoAnokye Teaching Hospital (ongoing)
24. Pneumatic reduction of intussusceptions at KomfoAnokye Teaching Hospital (ongoing)
25. Use of CT scan to diagnose unconfirmed cases of typhoid perforation
26. Parapneumonic effusions and empyomas in children.

## **PUBLICATIONS**

Eighteen (18) papers were published by members of staff in different refereed journals

## **COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

During the year under review the Department of Surgery continued to give high quality specialized services to the community. At the Breast Care Center surgeons continue to educate our women on the early signs of breast cancer and the need to report quickly to hospital.

Prof. F.A. Abantanga is a member of the editorial board of the peer-reviewed journal - African Journal of Paediatric Surgery and also a reviewer of the Indian Journal of Surgery. Prof. Abantanga went on an outreach medical service to the people of Bolga, Bongo and Tongo in the year under review. Prof. Ohene-Yeboah is a member of the Court of Examiners of Medical and Dental Council.

## **PUBLIC EDUCATION**

Late presentation, ignorance and superstition continue to account for the poor prognosis in most patients. The Department intensified its public education programme during the year under review. The Department participated in public lectures, radio and television programmes. Patients attending outpatient clinics were educated particularly on the advantages of early attendance to hospital.

## **LINKS/INTERNATIONAL RELATIONS**

At the undergraduate level, the department enjoys linkages with the various Universities that have linkages with the School of Medical Sciences. Students from the U.S.A., Germany, Sweden, Denmark and UK came for their elective training in our Department.

At the postgraduate level the department has links with:

1. University of Michigan- Breast Cancer
2. University of Pittsburgh- Paediatric Urology
3. Memorial Sloan- Kettering Cancer Center – Surgical Oncology.

## **CONCLUSION**

The Department is making progress in the areas of teaching, research and service. We diligently prepare our students to make them understand the rudiments of surgery to be able to stand on their own when they become house officers. The challenge is getting the requisite number of surgeons to teach the increasing numbers of medical students in the University. An effort should be made by the authorities of the University to employ more lecturers in surgery. At the moment, we have five or so applicants who are still waiting to be interviewed and employed by the University to enable us beef up our staff numbers.

# **DEPARTMENT OF CLINICAL MICROBIOLOGY**

## **INTRODUCTION**

The Department of Clinical Microbiology has staff strength of 8 full-time Senior Members, 2 part-time academic staff, and 2 Technical staff, and supported by a secretariat

manned by an Administrative Assistant. One graduate assistant, and two national service personnel support practical lessons and assist in seminars and other activities in the Department.

The Department teaches courses in Bacteriology, Parasitology, Mycology, Virology and Immunology to undergraduate medical and dental students in the School of Medical Sciences, and the students of Nursing, Medical Laboratory Technology, and Sonography of the Faculty of Allied Health Sciences.

The focus of undergraduate medical and dental students' teaching is the control-knowledge and skills - of infectious diseases, where micro-organisms and their disease/infection causing mechanisms are introduced. The methods are generally, health education, immunization, disinfection and sterilization, culture and isolation of pathogens, and antimicrobial treatment; prevention and control are emphasized, especially those with epidemic potential in Ghana and the sub-region.

Infection control in the health facilities and host response to infections are also addressed. Medical Laboratory Technology students are tutored mainly in the diagnosis, collection and identification of microbial pathogens from various clinical specimens. Much emphasis is placed on laboratory management and practical bench work microbiology.

Students of Nursing and Sonography undertake basic clinical microbiology with emphasis on nursing patients with infections and infection control procedures in clinical settings.

#### **STAFF**

Prof. E.H. Frimpong- Head of  
Department

Prof. Y. Adu-Sarkodie

Dr. S.C.K. Tay

Dr. T.B. Kwoffie

Dr. P. K. Feglo

Mrs. R. C. Brenyah

Dr. M. Mutocheluh

Dr. H. Abruquah

Mr. C. OseiAdjei

Mrs. Evelyn Opoku Kwarteng, Admin.  
Assistant

## **TEACHING ACTIVITIES**

The breakdown of, the undergraduate student population for the Department for 2010/1011 are; 240 Medical students, 20 Dental students, 205 Medical laboratory students, 140 Nursing and midwifery students and 22 students of Sonography.

The Department also runs PhD, MPhil and MSc programmes in Clinical Microbiology. Currently there are 7 PhD Students, 25 MPhil students, and 10 MSc students enrolled.

Completed Graduate Studies for 2012: PhD-2; MPhil 10, MSc 8

The Department completed the furnishing of its Virology and Molecular Biology laboratory with funding from a TALIFF grant last year, and has begun undertaking studies for the students there. This is greatly enhancing teaching and research activities.

Dr. Mutocheluh was awarded a Wellcome-Trust award for a study of affect of aflatoxin on liver, and is currently engaged on the project in the virology laboratory.

## **COLLABORATION WITH MINISTRY OF HEALTH**

Apartment from teaching, research and mentoring in the University, the Senior Clinical Staff also serve as Specialist Clinical Microbiologists/Senior Technical Staff at the Microbiology Department of KomfoAnokye Teaching Hospital, Kumasi.

Again, at the hospital, postgraduate clinical teaching for residents preparing for membership/fellowship of the Ghana College of Physicians and Surgeons and the West Africa Postgraduate Medical College forms part of our responsibilities.

Many senior members are Expert Committee members of various disciplines of the Ministry, acting as resource persons in seminars/workshops and consultants on projects and policy formulation.

## **ON-GOING PROJECTS**

- Antimicrobial resistance in Enterobacteria.
- Effects of climate change on infections and infestations.
- Studies on bacterial meningitis in adults and children in Ashanti
- Antibiotic resistance in Staphylococci.
- Studies on improving detection rate of tuberculosis infections
- Studies on opportunistic infections on HIV/AIDS.
- Studies on mosquito ecology and malaria transmission dynamics and control
- Studies on drug treatment adjunct to surgery in filariasis complications.
- Studies on rotavirus diarrhea in children in Ashanti.
- Efficacy of herbal extracts as antimicrobials
- Syphilis in Ghana
- Aetiological agents in diabetic ulcers in Kumasi.

## **RESEARCH COLLABORATION**

Our Research collaborators include the following:



KCCR, KNUST/ BernardtNocht Institute for Tropical Medicine, Hamburg  
Noguchi Institute of Medical Research, Legon  
Navrongo Health Research Institute, Navrongo  
London School of Hygiene and Tropical Medicine, London  
University of Liverpool Medical School, Liverpool  
The Abdul Salam International centre for Theoretical Physics, Italy  
University of Ghana Medical School, Accra

## **DEPARTMENT OF PATHOLOGY**

### **INTRODUCTION**

The Department of Pathology was the first to be established in the School as the founding Dean, Late Prof. W.N. Laing was a pathologist. The department does not offer a degree programme on its own but serves as one of the departments in the composite programmes of Bachelor of Human Biology (BSc Human Biology), Bachelor of Medicine and Surgery (MBChB) and Bachelor of Dental Surgery (BDS).

The department has the following units:

1. Diagnostic Pathology
  - a. Diagnostic Histopathology and Molecular Pathology
  - b. Morbid Anatomy & Forensic Pathology
  - c. Haematopathology
2. Histopathology Technique

### **STAFFING**

#### **LECTURERS**

Dr. N.A. Titiloye - Head  
Dr. Ossei Sampane  
Dr. Ernest Adjei  
Prof. K.A. Adelusola, Visting Professor

#### **TECHNICAL STAFF/DEMONSTRATORS**

The Department is supported by technical staff and demonstrators composed of experienced Scientists from the Department of Medical Laboratory Technology of Allied Health Sciences, KNUST and the Pathology Department of Komfo Anokye Teaching Hospital.

#### **ADMINISTRATIVE STAFF**

The Department is also supported by two administrative staff.

### **TEACHING SERVICES**

The Department offers courses in General and Systemic Pathology to undergraduate students in the MBChB and BDS degree award of the University. The department having realized the responsibility imposed by the fact that Pathology is the fundamental basis of medicine and the science on which patient diagnosis and management revolves, designed a reviewed course structure which enables Pathology to be taught as a 1 year programme to the Human Biology III class with a follow up of the theoretical knowledge into the clinical years and consolidation of the knowledge with a year six module on Forensic Pathology and Medical Ethics.

The reviewed course structure which was supported by practical sessions and tutorials is a departure from the previous curriculum where General Pathology was taught as a component of BSc. Human Biology in year III and Systemic Pathology as a component of MBChB degree in year IV. By this review, both general and systemic pathology were merged into a single course.

The clinical exposure involves the Pathologists participation in the seminars and course structure of the clinical departments while the students are on rotation in such clinical units. However the Forensic pathology exposure will be 2 weeks student's hands on experience on autopsy which is expected to be a component of Internal Medicine in the final year. However, this will take effect from 2013/2014 Academic Session since the first set of students in the reviewed course structure will only be in the final year then.

### **Service courses to Allied Health Sciences in Diagnostic Pathology**

The Department also offers general pathology as service course to the following KNUST classes:

1. BSc. Nursing Year II
2. BSc. Optometry Year III
3. MB. Herbal Medicine Year II
4. BSc. Sonography Year II
5. Medical Laboratory Technology II
6. BSc. Midwifery II

### **Service Courses to the Department of Medical Laboratory Technology in Histopathology Technique.**

The department offers services to the department of Medical Laboratory Technology in teaching the following classes.

1. Medical Laboratory Technology II - Histopathology Technique I
2. Medical Laboratory Technology III - Histopathology Technique II & III
3. Medical Laboratory Technology IV - Histopathology Technique IV & V

All the teachings in the medical laboratory technology unit are supported by laboratory sessions at Komfo Anokye Teaching Hospital.

### **OTHERS**

In fulfilling our obligations to the other Allied Health Sciences Disciplines, the department started a new service course at the Department of Sonography. The course is titled Gross Pathology for Radiography and Sonography.

### **CLINICAL SERVICES**

The Lecturers in the department offers Consultancy services to Komfo Anokye Teaching Hospital in the area of Diagnostic Pathology which includes Histopathology, Cytopathology and Autopsy.

### **ONGOING RESEARCH**

- Research on occurrences of benign breast diseases/changes in Ghanaian and Norwegian women. A comparative autopsy study.
- GHABREAST ; Molecular characterization of breast cancer in GHANA. Research in conjunction with NCI

## **CONFERENCE ATTENDANCE/SHORT COURSES AND PAPER PRESENTATION**

### **Dr Ernest Adjei**

1. Workshop on setting up immunohistochemistry Laboratory. University of Michigan Pathology Department. September 28, 2012
2. First African School of Forensic Pathology Course, University of Kwazulu Natal, Durban, South Africa. November 2012
3. Annual General meeting, African Society of Forensic Medicine, Johannesburg, South Africa. February 2013

### **Dr Nicholas Titiloye**

1. XXIX International Congress of the International Academy of Pathology, Cape Town – South Africa. 30<sup>th</sup> September – 5<sup>th</sup> October 2012. Poster Presentation. Molecular Characterization of African Breast Cancer; results of a large Tissue Microarray study. Titiloye N.A et al.
2. 5<sup>th</sup> Leeds Breast Pathology Update course. 16<sup>th</sup> November 2012. St James Institute of Oncology. Leeds.
3. British Division of the International Academy of Pathology Symposium – Breast Pathology. 23<sup>rd</sup> & 24<sup>th</sup> November 2012. Institute of Architecture. London

## **DEPARTMENTAL INTERNATIONAL CONFERENCE**

The Department hosted an international conference titled: Gastrointestinal/Liver Pathology, Immunohistochemistry and Liquid Based Cytology Conference between 13 -17<sup>th</sup> August 2012 at Komfo Anokye Teaching Hospital, Kumasi. This was done in Collaboration with Department of Pathology, Leeds University Teaching Hospital and Komfo Anokye Teaching Hospital Kumasi.

### **Its achievements**

- i. Through this conference, the department was able to promote a better working relationship between the pathologists, the clinicians and biomedical scientists.
- ii. The conference provided handsome training and hands on experience for Immunohistochemistry techniques and liquid based cytology.
- iii. The conference addressed some issues which negatively influence the pathologists- clinicians relationship in the management of their patients.
- iv. The slide sessions served as refresher courses for pathologists to sharpen their skill in the area of diagnosis related to GI and Liver pathology and application of Immunohistochemistry findings.

### **Future meeting(2014)**

The department has scheduled the second edition of the Clinicopathological meeting for 2014 with the title ;Use of Molecular Pathology in Cancer Diagnosis and Management. ( Focus will be on Breast Pathology, GI/Liver Pathology and Haematopathology). The laboratory session will focus on FISH/CISH/SISH/DDISH in Her 2 Testing , Tissue Microarray and Polymerase Chain Reaction(PCR)

## **MOLECULAR PATHOLOGY LABORATORY**

The Department is working on establishment of Molecular Pathology Laboratory. Our effort in this area got a booster by the donation of equipment by Dr Owusu Danquah, a UK trained Molecular Pathology Scientist and newly employed Lecturer of the Medical Laboratory Technology of KNUST. Both Dean of School of Medical Sciences and Allied Health Sciences are collaborators in the establishment of this Laboratory. This Laboratory will further support the Department in achieving her dream.

### **MEMORANDUM OF UNDERSTANDING WITH UNIVERSITY OF ILLINOIS, CHICAGO**

A memorandum of understanding between the Pathology Department, University of Illinois Chicago and the Pathology Department, KNUST was signed. The memorandum will permit:

1. Exchange of research materials and joint research activities between the two Universities
2. Exchange of faculty members between the two Universities
3. Exchange programme for undergraduate Medical and Dental students
4. Training of graduate students in Pathology (MSc/MPhil/PhD)
5. Training of Resident Doctors in Pathology
6. Assistance in Pathology laboratory infrastructural development.

The Director of University of Illinois Pathology Graduate Programme, Prof Marteen Bosland visited the University during the year to facilitate the implementation of the exchange programme.

### **ACCREDITATION FOR RESIDENCY TRAINING**

The department of Pathology KATH unit was accredited by the Ghana College of Physicians for training of Pathologists to the fellowship status. This accreditation has further strengthen our department and provision of avenue for sustenance of manpower recruitment for Teaching and Consultancy Services rendered by the Department and provision of highly skilled personnel for Ghana University and Health Services.

### **CONCLUSION**

In the past year, the Department of Pathology has witnessed a steady growth in all areas in line with the vision of Kwame Nkrumah University of Science and Technology as summarized: To advance knowledge in Science and Technology for sustainable

## **DEPARTMENT OF COMMUNITY HEALTH**

## **INTRODUCTION**

The Department of Community Health is one of the most dynamic and vibrant departments in the Medical School, very active in teaching, research and service to the community. The Department provides training in community health in five of the six years of the undergraduate medical programme. In the 4<sup>th</sup> year of the undergraduate programme students work in groups on selected field research projects as a practical exercise in research methods. In the 5<sup>th</sup> year, the students spend 6 weeks in a rural district undertaking field practice in community health. They eventually collect field data for their final year dissertations.

In addition, the Department runs three highly successful and competitive Public Health graduate programmes in Health Services Planning and Management, Health Education and Promotion, and Population and Reproductive Health. A fourth programme, Masters in Disability and Rehabilitation Studies has been added and has since successfully graduated two classes. All these postgraduate programmes have been structured to run for 13 calendar months to attract foreign residents. The Department also runs a PhD programme that targets students who demonstrate exceptional academic qualities and are heading towards a career in university teaching and/or health research.

Since 2004, the Department has ran 8-week short courses in the following disciplines: Epidemiology & Biostatistics, Community-IMCI and, Contraceptive update and counselling. The Department has a large research portfolio in family planning and reproductive health, malaria prevention and control in pregnant women and children under 5, improving quality of obstetric care, improving childhood immunization coverage, tuberculosis susceptibility, HIV/AIDS and community-integrated management of childhood illness.

## **STAFFING**

Dr. Harry Tagbor - Head

Dr. A.K Edusei

Dr. E Owusu-Dabo

Dr P. Agyei-Baffour

Mr. E. Nakua

Dr. Easmon Otupiri

\*Dr. Agatha Bonney

Dr. Samuel K. T. Newton

\*\*Dr. K Addai-Donkoh

\*\*Dr. Patrick Eric Karikari

\*\* Mr. SV Tay

\*\*Mr. K. Agyare

\*\*Mrs M Opare-Addo

\*On contract    \*\*Part-time

## **SUPPORTING STAFF**

Ms. Marian Opoku-Appiah

Mrs. Benedicta Adu-Pakoh

Mr Martin Ayariga

Mr. Gabriel Kisseih

## **ACTIVITIES TEACHING**

The Department continues with its three-part training programme in the School of Medical Sciences, the School of Graduate Studies and other departments within KNUST.

- a. Undergraduate medical training in Community Health
- b. Postgraduate training in Health Services Planning and Management; Health Education and Promotion; Population & Reproductive Health and Disability and Rehabilitation Studies.
- c. Certificate course in Health Education
- d. Short courses in Epidemiology & Biostatistics, Community-imci and Contraceptive update and counselling
- e. Undergraduate teaching on the BSc Disability studies
- f. Postgraduate teaching on the MSc Disability studies
- g. Teaching on programmes outside KNUST-SMS including:
  - I. BSc (Human Biology), MB ChB
  - II. BSc (Nursing)
  - III. BSc (Medical Laboratory Technician)
  - IV. BSc (Herbal Medicine)
  - V. BSc (Sports and Exercise Science)
  - VI. BSc (Engineering)
  - VII. DVM (Veterinary Medicine)
  - VIII. Doctor of Optometry
  - IX. Distance Learning Programmes

The Department has received commendations from the UNFPA, WHO and UNICEF for the introduction of short courses in reproductive health.

## **NEW PROGRAMMES**

The Department has introduced leadership training for health transformation into the curriculums for both under graduate and postgraduate training programmes. The need to produce health managers who lead has become more important now than ever before. This introduction will give products of the School of Medical Sciences a competitive advantage over the peers from other similar schools.

## **PROJECTS**

Three departmental projects are on-going: the sms-jhu linkage project, the mcdc project and the Disability project. The Disability project is scheduled to end in 2012 while the others have until 2013 to complete.

The Disability project has two academic programmes – BSc and MSc in Disability studies. Currently a total of 31 and 48 students are enrolled the two projects respectively. The Project is supporting the training of six staff with the view to improving the quality of teaching on the academic programmes; the staff are at various stages of completion of their training programmes. Six research projects are underway at the Centre for Disability and Rehabilitative Studies.

The SMS-John HopkinsUniversity Linkage project has a focus on population and reproductive health. In the past year the project supported eight KNUST/KATH staff to attend the

International conference on Family Planning in Dakar, Senegal. Two of these sponsored participants presented papers at the conference. The project also supported two Ghanaians to participate in the Gates Summer Institute held at the Johns Hopkins Bloomberg School of Public Health.

Two MPH students from Johns Hopkins were hosted by the Department to enable these students undertake a public health field residency in Ghana. The project is supporting a multi-centre study to look at the relationship between family size (number and spacing of children), wealth and health in five sub-Saharan countries. The Ghana site is at Asawase in Kumasi. Baseline data have been collected and preliminary analysis is on-going.

The project also supported a PhD student at KNUST to undergo training in Biostatistics and Data management at Johns Hopkins. A staff at the department was also privileged to be sponsored to audit courses for a term at Johns Hopkins. The project has accepted to fund eight faculty-led research projects on various topics in family planning and reproductive health. The idea is to promote research publications by staff of the departments of Community Health, and Obstetrics & Gynaecology.

The Malaria Capacity Development Consortium (MCDC) project seeks to enhance malaria research capacity in Africa. The project currently has five (4) PhD candidates who are at various stages of the training programme. MCDC and the University of Cheikh Anta Diop (UCAD) hosted a PhD supervisors' workshop for academic staff engaged in postgraduate supervision for UCAD and other partner institutions of the MCDC. The project has been visited by two directors of MCDC.

### **COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

The Department through its undergraduate medical programme places students in rural Ghana where the students undertake community health activities such as community diagnosis and community-based operational research. The postgraduate training programmes offer similar services to rural communities. The results of such community health activities are fed back to community-based agents, the Ghana Health Service, traditional authorities and local government for health action at the community level. Senior members of the Department serve in various capacities to contribute meaningfully to society.

Senior members serve as external examiners, moderators and teachers in various universities and colleges in Ghana. The Department with support from UNICEF is collaborating with the Ghana Health Service and the Ghana Red Cross to implement High Impact Rapid Delivery (HIRD) interventions in the three northern regions of Ghana.

### **CONFERENCES/SEMINARS**

Senior members of the Department are frequent participants at seminars and meetings either as resource persons or facilitators and/or participants. The Department has been involved in policy formulation seminars in family planning and reproductive health, malaria control in pregnancy and the malaria drug policy change for Ghana.

### **INNOVATIONS**

The Department has proposed the establishment of a KNUST-School of public Health that will use the latest teaching and learning technologies (web-based approach and virtual teaching

methods) to run graduate public health programmes that can be accessed from any part of the African continent and beyond.

### **PROJECTIONS**

Despite the popularity and the demand for the current postgraduate programmes and the proposed short courses, the courses have been disadvantaged through underfunding. The Department is of the opinion that the introduction of fees to meet the cost of running the various programmes will greatly enhance programme delivery and will place the name of KNUST on the international map of training centres for health issues.

The Department continues to mobilize additional resources from local and international sources to meet the requirements of running such training programmes.

### **INTERNATIONAL AFFILIATIONS**

The Department has links with the health-related United Nations Agencies such as WHO, UNICEF, UNDP and UNFPA. The Department has close contact with DANIDA, the World Bank, DFID, USAID and JHU-CCP. The Department together with the Department of Obstetrics and the Gates Institute, Johns Hopkins University School of Public Health has been running a collaborative linkage project. The Department is holding discussions with the Ghana Ministry of Health with the view to collaborate in the running of graduate training programmes in public health for middle level personnel.

### **CONCLUSION**

The Department is convinced that the future is bright. The Department is working hard to attract lecturers to beef up its current number so as to ensure smooth running of academic work in the Department.

## **FACULTY OF ALLIED HEALTH SCIENCES**

### **INTRODUCTION**

The Faculty of Allied Health Sciences is one of the Faculties in the College of Health Sciences, and comprises the following Departments:

- Department of Medical laboratory Technology
- Department of Nursing
- Department of Sports and Exercise Science
- Department of Sonography

### **DEANSHIP**

The Dean of the Faculty is Rev. Fr. Prof. Appiah-Poku.

