



ORID  
Office of Research,  
Innovation & Dev't

# University of Ghana Research Report

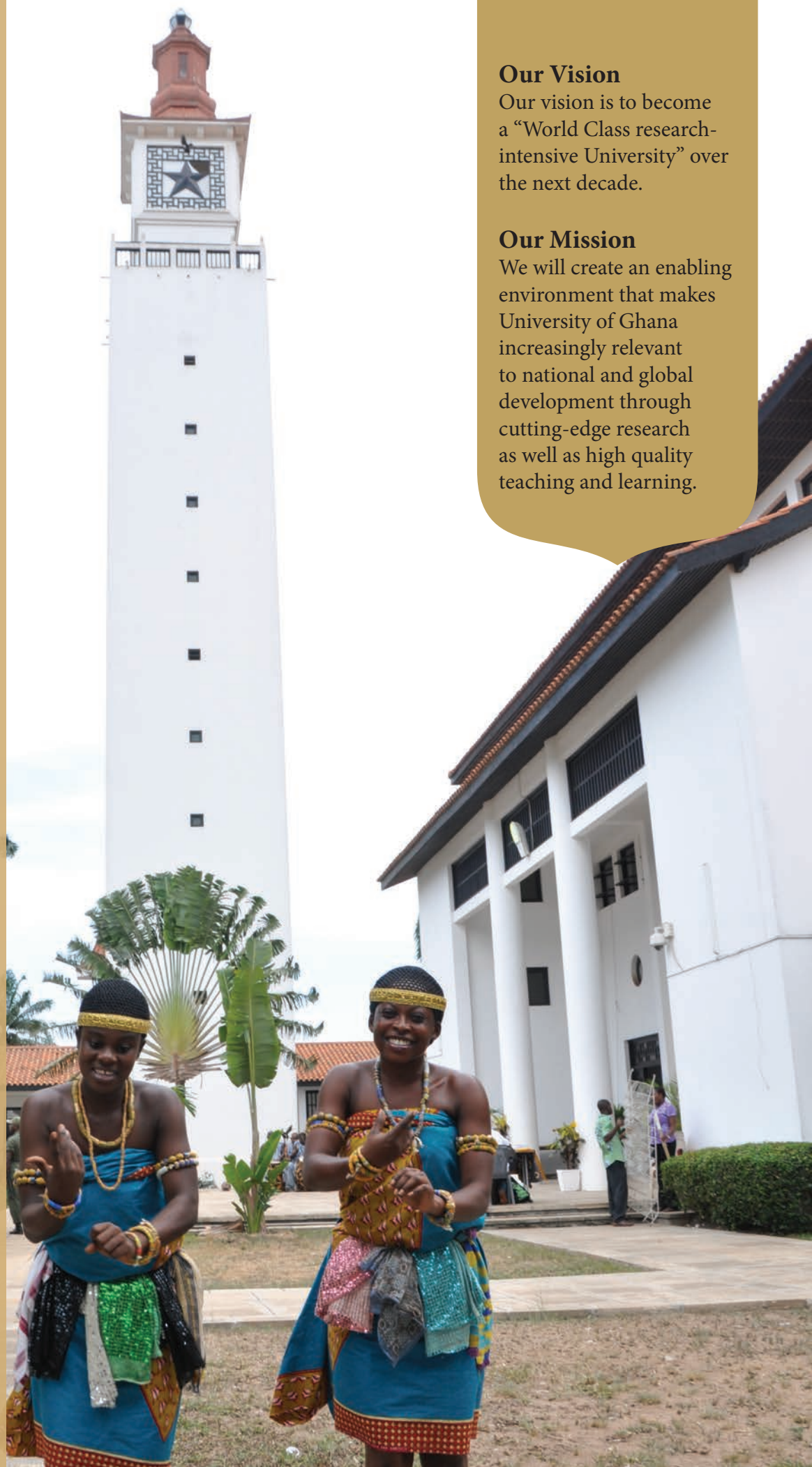
2013/2014



The University of Ghana was founded in 1948 as the University College of Gold Coast. Between 1948 and 1961, the University entered into a special relationship with the University of London to offer limited programmes of study.

By an Act of Parliament on 1st October 1961, the University attained sovereign status with the authority to offer more comprehensive programmes and award its own degrees. The sovereign status together with the aspirations of the new independent state of Ghana formed a catalyst for its rapid growth in the 1960's and the emergence of its distinctive identity as a world-class centre of academic excellence and a leader in career training and professional development.

Over the last sixty-five years, the University of Ghana has evolved into one of Africa's leading universities, recognized worldwide for the academic and research excellence of its faculty, student body and for the professional success of its alumni.



### **Our Vision**

Our vision is to become a “World Class research-intensive University” over the next decade.

### **Our Mission**

We will create an enabling environment that makes University of Ghana increasingly relevant to national and global development through cutting-edge research as well as high quality teaching and learning.

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Kofi Annan

## Foreword

University of Ghana has evolved into one of the leading universities in Africa, recognised worldwide for its excellent academic and research activities. The University's Annual Research Report, which was introduced in the last academic year, provides an opportunity to showcase some of our achievements in research and related activities.

Although challenged by limited research facilities and financial resources, the University strives to create an appropriate enabling environment for research by investing significantly in human capital and high-end science equipment. The University acknowledges the importance of cultivating effective partnerships with other institutions through south-south and north-south collaborations. This has indeed been the hallmark of recent successes. The expanded research portfolio has enhanced teaching, learning and extension services to the local community thus making us more relevant to our society. Through intensified research activities at the University there have been innovations and inventions that could contribute to the transformation of the Ghanaian society.

This report highlights some of the major research activities at University of Ghana over the past academic year. It provides an opportunity for our stakeholders to appreciate the research programme of the University and its contribution to national and global development. I commend the effort of our hardworking researchers and research administrators for a good work done.

**Kofi Annan**

*Chancellor*

# Message from the Vice-Chancellor

This has been another remarkable year for the University of Ghana in its quest to transform itself into an institution with significant achievements in research and innovation aimed at supporting the economic transformation of Ghana, Africa and the world at large.

The report highlights major research achievements and challenges of the University. As part of its aim to become a world class institution, the University has launched four working groups in the thematic areas of:

- Malaria Research
- Trans-Disciplinary Research into Climate Change and Adaptation
- Enhancing Food Production and Processing
- Development Policy and Poverty Monitoring and Education.

These themes are intended to foster excellence in locally-relevant research which is aimed at solving some of the developmental problems of the nation and Africa.

Among notable achievements are the successes in securing grants for research activities at the University, such as the World Bank sponsored African Centre of Excellence grants.

The University of Ghana is the only university in west and central Africa to win two of the awards, totaling US\$ 16 million. These awards will impact greatly on Ghana and the sub-region's socio-economic development.

The University also launched the Reader's Series, the single largest publications initiative of an African University, which draws attention to developments in various disciplines and sub-disciplines taught at the University.

I have had positive feedback on the maiden edition of the Research Report and hope this second issue, highlighting our key research achievements, will be of even more interest to readers.

I acknowledge the immense contribution of researchers, donors, administrators, collaborators and all partners (both private and public) in furthering the University's research goals.



Professor Ernest Aryeetey



Professor John Gyapong

## Message from the Pro Vice-Chancellor, Research Innovation and Development (RID)

It gives me great pleasure to report on research activities and achievements for 2013/2014 in this second edition of the University's Research Report. The 2013/ 2014 academic year saw tremendous growth in externally-funded research contracts of about US\$ 50 million. This is a major boost for research activities at the University of Ghana. It is my expectation that research undertaken at the University will lead to ground-breaking findings of benefit to society.

An important aspect of research is its ability to impact policy. In line with this the University Council has approved an intellectual property policy to guide IP related activities at the University.

Our newly established Technology Development and Transfer Centre, which is located at the Office of Research, Innovation and Development (ORID), is envisioned to spearhead Ghana's economic growth by identifying and nurturing early-stage technologies and facilitating their transition into the development of new products.

The University's current research themes and activities encompass a broad range of disciplines across two colleges, five faculties, four schools, seven research institutes and eleven centres.

We are grateful to our donors, sponsors and investors, as well as national and international collaborators who generously support our research efforts. We value these partnerships and look forward to another successful year.

I would like to thank the staff of ORID for the valuable work they are doing to support the research initiatives and developments at the University.

# Office of Research, Innovation and Development (ORID)





# Office of Research, Innovation and Development (ORID)



*Professor Andrew Anthony Adjei*  
*Director of Research*

We are glad to share with the outside world our progress and commitment to our mandate of facilitating cutting edge research at the University of Ghana. We not only take pride in being the first university in Ghana to have established a research support office but we are also committed to enabling

the environment for increased growth in ground-breaking research for many decades to come.

The Office of Research, Innovation and Development can boast of steady achievements in the development of its human resources and systems to increase efficiency and effectiveness in our operations. As a further step, the office now has a substantive Director of Research, who provides leadership and initiatives to promote research. Two of our officers – the Research Administrator and the Assistant Registrar in charge of capacity building – participated in a workshop for research managers aimed at strengthening institutional research management capacity under the Cambridge Africa Partnership for Research Excellence (CAPREx) programme.

This year, a team from the University of Cambridge was in Ghana to train all research management staff and interested faculty members in Costing and Pricing of Research Projects, Contract Management and Microsoft

Excel. The purpose was to enhance skills in handling research contracts and increasing the speed required for effective delivery of the volumes of tasks associated with research administration.

ORID, in its constant quest to be on a par with research offices of world class universities, secured a grant from the Association of African Universities, to develop and implement a fundraising plan for research at the University of Ghana. This was to enable the University create mechanisms, strategies, systems and processes to ensure the availability of funds for research. A component of the project explored the possibility of acquiring Grant Management software to facilitate the efficient and effective delivery of research management services.

Our efforts are not only channeled towards promoting research by faculty but also towards the transfer of research findings to industry for national development. To this end, the Technology Development and Transfer Centre at ORID will facilitate the transfer of technologies for use by identifiable industry players.

Collectively our research support services cut across the following areas:

- Research and Grants Management
- Capacity Building
- Intellectual Property & Technology Transfer
- Ethics and Research Dissemination
- External Funds

We owe our success to the cooperation of our researchers, sponsors and our dedicated staff. It is my hope that in years to come we will see greater output and innovations that will showcase the research profile and achievements of the University.

## Research and Grants Management Services

### The University of Ghana Research Grants

The University of Ghana Research Grants Scheme was instituted in the 2008-2009 academic year as a means

of encouraging faculty members to conduct research and contribute to enhancing the research profile of the University. There are three types of grants awards.

## Seed Grants

This is for exploratory/small proposals and does not normally exceed GH¢ 5,000. Such grants are awarded for a maximum period of one year and are targeted at faculty members at the early stage of their careers to enable them explore new ideas that lead to applications for larger funding or bigger grants in the future.

## Investigator-Led Grants

These grants are up to GH¢ 30,000 and are normally awarded for a period of two years. Grants of this nature are awarded to multi-disciplinary research projects with at least one collaborator from another UG department/faculty.

## Multi-Disciplinary Grants

These grants are up to GH¢100,000 and are for multi-disciplinary and inter-faculty research projects, which specifically address a national developmental issue and capable of shaping or influencing policy in Ghana. Grants of this nature are not usually awarded for more than two years.

Since the inception of the scheme there have been 7 calls for proposals and a total of 246 applications submitted for consideration, out of which 124 have received funding. Table 1 provides further details on the numbers

of applications received, reviewed and approved since the 1st call for proposals.

The total value of grants awarded has also increased significantly from GH¢ 341,724 in the 2008-2009 academic year to about GH¢ 942,000 at the 7th call for proposals, which was awarded in the 2013-2014 academic year (as shown in Figure 1).

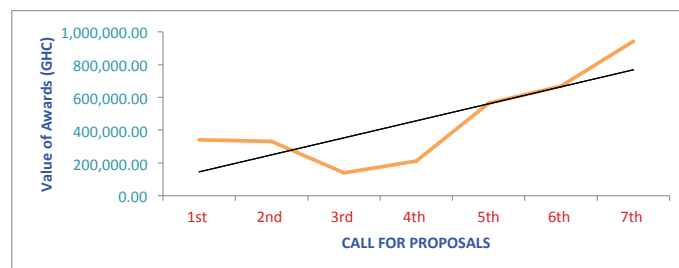


**Mrs. Afua Yaboah**  
Research Administrator in charge of Research and Grants Management

**TABLE 1: DETAILS OF AWARDS PROCESSED SINCE 1ST CALL**

PROPOSALS	1st Call	2nd Call	3rd Call	4th Call	5th Call	6th Call	7th Call	TOTAL
<b>SUBMITTED</b>	22	23	23	32	44	42	60	<b>246</b>
<b>REVIEWED</b>	22	23	23	29	35	41	60	<b>233</b>
<b>SUCCESSFUL</b>	17	14	7	8	17	24	37	<b>124</b>

**FIGURE 1: TREND DEPICTING VALUE OF GRANTS AWARDED BY THE UGRF**



Despite a marked decline in the number of grants awarded for the 3rd and 4th Call, the amount of funding has increased steadily over the years. It is expected that interest from faculty members will grow even more with each call thus increasing the competitiveness involved in obtaining the grants. The details of the values of the grants awarded at each call for proposals is as follows:

**TABLE 2: DETAILS OF AWARDS FOR EACH CALL FOR PROPOSALS**

CALL	SEED GRANTS	INVESTIGATOR-LED GRANTS	LARGE MULTIDISCIPLINARY GRANTS	TOTAL (GH¢)
<b>*1st</b>	-	-	-	<b>341,724.00</b>
<b>*2nd</b>	-	-	-	<b>330,450.00</b>
<b>*3rd</b>	-	-	-	<b>138,576.00</b>
<b>*4th</b>	-	-	-	<b>211,738.00</b>
<b>5th</b>	9,021	359,662	197,361	<b>565,044.30</b>
<b>6th</b>	9,850	499,338.45	159,800	<b>669,862.00</b>
<b>7th</b>	49,698	574,326	318,587	<b>942,611.00</b>
<b>TOTAL</b>				<b>3,200,004.30</b>

\*From the 1st to the 4th calls, the three grant categories had not yet been introduced

## Distribution of Awards

Statistics over the years indicate the lowest number of applications submitted come from faculty members of the “Assistant Lecturer” rank or equivalent. The highest success rate has been from faculty members of “Associate Professor” level. This may be due to their experience in putting together research proposals.

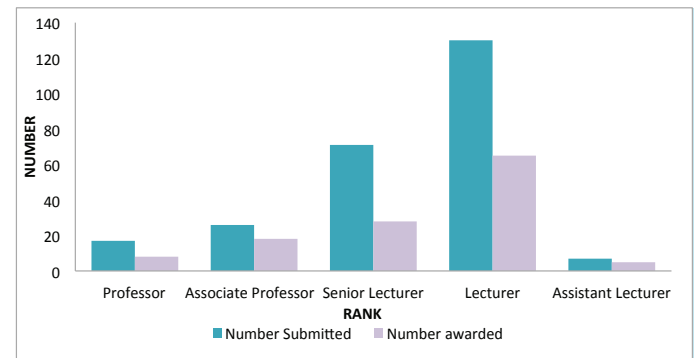
**TABLE 3: DISTRIBUTION OF AWARDS BY RANK**

POSITION	RANK **	PROPOSALS SUBMITTED	% OF NO. SUBMITTED TO NO. EMPLOYED WITHIN RANK	NUMBER OF GRANTS AWARDED	SUCCESS RATE (within no. submitted)	ACTUAL SUCCESS RATE
Professor	65	17	26%	8	47%	12.3%
Associate Professor	109	26	24%	18	69%	16.5%
Senior Lecturer	220	71	32.3%	28	39%	12.7%
Lecturer	385	130	34%	65	50%	25%
Assistant Lecturer	144	7	5%	5	71.4%	4%
<b>TOTAL</b>		<b>251</b>		<b>124</b>		

\*\*As at end of April 2013

It is worth noting that even though the lowest number of applications was received from the Assistant Lecturer grade, more than half of the proposals they submitted were successful. Also significant is the fact that more people have been successful because of the availability of the seed grant category, which primarily targets early career faculty members who may have spent just a year at the University. The seed grant helps to boost their confidence and encourages them to compete for larger grants later.

**FIGURE 2: DISTRIBUTION OF AWARDS BY NUMBER SUBMITTED CLASSIFIED BY RANK.**



## Completed University of Ghana Research Fund Projects

Three completed projects under the UG Research Fund have been selected and highlighted in this report. These projects are from the 4th and 5th Calls and cover

the three categories of grants. They have also been disseminated in some form, following completion of the projects.



<b>Principal Investigator:</b>	Professor Joseph Awetori Yaro
<b>Department:</b>	Geography and Resource Development
<b>Project Title:</b>	Assessing Adaptive Capacity to Climate Change and Climate Variability in the Rural Northern Savannah of Ghana
<b>Award Category:</b>	Investigator-Led Grant
<b>Grant Amount:</b>	GH¢ 28,707
<b>Project Period:</b>	November 1, 2011 to January 31, 2013

Professor Joseph Awetori Yaro received an Investigator-Led Grant for his University of Ghana Research Fund (UGRF) project titled “*Assessing Adaptive Capacity to Climate Change and Climate Variability in the rural Northern Savannah of Ghana.*”

The project sought to find answers to whether climate change over the next two decades is likely to impact

negatively on the viability of the agrarian economy in northern Ghana. Specifically, the research explored the

concept of “adaptive capacity” at various levels, from personal and family through to village and region. The project also investigated what the experience over the last two decades indicates regarding the adaptive capacity of actors within the northern rural economy and the political-economy dynamics of successful adaptive processes.

The findings of this project established that climate change or climate variability poses the greatest challenges where adaptive capacities are lowest. The history of underdevelopment, poverty and the precarious environment of the northern part of Ghana influences individual, family and community resilience to the various impacts of climate change. The building of

new sources of adaptive capacity in the modern state is challenged by the rising societal inequities and the broader global political economy contradictions. The study reports that locally specific reactions and adaptations have not been sufficient to overcome agro-ecological, structural and political disadvantages.

Based on the findings, Professor Yaro recommended that a shared vision and effort is necessary in policy formulation aimed at providing individuals and communities with skills, opportunities, infrastructures and resources appropriate for dealing with the problems posed and exacerbated by climate change. He has also developed a policy brief on this subject.



<b>Principal Investigator:</b>	Dr. Delali Margaret Badasu
<b>Department:</b>	Regional Institute for Population Studies
<b>Project Title:</b>	Attitude and Self-Seeking Behaviour Related to Non-Communicable Diseases among Children in Ghana.
<b>Award Category:</b>	Large Multi-disciplinary Grant
<b>Grant Amount:</b>	GH¢ 100,000.00
<b>Project Period:</b>	August 1, 2012 to July 31, 2013

Dr. Badasu was one of two faculty members who received the Large Multi-disciplinary Grant award during the 5th call for proposal in the 2011/2012 academic year.

Her project, titled “*Attitude and Self-Seeking Behaviour Related to Non-Communicable Diseases Among Children in Ghana*,” aimed at two main objectives. The first objective was to explore the attitude of care givers at health facilities and those at rural and urban community levels, and the associated health-seeking behaviours regarding Non-Communicable Diseases (NCDs) among children.

Three (3) regions, namely Greater Accra and Ashanti where Ghana’s leading tertiary hospitals are located - *Korle Bu Teaching Hospital and the Komfo Anokye Teaching Hospital (to which most cases of NCDs are referred)*; and the Volta Region were selected for the project. In-depth interviews targeting health workers and custodians of Ghanaian culture such as chiefs, queen-mothers, religious leaders, opinion leaders and other community members were also included in this project.

The findings of the project show that there is lack of an explicit policy on the management of NCDs among children in Ghana. It was also confirmed that

supernatural causal beliefs about children with NCDs is higher among rural populations than urban. Further investigations, conducted through controlling the background characteristics of the respondents, established that people in the rural areas are about 1.03 times more likely than those in urban areas to perceive that the family of a child with NCD will experience discrimination. They also have a higher likelihood (76.2%) of perceiving that the family of a child with NCD will experience difficulty attending social functions with the child, compared with those in urban areas. Additionally, it revealed fatalistic beliefs held by some respondents that certain children are not meant to live so they suffer NCDs.

The concurrent use of orthodox and traditional medicine including faith-healing, and the lack of adherence to orthodox medicine, even among parents or care givers at the hospital, was also observed. Controlling for background characteristics revealed that parents in rural areas are 1.1 times more likely to seek spiritual

intervention compared with those in the urban areas. The place of residence was also observed to be not significantly related to willingness to seek herbal treatment for a child's condition. Lastly, the burden of care for the children falls mostly on women while the financial

burden is felt by the entire households. A quarter of the children hospitalised are not insured under the National Health Insurance Scheme (NHIS) even though they could have been.



<b>Principal Investigator</b>	Dr. Edem Magdalene A. Tette
<b>Department</b>	Community Health, UGMS
<b>Project Title</b>	Health and Social Determinants of Malnutrition and an Audit of Interventions to Reduce Malnutrition in a Cohort of Moderately and Severely Malnourished Children in Accra
<b>Award Category</b>	Seed Grant
<b>Grant Amount</b>	GH¢ 4,311
<b>Project Period</b>	August 1, 2012 to July 31, 2013

Dr. Edem Magdalene Tette's project on "**Health and Social Determinants of Malnutrition and an audit of interventions to reduce Malnutrition in a cohort of moderately and severely malnourished children in Accra**" was awarded under the Seed Grant category during the 5th Call.

The study was primarily aimed at determining the risk factors associated with malnutrition. A secondary aim was to determine the extent of exposure of malnourished children and their mothers to health and social interventions which prevent the disease in children. Dr. Tette employed an unmatched case-control design with a normal control group for comparison. Using the Princess Marie Louise Hospital in Accra as a study location, children under the age of 5 years attending the hospital with moderate and severe malnutrition were used for this study. A comparative group was recruited from well-nourished children admitted to the ward with other conditions and other Out Patient Department (OPD) attendees.

The project established that malnutrition was associated with low-birth-weight, diarrhoea episodes, admission to hospital, HIV infection and developmental delay. The mothers of malnourished children were detected to be more likely to be unmarried, unemployed, have teenage pregnancies, lower family incomes, lower education, and marital or financial problems. As such they were less likely to have options of alternative care for their children. Over-nutrition was present in both groups of mothers studied. Malnourished children

were less likely to have been regularly de-wormed and their mothers were less likely to have had adequate antenatal and postnatal clinic appointments or HIV testing and counseling during pregnancy. Awareness and use of social services and a cash transfer programme was low among the study groups. Also the National Health Insurance Scheme was not well patronised by both groups. Though detection of faltering growth in the child health record book was high among the malnourished children, it does not seem to have halted the progression of the malnutrition to moderate and severe forms.

By way of recommendation, Dr. Tette proposed that interventions to reduce malnutrition include socio-economic interventions and prevention of HIV infection, low-birth-weight and diarrhoea. In addition, regular antenatal and postnatal clinic attendance, de-worming of children and growth monitoring should be encouraged together with the involvement of social workers in the team. She advocated further that some of these interventions must be delivered while managing children with malnutrition in order to prevent relapse, protect the next child and address maternal over-nutrition.

## 37 Research Grants Awarded Following 7<sup>th</sup> Call

The Office of Research, Innovation and Development with support from the University of Ghana Research Fund announced the 7th Call for research proposals from

September, 2013. The call yielded a total of 60 applications in the three grant categories. There were 13 applications

for the Seed Grants, 33 for Investigator-led Grants and 14 for Large Multi-Disciplinary Grants.

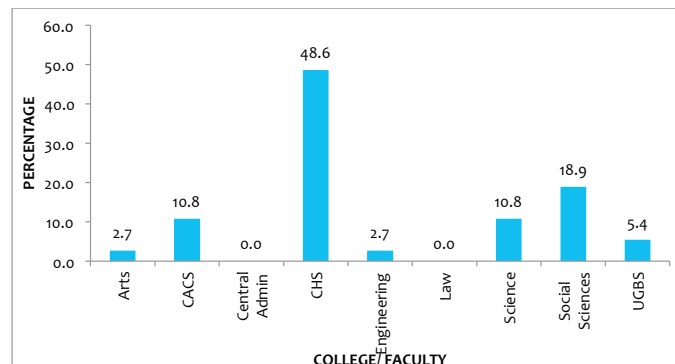
The number of applications received for the 7<sup>th</sup> Call represents a near 30 percent increase from the previous call, and was attributed to the use of a new online application system designed in-house.

### Review and Award of Grants

Following a rigorous review process, thirty-seven research grants with a total value of **GH¢942, 611.00** were awarded in the three grant categories. To date, a total of 124 grants with a total value of about GH¢ 3.2 million has been awarded as research grants funded by the University of Ghana. Out of this number thirty-eight (38) projects have been successfully completed and most of the Principal Investigators of these projects have gone on to win international competitive grants.

The highest number of awards since the inception of the UG research grants scheme was awarded in the 7<sup>th</sup> Call for Proposals. The percentage distribution of awards (by College/ Faculty) is as shown in Figure 3 below:

**FIGURE 3: DISTRIBUTION OF AWARDS BY COLLEGE/ FACULTY**



**TABLE 4: DETAILS OF THE 7<sup>TH</sup> CALL GRANT AWARDS**

CATEGORY	PRINCIPLE INVESTIGATOR	TITLE	DEPARTMENT	AMOUNT AWARDED (GH¢)
Large multi-disciplinary Grants	Professor Ama de-Graft Aikins	Developing community-based cardiovascular disease care in Ghana: A therapeutic lifestyle approach to hypertension management in Ga Mashie, Accra	Centre for Social Policy Studies	59,955.00
	Professor Richard M. Adanu	Influencing National Health Policy: Development of the State of the Nation's Health Report for Ghana	Population, Family and Reproductive Health	98,805.00
	Dr. (Mrs.) Regina Appiah-Opong	Crude oil drilling: Onshore environmental assessment of the Jubilee oil field of the Western region of Ghana	NMIMR - Clinical Pathology	79,833.00
	Dr. Martin Obeng-Ababio	E-waste Processing, Health and Food Security at Agbogbloshie Market in Accra, Ghana	Geography & Resource Development	79,994.00
	Dr. Phyllis Gertrude Adkailey Addo	Acanthamoeba species as a natural vector for the transmission of Buruli ulcer (BU): Proof of principle	Animal Experimentation	24,991.00
	Dr. Eric Sampene-Donkor	Epidemiology of Pneumococcal Carriage among HIV Positive Children in Accra, Ghana	Centre for Clinical Pharmacology & Therapeutics	24,969.00
	Dr. Michael Fokuo Ofori	Molecular surveillance of Plasmodium vivax infection and Duffy genotypes in Ghana	Immunology	24,995.00
	Dr. Charles Brown	Studies on the Roles of 5-Ht Receptor Subtypes in the Sporogonic Life Cycle of Plasmodium falciparum	Medical Laboratory Sciences	24,953.00
	Dr. Joseph Osafo	Suicide, Risks and the Law in Ghana	Psychology	24,953.00
	Dr. Naalamle Amissah	Grafting as a means to control Meloidogyne infestation in Tomato Genotypes	Crop Science	24,983.00
	Professor Joshua Abor	How Do Corporate Governance Structures Affect the Funding Strategy of Banks in Sub-Saharan Africa?	Finance	24,995.00

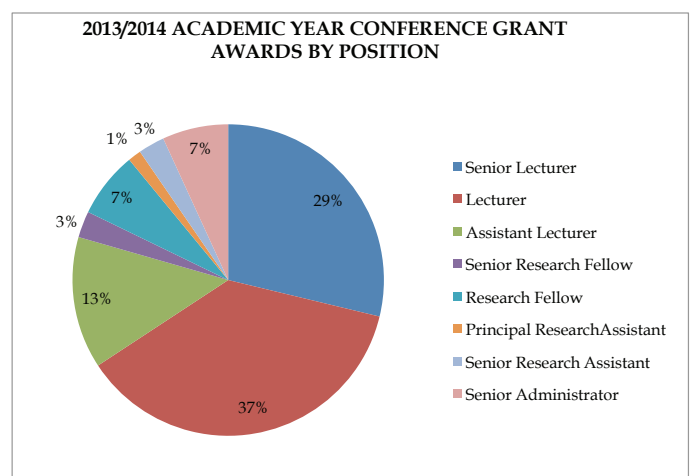
CATEGORY	PRINCIPLE INVESTIGATOR	TITLE	DEPARTMENT	AMOUNT AWARDED (GH¢)
Investigator-led Grant	Dr. Dzedzom komi de Souza	Unraveling persistent patent infection after 6 rounds of Mass Drug Administration to eliminate lymphatic filariasis in Ghana	Parasitology	24,995.00
	Dr. Patrick Adjei	Psychological Well-Being and Quality of Life in Chronic Kidney Disease Patients at the Korle-Bu Teaching Hospital in Accra, Ghana	Medicine & Therapeutics	24,992.00
	Dr. Ajediran I. Bello	Screening for Musculoskeletal Deviations: Epidemiology and Access barriers to Health Care Service among Junior High School Pupils	Physiotherapy	25,000.00
	Dr. Mohammed Amidu	Do firms manage earnings and avoid tax for corporate social responsibility?	Accounting	24,990.00
	Dr. Augustine Ocloo	Common mitochondrial DNA (mtDNA) mutations associated with male infertility in Ghana	Biochemistry, Cell & Molecular Biology	24,943.00
	Dr. Agnes Simpson Budu	Consumer Perception, Knowledge and Usage of Functional foods in the Ghanaian Food systems and their Nutraceutical Properties	Nutrition & Food Science	24,997.00
	Dr. Alhassan Sulemana Anamzoya	Migrant Chiefs in Urban Ghana, Accra	Sociology	24,997.00
	Dr. Ken Okwae Fening	Enhancing vegetable productivity in the Accra plains through integrated crop management	IAR - SIREC	24,997.00
	Dr. Clement Akotsen-Mensah	Pest Management Practices to Enhance the Profitability and Competitiveness of the Mango Industry in Ghana	IAR - FOCHREC	24,997.00
	Professor Margaret Lartey	Evaluation of the management of rabies at primary care facilities within the public health system in the Greater Accra Region, Ghana.	Medicine and Therapeutics	24,997.00
	Dr. Nilante Amissah	Developing Processing Parameters for Canning Grasscutter Meat	Family & Consumer Sciences	24,997.00
	Dr. Abu Yaya	Development of Electro-Porcelain Composites from local raw materials	Materials Science Engineering	24,997.00
	Dr. Kwadwo Owusu	The Socio-economic Impacts of Bui Dam on Downstream non-Resettled Communities	Geography & Resource Dev.	24,997.00
	Professor Kwaku Tano-Debrah	Microbial quality and safety of fish along the fish value chain and their implications on food security: A case study of the artisanal fishing industry in Ghana.	Nutrition & Food Science	24,997.00
	Dr. Bartholomew Dzudzor	Association between serum 25-hydroxyvitamin D level and its common genetic determinants in patients with chronic liver disease (CLD) at different stages and correlation with the degree of liver fibrosis at Korle Bu Teaching Hospital, Accra, Ghana	Medical Biochemistry	24,999.00
	Dr. Japheth A. Opintan	Cryptococcal meningitis in hospitalised HIV patients in Korle-Bu, Accra	Microbiology	24,990.00

CATEGORY	PRINCIPLE INVESTIGATOR	TITLE	DEPARTMENT	AMOUNT AWARDED (GH¢)
Seed Funds	Dr. Osbourne Quaye	Preliminary molecular characterisation of human gastroviral agents in Bremam Asikuma in the Central Region of Ghana	Biochemistry, Cell & Molecular Biology	4,998.00
	Dr. Florence Naab	A Pilot Study to Treat Depression Comorbid with Infertility among Ghanaian Women: Oh Happy Day	School of Nursing	4,998.00
	Dr. Gladys Dzansi	Validating the Multi-method adherence tool for measuring adherence in HIV Clients in Accra, Ghana	Adult Health	5,000.00
	Dr. Sika Evelyn Ahadzie	Investigating the enculturation of university students into the academic discourse community and the impact this process has on their academic writing	Language Centre	4,851.00
	Dr. Emmanuel Debrah	Information Technology (IT) and Elections in Ghana: The Case of the 2012 Elections	Political Science	5,000.00
	Mr. David Nana Adjei	Comorbid Conditions among Tuberculosis Patients : The Case of Diabetes in the Accra Metropolis	Medical Laboratory Sciences	4,940.00
	Dr. John Kwame Boateng	Exploring E-Learning Needs for Adults in Central Region, Ghana for a Centre-Based Distance Education Programme	ICDE	4,988.00
	Dr. Bismark Sarfo	A pilot study to evaluate the clinical and behavioral characteristics of patients receiving medical care for HIV/AIDS	Epidemiology and Disease Control	4,953.00
	Dr. Kennedy K.E. Kukuia	Screening Trichilia monadelpha, a Ghanaian herb for antidepressant effect	Pharmacology	4,977.00
	Miss. Ewurama Dedeo Ampadu Owusu	Malaria in the highlands of Ghana: The Kwahu-South situation	Medical Laboratory Sciences	4,993.00

## Conference Grants

The University continues to commit a considerable amount of funds to support young and established researchers at knowledge-sharing and networking fora. The 2013/2014 academic year has been the busiest year for the management of conference grants at ORID. A total of 67 applicants were awarded conference grants to attend workshops, seminars and training programmes all over the world with a total value of US\$ 93,052.51. Of this number 37% was awarded to Lecturers (i.e. early career faculty members), while 29% was awarded to Senior Lecturers. This highlights the value UG places on nurturing its young faculty, and also reveals the aspiration of young faculty members to present and publish their research in international forums.

**FIGURE 4: CONFERENCE GRANT BENEFICIARIES - SUMMARY BY POSITION**



In addition to supporting staff to attend conferences, US\$ 19,014.55 was awarded to departments at UG to organise both local and international meetings. A total of 6 conferences received sponsorship in the 2013-2014



academic year. This is the highest number spent so far on conference organising.

## Spotlight on some Conference Grant Beneficiaries

The Department of Nutrition and Food Science was awarded a GH¢ 5,000 conference grant to support the African Nutritional Epidemiology Conference (ANEC) held at GIMPA, Accra. ANEC is the leading regional nutrition conference in Africa and is held biennially in various parts of the continent. This is the second time that ANEC has been held in Ghana. The first was in 2006. ANEC provides a forum for nutrition scientists, public health professionals, academics, students and field-based workers in Africa and the rest of the world to meet regularly to share their research findings and best practices, and to build capacity to address nutritional challenges in Africa (the Africa Nutrition Agenda). Additionally, ANEC seeks to build professional networks and partnerships to support nutrition programs and projects in Africa.

The theme of the conference this year, “Food and Nutrition Security in Africa: New Challenges for Sustainability,” focused on exploring new challenges and innovative tracks in food security, nutrition, public health and human development.

The conference offered an opportunity for scientists, public and private sector practitioners in relevant fields to come together to discuss the theme.



Participants viewing the Poster Exhibition at ANEC 2014

## Faculty Development Grant

The last two academic years have seen a decline in the number of applications and the number of faculty development grants awarded. This is attributable to the fact that fewer faculty members are currently in need of acquiring a PhD or other terminal degree. The Faculty Development Grant has played a significant role in this. Since its inception in the 2008/2009 academic year, a total of 67 faculty members have been awarded grants in excess of GH¢ 678,000 (US\$ 211,875). Of the 67 faculty who received grants to pursue their PhD's, 33 beneficiaries have successfully completed their programmes. This represents 50 percent of the total number awarded. With the periodic review of candidate's progress, the next half is on course to complete their programmes on schedule.

This academic year a total grant amount of GH¢ 97,000 from UG's internally-generated funds was awarded to 7 faculty members. This grant supports the University of Ghana's drive in ensuring that all faculty members have a PhD or other terminal award as a basic qualification for lectureship. Table 5 is a summary of the awardees.

**TABLE 5: FACULTY DEVELOPMENT GRANT BENEFICIARIES FOR THE 2013/2014 ACADEMIC YEAR**

Nº	BENEFICIARY	DEPARTMENT	THESIS TITLE	UNIVERSITY OF REGISTRATION	GRANT AMOUNT (Gh¢)
1	Albert Kpoor	Sociology	LIVELIHOOD STRATEGIES OF MALE AND FEMALE HEADED HOUSEHOLDS IN GREATER ACCRA REGION	University of Ghana	8,000
2	Alfred Asuming Boakye	FOHCREC	MEASURING THE PRODUCTIVE EFFICIENCY OF AGRIBUSINESS FIRMS IN GHANA	University of Ghana	15,000
3	David Sasu Konadu	Material Science and Engineering	SOLIDIFICATION CRACKING OF TYPE AISI 430, 436, 439 AND 441 FERRITIC STAINLESS STEELS	University of Pretoria	15,000

4	<b>Francis Hasford</b>	Medical Physics	<i>ULTRASOUND, PET AND CT IMAGE FUSION FOR IMAGE GUIDANCE IN PROSTATE BRACHYTHERAPY</i>	University of Ghana	<b>14,000</b>
5	<b>Nana Ama Agyeman</b>	Language Centre	<i>A DESCRIPTIVE GRAMMAR OF EFFUTU- A LANGUAGE DOCUMENTATION STUDY</i>	School of Oriental and African Studies, University of London	<b>15,000</b>
6	<b>Richard Darko Appiah</b>	Computer Science	<i>SPATIOTEMPORAL SUBSPACE FEATURE TRACKING IN MOVING OBJECTS</i>	Louisiana Tech University	<b>15,000</b>
7	<b>Sarah Akuoni</b>	Economics	<i>ESSAYS ON INTRA-HOUSEHOLD DECISION MAKING AND CHILD WELFARE OUTCOMES</i>	University of Sussex, Brighton	<b>15,000</b>

## Capacity Building

### External Grants Received

#### Association of African Universities (AAU) Awards Seed Grant To ORID



**Ms. Empi Baryeh**  
Assistant Registrar in charge of  
Capacity Building

In September 2013, ORID received funding from the Association of African Universities (AAU) under its seed grant programme to implement the project titled ***Developing and implementing a fund raising plan for research at the University of Ghana.***

The purpose of the project was to ensure that the University is able to put in place mechanisms, strategies, systems and processes to ensure funds are available for faculty research. The project was also to help the University conduct its fundraising activities in a highly coordinated and efficient manner, provide training in research fund raising and also help the University increase its research funds through varied alternative sources. The expectation is that the increased funds will enable the University to conduct more research which can impact national development. The key objectives of the project were to:

- Increase the pool of funds available for research;
- Match the University's strengths to activities supported by specific donor;
- Develop guidelines for the distribution of funds raised for research; and
- Develop a system for monitoring and evaluating the use of funds raised for research

The project objectives were achieved through eight (8) main activities, namely:

- Baseline survey on existing fundraising practices at the University;*
- Development of a research fundraising policy;*
- Development of a funders' database;*
- Development of a database showing University's research strengths;*
- Development of a training plan for research fundraising at the University;*
- Development of a system for disbursement of research funds;*
- Development of a monitoring and evaluation strategy; and*
- Acquisition of Grants Management Software.*

Generally, the baseline survey showed that there is an awareness across the University that research fundraising is crucial. Some of the major challenges that were identified include

- lack of dedicated staff for research fund raising;*
- inadequate skills in grant proposal writing and*
- heavy teaching load among others.*

It became apparent from the baseline survey that the University needs to put in place systems that will ensure that research fundraising becomes part of the institutional culture.

Research fundraising activities are likely to yield more positive results where units have dedicated staff responsible for raising funds and managing donor

relations. This reinforces the need to institute systems for the effective coordination of research fundraising activities and the management of donor relations. Through the activities of this project, ORID has developed regulations for monitoring and evaluating funds raised for research. In addition, several systems and tools have been developed to enhance the research fundraising process. This project was important because it addresses several key issues related to the University's strategic plan.

### Christian Health Association of Ghana Provides Dissertation Grants for Masters Students Researching on Mental Health

Three masters' level graduate students received dissertation grants with a total value of GH¢ 13,500 (4,500 each) from the Christian Health Association of Ghana (CHAG). The dissertation grants target masters' students undertaking their research on mental health related topics that address the following issues:

- Reducing the incidence of, and stigma towards persons with mental illness;
- Increasing access to treatment, care and support for persons suffering from mental illness; and
- Re-integrating treated mentally-ill persons back into their communities and supporting them to be economically productive.

The grant scheme, which started in February 2014, is expected to be available for the next five years for the conduct of Masters level mental health research at the University of Ghana. Grants awarded under this scheme are tenable only at the University of Ghana. Details of the first batch of grant beneficiaries are:

- **Mr. Richard Appiah** of the Department of Psychology conducted research on the *Psychological precipitants and rate of relapse of substance abusers: A case study of the Sunyani metropolis*. The findings from the study will guide clinical psychologists and other mental health personnel to predict relapses, identify high-risk situations, identify protective factors and effective coping strategies in the Ghanaian context to foster more effective policies to prevent relapses in clients.
- **Mr. David Deegbe** of the School of Nursing is conducting research on *The experience of people living with epilepsy in the Ashiedu-Keteki sub metropolis*. His study focuses on the myths and

misconceptions surrounding epilepsy noting that these myths and misconceptions create an environment for stigmatisation, resulting in discriminatory attitudes towards People Living With Epilepsy (PLWEs). Although primarily a neurological disease, the management of epilepsy has been left to mental health workers due to the comorbid psychosis associated with mental sub-normality and the discriminatory attitudes of other health care workers. It is expected that the findings from the research will help provide evidence-based information on stigma and discrimination of PLWE to the Ministry of Health, NGOs, health workers and all stakeholders for the development of specific policies and support systems.

- **Mrs. Joanita Da Pilma Leketey** of the School of Public Health conducted research on *Alcohol consumption among pregnant women in Jamestown community*. In Ghana, there are no statistics to estimate prevalence of prenatal alcohol consumption or fetal alcohol syndrome. Considering the dire consequences of prenatal alcohol consumption, the study sought to examine pregnant women's knowledge of the effects of alcohol on pregnancy, to identify factors influencing prenatal alcohol consumption and also to identify the types of alcohol products consumed by pregnant women.

### New Funding to Support PhD Training at UG

The University of Ghana has won a new grant of US\$ 650,000 to support PhD training. The goal of the project, Accelerated PhD Training through University of Ghana - Diasporan Linkages (APT-Ghana), is for the University to become a hub for an African regional doctoral training, drawing on its diasporan partnerships to enhance its PhD programmes. It is thereby to attract top performing PhD and post-doctoral candidates and enhance its research outputs. The concept of the project is in line with UG's new direction for PhD training.

The UG-APT is funded by the Carnegie Corporation of New York for an initial period of two years and will support:

- i) The establishment of the UG Pan- African Doctoral Academy –(UG-PADA) to enhance PhD output

- ii) Expansion and institutionalisation of the UG-Diasporan Linkage Programme to support post-graduate programme delivery
- iii) Development and delivery of new PhD programmes

This funding application was developed by Professor Yaa Ntiamoah Baidu and the PhD Restructuring Working Group for the development of the UG-APT proposal. It is expected that the anticipated improvements in PhD recruitment and output will go a long way to enhance the profile and reputation of UG.

## Externally Funded Research Projects

This has been a remarkable year for external funds at UG, where EUR 11,654,195 worth of research grant contracts have been signed between UG and foreign partners. This

is the highest ever level of funding, with the European Union funded Intra ACP programme alone providing a total grant amount of EUR 9,613,075 for research. Under the Intra-ACP academic mobility scheme, the *Partnering for Health Professional Training in African Universities- (P4HPT)* project not only received the highest funding of EUR 2,515,275 but is the first project in which UG is the coordinating institution. The Building Stronger Universities in Developing Countries project enters the second phase with a grant amount of EUR 2,041,120. This time round the BSU project is heavily South driven (meaning Africa universities partnering the projects) in terms of coordination of the project. This is a major boost for research management at UG.

The tables below represent summaries of the various projects within the research grants portfolio;



### Trans-disciplinary Training for Resource Efficiency and Climate Change Adaptation in Africa – Phase 2

Total Grant Awarded	<b>EUR 2,550,000</b>
Current Status	UG currently hosts two full time PhD students from Ethiopia and Tanzania. Both are affiliated to the Institute for Environmental and Sanitation Studies. The first call for proposals for fulltime PhD scholarships under phase two ended on 31 <sup>st</sup> May, 2014. Applications are currently being reviewed for shortlist.



Total Grant Awarded	<b>EUR 1,999,000</b>
Current Status	Under the first call UG was successful in sending two Masters students for a ten month exchange programme to University of Nairobi-Kenya and University of Addis Ababa –Ethiopia respectively. Currently, UG is hosting two masters’ students on a ten month exchange and expecting 3 more students next month. The second call for applications opened from 20 <sup>th</sup> December, 2013 to 28 <sup>th</sup> February, 2014. Applications are currently being validated at University of Cape Town. UG submitted a total of 78 applications, a marked improvement from the 16 applications submitted in the first call.



### Partnering for Health Professional Training in African Universities - P4PHT

Total Grant Awarded	<b>EUR 2,515,275</b>
Current Status	Project implementation is in its initial stages.  Following its maiden Steering Committee meeting last month, calls for applications have been announced for PhD and Masters programmes.



## Inter-University Cooperation to Train Crop Scientists for African Agriculture (CSAA)



### Inter-University Cooperation to Train Crop Scientists for Enhancing Agriculture in Africa

Total Grant Awarded	<b>EUR 2,548,800</b>
Current Status	Project implementation is in initial stages. Website and logo are yet to be developed; Calls for applications are also to be announced



### BUILDING STRONGER UNIVERSITIES IN DEVELOPING COUNTRIES

#### Building Stronger Universities In Developing Countries - Phase 2

Total Grant Awarded	<b>DKK 15 Million (≈US\$ 2.78 million)/ EUR 2,041,120</b>
Current Status	An initial proposal was submitted at the end of February 2014 for matchmaking. One proposal from Aarhus University has been received, which has been approved by the UG team. The project is currently in its inception phase with a series of meetings lined up to fine tune the proposal.

## Intellectual Property and Technology Transfer

### UG Council Approves Intellectual Property Policy



*Mrs. Diana Owusu Antwi  
Research Development Officer in  
charge of Intellectual Property and  
Technology Transfer*

As part of efforts to foster the development, improvement and transfer of new knowledge and innovative technologies, ORID spearheaded the design of an Intellectual Property (IP) policy. The policy has since been approved by the University Council for use at the university.

The objectives of the policy framework are to; ensure that research, inventive or innovative technologies created by the University are transferred to industry for the development of beneficial and ethically acceptable processes, products and services; offer equitable returns to the inventor(s) and the University; and contribute to the social and economic development of Ghana.

The policy will provide the needed security and incentive to promote the discovery of new knowledge and innovative technologies at the University. The policy is available online at <http://orid.ug.edu.gh/ippolicy>

### UG Establishes Technology Development and Transfer Centre (TDTC)

During the period under review, seven units of the University; namely the Department of Agricultural Economics and Agribusiness of the School of Agriculture, the Livestock and Poultry Research Centre, the Forest and Horticultural Crop Research Centre, the Soil and Irrigation Research Centre, the University of Ghana Business School and the Department of Computer Science, all responded to a call for proposal put out by the Ministry of Environment, Science, Technology and Innovation (MESTI). These proposals were eventually resubmitted as one proposal following facilitation by the Office of Research, Innovation and Development.

The University of Ghana was subsequently awarded a grant of US\$ 500,000 under Component 2 of the Ghana Skills and Technology Development Project to set up a

technology transfer office; named University of Ghana Technology Development and Transfer Centre (TDTC). The University also made an in-kind contribution of US\$ 75,000 towards this course.

## UG Launches TDTC

The University of Ghana's Technology Development and Transfer Centre (TDTC) was officially launched at a colourful ceremony well attended by the Principal Officers, staff and students of the University, representatives from the Ministry of Environment, Science, Technology and Innovation (MESTI); the Council for Technical, Vocational Education and Training (COTVET) and the Registrar General's Department. Industry partners present at the event included representatives of the Association of Ghana Industries and the Private Enterprise Foundation.

The launch was on the theme "*Developing and transferring innovative technologies to meet industry needs.*" The event provided an opportunity to enhance the University community and industry's awareness of the TDTC and its role in the transfer of innovative technologies to industry.

The TDTC, which is housed at ORID, facilitates effective partnership between the University and industry for the purpose of developing and transferring innovative demand-driven technologies to address industry technological needs. The Centre will initially focus on technology transfer activities in livestock, horticulture and Information Communication Technology and will extend its operations to other disciplines in the University in the future.

The Pro Vice-Chancellor, Research, Innovation and Development, Professor John Gyapong in his welcome address, highlighted the benefits of university/industry collaboration to both parties. Professor Gyapong expressed optimism that the University of Ghana's Technology Development and Transfer Centre would take a leading role in spearheading Ghana's economic growth by identifying and nurturing early-stage technologies and in facilitating their transition into the development of products for the benefit of society.

Professor Ernest Aryeetey, the Vice-Chancellor of the University, in his opening remarks, indicated that partnerships between universities and industry had been adopted as a major strategy for developing technologies and in promoting the successful use of science and technology to address industrial and societal

problems in developed countries. The Vice-Chancellor said the University's collaboration with industry had largely centered on the publication of research results in technical journals, collaborative research, consultancies, internships, professional development programmes and technology fairs. He also highlighted the role played by technology transfer in promoting an enabling environment that allowed for inventions or technologies created by universities and research institutions to be licensed to industry through the use of intellectual property rights.

Mr. Sebastian Deh, Executive Director of COTVET, commented on the Ghana Skills and Technology Development Programme (GSTDP); an initiative of the Government of Ghana targeted at solving the challenges faced by researchers in moving their research findings out of laboratories into markets. He also emphasised the funding opportunities available under the Skills Development Fund to support universities, research institutions and the private sector, and thus encouraged the University to take advantage of these opportunities.

Professor Andrew Anthony Adjei, Director of Research at ORID outlined the key factors that hampered effective engagement between the University and industry. He reiterated that the TDTC project would go a long way in addressing most of the issues identified. He presented the achievements of TDTC which included amongst others the establishment of institutional structures, the design and hosting of a website (*available at [tdtc.ug.edu.gh](http://tdtc.ug.edu.gh)*) to facilitate effective engagement with industry; and the development of an information pack. He said a formalised framework was being developed to enhance UG's engagement with industry.

Mrs. Sarah Anku of the Registrar General's Department outlined the benefits of the patent system and the patent prosecution processes. She reiterated the RGD's commitment to assist the public, particularly researchers and institutions through the patent prosecution processes.

The Deputy Minister of Environment, Science, Technology and Innovation, Dr. Mohammed Musheibu-Alfa, who formally launched the TDTC, lauded the University's efforts to solve the challenges faced by researchers in collaborating with industry for the purposes of technology transfer. He also laid emphasis on the importance of the TDTC in supporting the needs of industry through the transfer of innovative technologies especially at this critical stage of the country's economy.



*Front View of the Technology Development and Transfer Centre located in the Office of Research, Innovation and Development*

### TDTC and ET Cube International Hold Seminar

The Technology Development and Transfer Centre of the Office of Research, Innovation and Development, in collaboration with ET Cube International, held a seminar on **“Intellectual Property Commercialisation and Entrepreneurship”** which saw participation by TDTC staff, research support staff and researchers.

Mrs. Yumiko Hamano, a partner of ET Cube International, France, in her delivery touched on the various types of intellectual property rights, patenting in contrast to publication, patent application procedures and the benefits of the patent system. Mrs. Yumiko indicated that the role of universities had changed in recent times from education, creation and transfer of new knowledge to the public, to include intellectual property and technology transfer management (such as research contracts, licensing, increased collaboration with industry, incubation and start-ups). She laid emphasis on the ownership of intellectual property, major challenges and sharing of benefits to commercialisation. Mrs. Hamano further urged the University to protect, utilise and manage its intellectual assets so as to derive maximum benefit from it.

Dr. Surya Raghu, partner of ET Cube International USA, took participants through both the traditional model of research and a new model that focused on an application based approach to solving problems. He also talked about the various aspects of developing an invention into a product or service (*“idea to market”*) and stressed the need to identify the readiness of a technology for the market. Participants were also exposed to key decisions

and considerations for commercialisation and they engaged in a mind simulating exercise on patentability.



*Participants at the Seminar on Intellectual Property Commercialisation and Entrepreneurship*

### Intellectual Property Awareness Creation Session Held

An IP awareness creation session was held for Level 400 students of the Department of Nutrition and Food Sciences. This was aimed at briefing the students on the IP policy. During the interactive session, students were exposed to the various types of IP rights and the need to disclose inventions to ORID through the Head of Department. The session also highlighted the benefits of avoiding disclosure to third parties prior to filing for patent protections and putting in place Non-Disclosure Agreements with third parties if there is a requirement to disclose sensitive information about inventions.

In addition, ORID published a Newsletter on intellectual property called *“Innovation File”*. Five newsletters have been published so far and are accessible at <http://orid.ug.edu.gh/ipnewsletters.php>.

### IBM Team Provides Consultancy Services on TDTC Project

Three Corporate Services Corps from the International Business Machines Corporation (IBM) provided consultancy services on the TDTC Project. During the three week engagement, the team offered advice and solutions related to database management platforms, document management systems, and user friendly website design. The team also

recommended best practices on database development for existing technologies at University of Ghana.



From left to Right; Mr. Elliot Davis (IBM-USA); Mr. Sampson Addo (UG); Miss Yohanna Yrivus (IBM- Costa-Rica), Miss Cindy High (IBM-USA); Mrs. Diana A. Owusu Antwi (UG); Mr. David Appiah (UG); and Mr. Ezekiel Acquah (UG).

## Deputy Minister of Environment, Science, Technology and Innovation Calls on TDTC

During a one-day working visit to the Centre, the Deputy Minister of Environment, Science, Technology and Innovation, Dr. Mohammed Musheibu-Alfa was briefed on the TDTC's achievements since its establishment as well as on some technologies developed at the University which had been identified for modification, enhancement and transfer to industry.



Deputy Ministers Visit

## Ethics and Research Dissemination

### UG Approves Research Ethics Policy

As part of its efforts to become a world class research University, the University of Ghana has approved a Research Ethics Policy for researchers to enable the facilitation of good practices in research. The policy has been designed to have complete oversight of all the University of Ghana's Institutional Review Board (IRB)/ Ethics Committees and ensure that research activities involving human and non-human subjects are reviewed according to laid down ethical principles. The policy will also ensure that ethical standards for the care and protection of human and non-human subjects are

adhered to, and that research activities within the University are in compliance with all national and international ethical regulations. An electronic copy of the Policy is available online at: [http://orid.ug.edu.gh/pdfs/UG Research Ethics Policy \(2014\).pdf](http://orid.ug.edu.gh/pdfs/UG%20Research%20Ethics%20Policy%20(2014).pdf)



**Mr John Anoku**  
Research Development Officer in charge of Ethics and Research Dissemination



## UG Inaugurates Ethics Committee for the Humanities



*Newly inaugurated Ethics Committee members with VC*

On September 5, 2014, the Vice Chancellor inaugurated the Ethics Committee for the Humanities (ECH). The mandate of the ECH is to observe, review and regulate the ethical conduct of research within the disciplines in the humanities whilst guaranteeing that they are in compliance with both local and international ethical regulations.

The ECH is a multidisciplinary and multi-sectoral committee of ten (10) members:

- (i) Rev. Professor Joseph O. Y. Mante, Ethicist and President of the Trinity Theological Seminary;
- (ii) Rev Agnes Philips, with a communication background;
- (iii) Professor Felix Asante, Director of ISSER;
- (iv) Professor Charles C. Mate – Kole, a Psychologist;
- (v) Professor Daniel Frimpong Ofori, University of Ghana Business School;
- (vi) Dr. Jemima Anderson, Department of English;
- (vii) Dr. Joseph Asenso, an Economist at the Ministry of Finance and Economic Planning;
- (viii) Dr. Akosua Darkwah, Sociologist and head of CEGENSA;
- (ix) Dr. Lawrence Boakye, Department of the Study of Religions;
- (x) Dr. Poku Adusei, from the Faculty of Law

The ECH Secretariat is headed by Mrs. Dorcas Opai-Tetteh.

The Ethics Committees website is available at: <http://orid.ug.edu.gh/ethicscommittees.php>

## Training for Ethics Committee for Humanities (ECH) Members

A team from the Noguchi Memorial Institute for Medical Research Institutional Review Board (NMIMR-IRB) organised half-day training on protocol review and ethics board administration. The purpose of the training was to give a general overview of the operations of the ethics committee. In her opening remarks, Ms Helena Baidoo (the NMIMR-IRB Administrator) congratulated participants and urged them to see their role as pivotal in the protection of researchers. Topics covered included:

- Overview of the roles and functions of IRB
- Brief history, codes and regulations governing research
- Practical steps in reviewing a protocol
- Reviewing the consent document
- Guidelines for continuing review, amendments and final report

## UG Spearheads the Formation of National Ethics Association

Research is essential to improving health, equity and development of a country. Over the years there has been extensive discussion on the ethical conduct of social/ biomedical research in developing countries. Much emphasis has also been placed on strengthening the capacity of ethics committees which are widely managed by Administrators of these Committees. Hence it is imperative that attention be paid to the administrative capacity of these committees as well as create enabling platforms that will enhance networking among members of these committees.

Against this background the Ghana Association of Administrators of Research Ethics Committees (GHAAREC) was initiated by Ms. Helena Baidoo, a Research Development Officer of Noguchi Memorial Institute of Medical Research at the University of Ghana and current president of the association. The association is made up administrators of the fourteen (14) existing Institutional Review Boards or Ethics Review Committees across Ghana. The overall mission of the association is to create a platform for networking among its members, the harmonisation of Standard Operating Procedures (SOPs), organisation of annual conferences/seminars and to promote high ethical research standards in its members and general public.

It is envisaged that the prospects and output of this association could facilitate and trigger the formation of a national ethics board which will oversee the activities of all the existing and emerging ethics committees or boards across the country in order to promote high ethical research standards. This will be a great achievement for the University and for Ghana as a whole.

## Research Uptake and Utilisation Workshop

The University embarked on a mission to create an enabling atmosphere for research uptake and utilisation among its faculty members which can be achieved through policy formulation, implementation and evaluation of the process. While every effort is being made to accommodate individual research interests, it is imperative that they are channeled towards making tangible contributions to the development of the country and society at large.



*Research Uptake workshop*

It is within this context that the Development Research Uptake in Sub-Saharan African (DRUSSA) 'Group of 24' at the University of Ghana held a workshop to put in place a strategic plan to spearhead the formulation of a policy to adopt research uptake management practice for the University. It is expected that this strategic plan will lead to the development of a new research culture that seeks societal benefits and impact of research activities.

## ORID External Funds Unit

The Finance Section (External Funds Unit) of the Office of Research, Innovation and Development (ORID) renders financial support for research by facilitating applications for grants and handling the financial management of external projects that are being implemented at the University. During the 2013/2014 academic year, there was an increase in externally funded grants awarded to the University. A total of twenty-seven (27) sponsored grants were received from various funders amounting to about **GH¢ 57,000,000**.