### **STAFF**

Low staffing situation still remains a big challenge. We have intensified our effort in our recruitment drive and have every hope of success. We have enjoyed the support and co-operation of the College as well as the University Administration in this enterprise and we are most grateful.



## **FACULTY BUILDINGS AND OFFICES**

The Faculty is accommodated in her new faculty offices building. However, the Faculty continues to share lecture rooms, laboratory and internet resources with the School of Medical Sciences which has been very supportive. We are grateful.

With increasing number of students and the recruitment of additional Faculty members, we face new challenges of office accommodation for lecturers and classroom for students. Our effort to get class rooms space at the Central Classroom Block failed forcing us to put our students into Laboratories and smaller classrooms at the School of Medical Sciences lecture rooms. The situation is becoming increasingly unbearable and we now have to plead with the Administration to permit us to build new classrooms for our students. Requests for drawing and the needed plan to enable us put this into effect have been sent to the Director of works. We have sought and received the support of the Provost and Vice-Chancellor for our effort and we thank them for their continued support of endeavors.

## **DEPARTMENT OF SONOGRAPHY**

### **INTRODUCTION**

The Department of Sonography is one of the Departments under the Faculty of Allied Health Sciences. The BSc Sonography programme started 2008/2009 academic year.

### **ACADEMIC STAFF MEMBER**

The Department has Dr. K. Bedu-Addo as the coordinator. Most of the courses are handled by lecturers from the departments of Anatomy, Physiology, Pathology, Microbiology, Radiology and Molecular Medicine of the School of Medical Science, and from the Department of Nursing and Physics.

Mr. Yaw Amo Wiafe joined the Department as an Assistant Lecturer at the beginning of the 2012/2013 academic year.

Efforts are however, being made to recruit more core staff.

### **STUDENT POPULATION**

The student population has grown from three to eighty (80) in May 2013. The first batch of students will graduate in June 2013.

### **PROPOSED PROGRAMME**

It is hoped that the Department will start as BSc Radiology programme in the near future. When started, the students of both programmes will take same courses in the first and second year classes, and branch to their programme during the third and fourth years.

## **DEPARTMENT OF MEDICAL LABORATORY TECHNOLOGY**

### **INTRODUCTION**

The Department of Medical Laboratory Technology has developed Human Capacity Development collaboration with the Westminster University where Westminster University will

train a number of lecturers to beef up the staff situation in our distressed units such as Hematology, Histopathology, etc. Delegation from Westminster also visited the department to further establish student exchange programme where students from the two departments will visit each other's laboratory during the summer holidays. We have also established research collaborations with other international Universities such as Bonn University in Germany, Liverpool School of Tropical Medicine in the UK, University of Edinburgh in the UK, and Case Western University of USA among others.

On research, the Department witnessed successful execution of old projects and importantly four other new international projects have been renewed or started and some of these projects are funded by Bill and Melinda Gates Foundation, European Union Commission, German Research Foundation (DFG) and European Foundation Initiative on Neglected Tropical Diseases (EFINTD) among others. All these projects have postgraduate training component incorporated so a number of postgraduate students are going to be trained.

The Department of Medical Laboratory Technology is one of the four Departments of the Faculty of Allied Health Sciences. The Department is the oldest established Department under the Faculty. The Department runs the B.Sc. Medical Laboratory Technology programme, started some 12 years ago, and produces professional Biomedical Science graduates, through regular lectures, an extensive bench-based laboratory training, tutorials and seminars.

Eight batches of graduates have passed out; some are contributing their quota to the health delivery system, and others are pursuing professional Biomedical Sciences graduates programmes. The Department under 2008/2009 Academic Year reviewed its Curriculum to meet the changing demand of the world market of Biomedical Science.

### **STAFFING**

Lecturers:	5
Service lecturers:	10
Administrative Assistant:	1

Dr. Clement Opoku-Okrah is the Head of Department, and he is joined by four permanent lecturers; Dr. Alexander Yaw Debrah, Dr. Addai Mensah Otchere, Mr. Benedict Sackey and Mrs. Lilian Antwi Boateng. The rest of the courses are handled by lecturers from the Departments of Anatomy, Physiology, Pathology, Microbiology, and Molecular Medicine of the School of Medical Sciences.

### **STUDENT POPULATION**

The department has a student population of Two hundred and Nine (209)

### **LINK WITH OTHER INSTITUTIONS OF HIGHER LEARNING**

The Department is currently developing links with the Department of Medical Laboratory Science of the College of Health Sciences of the University of Ghana and the School of Biomedical Science of the University of Westminster. UK.

### **ON-GOING RESEARCH ACTIVITIES**

**Dr. Alex Debrah**

- “Death to Onchocerciasis and Lymphatic filariasis” (DOLF), 2010-2014. Funded by Bill and Melinda Gates Foundation through Case Western University of USA.
- “Analysis of genetic polymorphisms of cytokines, vascular endothelial growth factors (VEGFs) and VEGF receptors in disease manifestations in lymphatic filariasis”, 2008-2011. Funded by European Foundation Initiative.
- “Genetics of Lymphoedema and Hydrocele”, 2009-2012. Funded by Deutsche Forschungsgemeinschaft [DFG] or German Research Foundation) through Bonn University.
- “Enhanced Protective Immunity Against Filariasis” (EPIAF), European Union FP7 program for Vaccine development for filariasis, 2010-2014. Other members of the consortium are University of Edinburgh, Bonn University, University of Liverpool, Museum National d’Histoire Naturelle France, etc.
- “Anti-symbiotic treatment of Filariasis”, 2007-2012. Funded by Bill and Melinda Gates Foundation through Bonn University.
- “*Wolbachia* endobacteria in filarial infections – exploring their usefulness as targets for novel chemotherapies that are anti-filarial, reduce filarial pathology and interrupt transmission”. Funded by VW foundation of Germany

### **Clement Opoku-Okrah**

- Microcytic hypochromic red blood cells confer protection from severe *Plasmodium falciparum* malarial parasitaemia in both  $\alpha^+$  thalassaemias and non thalassaemia individuals
- Microcytic hypochromic anaemia amongst pregnant women attending antenatal clinic at Bolgatanga Regional Hospital.
- Iron deficiency anaemia amongst sickle cell disease patients attending Komfo Anokye Teaching Hospital.

### **ARTICLES PUBLISHED IN REFEREED JOURNALS/ CONFERENCE PROCEEDINGS**

In the year under review, faculty members published in refereed journals and presented papers at international conferences.

## **DEPARTMENT OF SPORTS AND EXERCISE SCIENCE**

### **STAFFING**

Senior Lecturer	-	1
Lecturers: Full time	-	3
Part time	-	4
Snr. Admin. Assist	-	1

### **TEACHING**

The Department of Sports and Exercise Science is under the Faculty of Allied Health Sciences in the College of Health Sciences. The Department offers and prepares students for a four-year degree in Sports and Exercise Science. The use of two Nigerian lecturers (Associate Prof. Abass,

A.O. and Dr. Oladipo, I. O. Senior Lecturer) on Sabbatical has helped to strengthen the core staff number and has brought immense relief to the head. The University (KNUST) is at the moment sponsoring two students on postgraduate studies in South Africa. Their return will help to enrich the staffing situation in the Department (Mr. Benjamin Asamoah and Miss Biggie Bonsu of 2008 graduation class).

The Department further inculcates in students the essential capacities for total fitness, leadership and professional growth. Additionally, the Department seeks to use the exercise science platform as a professional tool in promoting fitness for faculty, students, athletes and the community at large.

The Department of Sports and Exercise Science represents an amalgamation of scientists from academic disciplines of Anatomy, Physiology, Kinesiology and Biomechanics.

### **COURSES OFFERED INCLUDE:**

Exercise physiology, biomechanics of human motion, biomechanics of jumps, throws and track, care and prevention of athletic injuries and scientific principles of sports.

Final year students are required to receive clinical attachment in Recreation/Sports Administration and physiotherapy.

The Department provides a science-based education in Sports and Exercise Science to other professionals in elective courses.

### **INFRASTRUCTURAL DEVELOPMENT**

The Department of Sports and Exercise is currently located in the same building housing Departments of Medical laboratory, Nursing and Sonography in the School of Medical Sciences.

### **PROJECTIONS**

The Department hopes to increase its intake substantially despite numerous problems it is currently facing. The staff at post and any new employees would be expected to work harder to meet challenges and demands of the Department.

### **RESEARCH**

- |                     |   |   |
|---------------------|---|---|
| i. Adjei James A.   | - | Teaching Manual for Kinesiology         |
| ii. Adjei James A.  | - | Teaching Manual for Exercise Physiology |
| iii. Adjei James A. | - | Teaching Manual for Biomechanics        |

### **CONFERENCES**

Dr. J. Adjei attended the following conferences and sports meetings

- (1) ICHER seminar, Lagos, Nigeria, Feb. 2005.
- (2) Dr. James Adjei – Attended the International Council for Health, Physical Education, Recreation, Sports Dance (ICHPER-SD) Africa as a lead paper presenter at University of Ibadan, Oyo State, 2005.
- (3) Dr. Oladipo, I.O.: Attended and presented a scientific paper at the 17<sup>th</sup> Annual Congress of the European College of Sport Science in Bruges, Belgium. 4<sup>th</sup> – 7<sup>th</sup> July 2012.

(4) Dr. Oladipo, I.O.: Attended and presented a scientific paper at the 53<sup>rd</sup> World Congress of International Council for Health, Physical Education, Recreation, Sport and Dance (ICHPER.SD) in Cairo, Egypt 19<sup>th</sup> – 22<sup>nd</sup> December, 2011.

(5) Dr. Oladipo, I.O.: Attended and presented a scientific paper at the Silver Jubilee conference 2012 of the Nigerian School Health Association (NSHA) in Oyo, Nigeria, 22<sup>nd</sup> – 25<sup>th</sup> August, 2012

### **COMMUNITY SERVICE**

Dr. James Adjei, the current Head of Department continues to provide lectures on fitness related issues, aging and exercise and other health-related issues to churches and many community organizations.

## **DEPARTMENT OF EYE, EAR, NOSE AND THROAT**

### **INTRODUCTION**

The Vision of the Department is in Consonance with that of the School of Medical Sciences (SMS) which conceptualises its Mission as an internationally recognised school offering undergraduate, postgraduate and professional programmes of exceptionally high quality. This Vision has motivated and encouraged the department of EENT to become a centre of excellence both locally and internationally through the indefatigable efforts of the Founding Head.

### **AIMS OF THE DEPARTMENT**

The Department Aims to:

- Fulfil the general purpose of SMS through the pursuit of excellence in teaching, service, ethical and character training
- Fulfil the general purpose of SMS through the pursuit of excellence in teaching, service, ethical and character training.
- Provide basic clinical training in Eye, Ear, Nose and Throat through lectures, practical and clinical demonstrations through tutorials, seminars etc.
- Promote and conduct research into the various facets of Ophthalmology, Otorhinolaryngology and Clinical Audiology and Speech Pathology.
- Provide postgraduate training for the Fellowship of West African College of Surgeons to Medical Officers not only from Ghana but also from other Countries eg. Nigeria through advanced instructions, Practical and Clinical demonstrations and training in advanced Eye, Ear, Nose and Throat surgical skills.
- Provide the requisite health care service to the general public and to offer advice on good ear care practices.
- Lead the crusade against the invisible handicap of “Deafness” through outreach activities, publications in print media, research, seminars etc.

### **POST-GRADUATE TRAINING**

A post-graduate Course – DLO (Diploma in Otolaryngology) was started for the whole of the West African sub-region in 1997. Kumasi and Ibadan are the only two centres of excellence accredited by the West African Post-graduate Medical College for the Course. Since then,

several students from Ghana and Nigeria graduated from the department and holding key positions in various hospitals in Ghana and Nigeria.

Additionally, the department was accredited by the West African College of Surgeons to train Consultants for West Africa. At the moment, there are 9 residents at various levels of training in the department. These include 5 candidates at the Ear, Nose and Throat Unit and 4 at the Eye Unit. They are preparing for the primaries and various levels of the FWACS Examinations.

### **FUTURE POSTGRADUATE TRAINING**

The department is currently preparing proposals to be sent to Academic Board for the commencement of training in Masters programme/Post-graduate Diploma in Audiology and Speech and Language Therapy.

Again, the Eye Unit takes part in the teaching of clinical Ophthalmology course to the Postgraduate Students of Optometry. The ENT Unit has also got a five-year accreditation from the Ghana Post-graduate College of Physicians and Surgeons to train ENT Specialists.

In addition to the above, the members of staff are also actively involved in teaching the Post Basic Diploma Course for Nurses at the Komfo Anokye Teaching Hospital. This is a national programme and Kumasi is the only centre of excellence accredited by the Ghana Health Service and the Nurses and Midwives Council for Ghana.

Following Academic Board's approval the department has established and to run Programmes in MSc. Audiology and Speech-Language Pathology.

### **ACADEMIC MEMBERS OF STAFF**

Prof Dr Dr Sir George Wireko Brobbay  
Prof Geoffrey Kwabla Amedofu  
Dr Joseph Opoku-Buabeng  
Rev. Dr Peter Awuah  
Dr Seth Lartey,  
Dr. Cornelius P. Armah  
Dr. Duah I. Mohammed  
Barbara Antwi Birago

The above members of staff are supported by three (3) supporting staff.

### **COLLABORATIVE LINKS WITH OTHER INSTITUTIONS OF HIGHER LEARNING/ORGANISATIONS**

Research link with the University of Sheffield, UK since 1992 on Bacteriology of Otitis Media.

Research link with WHO as a collaborative centre for Hearing Assessment.

Research link with Bernhard Noth Institute Hamburg, Germany. (Prof Horstmann C.) Culminating in the establishment of Kumasi Centre for Collaborative Research into Tropical Medicine (KCCR), Kumasi.

University of Utah John Moran Eye Hospital, Salt Lake City Utah, USA.

University of Abidjan, ENT department (in process) Cote D'Ivoire.

## **ONGOING RESEARCH ACTIVITIES**

### **EYE UNIT**

Retinoblastoma and its management in Komfo Anokye Teaching Hospital – can it be modified?

The Causative Organisms in Ocular Corneal Ulcers

Causes of Ocular Trauma in Kumasi

Intra-Ocular pressures in 5-year period after trabectomy in Congenital Glaucoma.

### **ENT**

Bacteriology in Otitis Media

Patterns of hearing loss in Diabetic patients

Hearing Sensitivity and related Acoustic Impedance Findings

Characteristics of hearing loss among patients at Komfo Anokye Teaching Hospital, Kumasi

Ear, Nose and Throat manifestations in HIV/AIDS patients

Assessment and therapy to Articulation and Phonological Disordered in Ghana

Articulation Test for the Twi language in Ghana

## **DENTAL SCHOOL**

### **INTRODUCTION**

The Dental School runs a six-year programme to train human resource in dentistry. The program starts with a three-year preclinical course which is hosted by the School of Medical Sciences and it leads to the award of BSC Human Biology degree. This is followed by a three-year clinical training leading to the award of a Bachelor of Dental Surgery (BDS) degree.

The first batch of graduates made up of 6 males and 2 females graduated in August, 2012. The School reviewed the BDS curriculum in 2011/2012 academic year to meet the changing trends and demands in Dentistry.

### **DEPARTMENTS**

1. Adult Oral Health
2. Basic Diagnostic Oral Health Science
3. Community Dentistry
4. Child Oral Health and Orthodontics
5. Maxillofacial Sciences

### **STAFFING**

Full time lectures	-	3
Part time Lectures	-	5
Adjunct Lecturers	-	4
Visiting Lecturers	-	3
Administrative Staff	-	4

## **STUDENT POPULATION**

<b>Year</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Year 1	27	16	43
Year 2	13	25	38
Year 3	9	13	22
Year 4 (clinical year 1)	2	15	17
Year 5 (clinical year 2)	3	3	6
Year 6 (clinical year 3)	6	7	13
<b>Total</b>	<b>50</b>	<b>79</b>	<b>139</b>

## **SERVICE TO THE COMMUNITY**

The Department of Community Dentistry conducted an oral health screening exercise for pupils in Weweso Primary 'B' School this academic year.

## **LINKS WITH INSTITUTIONS OF HIGHER LEARNING**

The School continued its academic collaboration with the University of Michigan School of Dentistry and University of Utah.

## **PARTICIPATION IN WORKSHOPS/ CONFERENCES/ SEMINARS**

- United Nations Globalization Initiative programme , University of Michigan School of Dentistry, Ann Arbor, November, 2012
- Scientific Conference- Dental Education in Sub- Saharan Africa- Challenges and Prospects. April, 2013

## **DONATIONS**

The Provost's Office allocated 2 desktop computers, 2 printers and 1 LCD projector to the School.

## **FUTURE PLANS**

- Due to the increase in students' intake, the University is to incorporate the Dental School expansion into the proposed KNUST Teaching Hospital.
- To address the financial challenges facing the Dental School, the Academic Board approved the proposal for the training in Dentistry to be full-fee paying for both Ghanaian and foreign applicants effective 2013/2014 academic year.

# **SCHOOL OF VETERINARY MEDICINE**

## **INTRODUCTION**

The School of Veterinary Medicine (SVM) was established in 2009 as an integral School of the College of Health Sciences and it is mandated to run a six-year Doctor of Veterinary Medicine (DVM) programme. The School is in close collaboration with other Colleges of the University, essentially College of Agriculture and Natural Resources, and College of Science.



## ACCREDITATION

The National Accreditation Board has approved the grant of five (5) years accreditation for the running of the Doctor of Veterinary Medicine programme with effect from January 1, 2011.

## LIST OF ACADEMIC DEPARTMENTS

- Veterinary Anatomy and Physiology
- Veterinary Pathobiology
- Veterinary Pharmacology and Toxicology
- Veterinary Public Health, Food Hygiene and Food Safety
- Veterinary Clinical Studies

## SCHOOL ADMINISTRATION

Acting Dean

Head, Department of Anatomy and Physiology

School Examinations Officer/Head, Department of Pathobiology

Snr. Assistant Registrar

Dr. Raphael D. Folitse

Dr. Tony Opoku-Agyemang

Dr. Joseph Atawalna

Mr. Simon Yaw Boribah

## ENROLMENT

The School is in its fourth academic year of existence. Student enrolment is shown in the table below:

ACADEMIC YEAR	FEMALE	MALE	TOTAL
2009/2010	4	9	13
2010/2011	3	8	11
2011/2012	4	5	9
2013/2014	7	15	22
<b>TOTAL</b>	<b>18</b>	<b>37</b>	<b>55</b>

## FACILITY FOR CLINICAL TRAINING

In the absence of Veterinary Teaching Hospital on campus, the College has identified off-campus government veterinary clinic at Amakom for clinical training of students. It has been renovated and upgraded for the purpose.

## INTERNATIONAL COLLABORATION

Memorandum of Understanding for collaboration with the Schools of Veterinary Medicine of Tuskegee University, Tuskegee, Alabama and Purdue University, Lafayette, Indiana, has been finalized for signatures. Proposed areas of collaboration include faculty and students exchange programmes, research, access to electronic video and audio teaching aids, and partnership in physical infrastructural development.

## VISITING LECTURERS

Dr. Ben Emikpe, Senior Lecturer and a specialist Pathologist, and Dr. David Eyarefe, specialist Surgeons are currently with us on sabbatical leave from the University of Ibadan, Nigeria.

## **DONATIONS**

1. In response to a request for assistance, Tuskegee University, Alabama, USA has donated 350 (three hundred and fifty) copies of assorted veterinary books to the School.

## **FUNDING FOR THE CONSTRUCTION OF SCHOOL OF VETERINARY MEDICINE COMPLEX**

Ghana Education Trust Fund (GETFund) has approved the funding for the construction of the proposed School of Veterinary Medicine Complex to be completed within three (3) calendar years. It is envisaged that all necessary documentation will be ready for the project to begin soon.

Through the GETFund a 30-seater Toyota Coaster bus has been procured for the School.

## **CHALLENGES**

The challenges as expected of a new school are many. They include the two below.

- Faculty: We are facing difficulties in attracting qualified specialists to teach most clinical specialties. Advertisement has been posted in Commonwealth Veterinary Journal announcing vacancies for lecturers in Surgery, Anatomical Pathology, Clinical Pathology, Medicine, Radiology and Theriogenology.
- Veterinary Technicians: Low salary levels attached to technician grades in the University is making it increasingly difficult to convince veterinary technicians to accept appointment as Technicians.

# **COLLEGE OF SCIENCE**

## **INTRODUCTION**

The College of Science, established in 2004 as a successor to the Faculty of Science originally set up in 1961, provides first class education and offers students the opportunity to discover and fulfill their potentials in various fields of science. Our ultimate goal is to become a centre of excellence for the training of high calibre science graduates to support and sustain the industrial and economic development of Ghana and the continent.

The College of Science has seven departments and two research centres. These are:

Department of Biochemistry & Biotechnology

Department of Theoretical & Applied Biology

Department of Optometry & Visual Science

Department of Chemistry

Department of Computer Science

Department of Mathematics

Department of Physics

Institute of Science and Technology for Africa

Advanced Centre for Mathematical Sciences

A total of twelve (12) undergraduate programmes and several graduate programmes are currently run by the College.

The College has a student population of about 8600 (which consists of both graduate and postgraduate students) and approximately 280 staff.

### **COLLEGE ADMINISTRATION**

The College is headed by a Provost who is assisted by a team of administrators and Heads of Department. The College Administration is made up of the following officers:

Prof. R.K. Nkum	Provost
Mrs. Margaret Dzisi	College Registrar
Mr. Gabriel Sam Ahinful	Ag. Finance Officer
Mrs. Hagar Atta Obeng	Ag. College Librarian
Mrs. Ida Saeed	Assistant Registrar

During the year under review a number of activities took place in the College. The highlights are as follows:

### **PRE –SCIENCE TEACHING PROGRAMME FOR INTERNATIONAL STUDENTS**

The College organized a three-week intensive Pre-Science Teaching Programme from 3<sup>rd</sup> to 21<sup>st</sup> September 2012 for first year international students admitted into the College. The programme is designed essentially to address deficiencies of participants in the basic and applied sciences in preparation for their main course work.

### **TRAINING PROGRAMME FOR TECHNICIANS**

The training programme for technicians, which was started by the College last year, moved into the second phase. The programme is intended to upgrade the knowledge and technical skills of Technicians in the College and other Colleges/ Units of the University. Participants were taken through courses such as Communication Skills, Purchasing and Procurement, Statistics for Laboratories, Basic Instrumental Measurements Practicals, and Computer Applications.

### **STAFF RECRUITMENT AND DEVELOPMENT**

The College continues to work towards improving its staff/student ratio. During the period under review, six (6) additional lecturers were recruited. In terms of staff development, ten members of staff are currently on study leave pursuing PhD. programmes and are expected to join the College within the next year or two.

Three staff were promoted during the period: two from Lecturer to Senior Lecturer and one from Research Assistant to Senior Research Assistant.

### **NEW ACADEMIC PROGRAMMES**

By way of carrying out its mandate, the College, through its departments, continues to introduce new and attractive academic programmes in the basic and applied sciences, in tune with societal changes and national development needs. An MPhil. in Human Nutrition and Dietetics was introduced in the Department of Biochemistry and Biotechnology during the period under review. Other programmes in the pipe-line include:

MSc./MPhil. Forensic Science

MSc./MPhil. Health Informatics

Composite Programme in Computer Science and Mathematics

Part-time/Parallel programme in Computer Science

It is anticipated that these programmes will begin to run in the 2013/2014 academic year.

### **LAUNCH OF E-LEARNING CENTRE AND TECH HUB**

Vodafone Ghana, in collaboration with mFriday and KNUST, commissioned the first web laboratory in Ghana at the College of Science. The 'Tech Hub' allows mobile app developers to share ideas and creatively bring their web applications to life.

### **COLLABORATION**

The College, under the umbrella of the University, has established collaboration with the Hokkaido University, Japan. The agreement provides for the exchange of Faculty members and Research Fellows, exchange of students, and exchange of academic materials, publications and information as well as conducting joint research projects and organizing symposiums.

The College in collaboration with the Laboratory of Toxicology of Hokkaido University will co-host the 5<sup>th</sup> International Toxicology Symposium in Africa later in the year.

## **DEPARTMENT OF BIOCHEMISTRY AND BIOTECHNOLOGY**

### **INTRODUCTION**

The Department pursues its agenda with dedication and excellence and continues to do so during the period under review.

### **STUDENTS**

The total number of students enrolled in the department stands at 356. The details are as follows:

B.Sc Biochemistry	325
M.Sc. Biotechnology	8
MPhil Biochemistry	5
MPhil Human Nutrition	17
PhD Biochemistry	1

### **STAFF**

The staff strength is thirty six (36), comprising of a Full Professor, an Associate Professor, six Senior Lecturers, six Lecturers, a Technical Instructor, two Graduate Assistants, five Senior Staff, seven Junior Staff and seven National Service Personnel.

### **GRADUATE STUDIES**

The Department offers quality research and teaching at the graduate level to provide top-notch scientific and research training to successful candidates. In order to meet the needs of the nation's industrial development agenda, the Department offers a two-year MPhil in Biochemistry by research and a two-year M.Sc programme in Biotechnology. There is also a

three-year PhD programme in Biochemistry by research with selected taught courses. In addition to the afore-mentioned programmes, MPhil Human Nutrition and Dietetics was introduced in the year under review. Arrangements have been made to start a programme in MSc/MPhil Forensic Science in the 2013/2014 academic year.

Three PhD Biochemistry Students including Mr. K. Nsiah who is a Senior Lecturer in Department defended their thesis during the 2012/2013 academic year. During the same period, an MPhil and three M.Sc. Biotechnology students also defended their theses.

### **AWARDS**

Awards Presentation Ceremony was held on 6<sup>th</sup> September 2012 to honour Richard Fordjour Oppong who won Prof. Samuel Evans Adunya & Mrs. Patricia A. Boykin-Adunyah's Academic Excellence Award for 2010/2011. Two other personalities namely, Obed Tetteh and Reyderg Pius Agyeman also won Prof. (Mrs.) Victoria Pearl Dzogbefia's Best Final Year 'Enzymology' Student Award for the 2010/2011 and 2011/2012 academic years respectively.

### **REPRESENTATION AT CONFERENCES**

Staff and students continue to represent the Department at Conferences and Research Seminars. The Department was well represented at the 2012 Ghana Biomedical Convention in which two students won first prize for the Best Student Oral Presentation and Best Poster Presentation.

### **COLLABORATION AND NETWORKING**

The Department continues to collaborate with both local and international institutions to pursue scientific research and innovation aimed at community development as well as quality student education.

In the year under review, the Department was involved in an equipment transfer programme organized by Seeding Laboratories in United States of America and is expected to secure the transfer of laboratory equipment and consumables for use in teaching and research.

### **STUDENTS' ACTIVITIES**

Ghana Biochemistry Students' Association-KNUST in the Department held Council and General Meetings during the period under review. They celebrated the Biochemistry students' week with both intellectual and recreational activities. These included the underlisted programmes:

- K. Nsiah Debate and Career Fair – 26<sup>th</sup> February 2013
- Launching, alumni Home coming and Oldham Games – 28<sup>th</sup> February 2013
- Biochemical Pre-independence Cooking competition – 1<sup>st</sup> March 2013
- GBSA General Elections
- Dinner and Handing over – 6<sup>th</sup> April 2013

The Association participated in a Trade and Technology Fair (TRATECH ) from 4<sup>th</sup> – 8<sup>th</sup> March 2013 and also attended Ghana Biochemistry Students Association's National Congress and Games at the University of Ghana from 6<sup>th</sup> – 10<sup>th</sup> March 2013. In addition to the numerous programmes, the students organized General Election on April 2, 2013 followed by Dinner and Handing-over Ceremony on 6<sup>th</sup> April 2013.

## **TRAINING PROGRAMME**

The Kirkhouse Foundation and Cocoa Research Institute Ghana (CRIG) in collaboration with the Department of Biochemistry and Biotechnology organized a practical training programme in Molecular Biology for the final year undergraduate and postgraduate students.

## **VISITORS**

In charting the course for professional networking and staff capacity building, the Department received three Visiting Lecturers and a Dietician from State University of New York, Genesco, USA. As part of their visit, the team comprising Prof. Carol Long, Dr. Becky Lews, Prof. Susan Bandoni and Thomas Muench, organized various seminars on active teaching, metaphoric language and scientific discovery, internationalization in higher education and the art of dietetics for staff and students in the Department.

## **INCOME GENERATION**

The Clinical Analysis Laboratory continues to receive wide patronage from the University community and beyond. Its income level has increased significantly and plans are underway to further upgrade its equipment and broaden the range of tests that can be performed.

## **CHALLENGES**

The Department is having a challenge of attracting quality Technical Staff to carry out its research work and training of students. The undergraduate laboratory also lacks equipment and the maintenance of the available apparatus remains a major challenge.

## **CONCLUSION**

In spite of these challenges the Department still carries out quality research, teaching and service to the community with dedication.

# **DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY**

## **INTRODUCTION**

The Department of Food Science and Technology continues to train professionals in scientific and technological aspects to support the food industries and sustain the industrial and economic development of Ghana and Africa.

## **STUDENT**

The student population is one hundred and sixty-four (164) and the breakdown is as follows:

❖ BSc	-	136
❖ MSc	-	16
❖ MPhil	-	6
❖ PhD	-	6

## **STAFF**

The staff strength stands at twelve (12) including, a Professor, two Associate Professors, eight Lecturers and a Technical staff .

## **GRADUATE STUDIES**

With the vision to produce high calibre Food Science and Technology professionals, the Department runs a high standard research and teaching programmes in MSc, MPhil and PhD Food Science and Technology to offer excellent scientific and research training. In addition, the Department offers MSc Food Quality Management by distance learning.

During the period under review, eight postgraduate students (comprising six MSc one MPhil and one PhD) defended their theses.

## **STUDENT ACTIVITIES**

The Association of Food Science and Technology students organized two seminars during the period under consideration; and personnel from Food and Drugs Board as well as Ghana Nuts Limited made presentations at the seminars.

## **RESEARCH ACTIVITIES IN THE DEPARTMENT**

Staff in the Department continues to undertake active research in various areas of endeavours. This has resulted in a number of publications in both national and international journals. Also, the staff participated in national and international conferences and seminars.

## **AWARD**

Dr. Faustina Dufie Wireko-Manu, a Lecturer in the Department and a Fellow of the African Women in Agricultural Research and Development (AWARD) has won a competitive research attachment sponsored by AWARD. She would be a Visiting Scientist to the Institut National de la Recherche Agronomique (INRA), Avignon, France to work on 'Characterization of flavor and bioactive compounds in selected indigenous fruits and vegetables from Ghana and impact of traditional processing on them.

## **ROLE MODELLING**

Dr. Faustina Dufie Wireko-Manu and her AWARD mentor, Prof. (Mrs.) Ibok Oduro together with the postgraduate students of the Department hosted a community role modelling event at Adanwomase Senior High School to motivate students on career advancement.

## **PROJECTS**

The Department has won two projects; one on *strengthening root and tuber value chains in Ghana* sponsored by DANIDA and the other on *Improved yam storage for food security and income (IYSFSI)* sponsored by AUSAID

## **COLLABORATION**

In order to ensure that students experience hands on practicals, the Department continues to work in partnership with other Institutions such as Maslenda Fruit Processing in Kumasi, Food Research Institute – CSIR, Premium Foods Limited, among others.

## **DONATION**

An alumna of the Department, Ms Jolene Mateko Nyako donated assorted equipment to the Sensory Laboratory to aid teaching and learning in the Department.

## **CONCLUSION**

The 2012/2013 academic year has been very successful and would like to express our sincere gratitude to all those who supported the Department in various ways. It is our hope that the Department will continue to excel in research, teaching and service to the community in the years ahead.

## **THE DEPARTMENT OF OPTOMETRY AND VISUAL SCIENCE**

### **INTRODUCTION**

The Department of Optometry and Visual Science is one of the nine Departments in the College of Science. The department runs a 6-year Doctor of Optometry programme.

This year, the 7<sup>th</sup> batch of O.D students will graduate. This brings to over 220 the number of ODs the Department has so far produced. They are serving in hospital/clinics and private practices all over the country

### **STUDENT POPULATION**

There are currently 196 students in the Department.

### **STAFF**

The department has one (1) senior lecturer, five lecturers (5) out of which one is on study leave and two (2) technical instructors. They are supported by an Administrative Assistant, a Technical Assistant, a driver and a messenger.

### **ACTIVITIES**

#### **TEACHING**

The Department offers courses and electives of sufficient depth that ensures that it is placed at the cutting edge of optometric education in the country. These include the right mix of lecture courses, practicals, seminars, externship and internship. There are also operating students' clinics all geared towards excellence and confidence-building that is very necessary for future professional work.

The goal of the Department continues to be the training of students to eventually pass out as primary healthcare practitioners of the eye and visual system who provide eye and vision care which includes refraction, dispensing, detection/diagnosis of disease in the eye, management and or referral. The training emphasizes that, even though they are usually the first contact for people with eye problems, they are part of a team and need to work with other health professionals including ophthalmologists, ophthalmic nurses and opticians to give the patient comprehensive eye and vision care.

### **COLLABORATION**

The Department collaborates with several eye clinics all over the country for the clinical training of the students. Students visit some of these clinics during the semester for clinical training and for attachment during the vacation. OD 6 students spend 12 weeks during the second semester in an external clinical setting for their clinical externship.

Listed below are some of the eye clinics and hospitals we collaborate with;

1. Komfo Anokye Teaching Hospital, Kumasi



2. Korle Bu Teaching Hospital
3. St. Dominic's Hospital, Akwatia
4. VRA Hospital, Akosombo
5. Westphalian Hospital, Oyoko
6. Koforidua Central Regional Hospital
7. Tamale Regional Hospital
8. Sunyani Regional Hospital
9. Emmanuel Eye Centre, Accra
10. Tema General Hospital
11. Kumasi South Hospital, Kumasi
12. KNUST Hospital
13. Asamang SDA Hospital
14. Ejisu-Juabeng Government Hospital
15. Westphalian Hospital, Oyoku, Ashanti

### **COLLABORATION WITH VISION AID OVERSEAS**

The Department has a long-standing collaboration with the Vision Aid Overseas, a UK-registered charity which aims to provide basic eye care services to people in developing countries. This association was further strengthened when volunteers partnered with the Department to undertake vision screening activities, notably at Ashanti School for the Deaf in Ashanti region and Nima and Bortianor in the Greater Accra region. Final year students were also on clinical attachment with UK Optometrists under the auspices of the VAO at the Korle-Bu Teaching Hospital for two weeks.

### **AFRICAN VISION RESEARCH INSTITUTE (AVRI)**

The Head of Department joined other stakeholders under the auspices of the African Vision Research Institute in Durban, South Africa to contribute towards setting eye care research priorities and agenda for Africa.

The Department also partnered the AVRI to disseminate the results for the World-Council of Optometry commissioned Refractive Error Study in Children, undertaken by the Department in 2009. This opportunity was taken by the Department for poster presentations on works undertaken by the Department.

### **SIGHT FOR AFRICA**

The Department has been collaborating with Sight for Africa, an eye care non-governmental organization in Accra. This academic year, a contact lens consultant from Sight for Africa has been on campus for days on a couple of occasions to train our students to acquire better contact lens proficiency. On the last session in April 2013, the Director and Contact Lens Consultant, Dr. Gharthey donated a Bausch and Lomb Keratometer to the Department to facility its contact lens training of students.

### **INDIANA UNIVERSITY, USA**

The Department has been holding discussions with the Department of Optometry of Indiana University on the development of a graduate programme in Vision Science. Dr. Douglas Horner of the Indiana University therefore visited the Department to cement discussions and to have firsthand knowledge of our activities. Following this visit, a set of contact lens teaching

materials have been donated by the Indiana University Department of Optometry with support from Head of their Africa Studies programme, Prof. Samuel G. Obeng.

### **VISION 2020 LINKS PROGRAMME AND OTHER MOU PARTNERS**

Activities on the Vision 2020 Links Programme which had linked the Department to the University of Manchester Optometry Department and Leighton Hospital have been on-going. Last year, a team from the Links Programme visited the University to see the progress of activities and donate a set of Low Vision Aids. These aids are enhancing the Department's teaching in low vision.

### **QUALIFYING EXAMINATION AND THIRD OATH SWEARING AND INDUCTION CEREMONY**

In 2012 a qualifying exam was conducted in conjunction with the Ghana Optometric Association (GOA) and University of Cape Coast department of Optometry at KNUST for the 2010/2011 graduates who had successfully completed a year of internship. The Ghana Optometry Association together with the training institutions held the 4<sup>th</sup> Oath Swearing and Induction Ceremony for the 4<sup>th</sup> batch of graduates of the Doctor of Optometry programme on the 13<sup>th</sup> of January, 2012 under the theme: "Equity towards Eye Care; The Role of the Optometrist" at the British Council Auditorium in Accra. The occasion was graced with the presence of special guests; amongst them are the Director of the Eye care Secretariat and the Minister of Health's representative. Thirty-three (33) students were from the KNUST and five (5) from the UCC Departments of Optometry where graduates were inducted.

### **RESEARCH**

Senior members of the Department are involved in various researches in the following areas:

1. Visual status of school children
2. Environmental vision in the workplace
3. Link between visual status and academic performance
4. Refractive error development and etiology of myopia
- 2 Accommodative and vergence dysfunctions in poorly performing and inattentive basic school children
5. Accommodative and vergence dysfunctions amongst KNUST students
6. Randomized, double-masked trial of atropine vrs. cyclopentolate – phenylphrine combination in cycloplegic refraction
7. Trend in refractive error changes after cataract extraction
8. Patient satisfaction with cataract extraction and refractive error correction after cataract extraction
9. Refractive error in tertiary students
10. Prevention of cataract – potentials of some herbal preparations
11. Prevalence and causes of blindness and low vision in rural communities
12. Ocular morbidity amongst young people in the rural community
13. Visual status of students of the Ashanti School for the Deaf, Jamasi
14. Compliance to spectacle wear and referral uptake among selected students of the Ashanti School for the Deaf, Jamasi.

### **SERVICE TO THE COMMUNITY**

Staff and students of the Department have been continually involved in outreach programmes to institutions, schools, churches, children's' homes, market places and other such gatherings to

give education on eyes and perform vision screening and eye examinations in deprived communities in Ghana on a regular basis. Faculties on such occasions give talks on eye health.

A number of such volunteer outreach programmes were conducted in 2012 when the Department in conjunction with Vision Aid Overseas (VAO) with the assistance of Kuapa Kokoo Company undertook outreach eye clinics in four major cocoa growing areas in the Ashanti region. The areas that benefitted were New Koforidua, Nobowam, Konongo Odumasi and Kwaso.

### **VISION SCREENING AND ON-GOING ENGAGEMENT WITH ASHANTI SCHOOL FOR THE DEAF, JAMASI**

As part of this, the eye of selected staff and students of the Ashanti school for the deaf at Jamasi in the Sekyere East District of the Ashanti Region was undertaken. Free spectacles were provided for those who needed them. In addition, ocular health education, drug prescriptions and referral letters were given to those who needed further attention in nearby hospitals. During this activity, a significant number of the hearing impaired children who rely mainly on their sense of sight for communication and learning were found to have severe visual impairments. Some only needed spectacles, while others required urgent surgical intervention.

Since then, there have been on-going engagements with the Administration of the School to make the vision screening of the whole school possible, regular and routine. Plans are therefore afoot for the Department to get TALIF funding to extend the screening to all the students, numbering over six hundred (600).

To make this successful, it was necessary to do a follow-up study on the compliance to spectacle wear and uptake of referrals among the students seen. The results reveal among other things that it is necessary to ensure continuity of care for those who have visual impairment and engage the involvement consent of the patients and guardians of these children for successful and holistic management.

This exercise is been planned for extension to the Bechem School for the Deaf now, and there are plans to extend it to other schools for the deaf when we secure sponsorship and support in the near future.

It is also necessary to procure basic eye care equipment for the Assessment Centre of the School, and provide refresher training for the staff of the facility to enable them do rudimentary eye testing and identify children with eye problems.

In the medium term, the Department is partnering the School to seek sponsorship to build a Deaf-Blind Centre. It is known that people with some disabilities are also likely to suffer multiple disabilities. It is for this reason that more hearing impaired children have visual impairment than their peers with normal hearing. It is therefore standard practice that a school for the deaf has an assessment centre for hearing impairment, visual impairment, intellectual disability, etc. The ASD has no Deaf-Blind Centre to cater for students who are blind. It is therefore critical that a Deaf-Blind Centre is built to improve the training and rehabilitation of hearing impaired students who are either blind or visually-impaired. The Department and the Ashanti School for the Deaf will therefore welcome partners and sponsors for this important objective.

## **WORLD SIGHT DAY 2012**

11<sup>th</sup> October, 2012 was World Sight Day, a day sight aside by eyecare professionals globally to deliberate on eye care issues. For 2012, the Department with support by then Minister of Works and Housing, Dr. Hannah Bissiw, for an eye screening and ocular health education at Bechem, Techimantia, Brosankro, Derma and other communities in the Tano North District of Brong Ahafo region, from 11<sup>th</sup> to 13<sup>th</sup> October. A team of lecturers, students and some practising optometrists undertook the exercise, in which over one thousand patients were seen. Some patients were given free spectacles, medications and those who needed surgery and continuous care were referred to Komfo Anokye Teaching Hospital and the Bechem Hospital. This formed part of the Minister's service to her community. The beneficiaries were so grateful to the Department and the Deputy Minister, and expressed the hope that it would be an annual activity.

Members continue to serve on various Boards and Committees in the University nationally and internationally.

## **STAFF DEVELOPMENT**

Three staff members are currently taking graduate studies within the university, and are at the conclusion of their studies. Another staff member has been awarded a Masters in International Primary Health Care by the University of London through distance learning. Staff also continuously takes advantage of the Continuing Professional Education (CPE) programmes organized by the GOA, and also attended various conferences and workshops.

## **CHALLENGES**

Being a clinically-based programme, there is a limit to the number of students that the Department can admit at a time. The present source of funding for the programme is solely from the Academic Facility User Fee (AFUF) paid by students and this creates a serious funding gap between income and expenditure of the Department. There is the need for more funds to enhance the work especially in the clinical areas in the Department.

## **CONCLUSION**

With continued improvement in the equipment and staff situation, the Department expects to be able to do more research and more service to the community.

# **DEPARTMENT OF CHEMISTRY**

## **INTRODUCTION**

The Department of Chemistry at KNUST is a prominent standalone Chemistry Department in Ghana. It offers a four year B.Sc. degree programme in chemistry. In addition, there are M.Sc./M.Phil. and PhD programmes. Currently, the student population stands at 466 students: 423 undergraduates, 37 MSc/MPhil. and 6 PhD students. The Department acknowledges the centrality of chemistry as a science and trains its students to take advantage of the cornucopia of contributions that chemistry can make to society. As part of its desire to encourage and motivate students to be innovative and enterprising, it has instituted the chemical enterprise development initiative (CHEDI) programme through which students are trained to develop new products. CHEDI has become the brand name for the products of the department and features prominently

at any exhibitions the department participates in. During the year under review, the washing up soap used in the department was produced by the department.

### **STAFFING**

Academic Staff strength at the department currently stands at twenty. Out of these, one is a visiting professor who came in to support a new M.Phil. programme in polymer science and technology (vide infra), one on post retirement contract, a third on part-time and three on study leave (for their doctoral degrees). These are supported by eight technical staff and five administrative and ancillary staff. There are twenty (20) Faculty Members of the Department and they are made up of two (2) Professors (one on contract and one on part time), one visiting Professor, five (5) Senior Lecturers and twelve Lecturers (12) out of which three (3) are on study leave.

### **SEMINARS**

Weekly seminars form part of the department's routine activities. The seminars are given by either invited speakers, staff of the department or by postgraduate students. The seminar series forms part of the training for the students. It offers postgraduate students the opportunity to either carry out research on issues of relevance to their programmes or give progress report on their research work. It also offers an opportunity for all the students in the department to be educated on some new trends in chemistry, science and technology as a whole or in enterprise, business or related issues.

### **RESEARCH AND GRADUATE TRAINING**

Members of staff in the department are actively engaged in research in different areas of chemistry. These include computational chemistry, polymer chemistry, catalysis, biofuel development, organo-metallic and bio-inorganic chemistry, natural products chemistry, pesticide chemistry, environmental chemistry, monitoring of heavy metals in the environment, green chemistry, etc. Since the beginning of the 2012/2013 academic year, some members of staff have been invited to make presentations at some international conferences/workshops.