**TABLE 6: EXTERNALLY FUNDED PROJECTS RECEIVED THROUGH ORID IN 2013/2014 ACADEMIC YEAR**

PROJECT TITLE (FUNDING AGENCY)	LEAD RESEARCHER	TOTAL BUDGET
Partnership for Health Professional Training in Africa (EU)	Professor Richard Adanu	EUR 2,515,275
Monitoring for Environment and Security in Africa (EU)	Dr. George Wiafe	EUR 1,800,000
Strengthening Capacity for Food Science Technology (EU)	Professor Esther Sakyi-Dawson	EUR 495,296
Volkswagen (VW) Foundation	Dr. Wazi Apoh	GBP 19,049
African Presidential Papers and Libraries	Professor Joseph Gordon	US\$ 138,944
Task Shifting and Twin Cities (USAID)	Professor Ama de-Graft Aikins	US\$ 10,500
WACCBIP (World Bank)	Dr. Gordon Awandare	US\$ 8,000,000
Scaling Services through a Proven Model for Mental Health (CIDA)	Professor Ama de-Graft Aikins	CAD 112,000
Interrogating Large scale Land Acquisition (CIDA)	Dr. Akosua Keseboa Darkwa	CAD 230,000
INSPIRE Track 1	Dr. Gloria Otoo	US\$ 23,112

PROJECT TITLE (FUNDING AGENCY)	LEAD RESEARCHER	TOTAL BUDGET
Climate and Development Knowledge Network (CDKN) Innovation Fund (WMO)	Professor Chris Gordon	GBP 119,999
Climate Warn Steering Committee (WMO)	Professor Chris Gordon	US\$ 79,153
Building Stronger Universities (BSU) E-Learning (DANIDA)	Professor Andrew A. Adjei	DKK 1,054,762
Building Stronger Universities (BSU) Phase II (DANIDA)	Professor Andrew A. Adjei	DKK 7,097,174
Strategic Kreation Services Ltd.	Dr. Gloria Otoo	US\$ 49,337
Depression Comorbid with Infertility	Dr. Florence Naab	US\$ 9,000
Preparation of National Sanitation Standards (WMO)	Professor Chris Gordon	GH¢ 257,907
Adaptation at Scale in Semi-Arid Regions (ASSAR)	Professor Chris Gordon	US\$ 69,545
UNU-WIDER to PhD Program (UNU)	Professor Peter Quartey	US\$ 1,000,000
Characterisation of Trypanosome Infections (Carnegie Corporation)	Dr. Theresa Manful	GBP 160,300
Fishing for Security in the Gulf of Guinea (UN)	Professor Elvis Nyarko	US\$ 54,000
Importance of Carotenoid biosynthesis in Plasmodium	Dr. Marian A. Nyarko	GBP 15,000
Political Economy of Climate – Compatible Development (WMO)	Professor Chris Gordon	US\$ 25,487
VLIR Team Cocoa Project (EU)	Professor Emmanuel Ohene Afoakwa	EUR 86,563
Social Science Research Council	Professor Akosua Adomako Ampofo	US\$ 80,000

The Finance Section also manages the internal grants awarded by the University. During the year under review,

the following disbursements were made under the various grant portfolios managed by ORID.

## Grants Received at the University for the 2013/2014 Academic Year

Due to the increase in research activities at the University of Ghana, the research income generated from the University's externally funded grants in the 2013/2014 academic year amounted to about **GH¢ 153,446,880**. The table below shows the breakdown of the University's research income generated from the various research institutes and centres.

**TABLE 7: UG DISBURSED FUND**

GRANT TYPE	AMOUNT DISBURSED
Faculty Development Grants	GH¢ 114,300
URF Research Grants	GH¢ 700,000
Conference Grants	GH¢ 275,000
<b>TOTAL</b>	<b>GH¢ 1,089,300</b>

**TABLE 8: GRANTS RECEIVED AT UG**

INSTITUTE	AMOUNT (GH¢)
CACS	GH¢ 12,550,000
WACCI	GH¢ 43,700,000
ISSER	GH¢ 12,850,000
RIPS	GH¢ 3,046,880
College of Health Sciences	GH¢ 7,500,000
NMIMR	GH¢ 16,800,000
ORID	GH¢ 57,000,000
<b>TOTAL</b>	<b>GH¢ 153,446,880</b>

## Other ORID Activities



### University of Ghana Hosts 2014 CAPREx Annual General Meeting

The University of Ghana hosted the 2014 Annual General Meeting (AGM) of the Cambridge Africa Partnership for Research Excellence (CAPREx) programme from 2<sup>nd</sup> – 4<sup>th</sup> July, 2014 at the Centre for African Wetlands. The AGM was attended by fellows and key programme staff from the University of Ghana, University of Cambridge and Makerere University. The delegates included Dr. Jennifer Barnes, Pro Vice-Chancellor for International Strategy at the University of Cambridge and Professor Ernest Okello Okwang, Deputy Vice-Chancellor at Makerere University. The highlight of the CAPREx meeting was presentations by both Post-doctoral and Research Management Fellows on the programme.

During the AGM, the two Pro Vice-Chancellors paid a courtesy call on the UG Vice-Chancellor, Professor Ernest Aryeetey and discussed issues related to the programme and how the partnership between the three universities could be further deepened. Dr. Jennifer Barnes noted that the programme has made it possible for fellows to imbibe new teaching and learning models and use research facilities that may not be readily available in their home institutions. She indicated that the programme is also benefitting from exceptional talents in Ghana and Africa and emphasised the need to develop other ways of funding the programme to ensure that it continues. Professor Aryeetey described the Cambridge-Africa Programme and in particular the CAPREx programme as important because it reflects the kind of future the University of Ghana is working towards. He disclosed that he sees the partnership as a learning opportunity for students and staff of the University of Ghana.

CAPREx partners also visited the energy material research laboratory at the Faculty of Engineering Sciences which is expected to be developed into a multipurpose laboratory. Funding for the equipment was provided by the Alborada Trust, one of the sponsors of the CAPREx programme. Dr. David Dodoo-Arhin, who was instrumental in setting up the laboratory, signified that the research he had undertaken with his collaborator on

“Energy harvesting via Graphene based dye Sensitised Solar Cells” at the University of Cambridge had won the APL golden prize for the best poster presentation at the 2014 MAT4 Energy Conference in Grenoble, France.

### KNUST Office of Grants & Research Visits ORID

In April 2014 the Kwame Nkrumah University of Science and Technology (KNUST) Office of Grants and Research (OGR) undertook a one-day learning visit to familiarise themselves with the activities and functions of ORID. The team was led by Professor Peter Donkor, Director of the Office of Grants and Research. Other members of the team included four (4) research administrators, one (1) finance person and one (1) administrative assistant.



KNUST visit

The team interacted with the Pro Vice-Chancellor and Director of Research at ORID and discussed issues related to strengthening research administration in the two universities. Specific topics shared were:

- The structure of ORID, governance, functions, staff capacity, etc.;
- Ethics, research uptake and research dissemination;
- Intellectual Property and Technology transfer initiatives;
- Grants management– administrative and finance; and
- Research facilitation and development highlighting the role of the Research Development Officer (RDO).

The visit was considered very fruitful as it presented an opportunity for ORID to reflect on its current functioning whilst sharing experiences and lessons with the KNUST OGR. The two institutions aim to work together to propel the research agenda within the universities and in Ghana.

## UG Registers with Wellcome Trust & EU

As part of efforts to streamline and regularise UG's registration with external donors, ORID has officially completed the University of Ghana's registration with the Wellcome Trust and the European Union (EU).

The Wellcome Trust is a global charitable foundation in the UK dedicated to achieving extraordinary improvements in human and animal health. As part of its international strategy, the Wellcome Trust devotes a proportion of its funds to support the brightest minds in biomedical research and the medical humanities. They support several major initiatives and have a wide variety of funding schemes including Investigator Awards, Fellowships and Strategic Awards, details of which are on the Wellcome Trust website at <http://www.wellcome.ac.uk/>.

Similarly, the EU also has funding opportunities available for research. More information can be found on the EU website at <http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

Members of the University community who are interested in applying for grants from the Wellcome Trust, EU and NIH may contact their respective Research Development Officers for assistance. Alternatively, an email may be sent to [orid-researchadmin@ug.edu.gh](mailto:orid-researchadmin@ug.edu.gh) for information and assistance in applying for grants from these external donors.

Additional information is also available on the ORID website at <http://orid.ug.edu.gh>.

## Research Management Initiatives of the Cambridge Africa Partnership for Research Excellence Programme

In October 2012, the University of Cambridge in partnership with the University of Ghana and the Makerere University in Uganda received funding from the Carnegie Corporation of New York to implement the Cambridge Africa Partnership for Research Excellence. This three way partnership aims at building research capacity at the three African institutions. The programme recognises that building research capacity can be successfully achieved if the capacity is also built in research administration. To this end, one of the key objectives of this programme is to develop Research Management Capacity and Skills at Makerere and UG through:

- a) Scoping visits by Cambridge Research Office managers to both partners, followed by return study visits of Ghana and Uganda research managers to the Cambridge Research Office, and the development of twinning and mentoring arrangements.
- b) Training workshops in Ghana and Uganda, in specific research management practices.
- c) Support for the development of research management policies, procedures and guidelines for best practice.

In May 2013, two Senior research managers from the University of Cambridge Research Operations Office visited the University of Ghana and undertook a detailed scoping exercise to understand UG's research management systems and procedures. Additionally, the visit offered them the opportunity to identify and address any gaps to enhance UG's research management efforts. Based on the information gathered from the visit, and the recommendations put forward, the University of Cambridge Research office developed a tailor made training programme for research managers of the University of Ghana and the Makerere University.

The scoping visit was followed by a 2 week Autumn training programme in research management in September 2013. The University of Ghana nominated Mrs. Afua Yeboah (Research Administrator, ORID) and Ms. Empi Baryeh (Assistant Registrar, ORID) to take up the fellowships. The training covered areas such as research services and grant costing; audits, compliance, policy and communication; pre and post award services; post award and accounting; contracts and intellectual property; donor reporting and many others. Beyond the skills and expertise gained from the research management training, this training also provided the opportunity for UG research management staff to begin to establish strong personal links with Cambridge Research Operations Office staff. The immediate impact of the fellowship was that it provided a better understanding of the range of services that should be provided by an effective and efficient research office and also created the need to formalise guidelines and regulations for managing research at UG.

In May 2014, the project through ORID organised a three day research management workshop at the University of Ghana. The workshop covered three areas - research contract management, costing and pricing of research

grants and using advanced excel as a grants management tool. The workshop was delivered by experienced trainers from the University of Cambridge Research Operations Office and was attended by all the Research Development Officers, all research support staff at ORID (both finance and administrative) as well as some faculty members. Overall the workshop was very successful as it provided participants with hands-on training to enhance research management services.

In September 2014, research management staff from the University of Ghana will join two of their colleagues from Makerere University to take up the second cohort of research management fellowships at the University of Cambridge Research Operations Office. The CAPREx programme will close at the end of September 2015 by which time it is expected that significant gains would have been made in building research management capacity at the University of Ghana.



*CAPREx training*

## Interested in Joining UG as a Visiting Research Student?

The Office of Research, Innovation and Development jointly handles the processing of requests for visiting research students with the International Programmes Office (IPO) and the School of Graduate Studies (SGS).

Visiting Research Students from institutions across the world have the opportunity to enjoy unique mentorship from experienced faculty members and establish networks for research collaborations. Visits usually range from a period of one month to a full academic year.

# Registry Support to Research



# Registry Support to Research



*Mrs. Mercy Haizel-Ashia*  
Registrar

“Alone we can do so little. Together we can do so much”. Helen Keller

The 2013/2014 Research Report represents the second Edition since, the University

of Ghana embarked upon a process of transformation into a World Class Research University. Four years

after the establishment of ORID we see the vision a step closer in Research Reports such as this one, reflecting the University’s unwavering commitment to rigor, discipline and professionalism in the research process.

Perhaps what is not so visible is the hive of activity behind the scenes; the effort at achieving excellence also in the spaces where administrative professionals and researchers interface; the structural changes across the entire system including fine-tuned research management processes, simplified procedures, and most significantly, capacity-building of Administrative Professionals. Indeed, the past year has seen a heightened effort within the University at enhancing the delivery of administrative support to researchers and strengthening collaboration between administrative professionals and researchers; all with a view to assuring excellence in the University’s research processes.

The creation of a new administrative cadre of Research Development Officers has been a major step in our effort at strengthening collaboration between administrative professionals and researchers. Research Development Officers have been positioned in the various Schools and Colleges and have been assigned the role of devolving research support services to the unit level. We have already begun to see improvements in our research output as Research Development Officers play this role. Again, critical questions of Intellectual Property Rights are being resolved gradually and sustainably, as the University now has an Intellectual Property Policy in place and has also started several technology transfer initiatives. In addition, other employees from the administrative and professional

grades continue to engage in activities that provide the opportunity to also conduct research related to Higher Education Management.

I am, therefore, happy with this Edition of the University of Ghana’s Research Report, to echo Helen Keller’s timeless words and prove her hypothesis a true reflection of our journey as academics and administrators, towards the status of a World Class Research University.

## Institutional Research and Planning Office

The Institutional Research and Planning Office (IRPO) was set up in 2013 to provide support to the University with a SWOT (strengths, weaknesses, opportunities and threats) analysis to highlight its needs and challenges. The unit, consisting of three elements – Institutional Research, Policy and Planning, and Institutional Assessment – provides strategic direction in the drive towards a more consistent and holistic planning, administration and management of the University.

## Institutional Research

The IRPO facilitates a novel culture of information and value-based decision making among leaders, management, academic faculties, and professionals in the University. It does so by analysing institutional data from the Inter-tertiary system (ITS) to produce institutional statistics for the University.

## Institutional Statistics

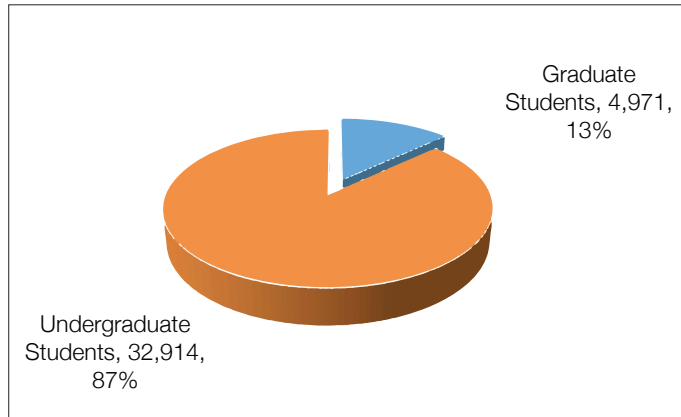
Institutional Statistics was compiled for 2013/2014 Academic year and submitted to the National Council for Tertiary Education (NCTE). The statistics served as basic information for both faculty and student research in and outside the University, and were also submitted for international university rankings in South Africa and China.



## Student Statistics

The total student population of the University stands at 37,885 of which undergraduates constitute 87%. The composition of students is depicted in figure 5 below.

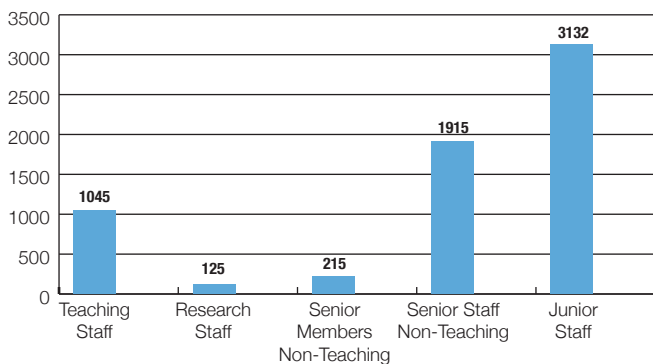
**FIGURE5: COMPOSITION OF STUDENTS (2013/2014 ACADEMIC YEAR)**



## Staff Statistics

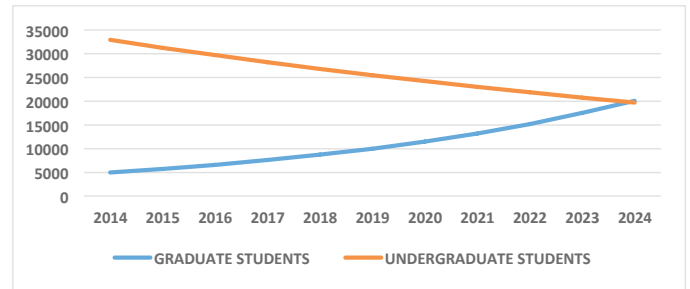
The University currently employs 6,432 staff made up of 1,045 Lecturers and 125 Research Fellows. All categories of staff are shown in figure6.

**FIGURE6: CATEGORIES OF STAFF (2013/2014 ACADEMIC YEAR)**



The Unit projects a student enrolment of Legon campus regular students to 40,000 by the year 2024. About 21,000 of the projected total population is expected to be graduate students, making just over 50%, up from 13% previously. Figure 7 shows the trend of student enrolment over the 10-year period.

**FIGURE7: PROJECTION OF STUDENT ENROLMENT (2014-2024)**



## Policy and Planning

The University's vision of becoming a first class research university requires a systematic approach to implementing the proposed activities effectively and efficiently. The Unit is therefore facilitating a Strategic Plan to guide the implementation of these activities. A risk management plan has also been developed as part of this process.

A budget forecast for the ten years from 2014 to 2024 has also been estimated. It includes revenues from student fees and grants from Ghana Government and donors., as well as costs for staff and projects. In all, by the year 2024, the University revenue is expected to be GH¢1,108,029,330.63 with expenditure of GH¢1,298,606,424.00.

## Institutional Assessment

The Unit conducts assessments of the operational areas of the University through surveys, which provides Management with real insight into the operation of the University. In the 2013/2014 academic year the Unit undertook a survey to examine the level of satisfaction of international students and submitted a report to Management in April 2014. The following are among the major findings:

- Around eighty four per cent (84%) of students indicated that they were satisfied with facilities at their disposal.
- Certain courses generated high interest due to good class discussions stimulated by lecturers.
- Reading materials and organised field trips were mentioned as positives.
- Some students however did not like the courses offered and among the reasons given were poor attitude of lecturers and substandard materials.
- Others complained that some lecturers habitually read out lecture notes without explanation or

discussion, which to them did not generate interest or motivation for critical thinking. There were also complaints about the quality or availability of reading materials in the various libraries with specific mention of the Balme Library.

- A significant students (about 73%) were not happy with the level of service received from porters, hospital staff, administrative staff and security. This indication of poor customer service is a breach of the University's code of conduct.

As a corporate entity aspiring to be the best, students are a priority constituency whose interests must be topmost at all times. It is therefore, unacceptable for staff or service providers to deliver poor services thus it was recommended that the University conduct orientation for lecturers and all other staff associated with International Programmes. There should also be annual assessment of the lecturers to ensure high teaching standards. Facilities for International Students should also be regularly assessed and upgraded to international standards.

## Excerpts from the Herana report

The HERANA Report documents the balances and imbalances of the levels of Higher Education in Africa. The Report for Ghana found that Higher Educational institutions are seen as integral to the delivery of knowledge and the provision of designs, new technologies and inventions for use in society. In the African context, the role of higher education is to address the shortage in areas that are massively underdeveloped.

### A case for the University of Ghana

Since its establishment in 1965, the University of Ghana has provided higher education to the nation and has seen an increase in enrolment figures over the years. The most recent area of increase is in science, engineering and technology. There has also been an increase in post-graduate admissions most especially in Masters enrolment, which increased from 1,344 in 2001 to 1,580 in 2007. The report also indicated an increase in staff-student ratio from 2001-2007, which led to high teaching loads making it difficult for academics to engage in research activities. According to the report, in 2007, 47% of the University of Ghana's permanent academic

staff's highest qualification was a doctorate; , that figure has increased to 63% as of 2014.

It is estimated that research funding to the university is inappropriate to maintain strong research activities. The ratio for research publication was 0.13 compared to the target ratio of 0.50 for South African universities. However, input from teaching enables the academic staff to support research activities such as supervising students' research projects.

Another issue raised in the report is the connectedness of the University of Ghana to external stakeholders and academic core. The report alluded that the lack of appropriate coordination of government and donor agendas by the university had previously enabled individual academics to sign funding contracts directly with external agencies. This practice has now reduced due to the setting up of the Office of Research, Innovation and Development which has the mandate to coordinate activities between the university and funding agencies.

The link between the University and government and industry also appeared to be between individual academics and units instead of at the institutional level. With the setting up of the Technology Development and Transfer Centre to support researchers build and maintain lasting links with industry, this has now changed.

In conclusion, the report indicated that though there has been a significant impact on reducing absolute poverty, this has not resulted in broader economic development. The vision of producing human resource for economic and poverty alleviation has been approached on the traditional basis of teaching, research and extension services by both government and the university. The new National Science, Technology and Innovation Policy is a positive step in Ghana's ambition to become a middle-income country through the harnessing of the nation's total science and technology capacity to achieve the national objectives of poverty reduction, competitiveness of enterprises, sustainable environmental management and industrial growth.

Finally, the report stated that neither government nor the university seem to have strong agreement on the role of the university in development. This is changing however, as the university works toward becoming a first class research institute.

# Post-Doctoral and other Fellowships



# Post-Doctoral and other Fellowships

Postdoctoral fellowships offers individuals an opportunity to be engaged in a temporary period of mentored research and/or scholarly training for the purpose of acquiring the professional skills needed to pursue a career path of his or her choosing. It gives these individuals an opportunity to improve their understanding of a specialist subject and, in the process, infuse them with unique and sought-after skills. It is usually undertaken by individuals who have recently completed their doctoral studies.

At the University of Ghana the Noguchi Memorial Institute for Medical Research has been running a post-doc programme since 2010 with funding from the Bill & Melinda Gates Foundation. The following pages highlight emerging early career researchers who have received postdoctoral fellowships in the 2013/2014 academic year. A total of 31 postdoctoral and other fellowships have been administered. The advancement of these fellows is seen as essential not only for their own individual career but more importantly, building the next generation of academic leaders for UG.

Based on this success story, the University of Ghana intends to expand postdoctoral fellowship opportunities to other disciplines and thereby institutionalise and fund them with its own resources.

During the year under review some faculty members received fellowship awards to enhance their careers. The awards were in various categories as below:

## The NMIMR Post Doctoral Fellowship Programme

The Noguchi Memorial Institute for Medical Research Post-Doctoral Training Fellowship in Infectious Diseases was established in 2010 with funding from the Bill & Melinda Gates Foundation (B&MGF). The main aim of the programme is to train young post-doctoral candidates in an African environment with a view to equipping the next generation of African research leaders with the requisite skills to explore their research ideas and advance their careers in biomedical research. It is expected that the fellows will be motivated to undertake innovative research towards the control of infectious diseases. Besides the research training, fellows are offered opportunities to

develop other skills such as project management, grant and report writing by actively placing them in such programs and also conducting such training on site for them. In the long term the programme is expected to become a model to be replicated by other African institutions. The programme has an International Advisory Board comprising seasoned scientists and researchers to provide advice and guidance to ensure the success of the programme.

The first two fellows were enrolled in June 2011. They were **Dr. Kwadwo Asamoah Kusi** and **Dr. Kingsley Badu** who were attached to the Immunology Department. To date eight fellows have been on the scheme, including the first two who have taken up careers in research. The current crop of fellows Dr. Joseph Nguta and Dr. Edward Maina from Kenya; Dr. Patrick Tsuoh from Cameroon and the lone female, Dr. Jewelna Osei-Poku, from Ghana. The other fellows are Dr. Patrick Arthur and Dr. Samuel Sakyi, also from Ghana. They are working on topics in Malaria, Buruli Ulcer, HIV and TB.



*Dr. Kingsley Badu (top) and Dr. Kwadwo A. Kusi (bottom) at work*

Dr. Kingsley Badu holds a B.Sc (Hons) in Biological Sciences, M.Phil (Clinical Microbiology) and PhD (Theoretical and Applied Biology) from the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi. Additionally he holds a certificate in Cell Biology of Infectious Pathogens from the American Society of Cell Biology (ASCB) and has undertaken advance training in 'Biomarkers of exposure, susceptibility and disease' (Imperial College, London, UK).

Dr. Badu joined the programme in 2011 as one of the two foundation fellows and worked on fine-tuning his PhD work in the area of researching alternative methods of estimating exposure to malaria vectors. His project was on "***Developing Innovative Tools for the Measurement of Malaria Transmission Intensity and Surveillance***". In his studies he determined the human antibody responses to the An. Gambiae and P. falciparum specific antigens as measures of exposure to malaria. The results of these antibody measurements will be used to develop predictive malaria transmission intensity (MTI) model. In addition he evaluated the salivary gland protein (gSG6) of the An. gambiae mosquito and the novel P. falciparum sporozoite proteins (FFE 056w) as sero-epidemiological markers for human exposure to Anopheles bites and risk of parasite transmission. Finally he is comparing these newer approaches to the classical entomological methods of malaria transmission to determine the sensitivity of the markers and the models. He completed the two-year fellowship in 2013 and is continuing to pursue his current research interests that seek to examine gene transcript and expression profiles of ookinete and sporozoite stage invasion proteins (the so called glideosome) of P. falciparum and to elucidate their functional interactions in the invasion process. The aim is to identify candidate genes/proteins biomarkers capable of assessing the human-parasite-vector interactions. He has this to say about the programme:

*"The post-doctoral fellowship readily offers the opportunity for the young scientist to concentrate on a research area. It also offers a unique opportunity for the young scientist to test and establish ideas and ultimately help to identify a primary area of research focus for the long term. This opportunity has a great potential to help retain the critical mass of African research scientists that are needed to contribute solutions to the myriad of infectious diseases plaguing Africa."*



*Dr. Jewelna Osei-Poku at the laboratory*

Dr. Jewelna Osei-Poku, currently the only female fellow, joined the programme in 2012 after her PhD from Cambridge University, UK, and is attached to the Parasitology Department. Her general research interests are in understanding vector-parasite interactions that govern vector competence and shape disease epidemiology particularly mosquito-borne diseases such as malaria, lymphatic filariasis and dengue. Her research project - "***Investigating the Effect of Human Blood Levels of Antibiotics on the Transmission of Plasmodium Falciparum by Anopheles Gambiae s.l.***" seeks to examine the effect of antibiotics on the microbial endosymbionts of mosquito vector and the consequential effect on its development. She hopes to contribute innovative and feasible methods for disease control in the future, using advanced molecular and genomic tools. She is using the opportunity to explore other interests including stimulating young high school students in the study of science. She is the Co-Chair of the Institute's Bio-safety Committee. She has this to say about the programme:

*"As a post-doc, I have been challenged to think outside the box, and engage in activities that will improve my career. For example, I have received a lot of administrative support in starting a high school summer internship programme, which had always been a passion— to show young students what biomedical research is all about. I have also been invited to serve on the Institute's Health and Safety Committee."*

*"This fellowship programme has made me realise a bit more about my potential as a research scientist. It has also developed my confidence in my academic-related pursuits, and drawn me closer to a scientific adventure I would not have imagined myself taking a few years ago"*



Dr. Patrick Tsouh

Dr. Patrick Tsouh comes from Cameroon and is one of the three non-Ghanaians to join the programme in 2014. He has a background in medicinal chemistry and is interested in investigating bio-active ethnobotanicals for activity against *Mycobacterium ulcerans*. His project is titled: “**Assessment of Anti-Buruli Ulcer Activity of Ethnobotanically Selected Medicinal Plants**”. He plans to use routine assays to identify novel compounds with anti-mycobacterial activities using both *in vitro* and *in vivo* models. He is attached to both the Chemical Pathology and Animal Experimentation Departments. He has this to say of the programme:

*“The past 4 months at NMIMR has been an excellent opportunity for me to gain some hands on experience in the research world. It gave me an opportunity to be close to distinguished researchers. I acquired new skills and developed already existing skills including innovativeness and creativity in design, working in a team-based environment, dealing with management and patrons, and presentation and communication skills. I have found that my ability to conduct research and write grant proposals has drastically improved, as well as my time management ability.*”

*My experience so far in this programme has been invaluable. I learned a great deal about various aspects of a major Research Institute in Western and Central Africa. I strongly recommend this programme to newly graduated doctors contemplating the idea. Work experience such as this significantly increases the chances of obtaining more grants”.*

## CAPREx Post-Doctoral Research Fellowships

In November 2013, the second call for expressions of interest in the CAPREx post doc fellowships was announced simultaneously at the University of Ghana and Makerere University in Uganda. The Fellowship provides the opportunity for researchers from the University of Ghana Faculties of Science and of Engineering Sciences to embark on collaborative research projects with researchers from the University of Cambridge. The Fellowship which usually lasts an average of four (4) months is normally hosted by the University of Cambridge though in some cases, fellows have had the opportunity to spend time in the other African institution in the partnership as a means of promoting South-South linkages. Fellows have the opportunity to engage in a variety of training, seminars and networking opportunities to enhance their research links and skills. Since the beginning of this scheme, a total of ten (10) faculty members with biological sciences and engineering backgrounds have received fellowships.

The first cohorts of seven awards were made in May 2013 and all the fellows have completed or are at the final stages of completion of their fellowships at the University of Cambridge. Dr. Richard Osei-Amponsah of the Department of Animal Science spent five months at the University of Cambridge researching on “**Genetic diversity, linkage disequilibrium and genomic selection of the Ashanti Dwarf Pig (ADP) of Ghana**”. His collaborators include Professor Nabeel Affara and Dr. Carole Sargent both of the Mammalian Molecular Genetics Research (MMGR) Group at the Department of Pathology, University of Cambridge. Findings from the study show that the ADP has diverse genetic origins with more European than Asian influence. Based on the initial findings of the study, Dr. Osei-Amponsah and his collaborators are seeking funding to study specific genes conferring beneficial traits to the ADP. In the medium to long term, it is expected that there will be capacity building in animal genetics and genomic breeding through the training of more scientists and the organisation of periodic workshops for stakeholders. Several publications from this study are currently under preparation. The fellowship also made possible the acquisition

of software for analyzing genetic characterisation of animal genetic resources to help further research and teaching by Dr. Osei-Amponsah.

In June, 2014 the second cohort of awards were made to three (3) faculty members of the University of Ghana namely: Dr. Abu Yaya of the Department of Materials Science & Engineering, Dr. Fred Aboagye-Antwi of the Department of Animal Biology & Conservation

Science, and Dr. Osbourne Quaye of the Department of Biochemistry, Cell & Molecular Biology.

## Profiles of second cohort of award winners from the University of Ghana



Dr. Abu Yaya

**Dr. Abu Yaya** of the *Department of Materials Science and Engineering* is collaborating with Dr. Kevin M. Knowles of the Department of Materials Science and Metallurgy, Cambridge University on the project titled “***Development of electro-porcelain composites from local raw materials in Ghana***”.

The project aims to explore the raw material deposits used in the production of electro-porcelains in Ghana. Electro-porcelain ceramics will be formulated from these deposits and the properties of the resultant fired materials will be explored in relation to their workability, firing temperature, di-electric and mechanical characteristics and compared with internationally sourced electro-porcelain ceramics.

Through this fellowship, Dr. Yaya expects to acquire the needed skills to help establish a composite materials research laboratory that is currently unavailable in his present department. The establishment of this laboratory will facilitate the training of students to better appreciate the course on composite fabrication techniques. The laboratory will also serve as a hub for training undergraduate and graduate students in the Faculty of

Engineering Sciences.