### **VISITING SCHOLARS**

In the year under review, the department hosted a number of academic scholars including the following:

- (i) In March 2012, a three (3) member team from the Hokkaido University in Japan visited the Department as part of the preparation towards the signing of a memorandum of understanding between our university and theirs. The team together with their contact person Mr. Osei Akoto met with the Dean of International Programs. The deliberation resulted in an agreement that the College of Science of KNUST and the Laboratory of Toxicology of Hokkaido University will co-host the 5<sup>th</sup> International Toxicology Symposium in Africa scheduled for the 12-13 September, 2013.
- (ii) Dr. Vera Thoss, a lecturer from the Department of Chemistry, Bangor University, UK, visited our department for two months (7<sup>th</sup> December, 2012 to 7<sup>th</sup> February, 2013) at the invitation of Dr. Godfred Darko. Vera presented a seminar each to the Department of Chemistry and the College of Science. She also gave a series of lectures on sample preparation and data handling.

- (iii) Prof. Matthew Dodd, School of Environment and Sustainability, Royal Roads University Victoria – Canada visited the Department at the invitation of Dr. Evans Adei and presented a seminar entitled “Making Advances Towards the Elimination of Persistent Organic Pollutants” to the Department on the 13<sup>th</sup> March 2013

### **STAKEHOLDERS' WORKSHOP ON POLYMER SCIENCE AND TECHNOLOGY**

A stakeholder's workshop was organized from the 4<sup>th</sup> to 5<sup>th</sup> March, 2013 to evaluate the M.Phil Polymer Science and Technology programme as it enters the third year of its establishment.

### **RESEARCH FUNDS**

- (i) Dr J. A. M. Awudza currently holds a research fund from the prestigious Leverhulme – Royal Society Africa Award Scheme for a research project entitled “Developing Internationally Competitive Research on Solar Cell Materials at KNUST”. The value of this fund is £150,000.00 and it is to be used over a three-year period (2010 to 2013). The project has already started. The project is being implemented in collaboration with the School of Chemistry of the University of Manchester, UK.
- (ii) Dr Evans Adei has also been awarded a fund under the Leverhulme, Royal Society Africa Award Scheme for a research on “Molecular Modeling for Energy Efficiency” and this is also worth £150,000.00. It is to be spread over three years (2011 to 2014). This is to be implemented with Prof. Nora de Leeuw of the University College, London. We congratulate Dr Adei and his team for winning this prestigious award.

### **COLLABORATIONS**

- (i) The Department of Chemistry has a collaborative arrangement with the School of Chemistry, University of Manchester, UK. We are very grateful to Prof. Paul O'Brien and his team in Manchester for their support.
- (ii) In 2011, Dr. Alejandra Palermo, manager of the Royal Society of Chemistry's International Programmes and the Pan African Chemistry Network (PACN) indicated that she was making an arrangement for the donation of some equipment to the Chemistry Department. The PACN and WATERS have since June 2012 donated the equipment including an LC-MS to the department.
- (iii) A memorandum of understanding exists between the laboratory of toxicology, Graduate School of Veterinary Medicine, Hokkaido University and the College of Science to facilitate a Collaborative arrangement between the Chemistry Department and the Laboratory of Toxicology. Mr. Osei Akoto is the initiator of this collaboration.

### **EXCHANGE PROGRAMMES**

The department has been host to a number of German students on the IAESTE (International Association for the Exchange of Students for Technical Experience) programme since 2006. Participants spend three to four months in the department, carrying out researches under the supervision of some of the lecturers. One of our students was in Germany within the academic year on the IAESTE programme to gain some practical experience in a German institution. He used the period to carry out his final year research using State-of-the-Art equipment. The department is hosted one German student and an Indian student during the course of the year

and is expecting one German student in the next academic year on the IAESTE programme. IAESTE has recognized the contribution of the department for this programme and has awarded her with a certificate.

### **SERVICE TO COMMUNITY**

Members of staff in the department continue to offer a variety of services to community at local, national and international levels.

- a. Prof. A.A. Adimado is the Government appointed Chairman of the Council of Ho Polytechnic. He also serves in the following capacities:
  - (i) Campus coordinator for TALIF.
  - (ii) KNUST representative on the Governing Board of the West African Examinations Council.
  - (iii) External Examiner and Assessor to a number of Universities and Research Institutes in Ghana.
  
- b. Prof. J.H. Ephraim is the Vice-Chancellor of the Catholic University College at Fiapre near Sunyani. He is also a member of the Editorial Board of the Journal of the Ghana Science Association (JGSA), a reviewer for the JGSA, Journal of the Ghana Chemical Society and Journal of Science and Technology, JUST.
  
- c. Dr. J.A.M. Awudza is a reviewer for JGSA. He also serves in the following capacities:
  - (i) Serves as a resource person for ICS-UNIDO on next generation biofuels development in Ghana and the West African Sub-region.
  - (ii) Fellow of the Energy Centre, College of Engineering, KNUST, and member of the Management Board of the Centre. In that capacity, he supports biofuels-based industries in Ghana.
  - (iii) Chairman of the Safety Committee of KNUST.
  - (iv) Member, Board of Trustees, Centre for the Development of People, a national non-governmental organization.
  - (v) Representative of the Royal Society of Chemistry in Ghana.
  
- d. Dr. S. Osafo Acquah is the President of the Ghana Chemical Society. He also serves in the following capacities:
  - (i) National Representative: Federation of African Societies of Chemistry (FASC).
  - (ii) Member: Pan African Chemistry Network (PACN)
  - (iii) Member of Council: Ghana Book Publishers Association
  - (iv) Member of the University Centre for HIV/AIDS studies.
  - (v) Reviewer for the Journal of the Ghana Chemical Society
  - (vi) Chairman: Pesticides, Environment and Health Research Group. KNUST
  - (vii) Science Coordinator: Institute of Science and Technology for Africa (ISTA), KNUST
  - (viii) Resource Person: Cocoa Research Institute of Ghana and Building and Road Research Institute of CSIR-Ghana
  
- e. Mr. N.K. Asare-Donkor is the Vice President of the Ghana Chemical Society and a resource person for the WAEC

- f. Mr. E. E. Kwaansa-Ansah is a resource person for WAEC. Serves as
  - (i) Member of the working group: Integrated assessment of water sustainability, infrastructure inequity and health in small scale gold mining communities in Ghana
  - (ii) Reviewer to the Science of the total environment and other journals
- g. Mr. Apau is a resource person for WAEC.
- h. Dr. J.K. Mensah is a resource person for WAEC
- i. Mr. Nathaniel Boadi is a resource person for WAEC and also serves as reviewer to the Journal of Food Chemistry
- j. Dr. Marian A. Nkansah is a reviewer for the *Journal of Science and Technology* (JUST) and the *Fresenius Environmental Bulletin*, Polar Scientific Publications, Angerstr. 12, 85354, Freising- Germany. She also serves as:
  - (i) Leader of the EnvironChem (Environmental Chemistry) research group in the Department of Chemistry.
  - (ii) Member: Science, Technology, Engineering and Math (STEMAfrica)
  - (iii) Member: International Federation of University women (IFUW)
  - (iv) International Union of Pure and Applied Chemists: Sponsored Affiliate
  - (v) United Nations online volunteering network
- k. Dr. Godfred Darko serves on the Editorial Board of Environmental Monitoring and Assessment (Springer). He is on the review boards of 8 journals under Elsevier.

The Department offers laboratory services to a number of clients, e.g. Chemical Engineering Department of Kumasi Polytechnic, World Vision, Food and Drugs Board, Guinness Ghana Ltd. Coca Cola Company Ltd and individuals.

## PROJECTIONS

New programmes under consideration include;

- Cosmetic Science (Cosmetology)
- Forensic Science / Chemistry and Toxicology
- Pesticide Chemistry
- Medicinal Chemistry
- Glass Technology / Chemistry
- Hydrocarbon and Petroleum Chemistry
- Chemistry and Enterprise
- Oil and gas Chemistry

## DEPARTMENT OF COMPUTER SCIENCE

### INTRODUCTION

The Department of Computer Science is one of the four departments of the Faculty of Physical Sciences of the College of Science. The Department started off in 1977 with 1-year certificate course in Data Processing, which was later changed to a 2-year Diploma programme. A few years later, the Department introduced a 3-year degree programme in Computer Science. The Department was the first Department in the country to start a degree programme in Computer Science and this has been recognized by the government through the Ministry of



Communication. As such, late 2007, the Department was presented with an award during the Information Communication and Technology Award night.

In 1999, the Department stopped offering the Diploma in Data Processing and the BSc programme changed to a 4-year programme.

Our World is immersed in intense technological, financial and political changes, which are re-ordering the rules governing business competition. Information Technology (IT) managers must have the capacity to assimilate new technological changes and transfer strategic processes in Organizations in order to succeed.

In today's rapidly changing World, maintaining global competitiveness requires the talents of well-rounded, holistic individuals with technical knowledge and business acumen to address challenging issues. The Computer Science Department is unique in developing the skills in Information Technology.

Presently the Department of Computer Science performs two main functions, namely academic and the provision of computing services. In addition, faculty members are involved in various research activities and software development.

Since the establishment of the Department two decades ago, the Department tops the list of graduates produced since 1962 by the College of Science with a total number of over 3000 graduates in applied sciences.

## **ACTIVITIES**

### **TEACHING**

#### **UNDERGRADUATE**

The Department currently runs a 4-year degree programme in Computer Science in the regular mode, a 4-year degree programme in Information Technology and 2-year top-up degree programme in Computer Science (both by distance learning mode). The programmes prepare students adequately for careers as system programmers, software engineers, system analysts, system designers and application programmers. The tuition given to students is such that they can also set up their own computer businesses after completion. In addition to these, the Department offers service lectures in computer appreciation and computer programming to students in other departments of the University. The undergraduate student population in the Department is over 400 with the breakdown as follows:

#### **Regular**

First year	-	168
Second year	-	138
Third	-	141
Fourth	-	163

#### **Distance**

Year 1	-	27	(BIT)
Year 2	-	23	(BIT)
Year 3	-	27	(CS)
Year 4	-	20	(CS)

#### **POSTGRADUATE**

The Department runs two postgraduate programmes namely MSc/MPhil in Computer Science and MSc/MPhil in Information Technology in the regular mode and MSc/MPhil in Information Technology by distance learning mode. At this graduation ceremony, we are all witnessing the graduation of the first batch of the postgraduate students from the Department. The number graduating from each of the programmes are as follows:

<b>Type of degree and programme</b>	<b>Number Graduating</b>
MPhil Computer Science	6
MPhil Information Technology	5
MSc Computer Science	4
MSc Information Technology	4
<b>Total</b>	<b>19</b>

I take this opportunity to congratulate you all for working tirelessly to complete your programme on scheduled. To the hardworking members of staff I say congratulations.

### **FACILITIES**

The Department has three laboratories that are to be well equipped by the commencement of the 2013/2014 academic year. One of the laboratories is used to service other departments of the University; another laboratory has been reserved for teaching purposes only and the third laboratory for use by students during their free times for their assignments and project works.

Huawei and Vodafone telecommunications set up a laboratory each on the floor of the Department of Computer Science within the Science Complex Building which has greatly been of immense help in research and teaching at the Department. We say a big thank you and we hope you will continue to do more and others will also emulate you.

### **TEACHING STAFF:**

The number of teaching staff has improved and currently stands at fourteen (14). During the year under consideration, we saw Dr. Osei Adjei, Dr K. A. Essuming and Mr F. Twum joining the Department. We have advertised for few more lecturers to join the Department before the commencement of the 2013/2014 academic year.

Dr. Osei Adjei joined the Department in February 2013 as a visiting scholar from the United Kingdom for a period of one year. He was actively involved in all activities of the Department. During his stay with the Department he organized a number of workshops for sister Universities. The Department is very grateful to him for his immense contributions to the growth of the Department.

The Department has fourteen academic staff (out of which one is on study leave pursuing a PhD programme and another on leave of absence) . These academic members of staff have four supporting staff helping them.

### **PROMOTION**

During the year 2012/2013, Dr Michael Asante was promoted to the position of Senior Lecturer. Congratulations to you for the hard work.

Mr. Stephen S. Boakye and Miss Emelia Asiedu also applied for their promotions from their current ranks to the next level.

## **COLLABORATIONS**

The Department has a number of collaborations with local and international institutions. This year, the Department is happy to get into discussions with University of Lincoln. An MOU is likely to be signed by the end of this academic year. The MOU will involve exchange of staff and students among other things.

## **NEW PROGRAMMES AND COURSES**

### **GRADUATE PROGRAMMES**

Plans are far advanced to introduce an MSc/MPhil programme in Health Informatics. The programme is currently receiving accreditation from the National Accreditation Board. The Department and Department of Mathematics will, from 2013/2014 academic year introduce a composite degree programme in Computer Science and Mathematics.

### **UNDERGRADUATE PROGRAMMES**

Approval has been given by the Academic Board of the University to the Department to run a part time/parallel programme in Computer Science. This will take effect during the 2013/2014 academic year.

Also, the Department is preparing course syllabi for two distance learning programmes; a two-year Diploma in Data Processing (or Computer Science) and a one-year certificate programme in Computer Science to start during the 2013/2014 academic year.

## **RESEARCH**

Current research being undertaken in the Department is in the area of software engineering, Computer Networking, Data Communication and Optimization. Research is also being undertaken in the area of computer aided learning with special emphasis in the use of computers in instruction at the primary and the secondary levels of the education system of the nation. The Department is also researching into computer and Internet networking and security issues. The Department has designed a Biometric system that can be used to recognize people from the way they walk (Automatic Gait recognition). This system can be very useful to the security agencies in the country and also as a medical tool for medical practitioners for correcting pathological abnormal gait. Publications arising from the Biometric research have been referenced several times all over the world.

During the 2012/2013 academic year some members of staff published a good number of papers in referred journals both local and international.

## **SERVICE TO COMMUNITY**

The Department organizes computer appreciation programmes for members of staff of the University and other people from outside the University. This programme normally takes place during the long vacation. The students of the Department also embark on Computer Awareness programmes every year to educate students in first and second cycle institutions on Information and Communication Technology. The department is making arrangements to help the government on her ICT programme for the southern sector.

Some members of the Department continue to serve the community in the following areas:

- (i) As Consultant to the **National Accreditation Board** in assessing Computer Science programmes and its related areas for accreditation (Dr J. B. Hayfron-Acquah).
- (ii) As Consultant to the **National Accreditation Board** in undertaking academic auditing in tertiary institutions in the country (Dr J. B. Hayfron-Acquah).
- (iii) IT Consultant to KNUST and IT Advisor to Christian Services University College (Dr M. Asante and Dr J. B. Hayfron-Acquah)
- (iv) As External Examiners/moderators to sister universities: University of Ghana, University of Education-Kumasi Campus, University of Cape Coast, Regent University College of Science and Technology, All Nations University College, Methodist University College of Ghana, Catholic University College of Ghana, Advance Institute of Technology (AIT), University for Development Studies, Valley View University, Christian Services University College, Kumasi Polytechnic – (Dr J. B. Hayfron-Acquah, Mr K. A. Pabbi, Mr J. G. Davis, Mr C. Osei-Bonsu and Mr J. K. Panford)
- (v) As referee to Local and international journals (Dr J. B. Hayfron-Acquah, Dr M. Asante and Mr F. Twum)
- (vi) Motivational or guest speakers in a number of institutions including Christian Services University College (Dr J. B. Hayfron-Acquah, Dr M. Asante and Mr. E. O. Oppong).
- (vii) Some members of staff have written ICT books that have been approved by Ghana Education Service to be used by Junior and Senior High Schools (Dr J. B. Hayfron-Acquah, Mr J. K. Panford, Mr M. F. Bosu, Mr D. A. Asamoah, Mr J. G. Davis and Mr N. Frimpong).
- (viii) Hall master (Mr J. G. Davis)
- (ix) Committee members – All members of Staff
- (x) Consultancy Services – All members of staff

## **APPRECIATION**

- (i) The Department is very grateful to SSNIT and Vodafone who continue to take a good number of our continuing students on vacation attachment and a good number of our final year students for National Service and employment.
- (ii) **Prof Bentil** donated to the Department a good number of modern day core Computer Science books. He has also promised to send more books from time to time as his contribution to the growth of the Department. Prof, the Department is very grateful.
- (iii) The Department is grateful to Indiana University of Pennsylvania (IUP) for donating a number of books to the Department every year.
- (iv) We are also grateful to **SAMBUS**, a leading dealer in Computers and Computer accessories for donating one Computer laptop for the past three year during this same event to our best graduating student.

(v) The Department is very grateful to the entire staff of **Meltwater Entrepreneurial School of Technology**, a leading software development and training company in Ghana for organizing at least two workshops for students of the Department. We are also grateful for their willingness to accept a number of our students each year for vacation training.

(vi) The Department is also very grateful to **Guinness Ghana Limited**, who, from time to time donates Computers and other computer accessories to the Department.

(vii) The Department is very grateful to **SG-SSB** (Accra), **SIC** (Accra) and **BSystems** (Accra) who have agreed to take a good number of our students to do their Vacation Training during holidays.

(viii) **Ghana Ports and Harbours Authority, Ghana Telecom, SSNIT, Tema Oil Refinery, VALCO, VRA** and **Ghana Immigration Services**, the Department is grateful to you all for allowing our students to visit your institution during their field trips.

(ix) The Department is extremely grateful to **Superlock Technologies Limited (STL)**, Accra a leading company in providing security and IT services, for donating a laptop to the best graduating students for the past year and this morning. We are also grateful for assisting the Computer Science Society with cash donation for the printing of their exercise books and finally for allowing a good number of students to do a vacation training with them and employment to our graduating students.

(x) The Department will also like to thank **National Communication Authority (NCA)** for providing funds to the Department to purchase eighteen (18) state-of-the-art computers and four (4) projectors to improve research, teaching and learning in the Department.

(xi) The Department is also very grateful to DetectWare, Accra, and a leading IT Security Consultants for organizing a two day workshop on Computer Forensic for members of staff and students.

## **CONCLUSION**

The Department of Computer Science has made significant progress, particularly in introducing two MSC/MPhil programmes, a top-up programme and a part-time programme. The Department will continue to make progress in introducing more programmes at both the graduate and the undergraduate levels, attract more teaching staff and increase students' enrollment in the Department, increase research output and establish more industrial and educational linkages.

## **DEPARTMENT OF MATHEMATICS**

### **INTRODUCTION**

The Mathematics Department of this University continues to be a leading centre of excellence of Mathematics in Ghana. It is vigorously pursuing a dynamic agenda of providing an up to date comprehensive and thorough training to its students at both the undergraduate and graduate levels.

## **PROGRAMMES**

Programmes which are actively run in the department currently include BSc in Mathematics, BSc in Actuarial Science, BSc. in Statistics, MSc in Industrial Mathematics as well as MPhil and PhD in Pure Mathematics, Applied Mathematics and Mathematics Statistics.

There are currently 1,306 undergraduate students in the department with over 544 pursuing the BSc in Mathematics, 556 the BSc in Actuarial Science and 161 the BSc. in Statistics. In addition to this there are over 150 graduate students pursuing programmes in both Mathematics and Industrial Mathematics.

In 2013/2014 academic year, new programmes in MPhil Actuarial Science will be introduced. Other programmes envisaged for the near future include Masters and PhD in Biostatistics, and top-up programme in Actuarial Science in Distance Mode.

This year (June 2013), over 140 students will graduate with BSc. Degree in Mathematics, over 90 students with BSc Degree in Actuarial Science and over 30 will graduate with Masters Degree in Mathematics and Industrial Mathematics with 10 of them being distance learners.

## **ACADEMIC STAFF**

The Department has highly qualified and experienced academic staff; the staff strength is 22 (of which one is a woman) with three currently on study leave pursuing their Doctoral Programmes. Fourteen (14) senior members hold PhDs. Two senior members are of Professorial rank, and four are of the senior lecturer rank.

Our energetic and very hardworking staff teaches and supervises research not only at the Mathematics department but also in many other departments of the University including Departments at the College of Arts, Social Sciences and Institute of Distance Learning. The Department also provides service courses in mathematics to almost all other Departments of the University at both Undergraduate and Graduate levels. For example, all undergraduates of the College of Engineering take at least 4 hours of mathematics courses every semester for the first two years.

## **COLLABORATION WITH EXTERNAL BODIES**

The Department has collaboration with AIMS-GHANA where some of our staff teach Mathematics and Supervise Masters Students. International collaboration include active research and exchange links with Eastern Connecticut State University, USA, Stellenbosch University, South Africa, North Carolina State University, and Leicester University, UK .

## **NATIONAL AWARD**

In a national competition to promote the use of mathematics by students for solving socio economic problems, the KNUST Mathematics Department was adjudged National Best Mathelete for 2012 and received a plaque.

## **RESEARCH**

Research interests of academic staff currently include Algebra, Complex Analysis, Functional analysis, Topological Dynamics, Numerical Analysis, Heuristics, Mathematical Physics, Optimization and Control as well as Mathematical Modeling using differential equations, difference equations, wavelets and statistical and stochastic approaches.

### **STAFF STRENGTH**

The department has teaching staff strength of twenty-four (24) as follows:

Professors – 2

Senior Lecturers – 4

Lecturers – 18

The Department has two (2) non-teaching staff

### **STUDENTS NUMBER**

The total students' number is 1,306

#### **BSC. (MATHEMATICS)**

First year – 124

Second year - 148

Third – 126

Fourth year – 146

**Total – 544**

#### **BSC. (ACTUARIAL SCIENCE)**

First year – 204

Second year - 124

Third year – 137

Fourth year – 91

**Total – 556**

#### **\*BSC. (STATISTICS)**

First year – 95

Second year – 66

**Total – 161**

\*(The BSc. Statistics was introduced two years ago and thus has only two batches.)

### **POST-GRADUATE STUDENTS**

MSc/MPhil – 45

PhD

## **DEPARTMENT OF PHYSICS**

### **INTRODUCTION**

The Department of Physics came into being in 1961. It has over the years succeeded in realizing its sole mission of producing high calibre and competitive physicists who do not only contribute immensely to the development of the country but also fit very well into the global physics community.

The Physics programme at KNUST is unique in the sense that it is a professional course whereby physics is the main or major programme throughout the four years duration. This is in sharp contrast to physics programmes at other universities in the country where physics becomes major programme only in the third or final year.

### **STAFF STRENGTH**

The Academic Staff of the Department is made up of three (3) Professors two of which are on post retirement contract, one (1) Associate Professor, four (4) Senior Lecturers and thirteen (13) Lecturers.

They are supported by twelve (12) non-teaching staff.

### **STUDENT POPULATION FOR 2012/2013 ACADEMIC YEAR**

**The total student number is 538**

BSc (Physics)

First Year	-	98
Second Year	-	99
Third Year	-	116
Fourth Year	-	93
<b>Total</b>		<b>406</b>

BSc (Meteorology and Climate Science)

First year	-	35
Second Year	-	26
Third Year	-	29
Fourth Year	-	14
<b>Total</b>		<b>104</b>

#### **Postgraduate Students**

MSc/MPhil	-	<b>28</b>
PhD	-	3 (Staff)

### **NEW ACADEMIC PROGRAMME IN METEOROLGY AND CLIMATE SCIENCE**

In August, 2008, a new undergraduate degree programme in Meteorology and Climate Science was introduced in the Department of Physics. The objective of the programme is to build human capacity by training and producing graduates with the following qualities:

- i. High quality fundamental physical sciences
- ii. Up to date current meteorological knowledge and skills including forecasting, experimental, theoretical and research techniques
- iii. Expert knowledge in the physical climatic processes of tropical Africa
- iv. Social, economic and management qualities

### **DEGREE PROGRAMMES IN THE DEPARTMENT OF PHYSICS**

The following degree programmes are offered in the Department of Physics:

BSc (Physics)

BSc (Meteorology and Climate Science)

MSc (Physics) – Materials Science

MSc (Physics) – Solid State Physics

MSc (Physics) – Nuclear Physics (including specialisation in Medical Physics)

MSc (Geophysics) with specialization in

- Oil and Gas Exploration
- Groundwater and Mineral Exploration
- Environmental geophysics

MSc (Meteorology and Climate Science)



PhD in any of the above areas

## **ACTIVITIES**

### **TEACHING**

#### **Undergraduate Programme**

The Department has restructured the Physics Programme with the objective of laying more emphasis on the applications of the subject to reflect the needs of society, thus making the trained graduates more marketable on the job market. In the third year of the programme, the students take the same core courses in physics in addition to their chosen areas of specialisations in one of the following:

- Physics with Biomedical Physics
- Physics with Electronics
- Physics with Geophysics
- Physics with Materials Science

The restructuring is in line with the Department's objective of reacting to the changing trends in socio-economic developments both at the national and global levels. After graduation, all successful students are awarded BSc (Physics) degree.

#### **Postgraduate Programme**

The Department also offers a postgraduate programme, which is applied physics-based, in the following areas:

- Condensed Matter Physics (Solid State Physics and Materials Science)
- Applied Geophysics
- Applied Nuclear Physics
- Environmental Physics/Atmospheric Physics
- Meteorology and Climate Science
- Medical Physics
- Soil Physics
- Theoretical Physics
- Electronics

### **WHITTAKER SCHOLARSHIP AWARD**

The Department of Physics continues to benefit from the Whittaker Scholarship Award for female students, due to the generosity of the late Mrs. Rose Whittaker who bequeathed a sum of money for the scholarship in memory of her husband, the late Prof. Whittaker, a former Head of the Department of Physics and also a former Dean of the then Faculty of Science.

### **MODERNISATION OF THE PHYSICS LABORATORIES – TURNKEY PROJECT**

As part of the Turnkey Project to modernise the basic sciences laboratories of the College of Science, the Department of Physics has received some modern equipment (state-of-the-art) for the following laboratories:

- General Physics Labs I and II
- General Physics Lab III
- General Physics Lab IV
- Modern Physics
- Optics

- Geophysics
- Nuclear Physics
- Materials Science
- Engineering Physics

The Department of Physics has benefitted immensely from the Turnkey Project. The students are very happy that they have been exposed to the use of modern scientific equipment for their practical training.

## **RESEARCH**

Senior Members (teaching staff) of the Department have been engaged in research activities in the following areas:

### **Research Groups/Research Focus**

#### **i. Geophysics Research Group**

- Use of Seismics and Petrophysics in the Evaluation of the Hydrocarbon Potential of some Ghanaian Sedimentary Basins
- Enhancing Sustainable Development of the Lake Bosomtwi Basin using Geophysical Techniques (Electrical Resistivity Tomography (ERT), Ground Penetrating Radar (GPR), Seismics, EM & Magnetism)
- Global Environmental Change Research – A case study of the Lake Bosomtwi Crater Area
- Monitoring Soil and Groundwater Contamination/Pollution using geophysical Methods
- Fractures Detection in Subsurface Investigations using Resistivity, EM, GPR, Seismic Techniques and Radon Mapping
- Groundwater and Mineral Exploration
- Site Investigation/geotechnical studies using Geophysical Methods
- Pavement investigation of major roads in the Kumasi metropolis using the ground penetrating radar (GPR)
- Detection of underground utility cables/pipelines using geophysical methods
- Petrophysical characterization of rocks from some Ghanaian Formations
- Geological and Structural Interpretation of the main Gold Belt of Ghana using airborne magnetic and radiometric data
- Use of integrated geophysical methods in determining the depth extent of the Jasper Deposit within the Buem Formation of Ghana
- Use of seismic broadband digital array network to study the crustal structure of West Africa

#### **ii. Materials Science and Technology Group**

##### **a. Zeolite Science and Technology**

- Synthesis of zeolites from chemical reagents, agricultural wastes and from bauxites
- Characterizations of zeolites and other minerals
- Application of zeolites in: arsenic removal from industrial waste waters, ammonia removal from industrial and municipal waste waters, desalination of sea water, crude oil refining, removal of other heavy metals, and anti-microbial zeolites production for disinfection of drinking water

### **iii. Ceramic Materials**

- Production of advanced ceramic materials for medical use (orthopaedic joint replacement, prosthesis, bone implants, etc.)
- Production of advanced ceramic materials for automotive catalytic converters

### **iv. Solid State Physics Research Group**

- The growth of thin films for photovoltaic applications
- Ferroelectric materials medical, sensor and memory applications
- Properties of ferroelectric materials
- Dye sensitized solar cells
- Photovoltaics and fuel cells (PEM)

### **v. Environmental Physics**

- Monitoring of soil pollution in the Suame-Magazin area using x-ray fluorescence (XRF) spectroscopy methods

### **vi. Meteorology, Climate Science, Atmospheric Physics and Satellite Remote Sensing**

- Trends in precipitation and temperature in climate change over Sub-Saharan Africa. A case study of Ghana
- Retrieval studies of atmospheric compositions (trace gases and aerosol particles) i.e. remote sensing of trace gases
- Impact of night time NO<sub>x</sub> (NO<sub>2</sub> and NO<sub>3</sub>) on ozone depletion and total global ozone budget, diurnal variability of NO<sub>x</sub>
- Measurement and monitoring of meteorological parameters (rainfall, relative humidity, minimum and maximum temperature, heat flux, etc.) for long term trend analysis.
- Impact of human activities on the biogeochemical cycle
- Understanding how anthropogenic perturbations have altered the Earth climate system leading to global warming (i.e. variability in the Earth's climate system and prediction (modeling) of the expected changes.
- Air quality (pollution) study from retrieved vertical column of tropospheric O<sub>3</sub>, NO<sub>2</sub> and aerosol particles from DOAS over Accra – Tema industrial area, Ghana.

## **RESEARCH COLLABORATION/RESEARCH GRANT**

The Department of Physics is collaborating with the School of Applied Sciences, University of Wolverhampton, UK on a Royal Society funded project on "Toxic Elements Removal in Mining Wastewater using Zeolites Synthesized from Bauxite and Kaolin". The project is funded within the Leverhulme-Royal Society Africa Award which seeks to strengthen collaboration between Research Scientist in the UK and Ghana or Tanzania. A total amount of **GBP 180,000.00** has already been approved for the project over a three-year period. **The Award holder in the Department is Dr. Bright Kwakye-Awuah.** One PhD student is currently on the project.

**Dr. Bright Kwakye-Awuah** was also awarded a **CAD 113,000.00** research grant by the Grand Challenges Canada-Rising Stars in Global Health on the project "Ceramic-Silver-Zeolite

impregnated filters for Low Cost Point-of-Use Drinking Water Treatment in Ghana''. The main aim of the project is to use a low-tech high-tech approach to significantly improve the quality of drinking water in both the rural and urban areas of Ghana.

The Department of Physics and the Department of Clinical Microbiology of the School of Medical Sciences (SMS) are collaborating with the Universities of Liverpool, U.K., Cologne, Germany and the International Centre for Theoretical Physics (ICTP) on an EU-funded research project on "Quantifying Weather and Climate Impacts (QWeCI) on Malaria incidence and prevalence in Ghana". The project is funded within the Seventh Framework Programme (FP7) of the European Union and a total of **Euro 155,433.00** has been approved for the project for a three year period (2010 to 2013). The main collaborators at KNUST are Prof. S. K. Danuor, Dr. Leonard K. Amekudzi and DR. S. C. K. Tay.

## **DEPARTMENT OF THEORETICAL AND APPLIED BIOLOGY**

### **INTRODUCTION**

The Department of Theoretical and Applied Biology is one of seven currently in the College of Science. This department leads the field in fundamental biological research and innovative, multi-disciplinary science as Ghana's best Biological Science department. It runs a 4-year Bachelor of Science (BSc) degree programme in Biological Sciences, Environmental Science and a 2-year Master of Science (MSc) programme in Environmental Science. In addition there are graduate research programme leading to the Master of Philosophy (MPhil) and Doctor of Philosophy (PhD) degrees in major disciplines in Biological Sciences. Currently, in the 2012/2013 academic year the student population stands at 935 students; 836 undergraduates, 88 MSc/MPhil and 7 PhD.

### **ACTIVITIES**

#### **TEACHING**

The Department offers teaching in a number of Biological Science courses designed to equip its students with the requisite knowledge and practical skills in Biological disciplines including Microbiology, Parasitology, Entomology, Ecology, Mycology, Plant Pathology, Physiology (Plant and Animals), Genetics, Molecular Biology, Insect Ecology and Pest Control and Environmental Physiology. The Department also offers service courses to the Departments of Biochemistry and Biotechnology, Optometry and Visual Science, the School of Medical Sciences and the Faculty of Renewable and Natural Resources (FRNR), Agriculture, Mathematics and Food Science.

### **NEW PROGRAMMES AND COURSES**

The Department has successfully mounted its MSc Environmental Science programme on the distance learning mode. It has been well patronised and the second batch would be graduating in the 2012/2013 academic year. The Department is in the process of offering BSc Brewing and Technology. New courses are being introduced as part of a general review of courses and programme structure in line with changes in the job market. These include Microbial Ecology, Genetic Engineering, Ecosystem Analysis, Biodiversity Conservation and Utilisation, Ecology of Inland Waters, Environmental Microbiology, Environmental Pollution and Bioremediation.

### **POST-GRADUATE STUDIES**

The Department's 2-year MSc programme in Environmental Science consists of taught courses in the first year and a research project in the second year. Initial assistance for its establishment came from the Department for International Development (DFID) through the British Council. The focus is to equip students with the knowledge and skills that would enable them contribute to the resolution of national environmental issues- Assistance for the programme has also come from the United Nations University Institute for Natural Resources in Africa (UNU/INRA). With this assistance the Department, new courses in Environmental Management and Policy Studies were introduced to complement existing courses.

## **RESEARCH**

Staff and students' research continue in the following:-

- Fermentation Studies
- Nitrogen Fixation
- Fungal infection of Crop Plants
- Aquatic Ecotoxicology
- The Biology and Ecology of Tropical bees
- Biological control of Pests
- Aflatoxin levels in Industrial raw materials and Ghanaian foods
- Onchocerciasis and other Filarial diseases, Malaria, Schistosomiasis, Tissue and Intestinal Parasitic Infections and Microbial Infections.
- Distribution and Survival of Indicator and Pathogenic organisms in rivers and streams and drinking water from various sources.
- The status and change of some vegetation types in Ghana
- Resistance mechanisms in the malaria parasite and the mosquito.
- Ecological Sanitation Lassa fever

Collaborative research is on-going between the Department, the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) and the Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany and Noguchi Memorial Institute for Medical Research. The Research is mainly on Onchocerciasis, Filariasis, Malaria and Buruli Ulcer.

## **MAJOR RESEARCH CURRENTLY ON-GOING/PLANNED**

**In collaboration with Bernhard Nocht Institute for Tropical Medicine, Hamburg (BNI) and the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR).**

- Analysis of the Anti-Filarial T Cell Responses in Onchocerciasis patients.
- Analysis of Cytokine and Cytokine receptor Allelism associated with Disease Manifestations in onchocerciasis and Lymphatic Filariasis.
- Doxycycline Chemotherapy for depletion of *Wolbachia* endosymbiotic bacteria in the treatment of onchocerciasis.
- Use of *Bti* and *Bs* as additional tools in malaria control

## **In Collaboration with Noguchi Memorial Institute for Medical Research**

- Studies on the distribution of the Molecular Marker for Pyrethroid resistance in Populations of *Anopheles gambiae* sensu stricto in the Ashanti Region of Ghana.
- Elucidation of the molecular mechanisms of insecticide resistance and sequencing of the genes responsible for conferring Pyrethroid Resistance in the main *Anopheles* vectors of malaria in Ghana.
- Buruli Ulcer prevalence in the Ga East District

- Occurrence of Lassa fever in Ghana

### **Waste Recycling**

- Development and production of activated charcoal from coconut shell wastes as a means of minimising and recycling wastes.

### **SAWAFO Street Food Project with Funds from DANIDA**

This is collaboration between KNUST and the University of Copenhagen, Denmark, which is aimed at safeguarding Public Health in respect of street foods. Prof. R. C. Abaidoo, leader of the group is exploring better ways of ensuring the safety of street sold foods in Ghana.

### **DANIDA Funded Project/Environment and Climate**

Prof. K. Obiri-Danso chairs a DANIDA Funded Platform on Environment and Climate that is geared towards improving the overall capacity of KNUST Staff in Environment and Climate Research.

### **DANIDA Funded ADMER**

This is a collaborative effort between KNUST and Universities Denmark with funding from ANIDA. Ms Linda Aurelia Andoh and Akosua Karikari are currently pursuing the PhD degrees programmes on a “sandwich-model”.

### **Canada NSERC/University of Waterloo Project**

Canada NSERC in collaboration with University of Waterloo awarded US\$4,912.76 and equipment worth CAD\$6,475.00 to Dr. S. Aikins to investigate the limnology of Lake Bonsumtwi in Ashanti region. Two students recently completed their PhD degrees on the project.

### **COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

Senior Academic Staff of the Department (Senior Members) continue to serve as External Examiners to other sister Universities and as assessors to various national institutions. They also serve on various national and international committees. Furthermore, academic members of the Department serve as reviewers for both local and international peer reviewed journals.

Students of the Department have been involved in health education campaigns in various communities in a number of districts in the Ashanti Region. Such campaigns have touched on HIV/AIDS, water-borne diseases, buruli ulcer, malaria, etc. The students have stressed on how to avoid/prevent contraction of these diseases. In some communities the students organised and led the people in tree-planting activities. These activities have been supported by the District Assemblies, District Health Authorities, PPAG and others.

### **INNOVATIONS**

The Department is embarking on a programme to transform the University Botanic Garden into a recreational park to attract visitors, both local and foreign. There are plans to develop our Museum so as to attract visitors and students from secondary schools. A comprehensive programme to internally re-train our technical staff is on-going. This is to equip them to handle other areas of work aside that which they have hitherto been doing. Plans are also being made to produce teaching slides for secondary schools as part of our income generation activities. The

Department also generates additional income from Water Quality Analysis on behalf of the Food and Drugs Board.

### **PROJECTIONS**

The Department has undertaken an extensive review of the courses offered in its BSc. degree programme to make the BSc. programme more applied and attractive. The new name of the Department - Theoretical and Applied Biology reflects these changes. These are expected to attract more students both local and foreign and to bring in more funds (AFUF). The number of foreign students has been growing significantly in the last two years especially into our Environmental Science programme.

### **INTERNATIONAL AFFILIATIONS/LINKS**

- a) The Department continues to benefit from the College of Science's linkage with RAMAPO COLLEGE of New Jersey, through a donation of computers and various textbooks and educational materials.
- b) The Department's collaboration with the Bernhard Nocht Institute for Tropical Medicine (BNI), Hamburg, through the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) continued with the training of research students at the Master's and Doctoral level.
- c) A draft memorandum of understanding (MOU) for an academic linkage between the College of Science, KNUST and the Indiana University of Pennsylvania (IUP) has been approved.

### **GRANTS/AID/SUPPORTS**

The United Nations University Institute for Natural Resources in Africa (UNU/INRA) continues to support our MSc. Environmental Science programme with various donations.

### **KNUST BOTANIC GARDEN**

Under the management of the Department of Theoretical and Applied Biology, the KNUST Botanic Garden, has continued to function as a resource site for conservation of species and providing services for purpose of teaching and research.

The Garden with an area of 12.9 ha is the third largest in Ghana and is also listed among the 2500 botanic gardens and arboreta in 148 countries around the world. It is a member of the West African Botanic Gardens Network (WABGNET) which is the West African regional grouping of African Botanic Gardens Network (ABGN), a continental grouping of the global network, the Botanic Gardens Conservation International (BGCI).

It is floristically rich containing tropical palms, timber species, climbers and medicinal plants as well as collections of exotic plants. The current level of diversity and development of plant species has led to the habitation of the garden by several species of animals including birds, mammals, reptiles and insects. A recent survey identified as many as 32 different species of birds within the boundaries of the Garden.

To a limited extent the garden serves the University Community and the general public as an area for retreat and socializing. Most of our students meet in the recreational areas in groups for social and religious activities. It provides a cool and refreshing environment conducive for meditation, relaxation and sightseeing.

The garden has six toilets and urinals, with male and female sections and a washroom.

The effective functioning of the Botanic Garden has been constrained by uncontrolled activities in the garden. Intruders unlawfully enter the Garden usually through unauthorized routes and harvest wood, tap palm wine, and hunt animals posing some danger to users of the garden. It is essential that additional security services be provided and that the Garden is completely fenced.

Protecting the KNUST Botanic Garden for biodiversity conservation is important to keep it in line with the objectives of the International Agenda for Botanic Gardens in Conservation. The KNUST Botanic Garden cannot be replaced hence every effort should be made to ensure conservation of its species, development of its resources and protection of the area, for it to maintain an international status.

## **PROBLEMS**

With the increasing number of students for service courses from other departments, available lecture room space is scarce. There is a need for an auditorium with a large sitting capacity accommodating about 500. There is also the need for more microscopes to facilitate the conduct of practical classes in some courses and for research. Currently, the number of usable microscopes in the Department is woefully inadequate. It is expected that with the new funding initiative, TURN KEY project, the number would be improved significantly. However, there is the need for more because of the large number of students. Lack of a vehicle has hampered fieldwork, educational trips and study visits of students. These are urgent needs of the Department.

## **CONCLUSION**

It is expected that the number of staff would increase as new courses are introduced and new programmes developed at the graduate level. Further, international collaborative links are being sought both in the South-South and North-South level to enhance research-training programmes in the Department. Our well structured courses and beautiful scenery in the department would definitely make any visitor's stay worthy.

# **INSTITUTE OF DISTANCE LEARNING**

## **INTRODUCTION**

The Institute of Distance Learning was established to complement the conventional lecture room session conducted within the confines of the walls of KNUST. It aims, among others, to provide greater access to different categories of people who desire to have University education, but otherwise are unable to gain access through the regular mode.

In this regard, IDL has since 2007 taken the quality and demand-driven education and training provided by KNUST to the doorsteps of students throughout Ghana and beyond the shores of Ghana.

In line with its vision of *“Increasing access to relevant and flexible tertiary and continuing education and training anytime, anywhere through the Distance Learning Mode using multimedia”*, the institute has adopted pragmatic measures to expand its activities; an effort which has yielded some positive results.



## DEPARTMENTS

The Institute of Distance Learning currently comprises two Departments: The Centre for Distance and Continuing Education (CDCE); and the merged Kumasi Virtual Centre for Information Technology (KVCIT) and the E- Learning Centre of KNUST, under the proposed name Centre for E- Learning Technologies (CELТ).

## DEANSHIP AND HEADSHIP POSITIONS

The following persons held administrative positions in the Institute during the year under review.

1. Prof. I.K. Dontwi - Dean
2. Dr. Owusu-Boateng - Acting Head, CDCE
3. Dr. A.A. Saah - Acting Head, CELT
4. Ms. Lucy Diawuo - Assistant Registrar/Legal Officer
5. Mr. J. Gambrah - Accountant

## STAFF STRENGTH

The Institute is manned by KNUST staff and National Service Personnel. The permanent University staff comprise of ten (10) Senior Members, made up of one Professor, who is the Head of the Institute; one Senior Research Fellow, six Research Fellows, one Assistant Registrar, an Accountant and an Assistant systems Analyst. In addition, there are nine (9) senior staff, five (5) junior staff and ten (10) National Service personnel who act as supporting staff. The Institute's facilitators are KNUST faculty members in the respective course areas as well as others recruited from both academia and industry, with the requisite academic qualification, experience and background in the various courses that they facilitate.

During the period under review, a total of about 400 facilitators were engaged to handle courses in the Institute's fifteen (15) postgraduate and eleven (11) undergraduate programmes.

## LEARNING CENTRES

The Institute provides facilitated face-to-face sessions at Twelve (12) Learning Centres including an offshore centre at Dubai. The face-to-face sessions in Dubai are delivered through the electronic medium. The pilot on-line project started in Dubai with nine students. Currently, there are about forty- two students both within and outside Ghana, undertaking BSc. Mechanical Engineering and Chemical Engineering through the E-Learning platform.

Preparations have been completed for the take-off of a new centre, at Akosombo, also through the use the electronic platform.

The Learning Centres currently are: ACCRA, KUMASI, TAKORADI, TAMALE, HO, KOFORIDUA, SUNYANI, CAPE COAST, BOLGATANGA, WA and TARKWA, DUBAI.

Accra and Kumasi are the major centres and provide over 70% of the Institute's student population. The percentage distribution of students by centres is given in the table below:

Centres	Undergraduate	Postgraduate	Total	Percentage
Accra	2364	1126	3490	35.50
Kumasi	2277	1184	3461	35.20
Takoradi	699	176	875	8.90
Sunyani	210	163	373	3.80
Ho	203	94	297	3.00

Koforidua	230	163	393	4.00
Tamale	405	193	598	6.10
Cape coast	-	81	81	0.80
Bolga	-	93	93	0.90
Wa	-	71	71	0.70
Tarkwa	-	86	86	0.90
Online Centre	42	-	42	0.20
<b>TOTAL</b>	<b>6430</b>	<b>3430</b>	<b>9860</b>	<b>100</b>

## STUDENT POPULATION

The Institute has witnessed an increasing trend in student enrollment over the years. With less than 300 students at its inception in 2005, the Institute now has a student population of 9,860. The year under review saw a significant increase of about 42% over the 2011/2012 academic.