Dr. Fred Aboagye-Antwi

**Dr. Fred Aboagye-Antwi** of the Department of Animal Biology and Conservation Science is collaborating with Dr. Frank Jiggins of the Department Genetics, University of Cambridge on the project titled ***Biotic and abiotic factors influencing the costs of plasmodium falciparum infection in Anopheles gambiae s.s.***

Using a field-like set-up, the project will investigate the role of *Anophele gambiae* s.s. factors and their interaction with environmental stress factors in modulating the fitness cost of *Plasmodium falciparum* infection in the mosquitoes; to determine if patterns of survival to the infection may be attributed to mosquito factor(s) dependent expression of the trade-off between stress and immunity. The possible molecular mechanisms leading to the trade-off between resistance to stress and the immune response to *Plasmodium falciparum* infection in *Anopheles gambiae* s.s. will be investigated. The molecular architecture of how the trade-off between resistance to stress and *Plasmodium falciparum* infection changes with mosquito age of *Anopheles gambiae* will also be investigated.

The Fellowship will contribute immensely to knowledge towards the development of effective novel vector control tools. The use of molecular biology approaches such as ultra-sequencing, which has a wide range of applications. At the international level, undertaking this training fellowship will facilitate North-South technology transfer that could eventually lead to poverty reduction through improved health.



Dr. Osbourne Quaye

**Dr. Osbourne Quaye** of the Department of Biochemistry, Cell and Molecular Biology is working with Dr. Caroline Trotter and Dr. Barbara Blacklaws, both of the Department of Veterinary Medicine of the University of Cambridge. The project which is titled “*Contribution of strain diversity to rotavirus vaccine effectiveness in Ghana: Investigating human rotavirus reservoirs and strain diversity in farm animals*” is aimed at determining the reservoirs of human Group A rotavirus strains in farm animals in Accra as well as investigating the molecular diversity of these animal strains.

Group A rotaviruses are the most common cause of acute gastroenteritis among children under five years. The disease burden is worse in developing than in developed countries, and this observation has prompted various explanations which include the incidence of high rotavirus strain diversity in low income countries, among others.

Even though the WHO has recommended the worldwide use of two licensed rotavirus vaccines, Rotarix and Rotateq, vaccine trials and post-vaccine era surveillance suggests a stark disparity of vaccine efficacy and effectiveness between developed and developing global regions.

In Ghana, as in the case of many developing countries, there is close contact between humans and domestic or farm animals, or with the faeces of these animals. These interactions could be prime causes of zoonotic transmission and possibly genetic reassortment which could compromise the efficacy of the vaccines. This study hypothesises that zoonotic transmission contributes to the high strain diversity in Group A rotaviruses in humans in developing countries. The study is therefore designed to determine reservoirs of human Group A rotavirus strains in farm animals (e.g. pigs, cows and chickens) in Accra, Ghana, and investigate the molecular diversity of these animal strains.

## Other Faculty Post-Doctoral Award Winners

Dr. Grace Diabah wins a Post-Doctoral Fellowship from the American Council of Learned Societies (ACLS) under the African Humanities Program (AHP)



Dr. Grace Diabah

Dr. Grace Diabah is working on the research topic, *The Representation of women and men in Ghanaian radio commercials: Sustaining or challenging gender stereotypes and ideals?*

Gender and advertising research has often centered on gender stereotypes, most of which emphasise the cliched representations of women. In its contribution to the fields of gender, advertising and language studies, this research investigates how women *and* men are represented in Ghanaian radio commercials, and whether such representations sustain and/or challenge traditional gender stereotypes. Four articles have been developed from this project which has been made possible through a Post-doctoral fellowship from the American Council of Learned Societies' African Humanities Program, 2013/2014. Through the analyses of various linguistics forms, the first article “*From ‘Recharger’ to ‘Gidi-power’: the representation of male sexual power in Ghanaian radio commercials*”, shows that ‘manliness’ is equated with sexual power, and men are represented as agents of power and strength – which is a reproduction of the traditional masculine power stereotype. The second article “*The modern man in Ghanaian radio adverts: a reproduction of or a challenge to traditional gender practices?*,” on the other hand, shows a representation of the modern Ghanaian man in ways that reflect the changes to gender roles in contemporary society. Conclusions drawn are that an ideal man in the



contemporary Ghanaian society is not the one who *only* conforms to traditional masculine practices, but one who *also* gets involved in some stereotypically feminine roles. Article three, “*The representation of women in Ghanaian radio commercials: sustaining or challenging gender stereotypes and ideals?*”, also shows representations of women that sustain as well challenge traditional feminine tasks. Interesting, however, is the way some stereotypically feminine functions are simultaneously used to challenge gender norms. The final article, “*Chatterboxes and competitors: women, men and language use in Airtel radio commercials*”, focuses on two Airtel adverts which depict some stereotypes on the way men and women use (or are expected to use) language.

### Dr. Patience Aniteye wins LMICs Post Doctoral Award



Dr. Patience Aniteye

In 2012, there was a call for applications from LMICs for postdoctoral scholars (within five years of completing their PhDs). Dr. Patience Aniteye applied for and won this fellowship and was in Canada from 21<sup>st</sup> August, 2013 to 16<sup>th</sup> February, 2014. Whilst in Canada under the mentorship of Professor Beverley O’Brien, a renowned Professor of Midwifery, Dr. Aniteye served on panels that examined two Master of Philosophy and Doctor of Philosophy students from the University of Alberta. She was the external examiner for the doctorate. She presented her papers at conferences and seminars throughout Canada including the 13<sup>th</sup> Annual General Meeting, Conference & Exhibit (CAM Conference) in Ottawa, Ontario from 6-8<sup>th</sup> November, 2013. She also presented one of the papers at the First International Health Services Research: Evidenced - Based Practice Conference, that took place at King’s College London, UK from 1- 3 July 2014. Dr. Aniteye had opportunities to teach and mentor graduate and undergraduate students of the Faculty of Nursing, University of Alberta. Whilst in Canada, she initiated collaborations between two Canadian and one Ghanaian professor, and won a grant for

a collaborative research in Ghana on ***Gender, Health & Place: A Multi-Site Ethnography of Women’s Experiences and Perceptions of Health***. She returned to Ghana in February, 2014 with a certificate and a wealth of experience worth the cold weather experience.

## Scholarly Fellowships

### Professor Helen Yitah receives Prestigious Award from International Women’s Forum



Professor Helen Yitah

Professor Helen Yitah an Associate Professor and Head of the Department of English of the Faculty of Arts has been selected by the International Women’s Forum Leadership Foundation to participate in its 2013-2014 Fellows programme. Her selection for the Fellows programme distinguishes her as a woman of significant achievement and a rising leader. She was selected from a keenly competitive pool of candidates from around the world in a class that represents great diversity.

Comprising 34 women, the 2013-2014 Fellows Class represents emerging leaders in the corporate, government, academic and non-professional sectors from 13 nations including Canada, Chile, Hong Kong, Norway, South Africa, the United Kingdom, Mexico and the United States.

Professor Yitah is the third recipient of the prestigious award in three years from the University of Ghana; the first two being Dr. Elsie Kaufmann of the Department of Biomedical Engineering and Professor Nana Aba Amfo of the Department of Linguistics. All three were nominated by the Vice-Chancellor for their very positive representation of the future of female academics of the University.

## Linda Darkwa wins Global South Scholar Residency Programme



Dr. Linda Darkwa

Dr. Linda Darkwa, a Research Fellow at the Legon Centre for International Affairs and Diplomacy, was awarded one of the three fellowships for the Global South Scholar Residency Programme at the Graduate Institute of Geneva, Switzerland, in 2013.

This prestigious award annually recognises outstanding young professors from universities of developing and emerging countries who are pursuing advanced research in areas bridging the fields of international and development studies, and broadly defined, working in disciplines such as anthropology, history, law, political science, and economics.

During the period of her fellowship from September 2013–February 2014, she wrote up her research report on “*Sexual violence against children in post conflict situations*”. Linda Darkwa’s research interests are in the areas of peace and security, with a particular focus on the implications of global security paradigms on regional and local processes of governance, human rights, development and security.

## Peace Medie wins Two Fellowships



Dr. Peace Medie

Dr. Peace Medie won a research grant from the Harry Frank Guggenheim Foundation to work on the project: “*There is Still No Justice Here!*” *Theorizing Women’s Movements’ Influence on Post-War African States’ Enforcement of Gender-Based Violence Laws*”. The grant will fund data collection in Cote d’Ivoire and Sierra Leone in 2014.

Dr. Medie also won an award from the Rita Mae Kelly Endowment Fellowship of the American Political Science Association. The award will fund the transcription of interviews conducted with Liberian refugees in a study of civilian self-protection in conflict settings. Dr. Medie is collaborating with Dr. Betsy Jose, of the University of Colorado, on this project.

## Dr. James A.N. Saanchi wins Fulbright Award



Dr. James A.N. Saanchi

Dr. James A.N. Saanchi of the Department of Linguistics has won a Senior Research Grant under the Fulbright African Senior Scholar Programme for the 2013-2014 programme year. The Senior Research Grant is awarded to senior faculty to conduct post-doctoral research at a U.S. academic or research institution.

The Fulbright Programme is an international educational programme sponsored by the U.S. government and is designed to “increase mutual understanding between the people of the United States and the people of other countries”. The Fulbright Programme, established in 1946 under legislation introduced by then Senator J. William Fulbright of Arkansas, is sponsored by the Bureau of Educational and Cultural Affairs of the U.S. Department of State.

During the programme year he will be investigating various aspects of Dagaare Linguistics including basic clause structures, multi-verb constructions, focus constructions, non-locomotory verbs, spatial grams and also genetic affiliation.

He has also realised that many Ghanaian students may be familiar with linguistic phenomena from European languages and yet be ignorant of similar phenomena in the Ghanaian languages. This is because the textbooks available hardly provide Ghanaian language examples. For instance, in genetic classification of languages, the group of Indo-European languages such as Catalan, French, Italian, Occitan, Portuguese, Romanian, Sardinian and Spanish said to have descended from Latin, the language of the Ancient Roman Empire, and usually referred to as Romance languages, are often cited as examples of sister-languages. Yet the relationship between some groups of Ghanaian/West African languages (for instance, the Mbia languages; the Gbe languages)] is as close if not closer than what exists among the Romance languages. Thus aspects of his investigation could be developed into a course book on linguistics for students that would take into consideration the languages they are familiar with. Such a course book would illustrate linguistic phenomena from the languages of the world including the Ghanaian languages.

### Dr. Ajei wins Research Grant from the Leverhulme Trust International Network



Dr. Martin Ajei

Dr. Martin Ajei of the Department of Philosophy and Classics in collaboration with Professor Katrin Filikshuh of the Department of Governance at the London School of Economics and Political Science won a research grant on the Project “ *The Domesticating Global justice: Global Normative Theorizing in African Context.* ” Martin Ajei is the institutional contact at the University of Ghana. He will participate at all network events and will contribute two papers for publication; he will also host both of the network events to take place at the University of Ghana. The network will draw on Ajei’s expertise in African liberation philosophy and in the philosophy of development. A second participant is Professor Kofi Quashigah, Dean of Law and member of the Ghana Bar Association. The University of Ghana will be allocated an amount of £13,709.00 for the network activities. Other network institutions are University of Ibadan, Nigeria, King’s College London, UK, Johann Wolfgang Goethe University, Frankfurt, Germany, and University of Colorado, USA.

### Dr. Boateng wins University Of Michigan African Presidential Scholars (UMAPS) Award



Dr. John K. Boateng

Dr. John K. Boateng, a Lecturer at the Institute of Continuing and Distance Education (ICDE) and also Head of the ICDE’s Cape Coast Learning Centre has been accepted in the University of Michigan African Presidential Scholars (UMAPS) Programme. The University of Michigan (U-M) through the UMAPS programme provides support for the next generation of African scholars by bringing them to U-M for periods of two to six months, where they will have access to library and research materials that can assist them in working on a grant proposal, research project, academic degree, new course, or other relevant activity. The UMAPS programme is designed to support faculty development in Africa and capacity building for African home institutions. It is also designed to enhance collaboration between early career faculty from sub-Saharan Africa and students and faculty at the University of Michigan (U-M).

The UMAPS programme takes place at the U-M Ann Arbor Campus. This year’s programme is scheduled to begin in late August 2014 and end in February 2015.

While in residency as UMAPS scholar Dr. Boateng will understudy the implementation of a center-based e-learning integration at U-M with the goal of: (1) exploring the difficulties and opportunities that confront students when pursuing online learning; (2) examining the accessibility and usability issues that are important in e-learning systems and; (3) assess the training needs of adult learners in facilitating online learning.

## Mr. Larbi and Ms Oti-Boadi Win Fox International Fellowships

The Fox International Fellowship Program is a direct two-way student exchange partnership between Yale University and twelve of the world's leading universities in Russia, England, Germany, China, Japan, France, India, Mexico, Turkey, Israel, Brazil, and South Africa. In 2014, the University of Ghana became the thirteenth member of this partnership. This Fellowship Programme has been established to identify and support talented individuals who will be future leaders in their respective fields and who, by virtue of those leadership positions, will contribute to decisions affecting global policies and international relations.

The international scholarly exchange of the Fox International Fellowship Program enables promising young intellectuals to pursue academic research; immerse themselves in the local language and culture of another country; and develop lasting friendships with peers from other countries.

The programme which primarily focuses on the humanities will allow the ideal candidate(s) to spend up to a year at Yale University as part of their doctoral programme. For the 2013/2014 academic year, two PhD candidates in advanced stages of their programme were selected after a rigorous screening exercise by the University of Ghana and the Yale University. The Fellowship covers visa support, round trip airfare, health insurance, housing and a stipend covering basic living expenses.

The first cohorts of awardees from the University of Ghana are Mr. Reuben Tete Larbi and Ms. Mabel Oti-Boadi of the Regional Institute for Population Studies (RIPS) and the Department of Psychology respectively and will be based at Yale as Visiting International Exchange students.

During the fellowship period, Mr. Larbi will work on his research titled "***Climate change and schistosomiasis transmission in the endemic communities in Ghana: Investigating the effect of risk perceptions***". This study is

expected to contribute to the understanding of the topic and his findings will inform decisions and policy on appropriate interventions to eradicate schistosomiasis in endemic communities to improve wellbeing and create prosperity.

Ms. Oti-Boadi on the other hand will be conducting research on "***Examining the relationship between Africentric worldview and psychological well-being among primary caregivers of children with intellectual disability in Ghana***". Her study aims to examine the interpretations primary caregivers of children with intellectual disability ascribe to their experiences and how they cope. It is expected that the findings of this study will empower primary caregivers, advance beneficial governmental policies and interventions that enhance their well-being and that of their children.

It is expected that the application and selection process at the University of Ghana will commence in September of each year for placement in the following academic year.

## 7 UG Students win CARIBU Scholarships

Seven students of the University of Ghana won the CARIBU scholarship. The scholarship is an Erasmus Mundus Action 2 (EMA2) partnership programme that aims at increasing academic mobility, research and capacity building opportunities between 8 EU universities (in Belgium (2), Czech Republic, Denmark, France, Poland, Portugal, Romania) and countries from the ACP region (Cameroon, the Democratic Republic of the Congo, Ethiopia, Tanzania, Uganda, Mozambique, Gambia, Ghana, the Bahamas, Suriname, Timor-Leste, Samoa).

The Project is devoted to creating a mutual forum for scientific cooperation, learning enhancement and exchange of best practices. The selected candidates are expected to benefit from the programme through the exchange of best practices, mutual sharing of knowledge, teaching and management skills as well as a very enriching linguistic, cultural and educational experience.

# Distinguished Awards and Achievements



# Distinguished Awards and Achievements

## Distinguished Awards

### Joint Distinguished Award for Meritorious Service 2013: Professor Eric Danquah and Dr. Gordon Awandare

Professor Eric Yirenkyi Danquah and Dr. Gordon Awandare have joined the coveted roll of the University of Ghana's Distinguished Award for Meritorious Service

The two academics, to deafening applause, were honoured at the July 2014 Congregation for their various accomplishments. Professor Eric Danquah, Professor of Crop Science and Director of the West Africa Centre for Crop Improvement (WACCI) is the Centre Leader for the Africa Centre of Excellence for Training Plant Breeders, Seed Scientists and Technologists, hosted by the West Africa Centre for Crop Improvement.



*Professor Danquah in a handshake with Dr. Kofi Annan*

Dr. Gordon Awandare, Senior Lecturer and Head of the Department of Biochemistry, Cell and Molecular Biology is currently the Centre Leader for The Africa Centre of Excellence for Cell Biology and Infectious Pathogens hosted jointly by the Department of Biochemistry and Cell Biology and the Noguchi Memorial Institute for Medical Research.



*Dr. Awandare receiving his award from Dr. Kofi Annan*

The University of Ghana recently won two grants, each worth eight million dollars, in the Africa Centres of Excellence Project (ACE) Project, which have resulted in the establishment of the two Centres.

The development objective of the World Bank funded Project is to support the recipient institutions to promote regional specialisation among participating universities in areas that address regional challenges and strengthen the capacities of these universities to deliver quality training and applied research. In congratulating the teams that put forward the winning proposals, the Vice Chancellor in his address at the Congregation said that such awards are a major boost to the University's movement towards strengthening its research focus.

### Obadele Kambon wins Vice-Chancellor's award for Best PhD Thesis in the Humanities



*Dr. Obadele Kambon*

Dr. Obadele Kambon of the Department of Linguistics won the best thesis award in the Humanities during the academic year under review. In the thesis entitled "Serial Verb Nominalisation in Akan", Dr. Obadele focused on nominalisation of serial verb constructions (SVCs) in the Akan language.

Since earning the Vice-Chancellor's Award for Best PhD Thesis, he has written two encyclopedia entries for the Encyclopedia of African Cultural Heritage in North America on Africanisms in Contemporary English and Acquisition of African Languages.



Mr. Godwin Sokpor

## Godwin Sokpor Wins Best Researcher and Promoter of Health Benefits of Cocoa Consumption Award

Mr. Godwin Sokpor, Assistant Lecturer in the Department of Anatomy was given a special award as the best Researcher and Promoter of the Health Benefits of Cocoa Consumption by Ghana COCOBOD on October 1, 2013. He received a Shield, and the assurance of a PhD sponsorship.

## Achievements

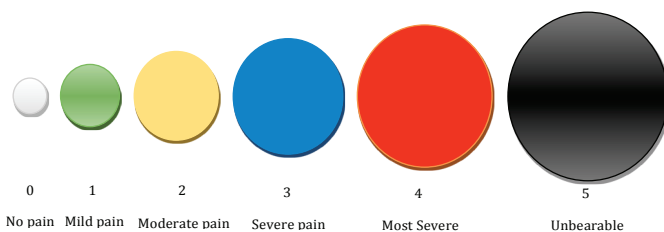
### Pain Intensity Scale for Adult Post-Operative Patients Developed



Dr. Lydia Aziato

Dr. Lydia Aziato and her team of researchers validated three pain intensity pain scales among adult post-operative patients. One of the scales, the colour-circle pain scale, is a new scale developed for the socio-cultural context of Ghana. The team developed a pain assessment chart with the validated pain scales and

these have been approved by the Ghana Health Service to be used by all health facilities in Ghana. The formal assessment of pain as a fifth vital sign is recommended globally and is believed to enhance pain management. Dissemination workshops are on-going to augment the process.



### Promoting the Use of Psychotropic Drugs in Traditional/Spiritual Healing

This is the first intervention study in Sub-Saharan Africa to promote the use of psychotropic drugs in a traditional or spiritual healing setting. The purpose of this study is twofold – to evaluate a bundled intervention of psychotropic drugs and daily contact with a nurse for people with mental health disorders in a prayer camp, and to assess whether the intervention of bringing medication into a prayer camp setting will lead to changes in the attitudes of the prayer camp staff concerning beliefs about mental illness and conventional medicines.

After a year of research, 130 live-in visitors have been screened, of which 98 have been enrolled in the study. Preliminary results show significantly improved clinical outcomes for participants in the study. The most rewarding for the team has been to see a 34-year-old participant, who had been in chains for 10 years, leave the camp after treatment, to continue his recovery at home without chains. Another was the joy of seeing a young woman in her twenties, but doubly bent over as though 50 years older, bounce happily down the stairs after only a month of medication. We look forward to completion of the study and to the next phase of informing policy with the evidence from the study. The group of researchers is led by Dr. Angela Ofori-Atta (UGMS) and F. Baniang (GH¢).



Research Team (Dr. Angela Ofori-Atta, third from right)

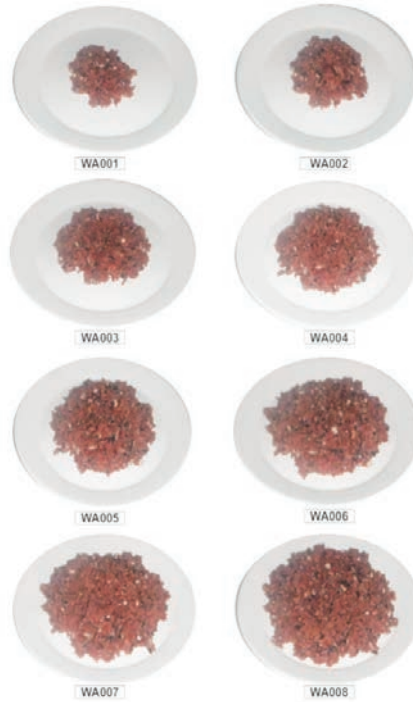
## Department Of Dietetics Develops First Photographic Food Atlas in Ghana

The Department of Dietetics, University of Ghana School of Allied Health Sciences is carrying out research partly focused on the development of tools that will facilitate the work of dietitians by helping them obtain more



Fufu

accurate dietary information from patients. So far the department has developed a photographic food atlas - the first of its kind in the country - to aid portion size estimation and reduce to the barest minimum the errors associated with the collection of dietary information from patients.



Waakye (Rice and Beans)

The newly developed photographic food atlas for portion size estimation of carbohydrate based foods in Ghana

## Dr. George Awuku Asare is First Black African Visiting Research Scholar at Academy of Integrative Chinese Medicine



Dr. George Awuku Asare

From 7th September, 2013 to 15th November, 2013, Dr. George Awuku Asare of the School of Allied Health Sciences visited the Academy of Integrative Chinese Medicine, Fujian University of Traditional Chinese Medicine, Fujian, China as a visiting research scholar. Dr. Asare was the first Black African to visit as a

Research Scholar to the institution.

Unheated red palm oil produced on the local Ghanaian market has been shown to be mutagenic. Mutagenes produced point and frameshift mutations using the Salmonella typhimurium TA 98 and TA 100 tester strains. This was found out by a group of researchers in a study

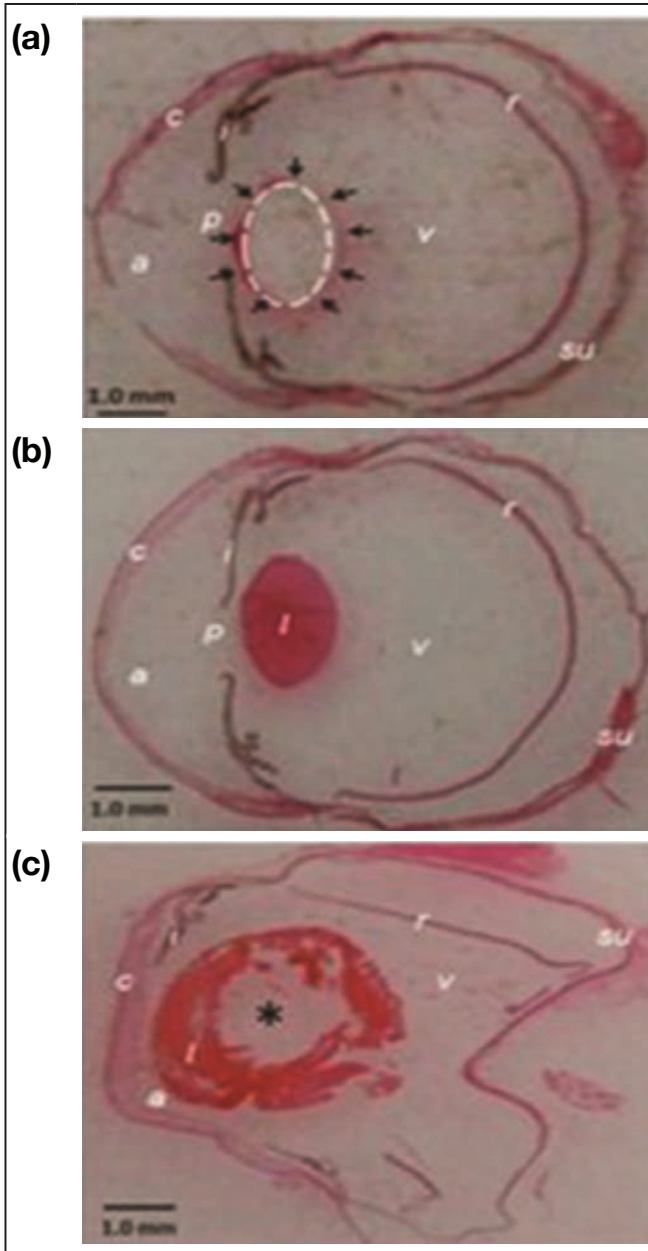


led by Dr. George Awuku Asare. The findings have been published in the Journal of Food Science. This is the first report from Ghana on this subject.

### First Satisfactory Whole Sections of Eyeballs Produced by UGMS Anatomy Department.

Research in the Anatomy Department of the University of Ghana Medical School (UGMS) has introduced two main modifications in the Barrett method of making eyeballs that produced satisfactory sections of whole eyeballs by the routine histological procedure. These two modifications

produced satisfactory whole sections of the eyeball in which a detached retina is the only residual distortion (see diagram below). The significance of this achievement lies in making it possible for the first time ever to produce an intact or whole section of the eyeball using the relatively cheaper equipment and chemicals available in every histology laboratory. Being a modification of routine histological procedure, our method does not require special expertise and every capable histology technician should be able to produce whole sections of the eyeball, which therefore should reduce scarcity. The contribution of our innovation to the teaching and learning of the anatomy of the eye is invaluable.



Photomicrographs of H&E stained antero-posterior sections of eyeball. Eyeballs in a and b were prepared according to our method of vitreous humour aspiration and replacement with molten wax just before paraffin embedding. In a the lens were not treated with concentrated liquid phenol. During sectioning, the over-hardened lens got plucked out leaving its peripheral remnant (black arrows) and a resultant void (demarcated by broken white ring). In b the lens was treated with phenol as per our protocol and shows an intact lens in situ. In c eyeball was prepared as per standard histological processing protocol without our modifications. It shows a collapsed globe with displaced and disintegrated retina, and lens with a void (\*) at the centre.

Key to abbreviations:

Anterior chamber, (a); Posterior chamber (v); Cornea (c); Iris (i); Pupil (p); Retina (r); Sclera and Uvea (su).

# Public Lectures



# Public Lectures

## Inaugural Lectures

### UG's Epistemic Competitive Advantage: The Role of the Humanities in a World Class African University



Professor Helen Lauer

Professor Helen Lauer of the Department of Philosophy and Classics of the University of Ghana delivered her inaugural lecture on the topic: *UG's Epistemic Competitive Advantage: The Role of the Humanities in a World Class African University*.

Professor Lauer observed that institutions of higher education are nowadays obligated to ensure their own financial stability, while also serving the best interests of their enrollees. One familiar way to address this tension has been to create two separate but equally important agendas: on the one hand, strive to maintain high standards of scholarly rigour and research excellence. On the other hand, strive to overcome social injustices and historical obstacles to higher learning through inclusive admissions policies and outreach programmes.

Professor Lauer is a Philosophy Professor with research interests in philosophy of development theory, social ontology, ethics of Ghana's public health policies, global justice, postcolonial critical social theory and foundations of social sciences.

## Aggrey-Fraser-Guggisberg Memorial Lectures

The 2013-2014 academic year's theme of the Aggrey-Fraser-Guggisberg Memorial Lectures was '*Science and Health in Africa's Future Development*'. The three-day lectures were delivered by Professor Rose Gana Fomban Leke, Professor of Parasitology and Immunology, Faculty of Medicine and Biomedical Sciences, University of Yaoundé 1, Cameroun.

According to Professor Leke, Africa is a beautiful continent with so many natural resources, so rich in every aspect and yet handicapped by poverty and disease. Africa is faced with many health problems, such as HIV, malaria, hypertension, cancer and other infectious and non-communicable diseases, which have greatly hindered its full development. Infectious diseases coupled with poor maternal and child health, and weak health systems cripple the continent. Scientific research is well recognised to provide the tools for combating these diseases.

These series of lectures elucidated the challenges in eliminating infectious disease in Africa, the major role of immunisation with regards to health and development, and how scientific research for health has had an impact and continues to have an important role in accelerating progress and development in Africa.



Professor Rose Leke delivering the lecture

The first lecture was on eliminating infectious diseases in Africa. Successes in this fight include 71% reduction in measles deaths from 1990 to 2011, scaling up malaria control interventions leading to an impressive reduction in malaria deaths and malaria cases consulting at the hospital, and reverting the trend of HIV infections in many African countries. The re-emergence of the poliomyelitis virus is one of the biggest global health threats at the moment.

The second lecture delved into the world of immunisations. Vaccines have been well tested and have

been successful and cost-effective tools. There have been other successes such as the introduction of new vaccines. But the challenges remain. Within Africa, there are alarming inequities in immunisation coverage both across and within countries. The global community and local governments have the obligation to support and empower research and development to continue to generate new knowledge, products, and tools for improved immunisation strategies.

The last lecture explored how advancing scientific research is vital for health and development. The One Health concept is important here as it provides a holistic approach. Advancing scientific research results in good health which, in turn, leads to social and economic development, encourages investment in human capital

## Alumni Lecture

Dr. Mohammed Ibn Chambas, United Nations African Union Joint Special Representative and Joint Chief Mediator for Darfur delivered the 2013 Alumni Lecture on the topic, “*Governance and Leadership*” at the Great Hall of the University of Ghana.



*Dr. Mohammed Ibn Chambas, delivering the lecture*

Dr. Chambas noted that major distinctions have been drawn between two main types of leadership, the “transactional”, and the “transformational” leadership. He however prescribed the transformational leadership model as suitable for Africa, as such leaders are effective and can implement good governance. He identified seven attributes of a transformational leader, such as good character, vision, passion, selflessness and public-spiritedness, courage, preparedness to learn as well as mastery over the context in which they operate.