Academic year	Undergraduates	Postgraduates	Total	% increase
2009/2010			2,575	
2010/2011	2,744	2,291	5,035	96
2011/2012	4,429	2,516	6,945	38
2012/2013	6,430	3,430	9,860	42

A major challenge to the increasing number of students is securing lecture rooms at our centres, particularly in Accra for the face-to-face sessions. With the steady progress of work on the KNUST Accra campus, it is believed that the number of students would double in the next two years.

## PROGRAMMES

The 2012/2013 academic year saw the introduction of six new postgraduate programmes, bringing the number of postgraduate programmes run at the Institute to ten. The Institute also runs a total of eleven (11) undergraduate programmes.

### UNDERGRADUATE PROGRAMMES

At the undergraduate level, the Institute runs a two year Top-Up programmes for Diploma and HND holders and the normal four year programmes. Attention is now shifting from the 4-year programmes to the Top-Up. As a result, the number of 4-year Undergraduate programmes has reduced to three, with a student population of three hundred and four (304). These Programmes are run at the Accra and Kumasi centres only.

### POSTGRADUATE PROGRAMMES

The following are the postgraduate programmes currently on offer:

1. M.Sc. Commonwealth Executive Masters in Business Administration (CEMBA)
2. M.Sc. Commonwealth Executive Masters in Public Administration (CEMPA)
3. M.Sc. Environmental Science
4. M.Sc. Industrial Mathematics
5. M.Sc. Post-Harvest Technology
6. M.Sc./M.Phil. Information Technology
7. M.Sc./M.Phil. Health Informatics

8. Msc. Information Technology (E-Learning)
9. Postgraduate Diploma in Information Technology.

The new postgraduate programmes introduced are:

**MSc. Development Management**  
**MSc. /MPhil Industrial Finance and Investment**  
**MSc. Actuarial Science**  
**MSc. Food Quality Management**  
**MSc. Educational Innovation and Leadership Science**  
**MSc. Business Consulting and Enterprise Risk Management.**

These new programmes, together, constitute about 14% of the total postgraduate student population.

The CEMBA/CEMPA programmes are currently run in all the eleven learning centres and are the most patronized. All other postgraduate programmes are run only in Kumasi or in Kumasi and Accra.

The E-learning Centre which has been brought under IDL is currently running M.Sc. Information Technology and Post Graduate Diploma in Information Technology.

#### **PIPELINE PROGRAMMES**

Preparations are underway for the under listed programmes to start as soon as practicable, depending on how early the Departments concerned are able to get the Course Materials for the courses under their respective programmes ready. The programmes with \*are due to begin at the 2013/2014 academic year.

College/Department	Programme(s)	
	Undergraduate	Postgraduate
<b>Arts and Social Sciences</b>	*Social Work (Top-Up) *Culture and Tourism (4 year)	M.Ed. Arts Education M.Sc. Communication Design
	-	(i) Graduate Diploma in Education
<b>College of Engineering</b>	Civil (Top-Up) Petrol Chemical (Top-Up)	
<b>Health Science</b>	B.Sc. Emergency Nursing (Top-Up)	
<b>Science</b>	*Information Technology (Top-Up)	M.Sc. Brewery Science
<b>IDL Special Programmes</b>	Diploma in Accountancy	*M.Sc. Logistics & Supply chain Management
		M.Sc. Financial Management
		M.Sc. Accounting

#### **GRADUATION**

A total number of Four Hundred and Three (403) students graduated during the July graduation. This comprised of One Hundred and Forty Eight (148) undergraduates and Two Hundred and Fifty Five (255) postgraduates. Again, Five Hundred and Fifty Five (555) postgraduate students graduated during the special November 2012 graduation. This was made up of Four Hundred and Seventy Seven (477) CEMBA/CEMPA students, Fifty Eight (58) Industrial Mathematics students and Twenty (20) Environmental Science students. The E-learning centre also graduated Eighty (80) students in February this year. This brings the total number of students who graduated during the year under review to One Thousand and Thirty Eight (1,038).

## **PHYSICAL INFRASTRUCTURE DEVELOPMENT**

- The Accra City Campus

IDL has acquired a 22.16 acre land at Pokuase/Kwabanya and the sod was cut for the commencement of work on the Accra City campus on 14<sup>th</sup> December 2012. An initial three storey structure comprising of classrooms and offices has since been underway and it is expected to be completed and handed over for use by January 2014.

- The Kumasi City Campus

At the last special congregation ceremony held in November 2013, the Chancellor of the University, Otumfuo Osei Tutu II graciously donated 20 plots of lands at a strategic part of Kumasi to be used for the construction of the Kumasi City Campus. Manhyia, the administrative seat of Otumfuo has since issued a formal letter to the University for allocation of the land. Work would soon start on the Kumasi City Campus building complex, comprising of classrooms and offices.

- Tamale Campus

IDL has acquired 4 plots of land at Tamale for the construction of a campus at Tamale. The land which is in the heart of the Tamale city was allocated to IDL by the Lands Commission and work is expected to commence in Tamale before the close of this year.

- Takoradi Centre

Negotiations are far advance for the acquisition of land at Kansaworodo in Takoradi for the Takoradi centre.

Looking at the trend of the increase in student population, it will be expedient for IDL to own its own facility in all the regional capitals and IDL is fervently working towards this. It is believed that when these projects are completed, one of the Institute's major challenges; office and classroom space would be a thing of the past.

## **DEPARTMENTS**

### **CENTRE FOR DISTANCE AND CONTINUING EDUCATION (CDCE)**

#### **INTRODUCTION**

The Centre for Distance and Continuing Education (CDCE) is one of the two Departments under the Institute of Distance Learning (IDL). CDCE's activities for the year 2012/13 covered two main areas; the Proficiency Certificate in Architectural Draughtsmanship (PCAD) Programme, Diploma in Architectural Technology and Course Material Restructuring and Production for Distance Learning students.

#### **MATERIAL PRODUCTION UNIT (MPU)**

The Material Production Unit edits and produces course materials in the distance mode. They also conduct course writer's training workshops for course material developers from the various departments. The current template for course writing in the distance mode has been reviewed to include:

- i) Interactive web enabled CD ROMs which include PowerPoint presentation by course writers, and
- ii) Availability of course materials on the Learning Management System (LMS) in the virtual classroom, [www.kvcit.org](http://www.kvcit.org)

This is aimed at improving publication format to ultimately enhance the quality and delivery of the course.

Staff of CDCE play roles such as coordination of IDL programmes and Centres, facilitation of IDL courses and teaching in some regular courses.

### **CENTRE FOR E-LEARNING TECHNOLOGY (CELT)**

#### **INTRODUCTION**

The Centre For E-learning Technology (CELT) is one of the two Departments under the Institute of Distance Learning (IDL). The centre is a merger of the University E-learning Centre and the Kumasi Virtual Center for Information Technology (KVCIT). The main focus of this centre is to migrate IDL onto the E-learning platform in line with International best practices on distance education. Other activities carried out by the centre include;

1. Moderating the IDL's Learning Management System (E-Learning Platform) and the virtual classroom for distance learning students and facilitators;
2. Certificated computer literacy programme;
3. Certified AUTOCAD Program for Architectural Draughtsmanship students from CDCE and elsewhere.
4. Undertaking postgraduate programmes in collaboration with some selected foreign Universities.

#### **STAFFING**

Staff of CDCE consists of one Senior Research Fellow on contract and five Research Fellows namely;

- i. Dr. C.K. Osei
- ii. Rev. Dr. W. Owusu-Boateng - Acting Head CDCE
- iii. Mrs. R. Essel
- iv. Mr. J.A. Mensah
- v. Mr. H. Mensah
- vi. Mr. Aggrey-Smith

Staff of CELT consists of one Research Fellow, one Senior lecturer and one Assistant Systems Analyst. They are:

- i. Dr. A.A. Saah - Acting Head CELT
- ii. Dr. M. Asante
- iii. Mr. F. Kodwo

#### **SERVICE TO COMMUNITY**

**Dr. A. A. Saah**

### *University*

- a. **Cognate Member**, Faculty of Allied Health, SMS (2010)
- b. **Member**, CDCE Departmental Board
- c. **Facilitator**, CEMBA 570 Research Methodology (2011)
- d. **Facilitator**, IDL Course Writers Workshop
- e. **IDL Program Coordinator**, Department of Building Technology / IDL Programs
- f. **Member**, Sub-committee for IDL Strategic Plan
- g. **Contributor**, KNUSTSpace, KNUST Institutional Repository

### *National*

- a. **Secretary**, Executive Committee, African Institute for Researching and Development, Ghana
- b. **Member**, Board of Directors, Sky Broadcasting Services Ltd., Kumasi
- c. **Presenter**, Hour of Prayer Broadcast, SpiritFM 88.3

### *International*

- a. **International Chair**, African Institute for Researching and Development, Ghana
- b. **Reviewer**, five (5) conference abstracts for PCF6, India
- c. **Rapporteur**, Conference News, PCF6,
- d. **Contributor**, Conference News, PCF6,
- e. **Coordinating-Member**, Disciple the Nations (USA), KY, USA
- f. **Member**, United Christian Ministerial Association, USA
- g. **Fellow**, British Institute for Learning and Development, Bristol

### **ONGOING PROJECTS – Materials Production Unit**

- 1) Digitizing course materials (2011)
- 2) Editing of new and ongoing course materials (2010-2011)
- 3) Training of course writers in interactive writing for distance learners (2010)
- 4) Research on Adult learning and quality improvement strategies (2011)
- 5) Design, deploy and develop a proficiency course “ICT for Distance Learning” to be taken in the 1<sup>st</sup> semester of each academic year by all IDL distance learners and facilitators (2011)
- 6) Complete a book “Course Writers Manual: Writing for today’s distance learner” for course writers (2011)

### **Rev. W. Owusu-Boateng**

1. Member –IDL Institute Board
2. Cognate member – Faculty of Physical Sciences Board. October 2009- To date.
3. Chairman - IDL Staff Welfare. March 2008- To date.
4. IDL Examination Officer. August 2009 - To date
5. Academic Board Member of CEMBA/CEMPA Programme. March 2011- To date.

### **J. A. Mensah**

- Member, CDCE Departmental Board
- IDL Program Coordinator – BSc. Actuarial Science
- IDL Program Coordinator – MSc. Environmental Science
- Facilitator – IDL Course Writers’ Workshops
- Assessor, Proceedings of the Sunyani Polytechnic Lecture Series

**S. Aggrey- Smith*****University***

- a. Member, KVCIT Departmental Board
- b. Facilitator, CEMBA/PA 570 Research Methodology
- c. Facilitator, IDL Course Writers' Workshop
- d. IDL Program Coordinator, CEMBA/PA program, Health Informatics, Information Technology
- e. Coordinator, IDL Printing and Distribution of all Course Materials
- f. Member, drafting of OER policy for KNUST
- g. Centre Coordinator, Idl learning Centre; Kumasi, Ho

***National***

- a. Secretary, African Institute for Researching and Development, Ghana
- b. Examiner, General Science, JHS, WAEC

***International***

- a. WAEC examiner for Elective Physics, West Africa Schools
- b. Member, World Links for Development, a World Bank Project

## **SCHOOL OF GRADUATE STUDIES**

**INTRODUCTION**

The School of Graduate Studies was established in 2002 following the restructuring by the University Council. It had existed as Board of Postgraduate. The restructuring was to strengthen and position the School to face the challenges of Graduate Studies in the country.

The main objectives of Graduate Studies at the Kwame Nkrumah University of Science and Technology (KNUST) are the training and development of graduates at higher degrees to acquire specialized skills in Science and Technology. Besides, such graduates would be enabled to provide appropriate research initiative and leadership in industry, commerce and other sectors of the national economy.

Efforts are being made in the Departments and Faculties to develop graduate programmes, which are relevant to the promotion of economic, social, scientific and technological advancement of Ghana.

It is noteworthy that material and human resources are being mobilized to ensure maximum utilization of available potential through courses and programmes organized and coordinated by the School of Graduate Studies.

**GRADUATE PROGRAMMES OFFERED**

The School of Graduate Studies run more than eighty courses in the various departments, notably among them are: Agriculture, Mathematics, Engineering, Physics, Silviculture and Forest Management, Chemistry Art, etc.

The School awards the following degrees in various fields of discipline:

- Graduate Diploma
- Master of Science
- Master of Arts
- Master of Philosophy
- Master of Fine Art
- Master of Pharmacy
- Master of Public Health
- Master of Business Administration
- Master of Executive Master of Business Administration
- Master of Commonwealth Executive Master of Business Administration
- Master of Architecture
- Doctor of Philosophy

### **INTRODUCTION OF NEW PROGRAMMES**

The year under review saw the introduction of the following programmes by the various departments.

1. Master of Science (MSc) Degree in Meteorology and Climate Science by the Department of Physics.
2. Doctor of Philosophy in Sociology by the Department of Sociology and Social Work.
3. Master of Philosophy (MPhil) Sociology.
4. Postgraduate Diploma in Sociology.
5. Master of Science (MSc) Speech Language Pathology by the Department of Eye, Ear, Nose and Throat.
6. Master of Science (MSc) Audiology by the Department of EENT.
7. Natural Resources and Environmental Governance by the Department of Silviculture and Forest Management.
8. Master of Science in Mortuary Science and Management by the Department of Anatomy.
9. Master of Science (MSc) Pharmaceutical Technology by the Department of Pharmaceutics.
10. Master of Philosophy in Urban Management Studies
11. Doctor of Philosophy in Soil Science
12. MSc Procurement Management
13. MSc Construction Management

### **NEW PROGRAMMES APPROVED BY THE SCHOOL OF GRADUATE STUDIES BOARD FROM THE INSTITUTE OF DISTANCE LEARNING (IDL).**

1. MSc/MPhil/Postgraduate Diploma n Business Consulting and Enterprise Risk Management.
2. MSc/MPhil Educational Innovation and Leadership Science.
3. MSc. Development Management
4. MSc/MPhil Logistics and Supply Chain Management
5. MPhil/MSc/PG.Dip. Industrial Finance and Investments
6. Msc/MPhil Oil and Gas Management.



## ENROLMENT

The table below shows the number of students who were admitted during the 2012/2013 academic year.

<b>Female</b>	<b>1, 101</b>
<b>Male</b>	<b>3, 437</b>
<b>Total No.</b>	<b>4,538</b>

## ACTIVITIES

The SGS, which acts as a co-coordinator to all the Departments that run graduate programmes in the University, performs among other duties, the following:

- Co-ordinates and liaises with the Central Administration, Colleges, Faculties, Institutes and Departments on general Graduate issues.
- Administers and processes applications for prospective applicants.
- Organizes interviews for applicants seeking admission into various programmes, issues admission letters and register students for the programmes into which they have been admitted.
- Organizes seminars for students and members of staff on graduate issues.
- Receives and approves thesis synopsis, examination results, proposals for new programmes, withdrawal of non-performing students as well as assisting brilliant and hardworking students to climb high, the ladder of academic excellence.
- Screening and appointment of External and Internal Examiners for Departments.
- Organizes and conducts oral examinations for final year graduate students to defend their theses, which is one of the major activities of the school.
- We conduct Board meetings to approve examination results, award of degrees and present graduating students at congregation.

## INTERNATIONAL AFFILIATIONS

The establishment of links with institutions for postgraduate studies elsewhere to encourage the mounting of joint programmes of research and study through the exchange of students, staff use of facilities for our mutual benefit is most welcome. A few of such links are already in place. Among them are, the Master of Science programme (MSc.) in Development Planning and Management which is run jointly by the University of Dortmund, Germany, and the Master of Science programme in Geo-Information Services and Natural Resources Management also jointly run by the I.T.C. of Netherlands and the Kwame Nkrumah University of Science and Technology Faculty of Natural Resources and the Department of Geomatic Engineering. Master of Science in Road Transportation in Civil Engineering under World Bank auspices; Master of Science in Water Supply and Environmental Engineering in collaboration with UNESCO and IHE Delft. Master of Science and Doctor of Philosophy in Agriculture (AGRA programme).

There is still room for many more linkage programmes for interested institutions and organizations. They are, therefore, welcomed.

## CHALLENGES

The School has some challenges which are listed below:

- Office spaces, currently the school is housed in the Chemistry Block with few rooms. There is serious congestion. This actually needs immediate attention.
- ICT facilities, the whole University is now going ICT. The ICT facilities are bit weak. The school needs ICT specialist to be fully in charge of our examination processing.

## **CONCLUSION**

The School of Graduate Studies shall remain unwavering in addressing the needs of Graduate Students and will remain focused in its bid to expand graduate studies.

## **DEAN OF STUDENTS**

### **INTRODUCTION**

The Office of the Dean of Students was formally established in 1997 under statute 45 of the University with the mandate to provide the needed and necessary welfare support services for students during their period of study at KNUST. The Office has rapidly been evolving under the leadership of the Deans who headed the outfit. The foundation Dean had been Rt. Rev. Prof Safo Kantanka (1998-2001), the second was Prof E. Frempong (2001-2005) and the third had been Prof. M.L.K Mensah (2006-2009). The present Dean assumed office on January 1, 2010.

The Office has become the first point of call for student welfare, discipline and a mop –up arena for all student issues that might have otherwise fallen through the cracks because it does not exactly fit the jurisdiction of any department. The Office is in regular dialogue with the Vice Chancellor's Office, all Academic units from Provosts to Heads of Departments, the Registry, the Finance Office, the Protestant and Catholic Chaplaincies, the Health Directorate, the Security Services (internal and the local police), the Halls of Residence and the Private Hostels. It provides a platform for an intimate interaction between Students' Leadership –Students' Representative Council (SRC), Graduate Students' Association of Ghana (GRASAG) and a host of other student organizations on one hand and the University on the other. Given the crucial role the office plays it is represented on key university boards such as Executive Committee, Academic Board, Welfare Services and Residence Committee among others.

Over the years, the Office has sought to fulfil its mission by assisting Students to understand in both specific and, general terms, how the University operates both at the social and academic levels. This, consequently, enables them to understand rules and regulations, as well as providing opportunities for students to develop and enhance their leadership skills by involving them in decision making processes, supporting advocacy for students and providing and involving them in conflict resolution techniques.

### **STAFFING**

The current Senior Members strength of the Office of the Dean of Students is as follows:

- |                                       |   |
|---------------------------------------|---|
| 1. Dr. Kofi Owusu-Daaku               | Dean  |
| 2. Dr.(Sr.) Frances Emily Owusu-Ansah | Vice Dean                                   |
| 3. Mrs. Christian A. Appiagyei        | Assistant Registrar                         |
| 4. Mrs. Victoria De-Graft Adjei       | Assistant Registrar/Coordinating Counsellor |

5. Mr. Joseph Asamoah-Gyawu
6. Mr. Kofi Yamoah

Assistant Registrar/Counsellor  
Senior Counsellor (retired)

It is remarkable to note that the new Vice Dean appointed by the University for the Office in the current year, Dr.(Sr.) Frances Emily Owusu-Ansah, is a Clinical Psychologist and Senior lecturer in the Department of Behavioural Sciences at the School of Medical Sciences. The Office enthusiastically welcomed her appointment owing to her vast experience in Counselling services which has become a *sine qua non* in the daily affairs of dealing with the needs of the over 30,000 students.

In addition, there are four (4) Senior Staff. Junior Staff and seventeen (17) National Service Personnel who are engaged full time on assignments pertaining to the various units. The Office is grateful to two former student leaders, Messrs. Emmanuel Kwadwo Yeboah Gyan and Godwin Boateng who over the past year have worked and two graduate volunteers who worked as special assistants to the Dean and have provided mop up services for all emergencies of the office.

## **ORGANISATION**

The Office is internally organized into several sections as listed below:

- i. Administration
- ii. Student Guidance and Counselling/ Disability Support Services Unit
- iii. International Students Affairs
- iv. Immigration Office
- v. Students' Representative Council Affairs
- vi. Student Housing and Residence Life
- vii. Students Conduct and Discipline
- viii. Students Support Services (with Student Affairs& SFSS)

## **ADMINISTRATION**

The central administration is headed and coordinated by the Dean whose office usually becomes the first port of call for any inquiry and from where issues are fielded to the other units. The Dean hold regular formal and informal meetings with the Units dialogues regularly with the Vice chancellor and works closely with International Programmes Office, Students Financial Services and Student Affairs of the Registry whose offices are house on the Dean of Students premises.. He is ably assisted in the discharge of these duties by at the Vice Dean and a board that should meet at least once a semester.

## **STUDENTS GUIDANCE AND COUNSELLING UNIT**

The Counselling Unit was established in 1993, purposely to address the psycho-social and welfare needs of students in particular and members of the University community in general. Since then however, the Counselling Unit has undertaken various activities and programmes beyond the general Counselling Services. The Counselling Unit, render the following services;

- psycho-educational counselling
- psychotherapy
- providing adequate liaison between the office, faculty/departments and hospital on medical issues.
- finding solutions to academic and social issues

Clients are assisted to overcome issues relating to:

- broken homes,
- broken relationships,
- bereavement, shocks,
- sexual disorientation and
- poverty and financial constraints, etc.

### **INTERNATIONAL STUDENTS AFFAIRS**

The growing nature of our International student population requires that sufficient attention is given to the general conduct and welfare of these students since travel and study in a different environment could pose substantial challenges which can ultimately impact academic output. Their extra day orientation focused on the following areas: Immigration laws of Ghana, residence permit acquisition and renewal processes, Visa acquisition, the Laws of Ghana in relation to the International Student, Cultural Similarities, differences and adaption. Relevant resources were provided to the participants in the presence of the Executives of the International Students Association whose activities directly falls under the purview of the Vice Dean of Students

### **IMMIGRATION OFFICE**

With support from the Vice Chancellor, the Ghana Immigration Service now has an office space at the premises of the Dean of Students which aims is to smoothly facilitate the processing of residence permits for our International Students and thereby curbing the annual systemic challenge of securing residence permit.