Dr. Chambas affirmed that a new and more confident Africa is gradually emerging especially with the

enabling people to be active and productive members of society.

She concluded that as economic conditions improve for countries south of the Sahara, opportunity must be taken to leverage on disease control efforts, notably by embracing an approach based on disease prevention and elimination and dream big, bold, and beyond our present horizons.

The Aggrey-Fraser-Guggisberg Memorial Lectures were instituted in 1957 to commemorate the contribution made to the founding of Achimota College and the advancement of education, particularly higher education in Ghana. Many prominent personalities have mounted this prestigious platform and delivered lectures on a wide range of topics that cut across various disciplines.

prevalence of democratic governments and the development of institutions and processes to strengthen democratic practices and governance. He mentioned in particular, the establishment of the African Peer Review Mechanism (APRM), an offshoot of the New Partnership for Africa’s Development Programme (NEPAD).

Dr. Chambas, an alumnus of the University of Ghana, graduated with a Bachelor of Arts in Political Science in 1973 before proceeding for further studies at the Cornell University, Ithaca New York, (M. A. 1977; PhD 1980) and a law degree from Case Western Reserve University Cleveland, Ohio (J. D. 1984). In 2008, he received a Honorary Doctorate Degree (LLD Honoris Causa) from the University of Ghana for a distinguished career in international diplomacy and contribution to tertiary education in Ghana.



*Dr. Chambas receiving a life membership plaque from Dr. Mrs. Sylvia Boye, Alumni Council member and Mr. Paa Kwesi Yankey, President of the Alumni Council*

## Vice-Chancellor's Occasional Lectures

### Recent Advances in Neglected Tropical Diseases Control



*Professor Moses Bockarie*

Professor Moses Bockarie, Director of the Liverpool Centre for Neglected Tropical Diseases, UK, delivered the 5th in the series of the Vice-Chancellors Occasional Lectures on the topic, “**Recent Advances in Neglected Tropical Diseases Control**”, at the auditorium of the School of Public Health, University of Ghana.

Professor Bockarie, noted that most of the 1.4 billion people worldwide affected by Neglected Tropical Diseases (NTDs), live in hard to reach areas in Africa. He added that inhabitants of such communities have no access to doctors, drugs and health information, and suffer from

extreme hunger. Professor Bockarie decried the situation where many of the developing countries which suffer most from NTDs lack the capacity to manage projects aimed at eradicating such diseases. He therefore emphasised the need to invest in young people and empower them to develop ideas that build on the current strategies being used in controlling NTD’s. He lauded researchers at the University of Ghana for the immense research work being undertaken on NTDs.



*An attentive audience at the Lecture*

### Imaging Infection - Technology Innovation Driving Research Toward the Benefit of Public Health



*Professor Spencer Shorte*

Professor Spencer Shorte, Director and Executive Engineer of Imagopole, Institut Pasteur, has delivered a

lecture on the topic, “**Imaging Infection – Technology Innovation Driving Research toward the Benefit of Public Health**”, held at the Centre for African Wetlands, University of Ghana.

Professor Shorte noted the importance for Universities to invest in good scientific research and development, adding that research must be enhanced with innovations that respond to the needs of people. He argued that scientists from various scientific disciplines ought to collaborate with their colleagues from others disciplines to ensure their research is multi-disciplinary, as well as involve industry in the process. He said industry should not merely be seen as funders but as partners and collaborators.

## Inter-Faculty Lectures

This academic year's Interfaculty Lectures were hosted by the Faculty of Science. In all eight faculty members gave presentations. Below are the names of the presenters, title and a brief summary of their presentation. The lectures were chaired by the Dean of the Faculty of Science, Professor Daniel Asiedu.

### Climate Change and Its Impact on Energy Security In Africa



*Dr. Michael Kofi Addae-Kagyah*

The phenomenon of climate change has overwhelmed our world. Dr. Michael Kofi Addae-Kagyah an ICT Consultant, Systems Engineer, and a Physicist with research specialisation in Energy Systems and Computational Physics of the Physics Department talked about Climate Change and its Impact

on Energy Security in Africa. It is quite evident, through many recent experiences of hurricanes and floods, epic drought and wildfires, and scorching heat-waves that climate change directly impacts lives and livelihoods throughout the entire world. The risks of climate change, which may be the culminating effect of Global warming, extend beyond people, wildlife, and ecosystems. Climate change is also threatening the world's energy sources and infrastructure, especially in Africa. The negative impacts and risks on energy security are daunting. However, alongside the risks several opportunities are also presented by the situation. In this lecture, Dr. Addae-Kagyah elucidated the nature and causes of climate change and the general impacts particularly the impact it has on energy security in Africa. He also highlighted the need to quantify and understand the dynamics of energy security or insecurity.

### Hydrodams, Ecology and River Bank Economics: Dilemma of Development or Policy Planning Mistake - The Volta River Project in Perspective



*Dr. George Darpah*

In this lecture Dr. George Darpah pitched the economic gains associated with the Akosombo hydro-electric dam project against the devastation of the ecological systems of the upstream and downstream reaches and its consequent effects on the socio-economic stance of the riparian community and pose the question: *'The Scientist, the Policy*

*Planner and the Politician; who is not talking?*

The Volta basin, with an estimated drainage area of 390 000 km<sup>2</sup> has its tributaries and distributaries flowing through large areas of arid sahelian type of climatic zones in six West African countries, i.e. Mali, Ivory Coast, Togo, Burkina Faso, Benin and Ghana (Jonathan *et al.*, 2005). This river basin is the 9th largest in Africa, generating an estimated 32,000 million cubic meters of water in

run offs annually (FAO, 2001; CPWF, 2003). It is also generally thought to be among the poorest river basins, in terms of the economic wellbeing of its people, in Africa. Precipitation in the Volta basin region is characterised by large variability, a consequence of which is the periodic occurrence of droughts. Unpredictable rainfall is a major factor in the economic feasibility of hydraulic development schemes, as witnessed by the power shortages which plagued Ghana in 1998 and followed by a load shedding exercise throughout the country in 2007 and to a lighter extent, 2013. All these contribute to the general impoverishment of the people living in the basin. It must be emphasised, though, that lately, several attempts are being made in the form of workshops, seminars and formation of commissions to address the inherent problems of poverty, disease and deprivation in this area.

Although the development of the Akosombo dam has had profound positive effect on the economy of Ghana, the ecological implications of the actions on the biota of the upstream and downstream reaches appeared not to have been taken on board or simply ignored at the time

of project design. Development of predictive models necessary to guide the managers of such systems appeared to have been equally lost of the policy planners (the pre-impoundment studies notwithstanding). Because the effect of the changes associated with the alterations of the flow regime, both upstream and downstream

(Lake Embryology) is often very slow, the ecological modifications and its impacts are not readily perceived. However the associated degradation of the environment, disease proliferation, and loss of lives through boat accidents and general impoverishment of the riparian communities fly at the face.

## Heavy Metals in the Environment: Health and Policy Implications



*Dr. Eureka Adomako*

In this lecture Dr. Eureka Adomako demonstrated how the ingestion of plants grown on contaminated soils is a major route of exposure to heavy metals. She also touched on anthropogenic activities such as metal mining and poor management of domestic and industrial waste which have resulted in elevated levels of heavy

metals in the environment. While some heavy metals (e.g. cobalt, copper, manganese and zinc) are essential in trace amounts to all living organisms, and some (e.g. cadmium

and arsenic) have been reported to have species-specific beneficial effects in ultra-trace amounts, others like mercury have no known biochemical role. Accumulation over time in biological media, however, renders all heavy metals detrimental to human and ecosystem health.

Her lecture drew largely on the findings of various research studies conducted to ascertain the sources of arsenic contamination in rice paddy fields, variations in concentrations of arsenic and other potentially toxic elements in rice grain, as well as impacts of domestic and industrial waste accumulation on soil quality.

She also discussed the health threats posed by dietary exposure to heavy metals, and recommended an inter-sectoral and inter-disciplinary approach to the task of monitoring and mitigating the adverse effects of heavy metals in the environment.

## Science-Based Management and Participatory Governance as Strategies for Addressing Ghana's Fisheries Industry Problems



*Dr. Francis K. E. Nunoo*

This lecture by Dr. Francis K. E. Nunoo called for a modernisation of the fishing industry and a precautionary approach to managing the industry towards wealth creation. It explained how scientific information on fish stocks, the environment and the fishers together with capacity building and continuous engagement

with stakeholders can be harnessed for the sustainable management of fishery resources.

The fishing industry in Ghana plays a critical role in the provision of food security, animal protein, income,

employment, and support for many livelihoods. The fishery resources within Ghana's Exclusive Economic Zone (EEZ) and its inland waters are largely over-exploited while aquaculture is growing in leaps and bounds. The decline in capture fisheries is evidenced from reduced stock levels from assessment surveys, increased effort in all fisheries, and reduced catch rates. The observed over-fishing of stocks can be attributed to a plethora of factors including inadequate scientific information to support management decisions, increasing population and dependence on fish, bad fishing practices, Illegal, Unreported and Unregulated fishing (IUU), pollution of water-bodies, inadequate fisheries laws and governance, inadequate enforcement, and impacts of global climate change.

## 400 Years of Continuing Earthquake Activities in Ghana: Nature, Causes, and Implications for the Nation



Dr. Jacob M Kutu

Even though southern Ghana has been seismically active for over four centuries, there is still no clear geological explanation for the cause of the earthquake activities. Dr. Jacob M Kutu looked into the evaluation of new field data and information and re-interpreting historical earthquake data of southern Ghana, which appears to be linked between the nature of seismicity and activities occurring along the Mid-Atlantic transform faults and fracture zones. The seismic regions of southern Ghana may be linked separately to tectonic faults and

activities of the St. Paul's and Romanche transform-fracture zone systems offshore in the Gulf of Guinea to onshore.

It is suggested that the seismicity is due to tectonic activities of the St. Paul's and Romanche transform-fracture systems. The Accra region earthquakes originate from reactivation of faults in the Romanche transform-fracture zone, and propagate onshore through Accra and its environs. The Axim region earthquakes most probably originate from reactivated faults linked to the St Paul's fracture zone, which goes through southern Cote D'Ivoire to Ghana. Earthquake-causing movements along the St Paul's transform and fracture zones have quieted since 1879. But movement along the Romanche Transform fault and Fracture zone is active, causing ongoing seismicity of southern Ghana. The Accra-Tema corridor of the Accra-Ho seismic region is the most active and most hazardous earthquake zone in Ghana.

### Timing and Attitudes: Do They Play any Roles in The Control of Fruit Flies?



Dr. Maxwell Billah

The horticultural industry is one of the fastest growing agricultural sub-sectors in Africa, which employs over 10 million people, mostly women and the youth in the production, transport, processing and trade sectors, with over 80% of the produce coming from small-scale farmers. However, there are many constraints which Dr. Maxwell Billah takes a look at, especially pests and diseases.

Although many insect pests are implicated, none has gained greater notoriety than fruit flies of the family *Tephritidae*, which is recognised worldwide as the most important threat to the horticultural industry. Several fruit fly species cause damage to fruits and vegetables,

leading to direct losses of up to 40–80%, and indirect losses through quarantine restrictions, seizures, bans and losses of lucrative export market shares. These infestations reduce revenues and profits of smallholder growers and traders, and cause increasingly high production costs.

The situation is further exacerbated by the detection in 2003 of a new invasive species, *Bactrocera invadens* in Africa, which within a period of 5 years, had spread to over 30 African countries and attacking over 40 plant species. The rapid invasion of the continent, coupled with the very high levels of damage caused, makes it a significant pest of quarantine and economic importance, and has been described by the Inter-African Phytosanitary Council of the African Union (IAPC-AU) as a “*devastating quarantine pest*”.

Due to its contribution to economies, countries the world over have agreed on standard practices for the management of the flies, and the strict adherence to the practices allows for the import and export of horticultural produce.



## Cocoa Production and Processing in Ghana: Strategies for Harnessing the Potential for Health Improvement and Socio-economic Development



*Professor Emmanuel Afoakwa*

Professor Emmanuel Afoakwa emphasised the fact that Cocoa is an important cash crop for Ghana and in 2012 alone, the commodity injected US\$ 1.5 billion into the country's economy. As the second largest primary producer of cocoa in the world, the country stands to make significant economic gains from the crop and its products.

However, current trends suggest that the benefits realised lag considerably behind the potential. In the 2013/2014

year, the earning from the crop is expected to be US\$ 1.3bn, a drop of US\$ 2 million from the earnings of the previous financial year.

Cocoa products, in addition to their high economic value, are known to impart health and other benefits to consumers, among which are prevention of cardiovascular diseases, diabetes, and cancer, as well as mood lifting and as aphrodisiac.

As a major player in the top eight primary producers of the crop, therefore, Ghana could both enhance its socio-economic development as well as the health of its citizens through the adoption of strategies that significantly favour production, processing, branding and marketing of cocoa and its products.

## A Biochemist Examines Kombucha: the Poor Man and the Rich Man's Drink for Good Health



*Rev. Dr. Winfred Gbewonyo*

Rev. Dr. Winfred Gbewonyo examined Kombucha, also known as "Tea fungus," a sugared-tea drink fermented for about 14 days using a symbiotic culture of acetic acid bacteria and yeasts.

Kombucha has been around for over 2,000 years and has rich

anecdotal history regarding its potential to prevent and fight many diseases. The health benefits attributed to Kombucha include stimulating the immune system, preventing cancer, improving digestive and liver functions and enhancing wound healing.

It is a popular drink in the Eastern countries (China and Japan) from where it originated and was later introduced

into Russia, then Germany, and more recently, the United States of America. Recent scientific studies give credence to some of the health claims attributed to Kombucha.

It contains many micronutrients including vitamins B and C, antioxidants-mostly polyphenols, essential metal ions such as zinc, various organic acids (including glucuronic acid which is a "detoxifier") and enzymes. Kombucha can be home-brewed and commercially produced as well.

It is produced commercially particularly in Germany and the United States for public consumption as a health drink and as capsules. Just as with many nutraceuticals, no clinical studies have been published. In spite of this, only few cases of adverse effects due to its consumption have been recorded.

# Major Research Initiatives



# Major Research Initiatives

## UG Inaugurates Four Research Centres of Excellence for National Development



*Professor Aryeetey speaking at the ceremony. Looking on is Professor John O. Gyapong*

The Vice-Chancellor, Professor Ernest Aryeetey, has inaugurated four Working Groups on Centres of Excellence to be established at the University. The four Centres of Excellence, which are expected to promote the University's efforts to become a key research institution in Africa, are in Malaria Research, Enhancing Food Production and Processing, Trans-Disciplinary Research into Climate Change Adaptation, and Development Policy and Poverty Monitoring and Evaluation.

In his introductory remarks, Professor Aryeetey noted that the establishment of the Centres of Excellence will define more clearly the research focus of the University. While acknowledging the magnitude of work by individual researchers within the University, he said it was time to bring accomplished researchers into groups to work together to enhance the University's new focus. The Vice-Chancellor was hopeful that the groups will develop programmes around their thematic areas. He noted that the University is exploring ways of raising funds of about 5 million dollars to support the work of each of the Centres. He urged the groups to consider organising international conferences, and also include graduate

students in the research work so as to provide them with research experience.

The convener of the Malaria Research group, Professor Kwadwo Koram, who is also the Director of the Noguchi Memorial Institute for Medical Research (NMIMR), said his group had already begun meeting and had mapped out some strategies targeted at malaria elimination. The group includes: Professor Isabella Quakyi- Immunologist-School of Public Health, Professor Edwin Afari-Epidemiologist-School of Public Health, Professor Alex Nyarko- Pharmacologist/Toxicologist, School of Pharmacy, Dr. George Obeng Adjei- Clinical Pharmacologist-Medical School, Dr. Gordon Awandare-Immunologist – Biochemistry, Dr. Anita Ghansah- Genetic Epidemiologist-NMIMR, Dr. Samuel Dadzie- Medical Entomologist-NMIMR, Dr. Keziah Malm- Epidemiologist, Malaria Control Programme/ School of Public Health, Dr. Linda Eva Amoah, Biochemistry.

Professor S.G.K Adiku, Head of the Academic Quality Assurance Unit and convener of the Group on Trans-Disciplinary Research into Climate Change Adaptation, said the group was brainstorming on the various interpretations of climate change issues to determine a more coherent focus. He said due to the multi-dimensional effects of climate change, a multi-disciplinary approach will be used by the group. The group includes: Professor Chris Gordon –IESS, Professor P.W.K Yankson –Geography, Professor Samuel Nii Codjoe –RIPS, Dr. Delalie Dovie –Geography, Dr. Kwadwo Owusu – Geography, Professor Julius Fobil-SPH, Dr. Alex Asase – Botany, Dr. Elias Ayuk -UNU/INRA, Professor Paul Vlek - UNU/WASCA.

On behalf of the group on Enhancing Food Production and Processing, Professor Eric Y. Danquah, Director of the West Africa Centre for Crop Improvement, said the group was glad to be contributing to such an important issue as Food Production and Processing. He said they were looking forward to identifying areas of focus on some "Call for Proposals" that had been made earlier by the University. Professor Kwame Offei, Provost of the College of Agriculture and Consumer Sciences (CACs),

who was not present at the inauguration, is Convenor of the group. The group includes: Professor Sammy Sackey - IAST, Professor Eric Danquah – WACCI, Professor Esther Sakyi-Dawson - Nutrition & Food Science, Professor Macarius Yangyuoru – IAR, Professor K Tano-Debrah - Nutrition & Food Science, Professor Anna Lartey - Nutrition & Food Science, Dr. Boniface Kayang - Animal Science, Dr. N.D.K. Asante - Food Processing Engineering, Dr. Irene Egyir - Agric Economics

The convener of the Development Policy and Poverty Monitoring and Evaluation working group, Professor Felix Asante, who is also the Director of the Institute for Statistical Social and Economic Research (ISSER) said that mini concepts would be developed based on the

specialities of members of the group. The group includes: Professor Ellen B-D Aryeetey –CSPS, Professor Ama De-Graft Aikins –RIPS, Professor Robert Hinson –UGBS, Ms. Abena Oduro –Economics, Dr. Robert Owusu –ISSER, Dr. Moses Aikins –SPH, Dr. William Baah-Boateng –Economics, Dr. Isaac Osei-Akoto –ISSER, Dr. Dan-Bright Dzorgbo -Sociology.

The Pro-Vice-Chancellor for Research, Innovation and Development, Professor John Gyapong thanked the members for accepting to lead the process of establishing Centres of Excellence at the University. He said his office would coordinate the process and each group will be assisted by a research development officer, and asked the members to channel ensuing issues to his office.

## Malaria Research Centre of Excellence

### Background



*Members of the working group on Malaria Research in a pose with the Vice-Chancellor and Pro-Vice-Chancellor (RID)*

In response to UG's drive to becoming a research university, with emphasis on post graduate training and also for the University to become the centre/source of needed data for the control of such important diseases as malaria – being relevant to the community that sustains us, Malaria Research was identified by the University as one of the four core areas of research to be developed into Centers of Excellence. The malaria research working group was formed to establish a Malaria Centre of Excellence (Malaria Research Institute) at the University of Ghana where research in all aspects of the disease will be carried out and the center would be a center of excellence in malaria research in the country and the sub-region.

### Importance of Malaria Research

Over 40% of the world's populations still live in areas where they are at risk for contracting malaria. Control efforts have not been sustainable in many locations and have been associated with the emergence and spread of both parasite drug resistance and vector resistance to insecticides. In Ghana, malaria is hyper-endemic, with all the 25 million population at risk. Transmission occurs all year round with slight seasonal variations during the rainy season. Malaria is the number one cause of morbidity, accounting for approximately 40% of all outpatient attendance in Ghana. It is also the leading cause of mortality in children under age five, pregnant women, the ageing, as well as workdays lost due to illnesses. It also constitutes a disproportionately high morbidity and mortality risk in individuals with chronic diseases of major public health importance in Ghana, such as sickle cell disease, AIDS and tuberculosis.

Recent data suggest a decline in both clinical cases and deaths from malaria in sub-Saharan Africa. This is attributed to collaborative efforts by the international funding agencies and national governments that promote vector control measures and early diagnosis and treatment of young children and pregnant women. The current interventions for malaria control in Ghana rightfully deploy these measures. Although these efforts to curb malaria are in place, it has become increasingly clear that sustainable and effective malaria control requires an improved understanding of the complex

interactions among the parasite, the mosquito vector, and the human host in local clinical and field settings. This has become even more relevant with the shift of emphasis from control to malaria elimination and eradication.

Currently, there are no point-of-care diagnostic tools available to monitor emerging drug resistance to malaria. A malaria vaccine, when it becomes available, will be the most important intervention tool for malaria control. As yet a vaccine has not been licensed, although a number of promising candidates are in development. Increased global efforts towards the development of an effective vaccine provide opportunities for a critical mass of Ghanaian and African scientists, well trained and resourced, to contribute towards this development. In addition to provision of the environment for cutting edge research, experts agree that long term investments in education and training in public health and research in malaria diagnosis, drug resistance monitoring as well as research on interactions between malaria and other diseases of public health importance in Ghana are key. Vaccine development and clinical testing in Ghanaian institutions would be required for malaria control, elimination and eventual eradication.

### Current Malaria Research at UG

The University of Ghana is host to a large portfolio of research on malaria ranging from basic science to field studies. These studies include epidemiological studies on drug resistance (*in vivo* studies on treatment efficacy), evaluation of drug responses *ex vivo* and *in vitro*, molecular surveillance of markers associated with drug resistance, population surveys of parasite diversity and prevalence, studies on parasite invasion mechanisms, immune responses to infection, pathogenesis of severe malaria, transmissibility studies and the development of new diagnostic tools through to clinical trials of potential malaria vaccines. The University of Ghana has experienced researchers in all the above mentioned areas of malaria research.

### Research Strategy at the Center

The proposal is for the establishment of a Malaria Centre of Excellence (Malaria Research Institute) at the University of Ghana where research in all aspects of the disease will be conducted, including:

- 1) Molecular epidemiology of malaria with emphasis on asymptomatic and severe malaria in

children and identification of malaria reservoir in clinically immune population;

- 2) Identification of biomarkers associated with severe disease and/or clinical immunity;
- 3) Molecular markers to detect resistance against current first line anti-malarial drugs and to measure parasite burden in drug and vaccine studies;
- 4) Understanding the immunological basis of severe disease as well as clinical immunity; antibody and cellular assays to monitor vaccine efficacy when vaccine trials are conducted.

Studies on the economic case for malaria control and elimination will also be conducted as well as socio-economic studies that will shed light on the perspectives of the community towards plans for control and elimination. This centre will provide a multidisciplinary research platform for malaria control and prevention through the integration of findings from basic, clinical and field research. The centre will conduct, collate, and disseminate research on malaria that will provide the necessary knowledge, tools, and evidence-based strategies to support intervention and control programs of Ghana. Ultimately, this will contribute towards effective malaria elimination and possibly eradication. It will serve also as a virtual institute bringing together malaria research groups and individuals within the University to:

- Create a critical mass of malaria researchers, exploiting the advantages of scale and collaborations,
- Consolidate the available research at UG,
- Increase collaboration on malaria research within the university,
- Leverage the group to exploit new areas of research, especially vaccine research,
- Offer opportunities for training in all areas of malariology, and
- Provide key services and evidence to the National Malaria Control Programme to inform on the success of the programme.

The working group has proposed to have a demonstration project to provide evidence for the combined effects of proven interventions on malaria morbidity and mortality, through the implementation of a set/combination of interventions at the household level, targeting several facets of the parasite life cycle, including vector control (ITNs, Wall Lining, IRS) and those that identify and target the

asymptomatic parasite reservoir in the population. Within this intervention, several questions on malaria from parasite biology, vector behavior and adaptability, human responses to changes in the epidemiology, the cost effectiveness of the intervention, etc will be addressed by investigators at the Malaria Centre. The project will serve as a template to be replicated across the country towards the objective of malaria elimination in Ghana and the sub region at large.

### International Malaria Symposium- Malaria Vaccine Studies at UG



*Group Picture of Participants at the International Malaria Symposium*

Several on-going studies at the University of Ghana are contributing to the identification/development of vaccine(s) for malaria in collaboration with other external investigators.

In line with this a one day International Malaria Symposium was conveyed by the Vice-Chancellor on 25th July 2014 at the Noguchi Memorial Institute for Medical Research as part of the activities of the Malaria Centre of Excellence. The symposium was chaired by Dr. Kofi Annan, the Chancellor of the University. It was attended by 81 participants from four universities in Africa: the University of Zambia, University of Ibadan, University of Dar es Salaam and University of Pretoria. Professor Kwadwo Koram, the Director of Noguchi Memorial Institute of Medical Research and the head of the Malaria Centre of Excellence spoke on the role and purpose of the Centre.

The symposium was structured to give an overview of malaria research activities at the UG with an emphasis on vaccine research. There were presentations structured around three thematic areas based on the theme Vaccine Development. The thematic areas are Vaccines for Blood stage Malaria, Vaccines that block transmission of Malaria and Vaccines for Pregnancy-associated Malaria.

### Trans-disciplinary Research into Climate Change Adaptation Centre of Excellence

#### Why this subject area is so important for Ghana and UG

Climate change (CC) is now recognised as a major threat to both social and economic development in this century. The scientific causes are now well known and the bulk of evidence establishes a link between increased loading of the atmosphere by CO<sub>2</sub> and other greenhouse gases (GHGs), global warming and its associated impacts.

The University of Ghana is currently engaged in different aspects of climate change research with the overall goal of developing interventions that will meet national and international CC challenge.

The formation of the Trans-Disciplinary Research Group on Climate Change at the University of Ghana is expected to enhance the overall CC research and contribute to the global effort to find solutions to CC related problems by bringing various expertise together for the exchange of research ideas, exploiting synergies, learning collectively and forging new collaborations.



*Members of the working group on Trans-Disciplinary Research into Climate Change Adaptation in a pose with the Vice-Chancellor and Pro-Vice-Chancellor (RID)*

#### Goal and Objectives of the Working Group

The goal of the working group is to establish an international centre of excellence in Trans-disciplinary

Climate Change research which aims among other things to:

- Explore and promote cutting edge research that enriches further academic research training and to ultimately bridge the gap between science and policy,
- Promote harmonisation of tools from diverse disciplines to deliver relevant and timely scientific results and research capacity building,
- Critically assess and interrogate peer-reviewed climate change adaptation and mitigation research publications through systematic reviews of Ghana and Africa specific climate change literature,
- Produce high quality research that forms the basis of an international discussion forum through a conference (mostly on Africa), and
- To support post-graduate research and training in climate change through experiential learning.

### What are UG's strengths in this Area?

For several years, the University of Ghana has engaged in different aspects of climate change research. Whereas some departments focus on climate change science, including greenhouse gas (GHG) emission measurements, CC and global circulation and climate modeling, others focus on the impact of CC on agricultural productivity, forests, water resources, health, social and gender dimensions. Irrespective of the area of interest, the overall goal is to develop mitigations to the CC challenge.

Some of the Climate Change projects that have been carried out over the years include “***Deltas, Vulnerability, and Climate Change Migration as Adaptation***”, a 5 year project funded by the International Development Research Centre (IDRC), Canada and Department for International Development (DFID), UK. With total funds of US\$ 1,025,360; “Climate Change Adaptation Research and Training Capacity for Development”, a 3 year project funded by International Development Research Centre with a total amount of US\$ 1,438,043; “Climate Change and Human Health in Accra, Ghana”, also a 3 year project funded by International Development Research Centre with total funds of US\$ 307,090 and the “***Climate Change Risk Communication Framework for Coastal Urban Development Policy***”, a 15 months project funded by Department for International Development with an amount of GBP 200,000 and many other projects.

### Work plan/Strategy to Achieve the Goals

The Working Group has earmarked three major activities that will lead to achieving its goals. These activities include:

- **Climate Change Research And Training**  
A number of strategic steps have also been outlined under this activity to enable the group achieve its goals. The outlined strategies include a comprehensive assessment of climate change impacts, adaptation and mitigation in the Coastal Savanna (Accra Plains), synthesis of climate research on Ghana, engaging four PhD and two MPhil Students in the four research thematic areas and participation in international conferences to keep up with current trends in climate change research and adaptation. The group will also offer opportunities for graduate students especially PhD year two students to undertake experiential learning internship with the climate change group.
- **Policy Advocacy And Dissemination**  
The Group's policy advocacy and dissemination strategy will be carried out using both local and international platforms including conference proceedings and publications as well as the development of policy briefs. The Group also aims to participate in National Policy Dialogues for the development of National Policy Briefs by engaging with policy makers in state institutions to facilitate the process. Creation of the Group's database and website and engagement of members in promotional activities are also some of the strategies to be used to enhance the visibility of the Working Group worldwide. The group also aims to provide technical support to government negotiator and representative who dialogue on climate change matters at the international and regional arena.
- **Fund Raising & Networking**  
The Working Group hopes to sustain its activities over the years through a series of fundraising activities and networking. Funds are expected to be raised by responding to calls for proposal in the area of climate change research. Proposals would also be developed for unsolicited calls. Networking, joint project development, Working Group meetings and presentations are also going to be key activities in the Group.

## Enhancing Food Production and Processing Research Centre of Excellence

Enhancing Food Production and Processing Research Centre will bring together within a single research unit all faculty members and researchers in food production and processing to encourage innovative research collaborations that will impact national agricultural development.



*Crop Production and Processing improvement*

In line with this, the key objectives are to: identify key research areas of regional significance within the priority domains; constitute research themes based on prioritised research areas (in collaboration with industry); define and establish research training opportunities for research students; and source for funding to undertake research activities.



*Members of the working group on Enhancing Food Production and Processing in a pose with the Vice-Chancellor and Pro-Vice-Chancellor (RID)*

Based on the above stated objectives, the following key activities were undertaken within the first year of the existence of the Centre: identification of key criteria for selecting commodities; identification of researchable areas for which concept notes and proposals could be developed and implemented to ensure high impact on the agricultural sector in the country; soliciting concept notes at various units (identifiable units involved in food production and processing) in the University, and, submission of concept notes by the various units.



*Livestock production and processing systems*

The Working Group, through meetings and consultations identified the following priority research themes for concept notes to be developed:

- Crop Production and Processing improvement;
- Livestock production and processing systems;
- Technologies to address Post-harvest losses; and
- Food safety processes.