### **STUDENTS' REPRESENTATIVE COUNCIL AFFAIRS**

The Office as a whole has intimate contact with the entire student body and their leadership (through SRC and GRASSAG). The Office liaises between the SRC in the University Administration, give direction and offer advice to the Students' Leadership whenever necessary. The Accounts Unit of the Office manages the SRC accounts with oversight responsibility of the Finance Office. The University's Internal Audit continues to assist the Office in auditing the accounts of recognized student activities.

### **STUDENT HOUSING AND RESIDENCE LIFE UNIT**

This Unit of the Dean of Students Office is headed by a licensed professional surveyor with a land economy degree. The students housing unit is responsible for Non-resident students accommodation issues as well as the management of the three Non-Residential students Facilities and also assist the students in the management of the Otumfuɔ Osei Tutu II Hostel. The Unit also dialogues with private hostel owners to ensure they meet some minimum standards of comfort and security for our students

### **STUDENT CONDUCT AND DISCIPLINE UNIT**

This office comes under the direct management of the dean assisted by two law interns who spend the national service year with the office. Efforts are made to investigate and apply appropriate disciplinary measures against students who breached University Regulations. Unfortunately, despite the relevant orientation and counselling, some students remained susceptible to a number of offences that did not augur well for communal co-existence. The Office played key roles in helping to arbitrate and resolve a host of issues of students. It assisted

in the process of forming committees of enquiry and facilitated in some cases, work of the committees once set up by the Vice Chancellor.

### **STUDENT SUPPORT SERVICES**

The Office through the Dean of Students works with the Students Financial Support Services (SFSS) and the Student Affairs of the Registry at the committee levels to select needy students who required financial support from the University. In addition, the Office oversees the operations of the students who managed the *Ketewa Biara Nsua* (KBN) fund that assists needy students. The Office receives numerous complaints for mediation and settlement of a large number of disputes among students.

### **CENTRAL OFFICE ACTIVITIES**

Highlights of the 2012/2013 academic year activities included the following service areas:

- **Meeting with Hostel Owners and Proprietors on Security**

At the instance of the Vice Chancellor, the Office facilitated a meeting with the Hostel Owners to discuss the issues regarding how they can help to improve security for our students in their lodging. They were made aware that in as much as the University was working hard with the police and our security to enhance safety the onus was on these proprietors to keep their hostels safe

### **HOSTEL VISITATIONS AND APPROVAL**

Spearheaded by the Student and Residence Life Unit, the office carried out evaluation of over 70 hostels and made recommendation to approve those who met the set standards to have their hostels published on KNUST web site.

### **ORIENTATION/TRAINING /WORKSHOPS**

The Office organized a number of orientation and training programmes during the year including the following.

#### *Freshmen Decentralized Orientation*

The Office led the charge in helping to organise a decentralised orientation on College basis in which among the issues addressed included the following:

- *Counselling services (psychological, emotional, social, drug abuse and academic and career issues)*
- *Clubs and societies legally available and relevance of extra-curricular activities*
- *Accommodation on campus*
- *Immigration services*
- *Student financial services, scholarship and financial aid*
- *Effective Time management for academic success*

### **BIOMETRIC REGISTRATION FOR STUDENTS**

The Office led the introduction of Biometric registration of all students for the two semesters of the year to give the University the real update of our *bona fide* students. The facility has captured our students in the IDL programmes. The University is investing in more equipment to enhance the process. It should be used in future students' elections to increase transparency and reduce the perception of fraud.

### **VISIT BY NIGERIAN HIGH COMMISSIONER TO GHANA TO KNUST**

The Office, in the year under review, in collaboration with the International Programme's Office facilitated a meeting between Nigerian students and the Nigerian High Commissioner to Ghana, **His Excellency Mr. Ademola Oluseyi Onafowokan** and his entourage on a visit to KNUST as part of his Ashanti Regional tour.

### **NIGHT TRANSPORT FOR STUDENTS DURING EXAMINATION**

Just before end of the 1<sup>st</sup> semester in December, 2012, the Office under the direction of the Vice Chancellor, initiated a night transport programme for students to tide them over the critical 3 week examination period when there was the perception of increased attack on our students. Buses were made available at the Royal Parade Ground from 7 pm to 11 pm every night at a minimal cost to the students. Patronage was not encouraging but those who benefited felt it was useful and ought to be continued in future.

### **BAN ON LITTERING CAMPUS WITH POSTERS**

An epoch-making event in the 2012/2013 academic year was the imposition of a ban on littering KNUST with campaign paraphernalia, piloted with the national election of 2012, and rolled out in full during the current student elections February-April 2013. The Office took the view, which was in sync with the Vice Chancellor's vision of the University going increasing paperless, that KNUST as a community was capable of political discernment and did not deserve the seasonal spate of littering. As a credit to all students and associations on campus this directive was strictly adhered to and KNUST continues to epitomize its true description of greener flora interspersed with verdant lawns; a necessary atmosphere for serene academic conduct.

### **LEADERSHIP TRAINING FOR EXECUTIVES OF STUDENTS REPRESENTATIVE COUNCIL/ POTENTIAL ASPIRANTS**

The Office partnered with the International Leadership Foundation to organize an orientation for potential student leaders. Similarly, the Office sought to position the outgoing executives of the SRC on acceptable best practices on leaving behind stronger institutions firmly entrenched on integrity.

### **MEDIATIONS/ STUDENT CONDUCT AND DISCIPLINE UNIT**

The Office also directly assisted in resolving numerous theft, fraud and minor alleged assault cases. Civil cases constituted about 80% of the reported cases. Thirteen comprehensive reports were forwarded to the Office of the Vice Chancellor and the Legal Office for further investigation, advice and disciplinary procedures to be instituted. The above were handled by two efficient and effective law interns attached to the Office of the Dean of Students. ***The Office has since made a strong case for a properly constituted Students Judicial Services Unit to be resourced under the Office for such purposes.***

### **SRC ELECTIONS AND TRANSITION TO NEW LEADERSHIP**

The Office facilitated the process once again for the smooth conduct of their elections. The usual threats of court actions and injunctions were ostensibly absent this year primarily due to the SRC's decision to uphold the dictates of its own constitution. The SRC has since handed over to new leadership which has started functioning per their mandate.

### **SRC HOSTEL BALLOTING**

The Office takes the position that the *Otumfuo Osei Tutu II* building is being developed by students through the contributions of past, present and future students. Balloting for rooms has been taken over by the Office and run smoothly to ensure fairness, equity, and transparency. This year, the list has been published. The Office will keep sustaining this practice in the interest of all students.

## **COUNSELLING ACTIVITIES**

There were several activities undertaken by the Counselling Unit during the year under review

- **Hospital Liaison**

The Counselling Unit liaised with the University Hospital by monitoring inpatient hospitalizations among the Student population. The Peer Counsellors tracked and visited Students, during hospitalization, and performed case management services with follow-up visits on those who presented with unusual and/or with severe medical conditions. The Counselling Unit obtained referral forms/letters from the University Hospital and escorted Students to Komfo Anokye Teaching Hospital (KATH) and other Psychiatric Hospitals for treatment

- **Mental Health Services at the Students Clinic**

In the year under review, the Office in collaboration with the Director of Health Services has initiated the provision of mental health services at the Student Clinic to curtail the commute of students to the Psychiatric department at the Komfo Anokye Teaching Hospital (KATH) for such services. Once a week, and in some cases more than once a week, a Psychiatrist comes from KATH to consult at the Students Clinic. Though just started, this service proved very beneficial to students in the just ended semester. *The Office strongly recommends its continuation and with time, its extension to staff and their dependants.*

- **Social needs**

Academic challenges however represented the highest among the service delivery. The majority of Students expressed difficulty in coping with their programs, and some, sought to change or defer their programs for a variety of reasons. Acute financial aid and accommodation problems represented significant number of request that the Office facilitated for immediate support.

- **Peer Counsellors**

Again the Unit trained and managed Peer Counsellors to bring counselling to the door steps of Students. The Peer Counsellors acted as the linkage between Students and the Office of the Dean of Students. They referred cases to the Unit and also assisted their colleagues in overcoming some of their personal challenges. The Peer Counsellors were therefore trained in the counselling process.

- **Prospective University Applicants**

The Counselling Unit provided services to prospective KNUST and other university applicants to make suitable program choices. Applicants therefore received Counselling on; how to select appropriate programs based on qualification, content and expectation of specific programs and, the job market with respect to employment. At the time of this report, total of **52** applicants have visited the Unit. Facilitators at the Unit were engaged to orientate students of a number of secondary schools in the region regarding the admission procedure of the university and programme selection by these prospective applicants

## CONCLUSION

The year, under review, has produced an active engagement at all levels among our students, partners and management with beneficial results. We have had a fruitful and peaceful, yet challenging year and look forward to better years ahead for the entire KNUST community. It is hoped that our interactions with the Colleges, Students, hostels, halls of residence will expand to enable provision of better welfare services to our students. The Office of the Dean of Students intends to:

- Improve and expand present physical infrastructure to bring about efficiency and quality service delivery.
- The Office is in the process of restructuring the current staffing pattern to conform to the Office's new initiatives towards her expanding schedules.

## UNIVERSITY LIBRARY

### INTRODUCTION

The University Library System, comprising the Main Library and the six College Libraries, has a mandate of making available the needed information resources to support teaching, learning, research and entrepreneurial development in the University community.

In the course of the 2011/2012 academic year, the KNUST Library System performed its core functions of acquiring, processing, organizing and disseminating relevant, timely and appropriate information in both print and electronic formats to support the University in this regard.

This report summarizes the activities that were undertaken by the Library system, outlines the challenges encountered and prescribes a way forward.

### STAFFING

The Library System had the staff strength categorized below:

Category	Established Number	Number at post	Vacancy
Senior Members	19	17	2
Senior staff	27	23	4
Junior (Technical)	57	54	3
Junior (Non-Tech)	21	18	3
<b>TOTAL</b>	<b>124</b>	<b>112</b>	<b>12</b>

There is the need to fill the existing vacancies and to establish seven (7) more for senior members as a result of expansion of library activities and the creation of new service areas including the KNUSTSpace.

### BOOK STOCK OF THE LIBRARY SYSTEM

#### MAIN LIBRARY

A total number of 2,716 volumes were added to the stock of the Main Library in the year under review. This addition was relatively higher than that of the previous year which recorded 1,879 volumes. Out of this number, 1,770 were purchased from local agents of foreign publishers and 158 directly from foreign sources. Only 68 volumes were received through local donations. A comparatively higher figure of 720 was received from foreign donations. These came from the United Nations and its specialized agencies, mostly FAO, WHO and the World Bank.



These brought the total stock of the Main Library to **127,817** as at 31<sup>st</sup> July, 2012.

### **COLLEGE LIBRARIES**

There are six College Libraries, which together with the Main Library constitute the KNUST Library System. Besides, the libraries of the College of Agriculture and Natural Resources, College of Health Sciences and College of Art and Social Sciences operate satellite libraries as the needs of their constituent faculties and departments demand. The College of Art and Social Sciences added the most volumes of 7,730 to their stock. This was followed by the College of Engineering with 544 volumes. The volumes registered by the College of Health Sciences rather witnessed a drastic reduction as a result of weeding of outdated materials.

The total book stock of the six College Libraries for the 2011-2012 academic year was 67,175 as against 65,183 volumes of the previous academic year. The break-down was as follows:

College of Agriculture and Natural Resources	-	6,037
College of Architecture and Planning	-	7,654
College of Art and Social Sciences	-	22,435
College of Engineering	-	7,887
College of Health Sciences	-	10,839
College of Science	-	12,323
<b>Total</b>		<b><u>67,175</u></b>

This brought the total stock of the entire Library System as at 31<sup>st</sup> July, 2012 to **194,992**.

### **PRINT JOURNALS**

During the year under review, the Main Library suspended the renewal of subscription to the 260 journals it had subscribed to for previous year under the ACU – PAL Scheme. The decision was to ensure that all outstanding journals had been supplied by the Publishers. Unfortunately Springer still failed to supply 83 journals in spite of several appeals and reminders. The matter has since been taken up with the Association of Commonwealth Universities, which negotiated for the deal with the Publishers on behalf of the University Library. The Library, however, renewed subscription to the 20 local Journals it had subscribed to in the previous year. Other serial publications totaling 140 were received as donations from the United Nations and its affiliates like the WHO, FAO, UNESCO as well as the USAID, DFID, Chinese and Japanese Embassies in Ghana.

### **ELECTRONIC JOURNALS**

The University Library is still a member of the Consortium of Academic and Research Libraries of Ghana (CARLIGH). This made it possible for all the libraries in the University, including the College Libraries to have access to over 40,000 electronic journals from about 50 academic databases such as AGORA, HINARI, EBSCOHost, OARE, Emerald, IEEE, Institute of Physics, Blackwell/Wiley, OUP, World Scientific, Science Direct and many more. There was an addition of about 30 new titles to the previous year's journal titles. The most important addition to these databases in the course of the year was Sage Publications and Project MUSE.

Science Direct, Emerald Insight, EBSCO, Sage, JSTOR and Google scholar constituted some of the highly consulted sources.

### **LOCAL NEWSPAPERS**

The Department continued with its subscription to single copies of six local non-partisan newspapers. They were The Daily Graphic, The Mirror, Graphic Business and Graphic Nsempa from the Graphic Communication Group Limited and The Ghanaian Times, The Spectator and The Pioneer. Besides, the Library received two complementary copies each of the first three newspapers from the Graphic Group. They were indexed, and the records uploaded into the newspaper database for easy information storage, retrieval and usage. The number of newspaper items entered into the database increased from 60,000 to 66,340.

Records indicate that at least 287 students, lecturers and other researchers from various fields accessed information from the database in the past year. These included users from the KNUST campus and outside institutions, such as the U-MaT, Tarkwa, University of Cape Coast and the University College of Education, Winneba.

The database also served as reliable sources of primary current and past information for the university academic community, notably final year undergraduate and postgraduate students with project work and theses to present.

### **DEVELOPMENT INFORMATION CENTRE**

The Development Information Centre, which is a section within the Serials Department, is a collaboration between the Library and the World Bank. Development information resources in this Section are in both electronic and print formats. The heavy patronage of these resources is an indication of their usefulness to academics, students and the general public.

A total number of 23 books were received from the World Bank during the period. The World Bank E-Library from April 2008 – September 2010 was also added to the stock. Three CD – ROMs were sent to the Section by the Accra World Bank Office. All books at the Section were given barcodes and filed for entry into the Alexandria Automation System.

The World Bank now has an Open Repository and Open Data which can be accessed on the following addresses:

<http://openknowledge.worldbank.org/>

<http://www.worldbank.org/reference/>

<http://data.worldbank.org/>

### **PROCESSING OF BOOKS**

The Cataloguing Department processed 2,023 books, comparatively higher than the previous year's 1,326. These were distributed to the various sections of the Main Library as follows:

Lending Department	-	553
Research Library	-	179
Ghana Collection	-	93
Students' Reference Library	-	1,056
United Nations Publications	-	132
Women's Collection	-	1
World Bank Publications	-	9
<b>Total</b>		<b><u>2,023</u></b>

A number of CD-ROMS which accompanied some books were labelled and sent to the Electronic Information Department for use by patrons.

## **READER SERVICES**

The Library continued with the automation exercise and registered three thousand, six hundred and forty (3,640) new users electronically. The figure, however, fell below the number of new users of five thousand, nine hundred and ninety-six (5,996) registered during the previous academic year (2010/2011).

The decrease in the number of users registered could be attributed to the decentralization of orientation of fresh students at the College Library level which did not give the Main Library enough room to sensitize the students on the importance of library registration.

Automation of the services at the Circulation Desk and the ensuing efficiency and reliability accounted for the surge in the number of books issued. A total of nine thousand, one hundred and twenty-five (9,125) books were borrowed solely on the automated platform. This represented an increase of 11.5% over the 2010/2011 academic year figure of eight thousand, nine hundred and ninety-seven (8,997).

## **REFERENCE AND RESEARCH SERVICES**

The Reference and Research Services constitute the services offered by the Students' Reference Section as well as the Main Reference and Research Department. Annexes to this department include the Theses Section, Women's Studies Collection, Ghana Collection and United Nations Collection. While the Students' Reference is a reserved collection of multiple copies of core or prescribed textbooks which may be consulted only within the library premises, the Reference and Research Library on the other hand accommodates purely reference books in the programmes run by the University as well as general and specialized subject encyclopedias and dictionaries. Other materials in this section are yearbooks, calendars, directories, almanacs, handbooks and university prospectus.

A total of 2,432 special collections were consulted during the year. Out of this 482 were temporary reference books, 654 materials in Ghana Collection and 1,296 theses.

## **KNUST INSTITUTIONAL REPOSITORY (KNUSTSpace)**

The KNUST Institutional Repository (KNUSTSpace) remains one of the flagship areas of service delivery in the Library. It continued to consistently and successfully manage and disseminate research materials created by the institution and its community members in the year under review.

Currently, the KNUSTSpace has the following number of entries:

Thesis	4,028
Conference Proceedings	115
JUST	45
Research Articles	213
Speeches	<u>262</u>
<b>Total</b>	<b><u>4,663</u></b>

KNUSTSpace was ranked 11<sup>th</sup> in Africa and 400<sup>th</sup> in the world and according to Google Analytics 200 researchers on the average visited the Repository a day. These were researchers

from Ghana, USA, UK, India, Jamaica, Nigeria, etc. This translated into about 3,654 researchers visiting the repository per month.

It is believed that if academics and other researchers do not hesitate to populate the repository with their research outcomes the University will establish a strong web presence and subsequently improve the University's ranking.

The Electronic Information Department which houses the KNUSTSpace also organized user education programmes for the numerous library users including 947 students. It is worth noting that as many as 1,893 students visited the Department for access to their information needs.

### **TECHNICAL SUPPORT**

The Library automation project is gradually drawing to a close. As of the year under review all the data on old stock that were recaptured in the special inventory undertaken had all been captured in the Library Management Software (LMS). Editing of the records achieved almost 75%. The College Libraries were also continuing with the data capture and editing.

A special inventory of over 85% of the book stock in the central library was undertaken. The objective was two pronged:

1. To enable the library correct all the lapses that might have occurred during the first data capturing exercise and
2. Have the opportunity to correct all the wrong transactions that might have taken place in the system out of human errors over the four-year duration the LMS had been in place.

During the year the other components of the LMS were also activated and brought on stream. The Acquisition Department began to capture the outstanding book orders for easy records management. New orders were also to be captured. The Serials Department also began to upload records of the Department's collection unto the LMS. This work by the Serials Department is ongoing and is expected to last for about two more years.

All the six College Libraries are connected to the Online Public Access Catalogue (OPAC) and have their records uploaded unto it. Thus the records of the entire Library System can be accessed from the OPAC via the Internet. However, access to the OPAC outside the university campus suffered a little hitch due to problems with firewall. Efforts have been made with other stakeholders to resolve this challenge.

The KNUST Basic Schools Library had the LMS installed and data capturing is going on in earnest. It will however not be part of the OPAC as it will be operating as a standalone.

Two College Libraries, CAP and CANR, and the Faculty of Law Library had local repositories set up for the management of their undergraduate theses/dissertations. Training was provided for the staff that will capture the data and data capturing is currently going on.