Currently, five concept notes have been received from various units within the University. These fall within the priority research themes and they are to be reviewed accordingly.

The following are programmes and activities are planned for the next academic year:



*Technologies to address Post-harvest losses*

- Developing a database of faculty members and identified industry players (for collaborative purposes);
- Setting up research themes and teams within the prioritised domains (in collaboration with industry and other related institutions);
- Defining research training opportunities for research students;



- Developing proposals to source funding to implement identified research themes;
- Organising national/regional workshops/seminars/conferences in collaboration with related institutions to showcase our activities;
- Facilitating the acceleration of research outputs transfer/dissemination and uptake by industry; and
- Developing, hosting and maintaining an interactive website for the Centre to ensure high visibility of activities.

## Development Policy, Poverty Monitoring and Evaluation Centre of Excellence

### Why this subject area is so important for Ghana and UG?



*Members of the working group on Development Policy and Poverty Monitoring and Evaluation in a pose with the Vice-Chancellor and Pro-Vice-Chancellor (RID)*

Extreme poverty still remains a global challenge in all parts of the world, including the developed world. The problem of poverty and how to reduce it remains the most pressing dilemma in the international development debate. The World Bank estimates that some 1 billion people will still live in extreme poverty in 2015. In some developing countries, there persist a wide gap or in some cases widening gap between rich and poor, and between those who can and cannot access opportunities (World Bank, 2014). This means that access to good schools, healthcare, electricity, safe water and other critical services remains elusive for many people who live in growing economies, a World Bank (2014) report suggests. Other challenges, such as economic shocks, food insecurity and climate change threaten to undermine the progress made in recent years.

Progress towards meeting the first MDG of reducing poverty by half by 2015 has been highly uneven. While some countries in East, South-East and South Asia have made rapid progress in reducing poverty, most of Sub-Saharan Africa, parts of South and West Asia, Latin America, and many transition countries are lagging seriously behind and unlikely to meet the first (and most of the other) MDGs (World Bank, 2009).

Since Ghana gained independence in 1957, various governments have pursued policies and programmes aimed at accelerating the growth of the economy and raise the living standards of the people. These include Ghana Vision 2020: The First Step (1996-2000); the First Medium-Term Plan (1997-2000); Ghana Poverty Reduction Strategy (2003-2005); the Growth and Poverty Reduction Strategy (2006-2009) and the Ghana Shared Growth and Development Agenda (GSGDA, 2010-2013). In spite of these strategic programmes, poverty remains a major issue facing the country.

The acquisition and application of knowledge and skills in solving problems in society are essential aspects of the national development efforts aimed at achieving growth and social equity. Worsening income inequalities and other human development indicators in areas such as education and skills acquisition, health, employment, productivity, social protection, poverty reduction are indicative of major socio-economic challenges to most developing countries including Ghana (International Monetary Fund, 2012). It is generally agreed that the creation and dissemination of knowledge are fundamental factors to the promotion of economic growth ((Conceição & Heitor, 1999). It is in this regard that the University of Ghana will want to strengthen its role of creating and disseminating knowledge on Development Policy, Poverty Monitoring and Evaluation, in order to analyse these developments and propose appropriate interventions to promote poverty reduction.

The Working Group on Development Policy and Poverty Monitoring and Evaluation Research combines a unique and recently established pool of development researchers (from the Faculties of Social Sciences, Ghana Law School and University of Ghana Business School) to form the core of the research team. The working group comprises six research themes, focusing on Sustainability and Enterprise Development, Labour market issues and social well-being, Poverty Analysis, Education and Life skills,

Health and social wellbeing, and Public Spending and MDG Targets.

### Goals/Strategies of the working group

The goal of this working group is to establish an internationally acclaimed leading research centre that will carry out multidisciplinary academic research into poverty and the effectiveness of policies aimed at alleviating poverty and disseminates high quality research into ways in which to address the problems of persistent poverty across Ghana in particular and the Sub-Saharan Africa.

### Strategy

- (i) Collaborate with world leading researchers to conduct research on Development Policy, Poverty Monitoring and Evaluation.
- (ii) Offer a number of postgraduate, particularly, PhD places for Ghanaians and international students to support research in this area.
- (iii) Organise and attend international conferences in related areas.
- (iv) Raise funds through response to calls for proposals.

### What are UG's strengths in this area?

The University of Ghana has diverse arrays of researchers that have already worked in this research area, both on substantive as well as methodological issues. These researchers have been involved with large projects such as:

- “*Migrating out of Poverty*” *Research Programme Consortium (RPC)*, a six year (2010-2017) multi-partner research programme funded by the UK’s Department for International Development (DFID) with total funds of £6.425m;
- The “*Qualitative Evaluation of the Impact of the LEAP Cash Transfer Programme in Ghana*”, an : US\$ 80,000 project funded by UNICEF to survey data collection of beneficiary and non-beneficiary households;
- A “*Follow-up Impact Assessment Survey of the Livelihood Empowerment Against Poverty (LEAP)*,” which aims to collect information on programme beneficiaries and comparison households and compare these two groups across a set of indicators thought to be impacted by the programme;

- “Impact Evaluation Survey of the Labour Intensive Public Works (component of GSOP)”, which is a social protection project expected to contribute to bridging the gap between disparate regional growths and also contribute to overall economic growth with equity; and
- “*Urban Africa*”- A study that critically scrutinises the assumption that migration from rural areas to cities is one of the major development challenges faced by national and local governments in their efforts to stimulate economic growth and curb poverty.

The availability of high quality data e.g. ISSER/ Yale panel data, the Ghana Living Standards Survey, Demographic and Health Surveys, and regular Income or Expenditure Surveys as well as specialised households survey data generated in related research projects can be analyzed to promote the work of the group. The relative independence of the University of Ghana from any influence of government makes data that are turned out highly credible and held in high esteem.

## UG to establish 2 African Centres of Excellence (ACE) Projects

The University of Ghana won two out of three proposals it submitted for funding in response to the World Bank’s invitation for proposals for the African Centres of Excellence (ACE) project as the lead institution. Each proposal was valued at US\$ 8 million. The grants have been awarded for the establishment/ strengthening of the West African Center for Cell Biology of Infectious Pathogens, and the West Africa Centre for Crop Improvement (WACCI).

The three proposals were submitted in September 2013 and were developed within the disciplines of Health and Agriculture. The proposals were in line with the University’s research priorities which are capable of ensuring the attainment of the vision of being a world-class research-led University.

The ACE project aims at strengthening the capacity of selected universities to deliver high quality training and applied research at the regional level within the areas of Science, Technology, Engineering and Mathematics

(STEM), as well as Health and Agriculture that are of particular relevance to Africa's development.

## West African Center for Cell Biology of Infectious Pathogens



**Dr. Gordon Awandare**  
*Centre Leader, WACCBIP*

The West African Center for Cell Biology of Infectious Pathogens (WACCBIP) at the University of Ghana was formed in response to the World Bank's African Centers of Excellence (ACE) initiative led by Dr. Gordon Awandare of the Department of Biochemistry. The mission of WACCBIP "is to improve diagnosis,

prevention and control of infectious diseases in sub-Saharan Africa by providing advanced level training and research excellence on the cell and molecular biology of infectious pathogens." The Center will provide Masters, PhD and Post-doctoral level training, and conduct research focused on cell and molecular biology of major diseases such as malaria and tuberculosis. WACCBIP seeks to build on existing collaborations between the Department of Biochemistry, Cell and Molecular Biology (BCMB), the Noguchi Memorial Institute for Medical Research (NMIMR), and the University of Ghana Computing Systems (UGCS), and with a major international partner in the American Society for Cell Biology (ASCB).

This Centre aims to serve as the hub to provide a permanent organisational presence required for extending workshops to many institutions in the sub-region. Apart from extending the reach of the workshops, the scope of the training provided will also be expanded to include medium and long-term programs. The activities of WACCBIP are organised into three main areas: Training, Research and Cell Biology Core services.

### Training

The training component will include short-term programs (2-4 weeks long workshops/courses) targeting professionals in the health delivery sector, including physicians, pharmacists, and senior laboratory personnel, to improve their knowledge of disease

pathogenesis and modern methods of diagnosis and treatment; Medium-term programs (3-6 month long research internships) for trainee biomedical scientists and hospital lab technologists, to provide experiential training on research design, specialised techniques, and team building skills; and Long-term programs (Masters, PhD and Post-doctoral), targeting career biomedical scientists in Universities and Health research institutions. In addition to the existing programs at BCMB (MSc/ MPhil Biochemistry, MPhil Molecular Biology and PhD Biochemistry) two new specialised programs will be added in 2014/2015, MPhil and PhD in Molecular Cell Biology of Infectious Diseases.

### Research

The research mission of WACCBIP is to conduct cutting edge research and innovation to guide development of new approaches to disease diagnosis, prevention, and control. The priority pathogens include protozoans causing diseases such as malaria and trypanosomiasis; Mycobacteria, causing tuberculosis and Buruli ulcer, other bacteria causing gastro-intestinal and blood infections, and viruses, including HIV, rotaviruses, Influenza, and Dengue. For each of the priority diseases/pathogens, research will be organised into five themes: disease pathogenesis and immunity, pathogen genomics/bioinformatics, molecular diagnosis, molecular epidemiology for surveillance, and target discovery for drug and vaccine development.

### Research Core Facility

WACCBIP will also develop a core facility to serve as a hub for collaboration among scientists in the sub-region with access to modern research equipment for analysis of samples and other services at reasonable cost. Services to be provided by this core facility include high throughput multi-colour flow cytometry and cell sorting, mass spectrometry, gene expression assays, primer synthesis, and expression and purification of proteins. In addition, the WACCBIP core facility will operate a laboratory supplies store, and build capacity and expertise for servicing and repair of equipment. It will also include a

biomedical high performance computing unit (BHPCU) to provide access to cluster computing services, and scientific software for data analyses, modeling/simulation, and information dissemination.

## Partners

National partners include public health institutions such as the Navrongo Health Research Center/War Memorial Hospital, Kintampo Health Research Center/Municipal Hospital, and LEKMA Community Hospital, Teshie, and a major private sector player, LaGray Chemical Company. Regional collaborators include Center Suisse de Recherche Scientifique, La Cote d'Ivoire (Professor Bassirou Bonfoh), Medical Research Council (MRC) unit, the Gambia (Dr. Alfred Amanbua), Malaria Research and Training Center at the University of Science, Techniques, and Technology, in Bamako, Mali (Professor Mahamadou Diakite), Centre National de Recherche et de Formation sur le Paludisme, Ouagadougou, Burkina Faso (Professor Sodiomon Sirima), and the Unit for Research on Malaria and Neglected Tropical Diseases, Centre MURAZ Research Institute, Bobo-Dioulasso, Burkina Faso (Dr. Mamoudou Cisse). Major international partners include the American Society for Cell Biology with a network of

more than 9000 scientists, London School of Hygiene and Tropical Medicine (Professor David Conway), University of Oxford (Professor Keith Gull and Dr. Richard Wheeler), and University of Cambridge (Professor Mark Carrington).

## Projected Output

At the end of the four year period of the World Bank grant, WACCBIP would have achieved the following: (i) international accreditation for two new specialised graduate programs, (ii) enrolled 40 PhDs and post-docs, 60 MPhil students, of which 30% would be regional and 40% female, (iii) trained 195 scientists and health professionals through short term courses, of which 30% would be regional and 40% female, (iv) published 44 peer-reviewed research publications, of which at least 50% include regional co-authors, (v) attract an average of US\$ 1M per year in externally mobilised funds, (vi) improved research and teaching environment through building extension to provide new lecture and seminar rooms, well-equipped research core facility, established a biomedical high performance computing unit and e-learning platform, and (vii) new disease diagnostic/monitoring methods and novel drug/vaccine targets.

## West Africa Centre for Crop Improvement - African Centre of Excellence (WACCI -ACE)



**Professor Eric Yirenkyi Danquah**  
*Centre Leader, WACCI-ACE*

Recognising the urgent need to diversify funding sources to sustain the West Africa Centre for Crop Improvement (WACCI) programme, WACCI responded to the World Bank- Association of African Universities (AAU) Africa Centres of Excellence (ACE) call for proposals. Following an open, rigorous, transparent and merit-based selection process, WACCI was selected as one of 19 Africa Centres of Excellence to receive US\$ 8 million grant from the World Bank.

Led by Professor Eric Yirenkyi Danquah, the WACCI-ACE project will provide the springboard for

transforming WACCI into a sustainable African Centre of Excellence to train plant breeders and seed scientists and technologists. It is expected that WACCI will continue to graduate highly qualified, competent and motivated plant breeders applying the full scope of plant breeding methodologies to develop superior, climate-smart and resilient varieties of the staple crops to increase productivity. This will enhance regional food security through the development, multiplication and supply of superior crop varieties and hybrids that meet the needs of farmers.

The objectives of the WACCI-ACE project are to:

The objectives of the WACCI-ACE project are to:

- Transform WACCI into a sustainable world class platform for the training of Plant Breeders and Seed Scientists and Technologists, and
- Enroll 65 PhD students in Plant Breeding and 50 MPhil students in Seed Science and Technology between 2014 and 2018.

WACCI will partner with the Kwame Nkrumah University of Science and Technology, Ghana, the Grains Development Board, Ghana and the Iowa State University-Seed Science Centre, USA to launch a new innovative two-year MPhil Programme in Seed Science and Technology. Students will intern for up to three months in private seed companies, national research institutions or advanced institutions abroad for experiential learning after the first nine months of course work before undertaking their thesis research for a year. The PhD Plant Breeding programme, which is run jointly with Cornell University, will be strengthened through additional partnerships including one with the Plant Breeding Centre at the University of Illinois, Urbana-

Champaign. This partnership will bring on board an innovative MPhil Programme in Plant Breeding, which will feed the PhD programme with quality students.

It is expected that all of the graduates from this programme will remain and work in the African national agricultural systems. This addresses not only the brain drain syndrome, which is characteristic of training African scientists abroad, but also ensures that home trained graduates get a jump-start in their home institutions by continuing their research immediately after graduation. The overall outcome of the project will be an established world-class platform playing a leading role in plant breeding and seed science and technology education in Africa.

## Pace-Setting University of Ghana Readers Series Launched

The University of Ghana has made history by launching the Readers Series at a colourful ceremony at the Great Hall. The Readers Series is a collection of discipline specific essays reflecting the history and developments in various disciplines and sub-disciplines at the University over several decades as well as past research activities. The first series, comprising six readers, was launched in November 2013 as part of the University's 65<sup>th</sup> anniversary. This was followed by a second series in July 2014. The Readers Series is the single largest publication initiative of an African University and was partly funded by the Carnegie Corporation.

Justice Dr. Samuel Date-Bah, Chairman of the University Council, who launched both series described the project

as a considerable contribution to the intellectual life of the nation and indicated that the readers should be viewed as publications needed to restore the joy of reading and writing in Ghana.

The Vice Chancellor expressed gratitude to all who contributed to making the two sets of readers series possible. He announced two other initiatives will be undertaken and would involve young faculty and students. The Project Coordinator, Professor Emerita Esther Mary Kropp Dakubu, appreciated the immense contribution of team members to the Project. Below are the titles in the Readers Series:

**TABLE 9: READERS SERIES LAUNCHED IN 2013-2014 ACADEMIC YEAR**

Title of Reader	Editors
A Celebration of Philosophy & Classics	Simpson, C. M.; Majeed, H. M.; Ackah E. K. & Ani, E. I.
Ghanaian Voices on Topics in English Language and Literature	Mensah, A. N.; Anderson, J. A. & Adika, P. K.
A Legon Reader in Ghanaian Linguistics	Yankah, K.; Korankye, K. & Amfo, N.A.
Replenishing History, New Directions in Historical Research in the 21st Century in Ghana	Sarpong, N.Y.B. & Otto Pohl, J.
Chronic Non-Communicable Diseases in Ghana: Multidisciplinary Perspectives	Aikins de-Graft, A.; Agyei-Mensah S. & Agyeman, C.
Selected Readings in Geography; Essays in Commemoration of the 65th Anniversary of the University of Ghana	Owusu, G.; Yankson, P.W. K.; Agyei-Mensah, S. & Attua, E. M.

Title of Reader	Editors
Contemporary Psychology: Readings from Ghana	Akotia, C.S. & Mate-Kole, C.C.
Readings on Key Economic Issues in Ghana	Twerefou, D. K.; Boakye-Yiadom, L.; Baah-Boateng, W. & Quartey, P.
Population Studies: Key Issues and Contemporary Trends in Ghana	Codjoe, S. N.A.; Badasu, D. M. & Kwankye, S. O.
Social Work in a Changing World: Issues and Prospects	Sottie, C. A.; Dako-Gyeke, M. & Jones Walls, R.
Current Perspectives in the Archaeology of Ghana	Anquandah, J.; Kankpeyeng, B. & Apoh, W.
Ghana: Essays in the Study of Political Science	Debrah, E.; Gyima-Boad, I. E. Essuman-Johnson, A. & Ninsin, K. A.
Sociology and Development Issues in Ghana: A Reader	Dzorgbo, D-B. S. & Tonah, S.
A Critical Appraisal of Communication Research and Practice in Ghana	Ansu-Kyeremeh, K.; Gadzekpo, A. S. & Amoakohene, M. I.
African Studies and Knowledge Production, A Reader	Owoahene-Acheampong, S.
Contemporary Development Issues and the Practice of Agricultural Extension	Freeman, C. K. & Boateng, S. D.
Developments in Agricultural Economics and Contemporary Issues in Ghana	Seini, A. W.; Egyir, I. S. & Kuwornu, J. K. M.
Enhancing the Development Agenda through Research in Accounting Practices and Education	Onumah, J. M.; Amidu, M. & Simpson, S. N. Y.
Recent Developments in Finance – Ghana and Selected African Countries	Osei, K. A.; Bokpin, G. A. Andoh, C. & Aboagye, A. Q. Q.
Current Challenges with their Evolving Solutions in Surgical Practice in West Africa	Archampong, E. Q.; Essuman, V.; Dakubo, J. C. B. & Clegg-Lampsey, J. N.
Footprints of the Nursing Profession, Current Trends and Emerging Issues in Ghana	Aziato, L.; Kwashie, A.; Ameyaw, K. & Naab, F. K.
Changing Trends in Mental Health Care and Research in Ghana	Ofori-Atta, A. & Ohene, S.
Microbiology: a Dynamic Discipline in Health and Disease in Ghana	Newman, M. J.
Towards Effective Disease Control in Ghana: Research and Policy Implications: Malaria	Koram, K. A.; Ahorlu, C. K.; Wilson, M. D.; Yeboah-Manu, D. & Bosompem, K. M.
Towards Effective Disease Control in Ghana: Research and Policy Implications: Other Infectious Diseases and Health Systems	Koram, K. A.; Ahorlu, C. K.; Wilson, M. D.; Yeboah-Manu, D. & Bosompem, K. M.
Contributions of Allied Health Sciences to Health Care Delivery in Ghana	Antwi-Baffour, S.; Bello, A. I.; Anim-Sampong, S.; Ofori, E.; Boateng, L. & Ndaa, P.
Public Health Issues in Ghana: Practice, Interventions and Control Strategies	Fobil, J. & Nonvigno, J.
Development and Use of Quality Medicines in Ghana	Sackeyfio, C. A.; Nyarko, A. K. & Amoateng, P.
Topical Issues in Maternal and Child Health in Ghana	Welbeck, J. E.; Goka, B. Q.; Renner, L. A.; Oduro-Boatey, C. & Oppong, S. A.
Molecular Approaches to Understanding Life and Disease	Okine, L. K. N-A.; Gbewonyo, W.S.K. Nyako, M.

# Research Activities within Institutes and Centres



# Research Activities within Institutes and Centres

## Noguchi Memorial Institute for Medical Research (NMIMR)



**Professor Kwadwo Koram**  
Director, NMIMR

The Noguchi Memorial Institute for Medical Research continues to improve upon research efforts and practices to maintain its lead role in tropical disease research in Ghana and the West African sub-region. The Institute therefore pursues its research agenda in a way that fully fulfills its mandate of contributing

to the improvement of health outcomes, especially in the control of infectious diseases in the country. The Institute comprises nine departments namely: Virology, Bacteriology, Animal Experimentation, Epidemiology, Immunology, Clinical Pathology, Electronic Microscopy and Nutrition.

Several studies are ongoing at the Institute spanning such areas as Malaria, Neglected Tropical Infections, HIV/AIDS, Mycobacterial infections, pre-clinical studies (toxicology, in-vitro studies) on Ghanaian medicinal plants, among others. In the past year the studies on Ghanaian medicinal plants have led to some notable achievements, including the registration of the first patent by UG, of a compound active against trypanosomiasis. ORID facilitated the filing of a patent application in the United States Patent and Trademark Office, with regards to a collaborative research that led to the discovery of novel compounds with anti-trypanosomal activity. This collaboration was between the Noguchi Memorial Institute for Medical Research and the Centre for Scientific Research into Plant Medicine (Ghana); and the Tokyo Medical and Dental University and Nagasaki International University (Japan).

### Research Discoveries

#### Studies of anti-Viral and anti-Parasitic Compounds from Selected Ghanaian Medicinal Plants

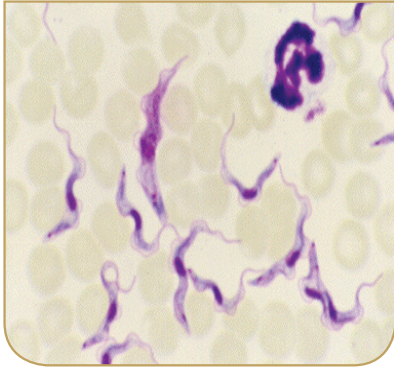
##### (SATREPS) Project:

This project, in collaboration with the Mampong Centre for Scientific Research into Plant Medicines (CSRPM), the Tokyo Medical and Dental University (TMDU) and the Nagasaki International University (NIU), was supported by the Japan Science and Technology Agency (JST) and the Japan International Cooperation Agency (JICA). The project's main aim was to identify anti-parasitic and anti-viral compounds from Ghanaian medicinal plants and was implemented by the Virology, Clinical Pathology, Animal Experimentation and Parasitology Departments. Parasitology Department screened selected Ghanaian medicinal plants for activity against *Trypanosoma*, the cause of African Sleeping Sickness. Eight out of 113 crude extracts showed strong anti-trypanosoma activities and the best one was subjected to purifications at NIU. A total of 11 purified compounds were identified and their structures determined. Scientists found that two of them – ML-2-2 and ML-2-3 – which were novel, showed the strongest activities. Mechanistic studies have included analysis of morphological changes, including flagella shortage and apoptosis (programmed cell death) induction in the parasite using Flow Cytometry and Fluoro-microscope analysis.



Research scientists at work





*Trypanosomes in the blood (smear); harvesting local plants in the herbarium at Mampong*

## Featured Research Fellows

The Institute has been actively developing younger fellows to take up positions and contribute to the training of students in health research. In the year under review, two (2) PhD students graduated from the University of Ghana with degrees in Nutrition and Biochemistry. They are:

1. *Godfred Egbi* (PhD Nutrition) whose research was on the **“Effect of Fishmeal and Vitamin C on the anaemia and Nutritional status of Ghanaian school children consuming cowpea-based food.”** It found out that adding fishmeal and vitamin C –rich source to cowpea based-food has the potential to increase haemoglobin concentration compared to consumption of cowpea-based food alone. It also showed clearly that adding fishmeal and Vitamin C-rich source to cowpea based-food has the potential to reduce the prevalence of anemia in the midst of high prevalence of malaria parasitaemia.
2. *Evelyn Yayra Efua Bonney* (PhD Biochemistry) researched on the **“Drug resistance mutations in HIV patients on antiretroviral therapy (ART) in Ghana.** The study showed that HIV-1 patients on ART in Ghana may not be deriving optimal benefit because of the limited markers being used to monitor treatment and effect changes in regimens. Similar patterns of drug resistance mutations were observed and were comparable to patterns observed elsewhere with similar drug regimens. The study further demonstrated that the types of ART drugs taken by patients were the main driving force for the development of resistance mutations. Additionally, the length of time that a patient stays on the same drug

combination has an influence on the type and number of drug resistant mutations developed.

Two additional Research Fellows are also worthy of mention for their work during the year under review:



*Dr. Linda Eva Amoah*

Dr. Linda Eva Amoah (Research Fellow) joined the Institute in 2009 as a Research Fellow in Immunology with an interest in developing an integrated approach for the evaluation of malaria transmission in the field and also the design of novel agents that will block malaria transmission. In addition to these she also has projects to evaluate the development of transmission blocking immunity and the production of gametocytes during natural infection. She is also studying the genetic traits that reduce the infectiousness of circulating *Plasmodium* gametocytes as well as parasite genetic traits that influence their infectiousness to vector mosquitoes. In the short space of time that she has been with the Institute, she has established strong collaborations with external laboratories active in this area of work, including Dr. Kim Williamson of Loyola University and Dr. Michael Theissen of the Centre for Medical Parasitology (CMP), University of Copenhagen, Denmark. She has spent time as a Visiting Scientist at CMP and has facilitated molecular biology workshops both in and outside Ghana. She is actively involved in six (6) complementary projects on the biology of *Plasmodium gametocytes* and the production of gametocyte antigens (Pfs230) in *L. lactis* as potential tools for the measurement of malaria transmission in Ghana.

Dr. Amoah holds a BSc (Chemistry) from the Kwame Nkrumah University of Science and Technology (KNUST), a PhD in Biochemistry from Georgetown

University, USA and did Post-Doctoral work at the MR4/ATCC in the USA.

Dr. Michael Fokuo Ofori (Snr. Research Fellow) has spent more than a decade and a half working at the Institute. Over the years, Dr. Ofori has conducted studies on pregnancy associated malaria and with his collaborators in the Centre for Medical Parasitology (CMP), University of Copenhagen, identified the VAR2CSA (a **plasmodium parasite protein that binds Chondroitin Sulphate A in humans**) as being implicated in the development of malaria in pregnant individuals, and especially primigravidae. In addition to his work on pregnancy-associated malaria, he has been investigating the effects of anti-malarial drugs and naturally acquired immunity on the development of the sexual stages of the parasite. He is currently a Co-Principal Investigator on a DANIDA sponsored project for the development of a malaria vaccine. This is collaboration between the Institute and CMP of the University of Copenhagen worth DKK 9,943,880, approximately US\$ 1,200,000. The project, titled Malaria Vaccine Research and Capacity Building in Africa (The MAVERECA project) is training four PhD candidates.

Dr. Ofori first came to the Institute as a National Service Person after his undergraduate degree at the University of Ghana. He holds a Master's degree in Biochemistry from UG and a PhD from the University of Copenhagen (Denmark).



*Dr. Michael Fokuo Ofori*

## Research Administration

With the increasing demand for research administration in Ghana and beyond, The Office for Research Support

(ORS) was established to provide pre- and post- grants awards administrative services for projects. Since its inception, the office has efficiently coordinated activities related to research management specifically, research administration, systems, policies and processes.



*Office for Research Support  
Research Administrator at work*

By close of December 2013 a number of grants, contracts, and MOU's had been signed. With the support of the Office, the Institute is currently running eighty-five (85) active projects. Thirty-two (32) grant proposals were submitted to various donor agencies and about seventy-two percent (72%) of the grant proposals submitted were awarded. The Institute received significant funding from NIH (for Research on Genomics and Kidney Disease, the H3 Africa Kidney Disease Research), Wellcome Trust (for research on the biology of mycobacterium infections in Ghana) and CDC for work on influenza, Epidemiology, Prevention and Treatment of Influenza and other respiratory infections in Ghana. 2012 grant inflows totaled US\$ 6,600,000 and GH¢ 662,100.15.

The efficiency with which the Office exercises oversight responsibility for grants has earned much respect for the Institute as a top notch research institution, making NMIMR a trusted world brand. In addition the Institute's collaboration with international partners has improved its global recognition.

To further improve upon efficiency and scope of knowledge in grants administration, the Research Development Officer of the ORS participated in a three weeks residential extramural training at the National Institute of Health (NIH), USA in July 2013. The training provided useful insights into best practices in grants administration, funding mechanisms, policies

and guidance, electronic research administration, and payment management systems. There was also interaction with representatives from Wellcome Trust and European Commission among others to throw more light on grant administration. This exposure has improved efficiency of the office and enhanced its contribution to the research work of the Institute.

## Significant Research Activities



*Dr. Daniel Kojo Arhinful*

Dr. Daniel Kojo Arhinful, a Research Fellow at the Department of Epidemiology was awarded a grant of US\$ 701,481 by the Institute for International Programs at Johns Hopkins University (IIP-JHU) through funding from Canadian CIDA and the World Health Organisation Health Metrics Network

in Geneva on a project titled “Community-based “Real Time” Monitoring of Under-five Mortality (RMM) in Northern Region, Ghana”.

NMIMR is working with IIP/JHU, Birth and Death Registry (BDR) Ghana and other key partners to implement Real-Time Results Tracking (RRT) activities in three districts of Ghana’s Northern Region.

The project aim to develop an effective community-based vital registration system in circumscribed geographic areas in the Northern Region that could produce data adequate for monitoring under-five mortality at intervals no longer than 12 months.

The Project seeks to:

1. Develop and test a community-based RMM method that builds on the existing structures of volunteers and births and deaths registration in Ghana;
2. Assess the accuracy of the community-based RMM method in identifying births and deaths by comparing the results to full pregnancies histories collected through a census of households in the project areas; and

3. Test at least one rapid survey method for estimating under-five mortality in Ghana.

The RRT approach consists of the identification, reporting and registering of births, deaths, pregnancies and pregnancy outcomes by community volunteers.



*Professor Kwadwo Koram in a group photo with research team*

Professor Kwadwo Ansah Koram, the Director of the Institute, received a grant of US\$ 1,200,000 from the University of Copenhagen, Denmark for a project titled, “Malaria Vaccine Research and Capacity Building in Africa (The MAVERECA project)”. The overall objective of the project is to generate new state-of-the-art scientific knowledge and research capacity that can accelerate the development of second-generation malaria vaccines for people living in areas with transmission of *P. Falciparum* parasites. The main capacity building element of the project is a “sandwich” PhD-level training programme for four Ghanaian scientists in various aspects of malaria vaccine research. Training of all four PhD students was initiated in 2013 with obligatory course work at University of Ghana. Auxiliary training of a Ghanaian M.Phil student was completed during a three-month visit she undertook to the laboratories at Centre for Medical Parasitology in Copenhagen. In September 2013, three MAVERECA senior scientists visited Copenhagen for consultations regarding the project and additional collaborations.