### **INCOME GENERATION**

During the 2011-2012 academic year, the University Library generated income through fines, photocopying and fax/ printing services as follows:

Photocopying	-	GH¢1,753.75
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Fines - GH¢2,327.00

Fax/Printing - GH¢ 45.00

**Total** **GH¢4,125.75**

#### **CONFERENCES/SEMINARS/WORKSHOPS ATTENDED**

##### **Dr. HELENA R. ASAMOAH-HASSAN**

1. World Library and Information Congress which was held from 10-18 August, 2011 in San Juan, Puerto Rico
2. 13<sup>th</sup> LIASA Conference held in East London, South Africa 3 - 7 October, 2011
3. CASA Africa Conference held on 29 November, 2011 at Las Palmas, Spain
4. Open Access Africa 2011 Conference, organized by BioMed (UK) in collaboration with Kwame Nkrumah University of Science and Technology and Computer Aid International, 25<sup>th</sup>-26<sup>th</sup> October 2011 at KNUST-Ghana
5. Training and Development Workshop for Early Career Researchers in West Africa, 23-24 April 2012, University of Ghana, Legon, Accra.
6. American Library Association Conference held at Anaheim, California, USA, 24<sup>th</sup> June, 2012.
7. UG-Carnegie NextGen Academics in Africa Project Proposal Writing Training Workshop *Jul 30-31, 2012, Centre for African Wetlands, UG, Accra*

##### **YAW SENYAH**

1. First KNUST Summer School under the theme “Equipping staff for leading change in academia”, organised by QAPU in collaboration with HRD, KNUST, held at Great Hall Conference Room, from 8-12 August, 2011
2. Meeting of University Librarians and their Deputies (CULD) held on 7<sup>th</sup> October 2011 at the University of Cape Coast

##### **MICHAEL AHENKORAH-MARFO**

1. First KNUST Summer School under theme “Equipping Staff for leading change in academia” organized by QAPU in collaboration with Human Resource Department, KNUST held at the KNUST Conference Room from 8-12 August, 2011
2. Open Access Africa Conference organized by Bio Med. Central held at the Great Hall, KNUST from 25-26 October 2011
3. Workshop on MARC 21 Cataloguing tool organized by Ghana Library Association in collaboration with Goethe Institute at the Balm Library, University of Ghana, Legon, 29<sup>th</sup>-30<sup>th</sup> September, 2011

4. Seminar on “Reading, Information Literacy and Libraries” organized by the Ghana Library Association as part of the International Book Fair at the Trade Fair, La, Accra on 4<sup>th</sup> November, 2011
5. Monitoring and evaluation of information projects, products and services sensitization workshop organized by INSTI/CTA in collaboration with KNUST from 6-7 December, 2011 at the Main Library, KNUST Kumasi

#### **K. AGYEN-GYASI**

1. First KNUST Summer School for Staff on the theme “Equipping staff for leading change in academia”, organised by the Quality Assurance and Planning Unit in conjunction with the Human Resource Department, KNUST held at the Great Hall Conference Room, from 8-12 August, 2011
2. EIFL-BIOMED online workshop: Open Access Publishing in Africa, on 21<sup>st</sup> October 2011 at the Institutional Repository Unit of the KNUST Library.
3. Biomed Open Access Africa 2011 Conference held from 25-26 October, 2011 at the Great Hall of the KNUST, Kumasi, Ghana
4. 8<sup>th</sup> Seminar of the Committee of University Librarians and Deputies (CULD) held at the Centre for Continuing Education, University of Cape Coast from 12<sup>th</sup>-13<sup>th</sup> July, 2012

#### **ABEDNEGO CORLETEY**

1. 14<sup>TH</sup> International Conference on Electronic Theses and Dissertation, Cape Town, South Africa from 11-17<sup>th</sup> September 2011 (Paper presentation Section too)
2. Workshop on Open Access – International Repository Capacity Strengthening Programme organised by RIT/AAU at University of Ghana, Legon from 19-21 October 2011
3. Conference on Open Access Africa organized by Biomed- Central and KNUST from 24-26 October 2011
4. DATAD Review Meeting organized by AAU at Secretariat of CVC, Nigeria, Abuja, Nigeria November 6-7, 2011
5. Workshop – Online Publishing, organized by CARLIGH, at INSTI, Accra, 16-18 November, 2011

#### **MICHAEL SAKYI BOATENG**

1. Workshop on Machine Readable Catalogue (MARC) 21, held at Balme Library, University of Ghana from 29-30 September 2011. It was organised by the Ghana Library Association and the Goethe Institute, Ghana
2. Conference on Open Access Africa held at Great Hall, Kwame Nkrumah University of Science and Technology from 24-26 October 2011. It was organized by Biomed Central and KNUST

3. INASP/CARLIGH Workshop on cataloguing and RDA held at Balme Library, University of Ghana, Legon, 11-13 February, 2012

### **RAYMOND OSEI-BOADU**

Information Workshop on Smart Toolkit Sensitization at the KNUST Library from 6-7 December 2011. Workshop was organized the Electronic Department of the Library

### **KWABENA OFORI ASIAMAH**

1. Information Workshop on Smart Toolkit Sensitizations at the KNUST Library from 6-7 December 2011. Workshop was organized the Electronic Department of the Library

### **VICTOR TEYE**

1. First KNUST Summer School, organized by the Quality Assurance and Planning Unit in conjunction with the Human Resource Division, KNUST under the theme “Equipping Staff for Leading Change in Academia” from 8-12 August, 2011 at KNUST Conference Room
2. Integrated Training Workshop for Postgraduate and Undergraduates Students on "Accessing and Utilizing E-resources and Databases” at University Library, KNUST, Kumasi from August – October, 2011
3. October 17-21, 2011: In-service Training for KNUST Staff on “Searching the Internet for Information” (Facilitator) from 17-21 October, 2011
4. October 25 – 26, 2011: Biomed Central 2<sup>nd</sup> Open Access Conference held at the Kwame Nkrumah University of science and Technology (KNUST), Kumasi, Ghana from October 25-2, 2011
5. December 15-17: Refresher Course for Staff of Schools and College Libraries in Ashanti Region (Facilitator) at the University Library, KNUST, Kumasi from 15-17 December, 2011

### **RICHARD BRUCE LAMPTEY**

1. First Kwame Nkrumah University of Science and Technology Summer School for Staff on the theme: Equipping Staff for Leading Change in Academia from 8<sup>th</sup>-12<sup>th</sup> August, 2011 organised by the Quality Assurance and Planning unit in conjunction with Human Resource Division, at KNUST.
2. EIFL-FOSS and EIFL-OA online workshop: DSpace and Fedora on the 9<sup>th</sup> September 2011
3. EFIL-BIOMED online workshop: Open Access Publishing in Africa on 21<sup>st</sup> October 2011
4. Marketing E-Resources Workshop from 2<sup>nd</sup>-3<sup>rd</sup> November 2011 at INSTI, CSIR, Accra. Sponsored by the International Network for the Availability of Scientific Publication (INASP) and Consortium of Academic and Research Libraries in Ghana (CARLIGH).

5. GHANJOL & ONLINE Publishing Training Workshop 16<sup>th</sup>-18<sup>th</sup> November 2011 at INSTI, CSIR, Accra. Sponsored by the International Network for the Availability of Scientific Publication (INASP) and Consortium of Academic and Research Libraries in Ghana (CARLIGH)
6. Open Access Africa 2011 conference, organized by BioMed (UK) in collaboration with Kwame Nkrumah University of Science and Technology and Computer Aid International, 25<sup>th</sup>-26<sup>th</sup> October 2011 at KNUST-Ghana

#### **EDWARD MENSAH BORTEYE**

1. First KNUST Summer School under theme “Equipping Staff for leading change in academia” organized by QAPU in collaboration with HRD, KNUST held at the KNUST Conference Room from 8-12 August, 2011
2. Open Access Africa Conference organized by Bio Med. Central held at the Great Hall, KNUST from 25-26 October 2011
3. Seminar on “Reading, Information Literacy and Libraries” organized by the Library Association as part of the International Book Fair at the Trade Fair, La, Accra on 4<sup>th</sup> November, 2011
4. Monitoring and evaluation of information projects, products and services sensitization workshop organized by INSTI/CTA in collaboration with KNUST from 6-7 December, 2011 at the Main Library, KNUST Kumasi

#### **EVELYN MENSAH (MRS)**

1. Open Access Africa Conference organized by Bio Med Central held at the Great Hall, KNUST from 25-26 October 2011
2. Seminar on “Reading Information Literacy and Libraries” organized by the Ghana Library Association as part of the Ghana International Book Fair held at the Trade Fair Site, La, Accra on 4<sup>th</sup> November 2011
3. Monitoring and evaluation of information projects, products and services sensitization workshop organized by INASP in collaboration with KNUST at the Main Library, KNUST, Kumasi, from 6-7 December 2011

#### **PUBLICATIONS AND CONFERENCE PAPERS**

In the year under review, members of staff published in several refereed journals and also presented papers at various conferences.

#### **SERVICE TO COMMUNITY**

**Dr. Helena Asamoah-Hassan** continued to serve as;

Member of the Hall Council of Republic Hall

Member of UNESCO’s International Advisory Committee for the Memory of the World Programme

Regional Advisor for Africa, Emerald Publishing and

Member, Board of Directors, of the New Times Corporation of Ghana.



**Mr. Yaw Senyah** served as a member of the Board of Governors of Church of Christ Senior High School at Ejisu-Adadientem.

## **CHALLENGES**

The main challenges faced by the Library System included inadequate funding, lack of reading space, intermittent power outages and unreliable Internet service. Others were lack of continuous water supply and inadequate transport facility.

## **CONCLUSION**

In the year under review, the KNUST Library System performed its core functions of providing relevant information with utmost professionalism. The Library System did very well to provide Information resources from both print and electronic sources to support teaching, research, learning and entrepreneurship training in the University. With automation almost completed, it is hoped that the University Library System would be able to render improved services to the University community if the problems identified are attended to with dispatch.

# **INTERNATIONAL PROGRAMMES OFFICE**

## **INTRODUCTION**

The International Programmes Office (IPO) was established to handle collaborations between KNUST and other national and international universities. Since its establishment it has been vigorously working with all stakeholders (College, Departments and Faculties) by engaging them in a number of activities that strengthens already existing collaborations as well as initiate new ones.

## **STAFFING**

The Office is staffed with:

1. Dean- Senior Member
2. Assistant Registrar- Senior Member
3. Administrative Assistant- Senior staff
4. Messenger/Cleaner – Junior staff
5. National Service Personnel(s)

## **AGREEMENT AND MEMORANDUM OF UNDERSTANDING SIGNED:**

In 2011/2012, KNUST and a number of Universities in Asia, Europe, Northern and Southern America and Africa signed academic collaboration and memorandum of understanding with KNUST. These institutions and organizations were:

- Wellspring University(WU) Evbuobanosa, Edo State, Nigeria, 4<sup>th</sup> August,2011
- The Faculty of Chemistry and Pharmacy (Fachbereich 12) of the University of Munster, Germany, 22<sup>nd</sup> August,2011
- Bordeaux Management School (BEM)Dakar, Senegal, 23<sup>rd</sup> August,2011
- ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE),7<sup>th</sup> September,2011
- Japan International Research Centre for Agricultural Sciences(JIRCAS),Japan,12<sup>th</sup> September,2011

- The School of Engineering ,University of Edinburgh,UK,12<sup>th</sup> October,2011
- UNESCO-IHE Institute for Water Education,20<sup>th</sup> October,2011
- Technip Ghana Ltd, Accra-Ghana Branch, 24<sup>th</sup> October,2011
- Kolding School of Design , Denmark 31<sup>st</sup> October,2011
- University of Northern Denmark ,22<sup>nd</sup> November,2011
- Madonna University ,Elele, Nigeria, 19<sup>th</sup> December,2011
- The Zhejiang University of Technology in Hangzhou-China, 19<sup>th</sup> December,2011
- Cape Peninsula University of Technology(CPUT), Faculty of Information and Design, South Africa, 4th January,2012
- Aarhus University, Denmark, 24<sup>th</sup> January,2012
- Myongji University,Yongin, Republic of Korea, 2<sup>nd</sup> February,2012
- Ghana Telecommunications Company Ltd, Ghana, 2<sup>nd</sup> February,2012
- The University of Cape Town through African Centre for Cities (UCT),South Africa, 13<sup>th</sup> February,2012
- Kennesaw State University, USA, February,2012
- University of Nottingham, UK, 23<sup>rd</sup> March,2012
- The Centre for Energy and Environmental Policy (CEEP) of the University of Delaware, USA 2<sup>nd</sup> April,2012
- Wuhan University of Technology, China, April 2012
- Genser Power Ghana Ltd, Accra 15<sup>th</sup> May,2012
- Institut Internationale d'ingenier de l'eau et de l'environnement (2iE), Burkina Faso, 15<sup>th</sup> May 2012
- University of Reading, UK, 16<sup>th</sup> May,2012
- The Katholieke University of Leuven,Belgium, June 2012
- Candler School of Theology, Emory University, USA 19<sup>th</sup> June,2012
- Hanyuag University, 11<sup>th</sup> June,2012
- The University of Western Ontario,(Western University), Canada ,28<sup>th</sup> June,2012
- University of North Carolina, Gillings School of Global Public Health, 11<sup>th</sup> July,2012
- The Board of Trustees of the University of Illinois, USA, 16<sup>th</sup> July,2012

## **IMPLEMENTATION OF MEMORANDUM OF UNDERSTANDING AND AGREEMENT OF COLLABORATION SIGNED WITH KNUST**

In line with the implementation of the Memorandum of Understanding and Agreement of Academic Collaborations signed; partner institutions in China, USA, South Korea, and Denmark offered the following scholarships for staff and Teaching Assistants of KNUST in the year under review.

1. **Dalian Medical University (DMU) and KNUST MOU:** offered two DMU-Chinese Government Scholarships to two (2) members of staff Mr. Max Efui Annani-Akollor - Department of Molecular Medicine and Mr. Lawrence Owusu –Department of Biochemistry and Biotechnology, College of Health Sciences to pursue Doctoral studies in China.
2. **University of Electronic Science and Technology of China (UESTC) and KNUST MOU:** offered two (2) UESTC-Chinese Government Scholarships to two staff in the College of Engineering; Mr. Jerry John Kponyo - Department of Electronic Engineering and Mr. Isaac Acquah - Department of Computer Engineering for Doctoral studies but Mr. Isaac Acquah declined his offer.

3. **Hanbat National University and KNUST MOU:** offered three Hanbat National University scholarships to three teaching assistants: Mr. Paul Seyram K. Amegadze and Miss Latifatu Mohammed in the Department of Chemistry, College of Science and Mr. Dennis Opoku-Agyemang in the Department of Chemical Engineering, College of Engineering to pursue a two-year Master's degree programme. Resulting from the impressive performance of the first four Teaching Assistants: Mr. Akins Kojo Atta in the Department of Agricultural Engineering, Mr. Godwin Kwame Ahiale, Department of Materials Engineering, Samuel Tweneboah-Koduah in the Department of Telecommunication Engineering and Jim Kabenla M. Mensah in the Department of Chemical Engineering, College of Engineering; Mr. Godwin Kwame Ahiale was offered PhD scholarship to continue his studies.
  
4. **Hohai University and KNUST MOU:** offered Ten (10) scholarships. Three (3) Hohai University-Chinese Government Scholarships to three (3) Teaching Assistants; Miss Josephine Osei-Kwarteng - Department of Civil Engineering, Miss Elsie Akwei - Faculty of Renewable and Natural Resources and Mr. Philip Nti Nkrumah - Department of Agricultural Engineering.  
  
Seven (7) Hohai University scholarships to two (2) staff Mr. Samuel Ato Andam-Akorful and Jonathan Arthur Quaye-Ballad in the Department of Geomatic Engineering to pursue PhD and four (4) Teaching Assistants; Desmond Ofosu Amin - Department of Geomatic Engineering, Albert Adu-Gyamfi-B.I.R.D., Miss Gloria Appiah Sefah - Faculty of Renewable and Natural Resources, Samuel Siebie Anambah - Centre for Land Studies, Miss Akosua Korantemaa Agadzi - Department of Civil Engineering to pursue a two year master's degree programme.
  
5. **The University of Michigan and KNUST MOU:** offered three (3) PhD Scholarships for 6 months to three (3) staff members; Mrs. Vivian Estiapa Boamah - Department of Pharmaceutics, Dr. Francis Atipila, School of Medical Sciences, College of Health Sciences and Mrs. Mercy Bedu- Department of Chemistry, College of Science under the Michigan University – African Presidential Scholars programme for the 2012-2013 academic year.
  
6. **The Universities Denmark and KNUST MOU:** Offered eight (8) full PhD scholarships to Mrs. Rosemary B. Coffie - Department of Managerial Science, KNUST school of Business, Mr. Akwasi Afrifa Acheampong - Department of Geomatic Engineering, Mr. Emmanuel Buabeng- Department of Economics, Mr. Peter Dwumoh- Department of Sociology and Social Work, Mr. David Dotse Wemegah - Department of Physics and Kwasi Adu Obirikrang - Department Fisheries and Water Management, Mrs. Vivian Estiapa Boamah and Mr. G.K. Ainooson of the Department of Pharmacology.

## **INTERNATIONAL STAFF AND STUDENT EXCHANGES IN THE 2011/2012 ACADEMIC YEAR**

Eleven (11) students were received at KNUST as occasional students during the first and second semester of the 2011/2012 academic year. Out of the eleven, two were post-graduate students

and nine (9) were undergraduates. It must however be noted that there could have been other occasional students and visiting staff on the campus whose admissions and engagements might have been handled at the Department and Faculty levels without any recourse to the IPO.

<b>Country</b>	<b>No. of Students</b>	<b>Period</b>
USA	2	1st and 2nd semesters
Netherland	2	2 <sup>nd</sup> semester
Finland	4	2 <sup>nd</sup> semester
Denmark	2	1 <sup>st</sup> semester
Berlin	1	1 <sup>st</sup> semester

## **ACTIVITIES**

Major activities undertaken by the office during the year under review included:

- The organization of a KNUST-University of Michigan STEM Conference with over a hundred (100) participants from Universities and organizations all over the world.
- Soliciting of contact numbers and email addresses of Teaching Assistants from the Departments of the various Colleges for possible Master's and PhD Degree Programmes.
- Collating data on senior members and their countries of study.
- Organization of field trips to southern and northern Ghana for study abroad students and visitors to KNUST
- Organizing Universities Denmark – Building Stronger Universities (BSU) PhD taught Courses as well as Trainer of Trainees for BSU PhD candidates and other KNUST lecturers and PhD students.

## **INSTITUTIONAL VISITS TO KNUST**

The office received delegations from both international and national institutions. The purposes of most of the visits were to seek possible collaborations between KNUST and their institutions. In 2011/2012 academic year the following institutions visited KNUST.

1. Vision Aid Overseas, UK
2. Kennesaw State University ,USA
3. University of Munster, Germany
4. General Electric Africa, Nigeria
5. Aalborg University, Denmark
6. Universities Denmark, Denmark
7. Kolding School of Design, Denmark
8. AAU-AUCC, University-Industrial Linkages
9. SMC University
10. French Embassy in Ghana
11. INRIA-Doctoral School, France
12. Frankfurt University, Germany
13. Sunny Geneseo, USA

14. University of Reading , UK
15. University of Nottingham, UK
16. University of Leiden, Belgium
17. Ball State University , USA
18. Delaware State University, USA
19. University of Maryland Eastern Shore, USA
20. University of Stirling , Sweden
21. Wuhan University of Technology, China
22. University of Aberdeen, Sweden
23. Ohio Northern University ,USA
24. University of Rochester, USA
25. Northeastern Illinois University, USA
26. University of Ouaga I & II, Burkina Faso
27. Pandit Deenyal Petroleum University, India

### **CHALLENGES**

The International Programmes Office lacks a good and sizeable transport vehicle to ensure efficient transportation of International staff and students. The provision of at least a 15- seater bus would enhance the IPO's ability to offer better and reliable transportation service to its visitors. The Office also lacks suitable hostels to accommodate its study abroad students to reduce the burden of the GUSSS hostel which caters for the University's international students either enrolled for a four year degree programme or on an exchange programme to ease the frustration such students go through upon their arrival. An International Students hostel could ease the frustrations of housing for study abroad students.

### **CONCLUSION**

The International Programmes Office is vigorously pursuing its mandate of fostering collaborations with institutions with similar focus both nationally and internationally. It our hope to be adequately resourced in terms of transportation and other logistics to enable us deliver quality and up to date services to all our clientele.

## **SPORTS DIRECTORATE**

The Sports Directorate is always gratifying to note that the University upholds the values inherent in sports and still appropriates them as an integral part of her curricula.

Sports and Games have proved to have power to bring people of diverse backgrounds and status together. This has allowed students to combine academic with physical activity as a means of achieving training of the total person.

Sports are our main priorities since this form of physical activity is beneficial to the overall well being of every individual. It is persuaded that the most useful type of education is the one that combines academic pursuits, community needs and healthy extra curricula activities. It is believed that these are pre conditions for a holistic development of a person. Along with physical strength, a little exercise helps build brain power and as a Directorate we take sports development seriously.

The vision of the Sports Directorate is to advance knowledge in sports and recreations for physical, social and mental development of individuals within the University community.

The Directorates' mission is to provide improved environment and atmosphere for teaching, research and technical training for individuals and teams towards a healthy growth and proficient performers in sports for the uplift of the University and country as a whole.

The Sports Directorate under the University organised and participated in major sporting events in the year under review.

The 2012/2013 Inter Collegiate competitions were organised in two phases in the first and second semester respectively.

KNUST participated in the 6<sup>th</sup> Inter University Cross Country hosted by the University of Ghana from the 8<sup>th</sup> – 11<sup>th</sup> November, 2012 where the men's team and the women's team placed fourth respectively.

As selection towards the World University Games in Russia, a Mini GUSA Games was held at Tamale hosted by UDS from 1<sup>st</sup> to 10<sup>th</sup> March, 2013 in which team KUST participated. Three disciplines were competed in at the Games, they were Soccer; both men and women and Athletics. Our performance at the Mini GUSA was not encouraging in that it is not typical of KNUST as always the first or among the first as far as University sports is concerned. Below are the standings of the Mini GUSA results.

#### **FINAL PLACING – SOCCER MEN**

1 <sup>ST</sup>	-	UG
2 <sup>ND</sup>	-	UCC
3 <sup>RD</sup>	-	UEW
4 <sup>TH</sup>	-	UmaT
5 <sup>TH</sup>	-	KNUST
6 <sup>TH</sup>	-	UPSA
7 <sup>TH</sup>	-	UDS

#### **FINAL PLACING – SOCCER MEN**

1 <sup>ST</sup>	-	UEW
2 <sup>ND</sup>	-	UG
3 <sup>RD</sup>	-	KNUST
4 <sup>TH</sup>	-	UCC
5 <sup>TH</sup>	-	UPSA

#### **MEDAL TABLE – ATHLETICS MEN**

INSTITUTION	GOLD	SILVER	BRONZE	TOTAL	POSITION
UCC	7	3	2	12	1 <sup>ST</sup>
UEW	6	1	3	10	2 <sup>ND</sup>
UG	3	6	5	14	3 <sup>RD</sup>
KNUST	-	6	5	11	4 <sup>TH</sup>
UPSA	-	-	1	1	5 <sup>TH</sup>
UDS	-	-	-	-	6 <sup>TH</sup>
UMaT	-	-	-	-	6 <sup>TH</sup>

#### **MEDAL TABLE- ATHLETICS WOMEN**

INSTITUTION	GOLD	SILVER	BRONZE	TOTAL	POSITION
UCC	8	1	2	11	1 <sup>ST</sup>
UEW	3	4	1	8	2 <sup>ND</sup>
UG	2	7	3	12	3 <sup>RD</sup>

<b>KNUST</b>	1	1	3	5	4 <sup>TH</sup>
<b>UDS</b>	-	-	2	2	5 <sup>TH</sup>
<b>UMaT</b>	-	-	-	-	6 <sup>TH</sup>
<b>UPSA</b>	-	-	-	-	6 <sup>TH</sup>

However, two students from KNUST namely; Abubakari Mohammed and Kwaku Essah have been selected to join the GUSA Athletics team to represent Ghana in the World Universities Games in Russia. The Selection was based on qualifying standards at the FISU level.

### **STAFF GAMES**

A selected side championed by the Health Service team represented KNUST to win the championship Trophy in the staff games organised by Love FM at Paa Joe Sports Stadium. The second edition of Staff Games is about commencing.

### **HALE AND HEARTY**

It cannot be disputed that the population of the University and its environs is increasing and our facilities are inadequate. In view of that the University has furnished our sports complex by name 'Hale and Hearty' with new equipment; 1 leg curl and 2 Treadmill.

In view of that, there has been a new policy of opening Hale Hearty doors to all students without payment of user fees which we encourage students of all shade to make maximum usage.

### **AWARDS**

The annual Vice Chancellor's end of year awards and dinner was held on 3<sup>rd</sup> May, 2013.

Seventy-one (71) outgoing and outstanding sportsmen and women were awarded plaques and certificates. The Vice Chancellor also awarded bursary to five continuing students for their outstanding performance in sports. Each of the awardees received an amount of GH¢600.00. The students are;

1. Samuel Apam
2. Abubakari Mohammed
3. David Boateng
4. Bridgette Boateng
5. Yvette Nartey

### **CHALLENGES**

The Sports Directorate does its works of organising competitions for students to fully participate physically and also to witness as spectators but the enthusiasm with which students use to do in the years past during Inter Hall competitions is not manifesting these days during Inter Collegiate competitions. The Sports Directorate is once again appealing to the University authorities to revisit the ban on Inter Hall Sports Activities.