## Research Grants and Collaborators

Noguchi Memorial Institute for Medical Research continues to attract moderate amounts of research support due to the efforts of the research fellows. Collaborations with long standing research partners continued apace while new ones were forged in the past year. The Institute attracted approximately US\$ 6.6m research funds in the year under review.

**TABLE 10: GRANTS AND INFLOWS FOR THE YEAR 2013 WERE AS FOLLOWS:**

No	Project Title	Donor	Principal Investigator	Amount
1	Markers for Invermeeting Resistance Monitoring In Onchocerca Volvulus (Miro)	World Health Organisation	Professor Daniel. A. Boakye	US\$ 25,010.5
2	Vaccine Effectiveness	World Health Organisation	Professor George.E. Armah	US\$ 39,693.4
3	Hospital Based Burden of Disease Studies to Assess Impact of Rotavirus Associated Diarrhea in under 5 year old	World Health Organisation	Professor George.E. Armah	US\$ 26,134.49
4	National Laboratory for the Polio Eradication Initiative	World Health Organisation	Dr. James .S. Barnor	US\$ 16,081.00
5	In-Vivo Efficacy of Artemisinin Combination Therapy in Ghana	US Naval Medical Research	Professor Kwadwo.A. Koram	US\$ 19,576.32
6	Integrated Human-Animal Vector Surveillance	US Naval Medical Research	Professor Kwadwo.A.Koram	US\$ 78,216.02
7	Alternative Molecular Mechanisms for Entrocyte Invasion by P. Falciparum in Ghana	US Naval Medical Research	Dr. Gordon Awandare	US\$ 46,903.50
8	Military-Military Collaboration	US Naval Medical Research	Professor William Ampofo	US\$ 95,271.66
9	Influenza like Illnesses and Severe Acute Respiratory Infections	US Naval Medical Research	Professor William Ampofo	US\$ 23,652.44
10	Role of Complement Receptor-1 in Erathrocyte Invasion by Plasmodium Falciparum	National Institute of Health	Dr. Gordon Awandare	US\$ 25,750.00
11	Epidemiology and Molecular Mechanisms Anthelmintic Treatment Failure in Kintampo.	National Institute of Health	Professor Micheal D. Wilson	US\$ 64,560.00
12	Impact of Distinct Eco-Epidemiology on Malaria Drug in Ghana	National Institute of Health	Dr. Anita Ghansah	US\$ 59,000.00
13	Liverpool Center Neglected Tropica Disease	Liverpool Center Neglected Tropical Disease	Professor Daniel.Boakye	US\$ 35,251.20
14	Lymphatic Filariasis Support for Africa	Liverpool School of Medicine	Professor Daniel Boakye	US\$ 162,506.00
15	Presidential Malaria Initiative	ABT Associates Inc,Ghana	Professor Kwadwo A.Koram	¢99,158.40
16.	Epidemiology, Prevention and Treatment of Influenza and other Respiratory Infections in Ghana	CDC	Professor William Ampofo	US\$ 150,000.00
17.	Client Health Care Delivery &Sustainable Health Insurance in Ghana	Amsterdam Institute	Dr. Daniel Arhinful	US\$ 25,531.20
18	SHISTOVAC	ACADEMISTIC	Professor Daniel Boakye	US\$ 20,479.00
19	SANIPATH	Dar es Salaam University	Professor .George E .Armah	US\$ 19,140.60
20	H3 Africa Kidney Disease Research Network	National Institute of Health	Dr. Dwomoa Adu	US\$ 500,000.00
21	Endothelial Progenita Cells & Malaria Pathogenesis	Joan and Sanford	Professor Ben Gyan	US\$ 56,584.00
22	HLA/HIV and Retrovirus in West Africa	Japanese Foundation	Professor William Ampofo	US\$ 34,841.00
23	Transmission Biology of Leishmaniasis In Ghana	Lancaster University	Professor Daniel Boakye	US\$ 40,250.00
24	Clarisse. Njuas, S Stipend	UNESCO	Professor .Daniel Dodoo	US\$ 14,348.90
25	Post-Doctoral Training Fellowship in Infectious Diseases	Bill and Melinda Gates	Professor Kwadwo A. Koram	US\$ 2,375,940.00

No	Project Title	Donor	Principal Investigator	Amount
26	Rapid Mortality Monitoring	John Hopkins University	Dr. Daniel Arhinful	US\$ 266,866.00
27	Home Grown School Feeding	Imperial College	Professor Kwabena .M. Bosompem	US\$ 741,260.00
28	Retiwol and Zinc Serum	IPGRI Sub-Saharan Africa	Dr. Gloria Folson	US\$ 8,283.00
29	Tug One Health Consortium	Sokoine University	Dr. Phyllis.G. Addo	US\$ 26,987.59
30	BU One Afrique	CSRS Afrique One	Dr. Lydia Mossi	US\$ 28,897.32
31	Research on the Biology of Mycobacterium Infection in Ghana	Wellcome Trust	Dr. Dorothy Yeboah Manu	US\$ 62,000.00
32	Genotypic and Phenotypic Characterisation of Mycobacterium Africanum	Stiftung Fairmed Bern	Dr. Dorothy Yeboah Manu	US\$ 203,621.11
33	Immunogenicity of the Human Rotavirus (Rotarix) at varying Schedules and ages in Rural Ghana	Program for Appropriate Technology in Health (Path)	Professor George E .Armah	US\$ 27,238.00
34	Bongo NIH Malaria Study	Howard Hughes Medical Institute	Professor Kwadwo A. Koram	US\$ 129,301.00
35	Malaria Vaccine Research and Capacity Building In Africa Mavareca	University of Copenhagen, Denmark	Professor Kwadwo A. Koram	US\$ 1,200,000
36	PFS 48/45 to Malaria Transmission blocking Immunity	Loyola University	Dr. Linda Amoah	US\$ 20,203.00

## Institute of Statistical, Social and Economic Research (ISSER)



**Professor Felix Asante**  
Director, ISSER

Research continues to be central to the core activities at the Institute of Statistical, Social and Economic Research (ISSER). As a leading research think tank focusing on social and economic issues, we find ourselves obligated by the challenges facing our country to push ourselves even harder, to dig out quality evidence that will

inform Ghanaian and international development policy makers and practitioners about the socio-economic status of Ghanaians and the opportunities for improvement, using state of the art policy research tools. The current thinking of the University to engage in more research is a new source of inspiration to us that our focus is in the right direction.

The Institute, in the year under review, engaged in over 20 projects, notable among them the Economic Growth Centre (EGC)-ISSER Socioeconomic Panel Survey. This

nationwide project, a collaboration between ISSER and the Economic Growth Centre (EGC) of Yale University, which has as objective to provide a scientific framework for a wide range of potential studies of the medium- and long-term changes that are taking place during the process of development, will make available a rich information resource to serve not only the research needs of ISSER and its partner institutions but also students and researchers of the University of Ghana as well as interested parties from other universities and institutions.

The Institute remains committed to building capacity for social science research in Ghana and beyond. The Institute's world-class graduate-level training programmes constitute one of the diverse means to this end. In the period under review, three students who trained under the Ghana German Division for Development Studies (GGDDS) of ISSER successfully graduated with PhD degrees in Development Studies, with over 20 others graduating with Masters degrees.

Publications, a key strength of ISSER, continue to serve as a major channel for the dissemination of research evidence.

Additionally, ISSER, with the aim of increasing the chances and opportunities for research uptake, engages in other policy communication/engagement activities.

In the period under review the Institute published two books – the State of the Ghanaian Economy Report 2012 (SGER 2012), which is the 22<sup>nd</sup> edition of its flagship annual report on the situation of the Ghanaian economy, and Policies and Options for Ghana's Development.

The Report (SGER 2012) was launched at a well-attended programme held at the Institute's conference facility in September 2013. The publication, which has been produced by the Economics Division of ISSER since 1991, discusses important economic and social policies of development as well as macro and micro indicators that affect the growth of the Ghanaian economy.

Further to the launch the Institute, in collaboration with the Economics Department of Kwame Nkrumah University of Science and Technology (KNUST), organised a roadshow in Kumasi on October 17<sup>th</sup> 2013. Also, in January 2014 a team from ISSER, led by Professor Felix Asante, an Associate Professor and Director of ISSER, launched the Report at the Brookings Institution in Washington DC, USA. These activities made it possible to disseminate findings of the Report (SGER 2012) to a wider audience.

ISSER was pleased to be ranked by the Global Go To Think Tank Index (GGTTI) 2013 among the Top 150 Think Tanks in the World out of a number of 6,826 think tanks worldwide. The GGTTI, an annual report produced by the Think Tanks and Civil Societies Programme (TTCSP) of the University of Pennsylvania, ranks the world's leading think tanks under a number of categories. The goal for developing the annual GGTTI, according to the report, is to increase the profiles and performance of think tanks and raise the public awareness about the crucial role of think tanks in governments and the development process.

While we celebrate the successes chalked over the period, we are also cognisant of the need to leverage our strengths, maximise our capabilities, and engage in more collaboration across functions. We aim to become more responsive to developments around us, notably developments in information and communication technology and to take advantage of the unique opportunities they offer.

## Measurement Learning and Evaluation (MLE)

Dr. Robert Darko-Osei of ISSER won a 24-month grant of US\$ 1,413,628 from the Bill and Melinda Gates Foundation (BMGF) to strengthen capacity to provide Measurement Learning and Evaluation (MLE) technical assistance services to institutions that are implementing development projects in West Africa. This initiative seeks to establish an MLE unit at ISSER to provide operational services across all aspects of survey research and practice; from study design to data collection and storage, analysis and dissemination of findings. The unit seeks to achieve four key objectives:

1. Rejuvenate the Statistics and Survey Unit,
2. Strengthen Technology Infrastructure and Innovative,
3. Improve Advocacy, Communication and Marketing, and
4. Establish Regional Partnership and Networks.

The MLE unit will support the work of ISSER by providing operational services across all aspects of survey research and practice; from study design to data collection and storage, analysis and dissemination of findings. The unit is setting up a state of the art data centre where data can be managed, stored and analyzed locally with more robust data security and back-up systems. The unit will also build on ISSER's communication and advocacy activities with emphasis on measurement learning and evaluation activities.

A long term aim for this ISSER/BMGF partnership is to leverage and enhance ISSER's national position and credibility to support the development of a sustainable regional network. The BMGF support will strengthen the scale and accelerate the speed of ISSER's reach to regional partners. The MLE unit will undertake joint training, systems development, learning initiatives and network building with five countries in the sub region: Niger, Mali, Burkina Faso, Liberia and Sierra Leone.

The support from BMGF will also help ISSER achieve its goal of becoming a world-class research institute that can play a long-term regional role in agricultural policy research, monitoring and evaluation that will include the capacity to mentor other agriculture research and evaluation organisations in the sub-region. In essence, a strong and capable ISSER is critical to the execution of BMGF's agriculture development strategy in Africa.

## Economic Growth Center (EGC) - Socioeconomic Panel Survey Wave 2

The EGC-ISSER Socioeconomic Panel Survey is a collaboration between the Economic Growth Center at Yale University and the Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana. The main objective of the panel survey is to provide a scientific framework for a wide range of potential studies of the medium- and long-term changes that are taking place during the process of development in Ghana. The data from the survey is meant to remedy a major constraint on the understanding of development in low-income countries - the absence of detailed, multi-level and long-term scientific data that follows individuals over time and describes both the natural and built environment in which the individuals reside. Most data collection efforts, especially in low-income countries, are short-term (carried out at one point in time) and are limited in scope (collecting information on only a few aspects of the lives of the persons in the study), and when there are multiple rounds of data collection, individuals who leave the study area are dropped. This means that the most mobile people get left out in existing surveys, perhaps substantially biasing inferences about who benefits from and who bears the cost of the development process.

The study therefore plans to follow all adult respondents regardless of where each household or individual might have moved in the course of the study. By the design of the survey, the inherent selectivity associated with migration in assessing socio-economic mobility, will be substantially mitigated. In subsequent waves of the panel, a sample of moved households and individuals who have moved out of original households to form new households or joined other households originally not in the panel sample, will be interviewed in addition. The original sample of the Panel Study is 5009 households, covering 334 enumerations areas. This has the potential of increasing due to the nature of the design; tracking wholly moved and split households.

The survey covers all ten regions of Ghana and the sampling is nationally representative. The baseline survey (Wave I) was implemented between 2009 and 2010. One other very important component of the survey is the collection of detailed community information, enough to be able to understand the transformations that are taking place in the environment in the course of development.



*Study team on field collecting data*

## Wave II and Migration to CAPI

The study is currently implementing the second wave, which is expected to cover a 6-month period (January 2014 to June 2014), using a Computer Assisted Personal Interview (CAPI) and Computerised Management Systems (CMS) approach. The CAPI approach, which is gradually replacing the traditional Paper Assisted Personal Interview (PAPI) approach in surveys, is where computerised systems are used to directly collect respondents' data through face-to-face personal interviews. The use of CAPI is a suitable alternative to the traditional paper and pencil technique, where the length and complexity of the questionnaire, such as this panel survey, inherently involves huge costs in terms of time and money. The switch to CAPI is also to take advantage of its ability to minimise inconsistent responses that usually arise as a result of either interviewer or respondent errors. Using CAPI further takes away the need for a separate process of data entry, thus eliminating other source of errors and further saving time and money. Since this is the second wave, the use of "preloads" of most of respondent's profiles, such as name, gender, age, etc., has also made interviewing relatively easier and quicker.

The CAPI implementation is in collaboration with the Survey Research Center (SRC) of the University of Michigan (UMICH). The SRC is supporting ISSER with specialised programmes such as SurveyTrak, WebTrak, and CAPI Testing Tool (CTT), which are survey implementation and management systems suitable for dealing with large and complex surveys. These systems enable real-time supervision and monitoring of field activities without having to be on the field physically

all the time. These programmes also enable the project management and the principal investigators to have a quick view of the data, do a snapshot descriptive analysis of it and give feedback to the surveyors on the field for callbacks and reviews. The CAPI is being implemented using the Blaise programme for the survey.

Funding for the Ghana Panel Survey is provided by the Economic Growth Center at Yale, while the designing is being done collaboratively between the EGC and ISSER. ISSER supervises and carries out the survey. The principal investigators of this study are Professor Christopher Udry, Professor Ernest Aryeetey, Dr. Robert Darko Osei and Dr. Isaac Osei-Akoto, all with extensive experience in designing and leading socioeconomic surveys in Ghana.

## ISSER-Social Impact Governance and Accountability Project

ISSER has been subcontracted by Social Impact (SI) to conduct an impact evaluation of USAID/Ghana's Strengthening Accountability Mechanisms (G-SAM) programme. The evaluation will be implemented over approximately two years and is comprised of three discrete data collection activities.

The purpose of this study is to assess accountability relationships between district government and citizens as well as the delivery of local capital projects. There are two interventions of interest that focus on either the demand or supply side of accountability. The demand side approach entails a citizen-driven, or "bottom-up," information campaign that will monitor district planning and delivery of capital projects and publish the results in community scorecards designed to inform and empower citizen oversight of local officials. The supply side approach is a central government-driven or "top-down" strategy, involving government performance audits of the quality of capital projects undertaken at the district level.

The interventions will be implemented across 150 District Assemblies (DAs or districts) in Ghana. The selected districts will be randomly assigned by SI to one of three groups: 50 districts in each of the two treatment groups and 50 districts in the control group that receives neither of the interventions. Data collection will include surveys of households and local government officials and service providers as well as qualitative data collection in selected districts in Ghana.

The scope of work is comprised of multiple components: (i) Baseline surveys and qualitative data collection

activities, (ii) Midline and (iii) End line survey and qualitative data collection activities.

The Project Contract Sum over the two year period is US\$ 483,749. The Project Coordinator is Professor Peter Quartey (also serves as local Principal Researcher on the GSAM Ghana Project) and is co-assisted by Professor George Owusu. The following persons are non-key technical personnel: Dr. Joseph Teye, Dr. Cynthia Addoquaye Tagoe & Dr. Isaac Osei-Akoto.



*GSAM Training section for Participants*

## Supporting African Municipalities in Sustainable Energy Transitions (SAMSET)

The SAMSET is a 4-year project on supporting sustainable energy transitions in urban areas of Sub-Saharan Africa. The project is a partnership project involving six African municipalities in three African countries – Cape Town and Polokwane (South Africa), Kasese and Jinja (Uganda), Ga East and Awutu Senya East (Ghana). These municipalities tend to face considerable difficulties in exerting control on land use due to important internal and international migration combined with an important internal population growth rate.

Dr. Simon Bawakyillenuo of ISSER leads the SAMSET project in Ghana and the project is being funded by EPSRC/DFID/DECC with £190,727.

The project aims to design, test and evaluate a knowledge exchange framework design to more efficiently and effectively support sustainable energy transition in Africa's



Sub-Saharan urban areas. To achieve this, six key project objectives:

1. Identify the relevance, transferability and adaptation of the existing body of knowledge on sustainable energy transitions to the Sub Saharan African urban situation,
2. Understand the specific and contextual issues involved in effective implementation of policies relevant to energy transitions in the African urban context,
3. Clarify how best to facilitate policy and strategy development and implementation through active engagement and support for six partner cities in three Sub Saharan African countries to enable detailed understanding of the complex set of constraints and dynamics in these cities,
4. To explore knowledge exchange methodologies via inter-city and inter-country network exchanges, specialist inputs and practical lesson exchanges,
5. To develop knowledge exchange methodologies for facilitating more effective interactions between researchers and practitioners to improve implementation of policy objectives at the city level, and
6. To disseminate project findings and information beyond the project in Africa and internationally.

## ISSER Hosts Five-Day International Training Workshop



Participant at a training session

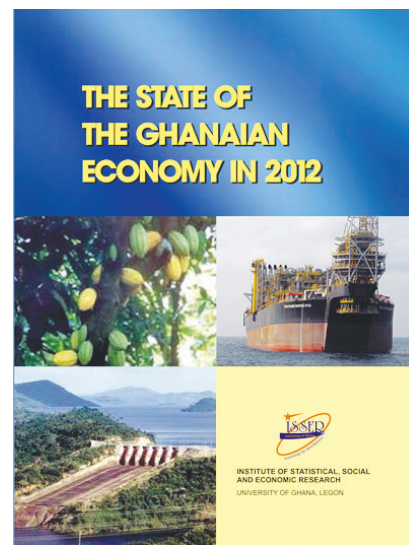
## ISSER launches “State of the Ghanaian Economy Report 2012” at Brookings Institute, Washington DC, USA.

ISSER received an invitation from the African Growth Initiative (AGI) of the Brookings Institute to launch the State of the Ghanaian Economy Report 2012 (SGER) at the Institute in Washington DC, USA.

The launch, a Brookings Africa Growth Initiative and Corporate Council on Africa Event, took place on the 8<sup>th</sup> of January, 2014.

The Director of ISSER, Professor Felix Asante, presented the report.

The launch at Brookings offered an authoritative platform and opened up the Report to a wider audience for further review and insight.



With support from the Think Tank Initiative (TTI) of the IDRC, ISSER hosted a five-day International Gender Analysis Training Workshop for social science researchers in Sub-Saharan Africa.

Under the theme “*Engendering Social science research*”, it was held from April 7 to 11, 2014 and brought together 20 social science researchers drawn from over five countries in East, West and Central Africa. The workshop content included learning, knowledge and experiences sharing, as well as practical training on how to successfully incorporate gender in research and the analysis of data. The workshop was facilitated by four gender experts, including research fellows of ISSER.

**TABLE 11: RESEARCH PROJECTS AT ISSER IN THE 2013/2014 ACADEMIC YEAR**

Project Title	Donor	Principal Investigator	Amount
Urban Agriculture Project	Lund University	Professor Daniel Sarpong	US\$ 173,200
AFRINT(III) Poverty Impacts of Straddling: Rural Income Diversification in Sub-Saharan Africa	Lund University	Professor Daniel Sarpong	US\$ 56,000
Agriculture and Sanitation Nexus	Bill & Melinda Gates/ ZEF	Professor Felix Asante	€ 43,200
Brooking AGI Project	Brookings	Professor Peter Quartey	US\$ 145,000
Economy of Ghana Network	The African Capacity Building Foundation (ACBF)	Dr. Robert Darko Osei	US\$ 500,000
Evaluation of Maternal and new born referrals project	Univ. of North Carolina & Chapel Hill	Dr. Isaac Osei-Akoto	US\$ 441,355
Socially Inclusive Health Financing in West Africa and India	EU/LSE	Professor Felix Asante	€ 334,376
Fostering Entrepreneurship and Sustainable Livelihoods in Sub-Saharan Africa	Kew- UTC IDRC	Professor George Owusu	CAD 223,000
Future Agricultures Consortium	DFID	Dr. George Tsey Mensah Kwadzo	£35,420
Gender and Enterprise Development in Africa: A Cross-Country Comparative Study	IDRC	Dr. Charles Ackah	US\$ 730,613
Gendered Social Contexts of Adolescent HIV Risks Behaviors: Family, Peers and Community Influences in Ghana Wave 2	George Washington University School of Public Health)	Professor Clement Ahiadeke,	US\$ 199,905 per year
Impact Evaluation of the Labour Intensive Public Works Component of the Ghana Social Opportunities	Ministry of Local Government and Rural Development	Dr. Simon Bawakyillenou,	US\$ 865,663
Innovative Steps Poultry Project	IDS	Dr. Martha A. Awo	£50,468
ISSER UNIVERSITY OF BONN	DAAD/ZEF	Director, ISSER	€ 700,000
ISSER YALE Project	Economic Growth Centre Univ. of Yale	Dr. Robert Darko Osei	US\$ 935,100
Rurban Africa	EU/Department of Geography and Resource Development	Professor George Owusu	Danish Krona 1,240,000
Think Tank Initiative	IDRC	Director, ISSER	CAD 2,592,252
Climate Change and Development	UNU-WIDER	Professor Felix Asante	US\$ 30,000
Urban Crime Nexus	IDRC	Professor George Owusu,	CAD 497,000
Value Chain, Peasants, autonomy and capture in times of increasing integration of Global food market	AGRA, MOFA/CSIR-SRI	Professor Felix Asante	€ 90,000
Promoting Participatory & Evidence Based Agricultural Policy Processes in Africa	IFPRI	Professor Felix Asante	US\$ 59,499.90
Youth and Employment (YEMP)	DANIDA/Danish Research Council	Professor George Owusu	DKR 1,200,000

Project Title	Donor	Principal Investigator	Amount
YouthSave Project	New American Foundation, Save the Children's Federation Inc., Center for Social Devt Washington Univ. St. Louis	Dr. Isaac Osei-Akoto	US\$ 745,000
Bread Basket Project	AGRA	Dr. Robert Darko Osei	US\$ 450,030
Measurement Learning and Evaluation Unit	Bill & Melinda Gates Foundation	Dr. Robert Darko Osei	US\$ 1,413,628
Supporting African Municipalities in Sustainable Energy Transitions (SAMSET)	EPSRC/DFID/DECC	Dr. Simon Bawakyillenou	£190,727.00

## Institute of Agricultural Research (IAR)

The Institute of Agricultural Research (IAR) was constituted from the then Agricultural Research Stations in May, 2004. It comprises the following three Agricultural Research Centres of the University of Ghana: Livestock and Poultry Research Centre, Legon (LIPREC, Legon); Soil and Irrigation Research Centre, Kpong (SIREC, Kpong); and, Forest and Horticultural Crops Research Centre, Kade (FOHCREC, Kade).



*Prof. Macarius Yangyuoru*  
Director, IAR

The Institute conducts relevant national research and technology development and knowledge dissemination in agriculture. It developed agricultural technologies for the various agro-ecological zones of the country as well as trained students, farmers, extension agents and other stakeholders in the agricultural industry. Additionally, the research centres of the Institute developed and disseminated/transferred improved technologies to farmers nationwide for increased agricultural productivity, poverty reduction and attainment of food security in Ghana. As evidenced by some of the examples listed below considerable grants were awarded to researchers and public private partnerships were implemented within this academic year.

I wish to congratulate and extend my appreciation to all our researchers, administrative staff and technicians, students, collaborators, funders, donors, and partners

(both public and private) for their enormous contribution to research activities within the Institute.

### Impact of Rice Husk Bio-Char on Soil Characteristics, Its Effects and Stability in Irrigated Rice Cropping Systems in the Accra Plains Of Ghana

Dr. Dilys S. MacCarthy received an award of GH¢ 28,088.00 from the University of Ghana Research Fund to conduct the study “**The Impact of rice husk bio-char on soil characteristics, its effects and stability in irrigated rice**



*Dr. Dilys MacCarthy*  
Head of Centre, SIREC

**cropping systems in the Accra plains of Ghana.”** The grant supported field research for two MPhil students from the Soil Science Department. Mr. Eric Koomson, one of the students, worked on the topic “Measurements of CO<sub>2</sub> emission from bio-char amended rice paddy field in the Coastal Savanna zone of Ghana” while the other, Mr. Eric Darko, worked on “Agronomic evaluation of paddy rice under bio-char amended calcuistert in the coastal savanna zone”. The study showed that: the use of 10t rice husk bio-char significantly increased yield. Soil chemical and physical properties of the vertisol were significantly improved by bio-char amendments, and emission of carbon dioxide was lowered by the addition of rice husk bio-char compared to when it is uncharred and also under farmer practices.



*Pyrolysis of rice husk*



*Charred rice husk*



*Soil CO<sub>2</sub> entrapment (pot)*



*Soil CO<sub>2</sub> entrapment (field)*

## Enhancing Vegetable Productivity in the Accra Plains through Integrated Crop Management



*Dr. Ken Okwae Fening*

Dr. Ken Okwae Fening, Research Fellow at the Soil and Irrigation Research Centre (SIREC), Kpong received a grant of GH¢ 25,000 from the University of Ghana Research Fund for the project “Enhancing Vegetable Productivity in the Accra Plains Through Integrated Crop Management.” Co-investigators on

the project include Professor Macarius Yangyouru, Dr. (Mrs.) Dilyls Sefakor MacCarthy, Dr. Joseph Ofori, and Dr. Joseph Honger all of the Soil and Irrigation Research Centre, Kpong as well as Dr. Christina Amoatey of the Department of Crop Science and Dr. John Kofi Mensah Kuwornu of the Department of Agricultural Economics and Agribusiness. Collaborating institutions on the project include Vegetable Farmers along the vertisols of the Accra plains and Agricultural Extension Agents from the Ministry of Food and Agriculture.

The project will study the impact of organic soil amendment on the soil physico-chemical properties; assess the effect of organic soil amendment on vegetable growth and yield; evaluate pests and diseases incidence and severity under the different cropping systems and soil amendments; solicit baseline information on vegetable crop production and technologies already utilised by

farmers in the Accra plains; and determine the cost-effectiveness of the Integrated Crop Management (ICM) methods developed to enhance vegetable productivity on the vertisols in the Accra plains.

The project is expected to produce the following outcomes that will impact on national development in the area of vegetable production in the Accra plains:

- Baseline information on vegetable production practices utilised by farmers in the Accra plains obtained;
- A sustainable cost-effective and user-friendly ICM package or manual developed for vegetable farmers on the vertisols of the Accra plains;
- The effect of the interaction between soil amendment practices and intercropping on pests and diseases outbreak on cabbage/onion will have been established;
- All-year round vegetable production promoted to vegetable farmers using appropriate ICM techniques;
- 20-30% increase in vegetable productivity on the vertisols of the Accra plains; and
- Farmers income from vegetable sales increased by 20-30% through the production and sale of healthy vegetables.

The practical and policy implications of this research project is that there will be sustainable and effective non-chemical control methods for pests and diseases management developed for adoption by vegetable farmers to ensure food and environmental safety.



*On-going cabbage-onion intercrop and soil amendment trial at SIREC, Kpong during the major season of 2014*

## Participatory Approach in Strategic Dry Season Feeding of Livestock in the Greater Accra Region



*Dr. Eric C. Timpong-Jones*

The Principal Investigators of this project are Dr. Eric C. Timpong-Jones (LIPREC) and Dr. Charles Y. F. Domezoro of Animal Research Institute (ARI) of Council for Scientific and Industrial Research (CSIR). The project is funded by the West Africa Agricultural Productivity Programme (WAAPP) and the

Competitive Agricultural Research Grant Scheme (CARGS) with an amount of GH¢ 209,409.25

The general objective is to use participatory approaches and locally available/adapted feed resources to improve and create the forage conservation culture among ruminant livestock farmers. This will address dry season feeding problems and improve the livelihood of farmers in the Greater Accra Region.

The specific objectives are to:

- Use participatory approaches to identify the constraints and opportunities of dry season; feeding of ruminant livestock in the Greater Accra Region of Ghana;
- Demonstrate the effectiveness of identified strategic interventions to participating farmers (on-station); and
- Use participatory approaches to introduce selected strategic interventions on-farm.

It is expected that the challenges of dry season feeding of ruminant livestock will be better understood and improve their productive performance during the dry season as well as improve the livelihood of smallholder farmers.

## Assessing the Potentials of Growing the African Oil Palm Weevil *Rynchophorus Phoenicis* (Akokono) in Containers for Commercial Use in Ghana



**Dr. Clement Akotsen-Mensah**

This collaborative project, funded by the Aspire Food Group-Canada, is led by Dr. Clement Akotsen-Mensah, Research Fellow and Entomologist at the Forest and Horticultural Crops Research Centre (FOHCREC), Kade. Collaborators on the project include: Mr. Zev Thompson, Chief Technology Officer, Aspire Food Group-Canada; Professor K.G. Ofosu-Budu, Head of FOHCREC, Kade; Dr. Augustine Naazie, LIPREC, Nungua, Dr. Maxwell Billah, Department of Animal Biology and Conservation Sciences, University of Ghana; and Dr. Thomas N. Nortey of the School of the Veterinary School, College of Agriculture and Consumer Sciences. The project's main objective is to develop a protocol for the growing of the oil palm weevil (*Rynchophorus phoenicis*, locally known as

“Akokono”) in containers so that it can be used as food or supplemental feed for poultry and livestock in Ghana. Due to the fact that, the carbon imprints of insects are low, breeding the palm weevils and making them popular in Ghana will contribute to the reduction of greenhouse effect.

The African oil palm weevil, “Akokono” is delicious and nutritious and is rich in essential fatty acids, amino acids and macro-elements and can be farmed. Currently, palm weevils are not produced on a large scale for food or feed, because of limited availability due to hand harvesting. Interestingly, Ghana has ample oil palm plantation which is the main material for breeding of palm weevils.

Dr. Akotsen-Mensah (right), Mr. Zev Thompson (Center) and Mr. Adu-Gyamfi (right) after inspecting an oil palm field where material were collected and used for the rearing of the insect



Dr. Akotsen-Mensah (right), Mr. Zev Thompson (Center) and Mr. Adu-Gyamfi (right) after inspecting an oil palm field where material were collected and used for the rearing of the insect



Figure above: A) Container used to grow the insects B) Inspection of larvae in a growing medium



Figure above: C) Stages of the oil palm weevil used as food D) The larvae which have been used to prepare stew

## EnviroDome Project at Forest and Horticultural Crop Research Centre – A Public Private Partnership



Professor George Oduro Nkansah

This is a joint venture between the University of Ghana's Forest and Horticultural Crop Research Centre (FOHCREC, Kade), Eisenberg-Agric of Beijing and Stericken Ventures Limited (SVL). The FOHCREC team is led by Professor George Oduro Nkansah.

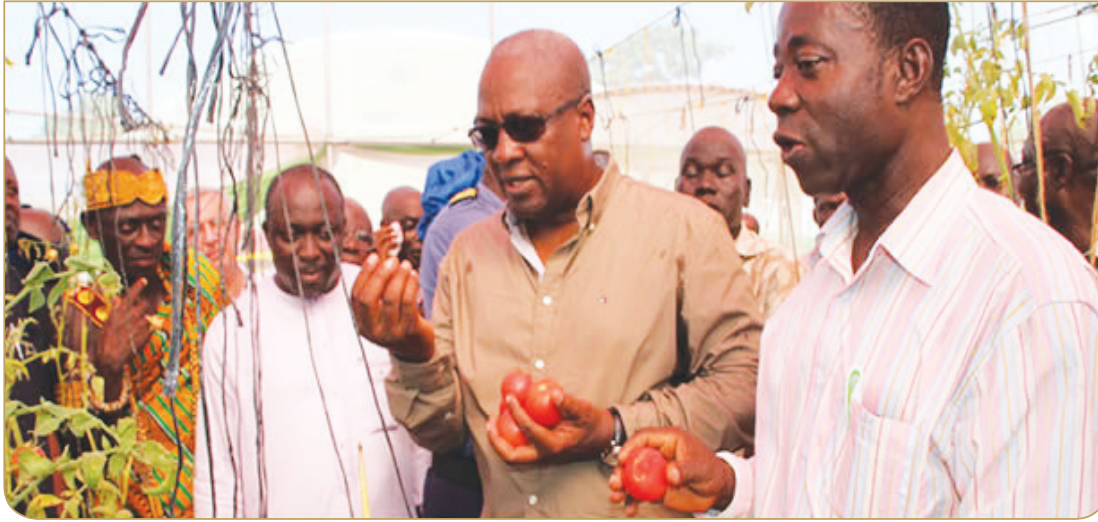
The project seeks to:

- Establish an EnviroDome Demonstration Centre at FOHCREC in Kade to enable Controlled Environment Agriculture Technology using EnviroDome greenhouse and drip irrigation systems to be taught to faculty, students and the farming community of Ghana and eventually made available to them from a sales facility at the Kade EnviroDome Centre;
- Carry out extensive research into the use of greenhouse technology to:

- a. develop a package on good agricultural practices for fruit and vegetable growers using greenhouse technology,
  - b. develop a workable system to collect and select desirable genotypes under greenhouse cultivation for the local and export markets.
  - c. multiply seed production and release thereof to farmers nationwide, including crop varieties.
- Establish a commercial farm for high yield, high quality and long shelf life horticultural produce grown in greenhouses; and,
  - Create a nationwide distribution network for the greenhouse systems in association with other universities and teaching facilities, the National Service Secretariat, the Youth in Agriculture Programme and other local agencies including the district assemblies.

The project was commissioned in May 2014 by President John Mahama. EnviroDome systems are the technological answer to ensuring maximum yields in the cultivation of high quality, long shelf life, fruits and vegetables and overcoming the phyto-sanitary problems faced by Ghanaian farmers today in penetrating the export market.

The project is expected to leverage additional funding of about US\$ 4 million from the Export Development and Agricultural Investment Fund.



*President John Mahama with Professor Nkansah examining some tomatoes from the EnvionDome Greenhouse System in Kade*

## Terragric Project at Livestock and Poultry Research Centre (Liprec) – A Public Private Partnership (PPP)

A public private partnership agreement between the University of Ghana (through LIPREC, Nungua) and TERRAGRIC Ghana Limited was signed in 2013, to generate additional funds to sustain the activities of the Research Centre (LIPREC). As part of the agreement, the

University will provide TERRAAGRIC access to LIPREC facilities to initially commercialise the production of vegetables and other agricultural produce and thereafter, its livestock as a means of financing its research activities on a sustainable basis.

The University will receive an amount of US\$ 60,000 per annum (beginning from 2013) as consideration for the use of the land and other facilities of LIPREC.

## Institute of African Studies (IAS)



*Professor Akosua Adomako Ampofo  
Director, IAS*

projects— a Biography project, and a Quality of Life project – and many other team and individual projects. Below we report on the Biography project, and our 50<sup>th</sup> anniversary international conference. We also throw the

The Institute of African Studies (IAS) has continued to be active in research within and across its six academic sections. We remain true to our founding mandate to study the peoples and cultures of Africa and her Diaspora in African-centred ways. During the 2013-14 academic year IAS was involved in two major institutional

spotlight on the team and individual projects of selected research fellows and graduate students.

### Biographies of Ghanaian Personalities: Their Lives and Times

In African societies biographies have traditionally been presented through oral histories. The culture of written biographies has had a slower development trajectory in much of Africa, including Ghana. Biographies provide discussions of contemporary events as they impinge on the life of the subject. If the subjects have made contributions to society they can also serve as models for how to do and not do things. It is in this context that a team of researchers from the Institute of African Studies is undertaking a two year study (July, 2013-June, 2015) to document the lives and times of identified Ghanaians (living or dead). The project also aims to show the advantages of adopting multidisciplinary approaches in the production of biographies. For example,



in addition to interviewing subjects and examining archival material, the project is digitising (rare) photographs in the possession of the subject. The personalities identified for this first phase are Oyeman Wereko Ampem, Justice Annie Jiagge, Dr. Oku Ampofo, Okyeame Kwadwo Bofo Akuffo, Professor Florence Abena Dolphyne, Tolon-Naa Yakubu Tali and Saka Acquaye. The results of the research will be disseminated through workshops, monographs, documentaries, short stories for children, and other innovative channels.

This research was made possible with a GH¢ 24,999 grant from the Office of Research, Innovation and Development (ORID). Under the mentorship of Professor Albert Awedoba, Dr. Mercy Akrofi Ansah is the Principal Investigator. The other members of the research team are Professors Akosua Adomako Ampofo, and Esi Sutherland-Addy; and Drs Osman Alhassan, Kwame Amoa Labi, Deborah Atobrah, Ebenezer Ayesu, Samuel Ntewusu, Stephen Acheampong, Edward Nanbigne, Moses Nii Dorley and Godwin Adjei Kwafo.



*Dr. Mercy Akrofi Ansah (L) and Dr. Stephen Acheampong (centre) interviewing Professor Florence Abena Dolphyne (R)*



*Dr. Deborah Atobrah (L), Professor Akosua Adomako Ampofo (2nd L), & Dr. Stephen Acheampong (2nd Right) interacting with relatives of Dr. Oko Ampofo (middle): Mme Oyeaku & Mr. Issac Ampofo (aka Papa Kwasi Krow)*

## Institute of African Studies 50th Anniversary International Conference

In October 2013 the Institute of African Studies hosted a three-day international conference on the theme: “Revisiting the First International Congress of Africanists in a Globalised World” held at the University of Ghana in 1963. The conference was the climax of activities marking the 50th anniversary celebrations of the Institute, which was established in 1962. At the formal opening ceremony, held at the Great Hall of the University of Ghana on October 24<sup>th</sup> President John Dramani Mahama, who was the special Guest of Honour, stressed the need for Africans to tell the story of the uniqueness of our cultures. He was hopeful that deliberations at the Conference would help guide future directions for African nations on the continent as well as those in the Diaspora. The Vice-Chancellor, Professor Ernest Aryeetey, who chaired the ceremony, referred to the two main thrusts of the University of Ghana’s renewed mandate: namely, to broaden and deepen links within the international higher education community and bring into the main stream of the global academy, essential discourses on Africa by Africans.

In her welcome address, the Director of the Institute, Professor Akosua Adomako Ampofo, noted that over the years, the Institute had fulfilled its mandate as outlined by the first President of Ghana, Osagyefo Dr. Kwame Nkrumah at the formal opening of the Institute in 1963. She reminded the gathering that this mandate emphasised the study of, and teaching on, Africa and her Diaspora in African-centred ways. Professor Adomako Ampofo noted, in particular, the extensive work done in recent years in the areas of traditional leadership, gender, folklore and the lives of important contributors to Ghana’s social and political thought.

The Keynote Speaker for the opening ceremony was Dr. Carlos Lopes, the United Nations Under-Secretary-General and Executive Secretary of UN Economic Commission for Africa (UNECA). He gave a historical perspective of the Pan-Africanist movement, and stressed that instead of simply proclaiming an African Renaissance as the new wave of Pan-Africanism, Africans must practice revolutionary democracy in every aspect of their lives. On the second day of the three-day conference, Professor Fatou Sow, a Social Scientist and Specialist in Gender Studies, delivered a keynote address on the theme: “When Culture and Religion meet Politics: What is at stake for Women’s Citisenship?”



A section of the students with Ngūgī Wa Thiong’o and Fatou Sow

The conference included several other events: an exhibition and fashion show on cloth and clothing related to rites of passage; a special interactive session for Senior High School students with keynote speakers Professors Fatou Sow and Ngūgī Wa Thiong’o and a closing and awards dinner at which former directors of the Institute and others were honoured. During the conference the African Studies Association of Africa (ASAA) was launched. The Conference received support from the University of Ghana (ORID, and a special grant from the Vice-Chancellor), Star Assurance Ltd., Guinness Ghana Ltd, Prudential Bank and EcoBank, ATL and GTP textiles, the French Embassy, and the University of Edinburgh.

## African Dark Earths: Anthropogenic Soil Formation in Old Abandoned Settlements

In this exciting project led by Professor Kojo Amanor (Societies and Cultures) the team looked at tropical dark earth (*terra preta*) soils. These soils are highly fertile and have been identified in Amazonia in Brazil with extremely rich and stable carbon elements. They are anthropogenic in origin, the product of practices associated with agriculture and the management of waste in old settlement sites. This research formed part of a larger West African project (with other study sites in Liberia and Guinea) carried out in collaboration with Institute of Development Studies, Sussex University

and the Department of Crop and Soil Sciences, Cornell University Earth.

Students from IAS who participated in the research include Yakubu Azindow, Lydia Amoah, and Clement Sefa-Nyarko while on National Service. A former M.Phil student, Tontieh Kanton also played a major role in collecting data in the early phase. Dr. Samuel Ntewesu of IAS History and Politics Section also participated, as did Esther Agyemang-Duah, a former student at Performing Arts.

In Ghana two potential areas were identified around Ejisu near Kumasi and in the Mo (Deg) area of the Kintampo South and North districts. The areas were confirmed to have similar characteristics to *terra preta* in Brazil, to store large amounts of black carbon, and to be far more fertile than the surrounding soils in plant nutrients. The sites in



Professor Kojo Amanor

the Kintampo area were rich in pottery.

A student at the Department of Archaeology and Heritage Studies, Margretta Morgan, working under the supervision of Professor Boachie-Ansah, was supported to carry out preliminary archaeological

investigations for her M.A. thesis at one of the settlements, Sabule. Her research revealed significant pottery finds and early settlement. Carbon dating from this site showed settlement to originate from the fourteenth century. While the processes of African dark earths are not fully understood they are clearly associated with old settlement sites, with the management of waste

and wood ash. They provide highly fertile soils that can be cultivated permanently without adverse effects on the soil. They are also significant as a carbon sink and for mitigating the effects of global warming. To date they have not been recognised in the soil science literature on Africa.



*Archaeological student Magretta Morgan at work organising a Test Pit for stratigraphic analysis*

There are further sites within the Kintampo area with similar characteristics that also need to be investigated archaeologically. They are characterised by large abandoned settlements, abundant pottery, and linked by Mo historical traditions about the origins of Mo (Deg) society in the Kintampo area.

There is also a need for collaboration with soil scientists within University of Ghana to examine the characteristics and distribution of this type of soil and to hypothesise the biophysical and anthropomorphic factors that have influenced its formation. This study culminated in a publication, “Anthropogenic Dark Earths and Africa: A political agronomy of research disjunctures” by Fairhead, J., Leach, M, Amanor, K.S. (2012) in J. Sumberg and J. Thompson *Contested Agronomy: Agricultural research in a changing world*, New York and London: Routledge, pp. 64-85.

## The African Presidential Papers and Libraries (APPL) Phase One Project

Professor Jacob U. Gordon, current occupant of the Kwame Nkrumah Chair, together with Dr. Stephen

Owoahene Acheampong, a Research Fellow, both at the Institute of African Studies have secured a grant of US\$ 111,363.50 from the Open Society Initiative for West Africa (OSIWA) to undertake a project titled “African Presidential Papers and Libraries (APPL) Phase One Project”.

Phase one of the project (October 2013-April 2015) focuses on the development of African

presidential papers and libraries of ten African presidents from ten countries, in line with the Kwame Nkrumah Chair’s project on African leadership and governance. The presidents are: Kwame Nkrumah, Ghana; Nnamdi Azikiwe, Nigeria; Nelson Mandela, South Africa; Gamal Abdel Nasser, Egypt; Haile Selassie, Ethiopia; Patrice Lumumba, Zaire, now DR Congo; Jomo Kenyatta, Kenya; Julius Nyerere, Tanzania; Dominique Mbonyumutwa, Rwanda and Ahmed Ben Bella, Algeria.

The APPL is situated at the Institute of African Studies, University of Ghana and currently has affiliates in five other African universities with the possibility of extending this to nine. The current affiliates are the Institute of African Studies, Kenyatta University, Kenya; the Department of Sociology at the University of Lagos, Nigeria; the National University of Rwanda, Rwanda; the Centre for African Studies at the University of Cape Town, South Africa, and the National Defence College, Tanzania.

The project aims to develop a research infrastructure for African presidential papers and libraries in order to make the sources for the study of African presidential leadership and governance more easily accessible to

scholars, the African public, and the international community at large. The project also seeks to:

- develop a profile of each president included in this project to provide support to the set of courses on African Thinkers/Thought at the Institute of African Studies;
- develop and/or enhance the collection and preservation of presidential papers at each participating African university, thus leading to a network of African university library repositories of presidential materials in the 10 selected countries;
- encourage the study of African presidential policies and leadership to foster the building of strong governance institutions in Africa;
- develop centres for African youth intellectual interaction on leadership and governance with the potential for these to become centres of leadership training.

**Several publications will emerge, including one on *Revisiting Kwame Nkrumah: Where Do We Go from Here?***



*Interviewing Dr. Antwi Danso of the Legon Centre for International Affairs and Diplomacy (LECIAD), former member of the Young Pioneers under President Nkrumah on his reflections of Nkrumah at the IAS Museum exhibition (From left: Professor Gordon and Dr. Antwi Danso).*

## Research on the *Kambonse* of Dagbon

In January, 2013, Drs. Kwame Labi (Media and Visual Arts), Edward Nanbigne (Languages, Literature and Drama) and Samuel Ntewusu (History and Politics) set out for a pilot survey. The goal was to assess the feasibility of research on the *Kambonse* of Dagbon. The three came together deploying a multi-disciplinary approach in the study of the history, literature, regalia and iconography, and the everyday lives of the *Kambonse*. The researchers visited Kumbungu and Yendi and conducted preliminary interviews. They found that between 1742 and 1744 Opoku Ware's armies invaded Akyem Abuakwa, Accra,



*Dr. Kwame Labi*

Adangme, Akwamu, and Dagbon. Na Gariba was captured and then released when he promised that Dagbon would send a tribute of 2,000 prisoners annually to Kumasi. A positive outcome of Asante sovereignty over Dagbon was the exchange of military technology, training and intelligence among

the former antagonists. Opoku Ware sent mercenaries to assist the Dagomba after which they stayed on and were incorporated into the military establishment of the Dagbon, referred to by Dagombas as the *Kambonse*.

The researchers held discussions with the *Kambon Nas* of Yendi and Kumbugu together with some of their lieutenants, generals and other officials in the *Kambonse* establishment. In addition, the researchers visited the chief of Kumbungu (the overall commander of the Dagomba army) who also provided insights into the institution of *Kambonse*.

Despite diversity in the organisation (but not the origin) of the *Kambonse* in Dagbon, some generalisations can be made between some of the similarities between *Kambonse* and Asante which includes the dress code for war (the smock) and for festive occasions (kente). They use the talking drum 'timpana' (*atumpan* in Akan) extensively in their rituals of communication and the praise names communicated by the drums are in Twi. Akan names such as Kofi, Badu, Akyeampong, Adakwa are common. Military titles, in spite of linguistic changes, are obviously Akan (Chirifu, Achere, Adu, Monkua, Daasu, Kumahi, Jehinfu). The researchers will seek additional funding to expand their study on *Kambonse* to include issues of politics, religion, music, and gender.

## 'Lorry of Embarrassment': The Evolution and Use of Tricycles (Motor King) in Wa and Tamale

With funding from Institute of African Studies Drs. Edward Nanbigne (Languages, Literature and Drama) and Samuel Ntewusu (History and Politics) engaged

in archival and field research on the evolution and use of tricycles in Wa and Tamale. The prevailing mode of transportation in any particular locality is an indication of the level of socio-economic development of that locale. In recent times tricycles have gained importance as modes of transport in northern Ghana. The monopoly of horses by chiefs and royals led ordinary



*Dr. Edward Nanbigne*

folk to shift to bicycles with the gradual movement to motorbikes and then tricycles. In Wa and Tamale, tricycles are used for carrying goods and also for human transport. But tricycles are not all they are set up to be at first glance – they reveal important social distinctions. The researchers found negative images of tricycles, easily captured in the names given to them by the locals (*Nyaaba Lorry*: “Lorry of embarrassment”; *Akur nirba*: “killer of people”; *Kal laa-hum-ma*: An Islamic prayer for the dead). There are also tensions and sometimes fights between operators of tricycles and operators of other transport services reflecting social as well as economic competition. However, many youth see tricycles as a very viable livelihood opportunity that should not be missed and politicians and government agencies are encouraging this, albeit without any policy governing the use of the tricycles.



*A tricycle with boards for seats waiting for passengers*

## Asafo Songs as Concentrated Expressions of Culture, Ideology, Politics and Identity: Case Studies of Kormantse and Abandze



*Dr. Godwin K. Adjei*

Even though modernisation and globalisation have frequently impacted negatively on traditional institutions, many traditional institutions are re-invented in new forms. One such traditional institution is the Asafo Company. In this study, Drs. Godwin K. Adjei and Kojo

Opoku Aidoo explore

the identity, culture, politics and ideological significance of Asafo songs in the two Fante towns of Kormantsi and Abandze. Asafo companies originated several centuries ago among the Akans of southern Ghana as politico-military organisations. Seventeenth and eighteenth century accounts by Muller (1662-1699, in Jones 1983) and de Marees (1602) are replete with references to well-organised warrior groups established on the Gold Coast whose members were sometimes re-organised by the Europeans into efficient military units for a quick reaction to any threat from the interior. Among the Fante of coastal Ghana, Asafo Companies began as warrior organisations for men, but to which women could belong in some instances. Today, however, the Asafo Companies vary in membership, organisation and functions. Fante Asafo Companies have become socio-political entities involved in the enstoolment and destoolment of chiefs and celebration of festivals. Apart from the political engagements of the Asafo Companies, they also identify religiously with their particular military shrines (*posuban*) that serve as gathering places and centers of activity for them (Labi: 2002). Asafo songs are important because they serve as the repository of the history, culture and traditions of Fante society. Further, the songs help preserve what the researchers refer to as “the language of the elders” (proverbs and metaphors).

## A Review and Lessons Learned of the 2012 Election Administration: Civil Society & Development Partners (DPS) Perspective.



*Dr. Richard Asante*

In this study supported by UNDP-GHANA and Ghana Centre for Democratic Development (CDD-Ghana) Dr. Richard Asante (Politics and History section) and (Lead Researcher), evaluates the conduct of the 2012 elections and draws lessons for reforms in the electoral process to help improve election administration

in Ghana. A total of 27 Civil Society Organisations (CSOs) 6 Development Partners (DPs) were participants in the study. In addition to the fieldwork two workshops were held with CSOs, the Police Service, the Electoral Commission, NCCE, and Development Partners (DPs), in Kumasi and Accra in October 2013 to validate key findings.

### Key findings of the study:

- The Electoral Commission's engagements with the public, including education on its activities, were described as poor by the respondents.
- CSOs and DPs expressed reservations about the caliber of some of the people recruited to serve as temporary staff and the training given to them.
- Most of the CSOs and DPs expressed satisfaction about the current funding arrangement whereby the EC's election activities are funded directly from the consolidated fund.
- Respondents described the timing of the amendment of CI 78, as problematic because it was done in a rush and also too close to the 2012 elections, and against the advice of some key stakeholders.

### Media in West Africa

Dr. Richard Asante (Lead Researcher), together with Professor Staffan I. Lindberg, (Department of Political

Science, University of Gothenburg, Sweden, and also Principal Investigator (PI), Varieties of Democracy (V-DEM) Research Project), Maavi A. Norman, (a PhD Candidate, Northwestern University, USA) and Eitan Tzelgov, (a Postdoctoral Research Fellow, University of Gothenburg), examine the media landscape in eight West African countries: Ghana, Nigeria, Benin, Togo, Guinea, Senegal, Liberia and Burkina Faso from 1900 to 2012. The study revealed that despite general improvement, aspects of the media sector lag behind others, including: 1) government harassment of journalists, 2) weak or lacking media criticism of government, 3) unequal distribution of citizen access to media, and 4) gender imbalance among journalists. The study received support from the V-DEM Institute hosted in the Department of Political Science at the University of Gothenburg, Sweden and the European Commission.

### Key Finding:

- The media sector in West Africa has seen significant regionwide improvements, attributable not just to improvements in isolated cases but to general improvements in all countries.
- Nevertheless, despite general improvements, aspects of the media sector lag behind others, including: 1) Government harassment of journalists, 2) weak or lack of media criticism of government, 3) unequal distribution of citizen access to media, and 4) gender imbalance among journalists.
- Countries where the media sector is not faring well are Guinea, Nigeria, and Togo.
- Government censorship persists even in democratic countries like Benin and Senegal, and remains a major problem in Togo and Guinea.
- Government harassment of journalists is occurring in several countries, particularly Burkina Faso, Nigeria, Benin, and Senegal.
- Media corruption is very significant in most West African countries. The problem of corruption may be the region's largest single threat to democratic rights in this sector.

### Changing Representations of Women in Popular Music:

Professor Akosua Adomako Ampofo (Societies and Cultures, PI) and Dr. Awo Asiedu (School of Performing

Arts's) examined women in popular music, thereby contributing to reflection on, and creation of, alternative (empowering) narratives about women and gender relations. The project benefitted from funding from Department for International Development (DFID) (2009-12) and Office of Research, Innovation and Development (2010-2013). Two hundred and fifty Ghanaian popular songs from the 1930s to 2009 have been collected, and interactions held with musicians, disk jockey (DJs), music producers, and consumers (students and taxi drivers).

The research has been extended with the inclusion of new perspectives and approaches by Adomako Ampofo's MPhil student, Abena Kyere, whose thesis is titled, "A Comparative Study of the Lives and Works of Selected Ghanaian Female Musicians from 1980-2010." In addition to two music CDs, and music video produced under the project, that was born from a song competition ([http://www.youtube.com/watch?v=nRP\\_hzEmQv8](http://www.youtube.com/watch?v=nRP_hzEmQv8)), a documentary on the research is being produced. The work has been presented at many conferences in Ghana and elsewhere. Published works emanating from the study include:

- Adomako Ampofo and Asiedu. 2012. "Changing Representations of Women in Ghanaian Popular music: Marrying research and advocacy" *Current Sociology* (60): 258-279. (\*republished in *Feminisms, Empowerment and Development: Changing Women's Lives*, Edited by Andrea Cornwall and Jenny Edwards. 2014. London, Zed books: 41-158).
- Kyere, Abena and Adomako Ampofo. (Forthcoming). "Women doing Music: The Lives and Songs of Contemporary Ghanaian Women Musicians" in Kwasi Ampene, Akosua Adomako Ampofo, Albert Awedoba, and Godwin K. Adjei (Eds.) *A Festschrift in honour of Emeritus Professor J. H. Kwabena Nketia*. Ann Arbor, Michigan University Press.

## Representations of Women in the Discourse of "Supermen" of God

Professor Adomako Ampofo (PI) and Dr. Michael PK Okyerefo (Sociology, UG) examined the ways in which some of the key leaders within Ghana's Pentecostal and Charismatic churches speak to gender issues to assess whether they contribute to gender equality or inequality.

The work also considers whether their writings reveal evidence of a new and emerging African Knowledge. The researchers argue that the men who lead these churches (and they are dominated by men) are deeply involved in the business of knowledge production that extends beyond religions. They (re)produce concepts and theories that resonate with a large majority of Ghanaians, to the extent that they are becoming universally accepted and form part of a popular 'meta' knowledge.

The authors find that the selected "men of God" reflect a version of masculinity that has the potential to protect women to the extent that it calls on men to eschew violence, commit to companionship and monogamy, and take seriously their responsibilities as husbands and fathers. At the same time, they invoke a particular brand of masculinity that emphasises the limitations and inequalities of women relative to men, and especially their husbands, thereby perpetuating gender inequality. Two publications have emerged from this work to date:

- Adomako Ampofo Akosua and P K Okyerefo. 2014. "Neo-popular Femininity Discourse in God's name: Ambivalent Masculinity Rhetoric" in Stephen Acheampong (Ed.), *African Knowledge Studies and Knowledge Production*. Accra, Sub-Saharan Publishers: page 125-144
- Adomako Ampofo, Akosua and Michael P K Okyerefo. (in press). "Men of God and Gendered Knowledge" in Brenda Cooper and Robert Morrell (Eds.) *Africa-Centred Knowledges: Crossing Fields and Worlds*. Oxford, James Currey.

## Students' Drink Cultures

In collaboration with Guinness Ghana Breweries Limited (GGBL), IAS embarked on a project in 2012: "Students Drink Cultures and Drink IQ at the University Of Ghana".

The first phase of the study involving 1,197 of Level 200 students was conducted in October 2011 and repeated in 2013 with 975 students. Basically a Knowledge, Attitude and Practice (KAP) study, it seeks to understand the relationship between students drink cultures and their alcohol-related knowledge.

The phenomenon of alcohol misuse and abuse has been noted as one of the most significant risk behaviours among students in higher educational institutions. Studies in the US and Europe show that heavy and binge drinkers are more likely to be perpetrators, or

victims of sexual violence on campuses. They are also at high risk of suffering from psycho social and clinically significant consequences of their (binge) drinking. To our knowledge, no such studies are available for the African context outside of South Africa.

The current survey component includes pre-Drink IQ and post-Drink IQ surveys, separated by a Drink IQ presentation by a team from the University of Ghana Medical School. “IQ” here refers to correct knowledge on alcohol consumption and its effects. In the second phase of the survey 65% of the students reported that they did not consume alcohol. Among those who did

report drinking, the majority (16.9 %) are social drinkers. Students responded positively to the Drink IQ and showed interest in being part of advocacy on promoting responsible drinking among their peers. A qualitative element of the study led by Dr. Deborah Atobrah and Professor Akosua Adomako Ampofo involves FGDs and interviews among students and selected key informants. Students who drink and those who don’t, as well as those who have and have not participated in the survey have been included. Adomako Ampofo and Atobrah presented a paper on their preliminary findings at the 2014 Faculty of Social Sciences Colloquium, “*Alvaro, Smirnoff Ice or Pito? Students’ Drink Cultures at the University of Ghana.*”

## Regional Institute for Population Studies (RIPS)



*Professor Samuel Codjoe,  
Director, RIPS*

The Regional Institute of Population Studies has undertaken major research programmes that have continued in the year under review include the Type 2 Diabetes and Obesity Among Native and Migrant Ghanaian Populations: Dissection of Environment and Endogenous Predisposition (RODAM) project; African

Adaptation Research Centre of Excellence (AARC) initiative; a third wave of longitudinal data collection in the Urban Health and Poverty Project; and the GSC Penn State Project. Together, these programmes continue to provide answers to policy and practice problems and questions and will continue to put RIPS at the forefront of research and policy discussions in Ghana and beyond. Partnering with research collaborators in the other African countries, Asia and Europe, we are just beginning a new project titled Deltas, Vulnerability and Climate Change: Migration and Adaptation (DECCMA). This five-year project will examine how people are adapting to the physical effects of climate change alongside socio-economic pressures in four delta regions in Africa and Asia.

### “Gendered Social Contexts of Adolescent HIV Risk Behavior: Family, Peer Group and Community Influences in Southeastern Ghana”

This study is a mixed-methods investigation that integrates focus group discussions (FGDs) and in-depth interviews (IDIs) with a longitudinal cohort study (LCS) of youth and their parents in two communities in southeastern Ghana. The aim of the study is to identify ways in which gendered parenting practices, peer group norms, and other factors interact with individual developmental processes and local epidemiological circumstances to shape emerging patterns of sexual behaviour among youth in these communities. Initial FGDs were used to characterise the gendered ideals of sexual behaviour that parents hold for their adolescents and the gendered norms of sexual and romantic behaviour that prevail among adolescent peer groups in these communities, and informed the design of instrumentation for the LCS. The LCS includes a younger cohort (aged 13 to 14 years at Wave 1 and 16 to 17 years by Wave 3, N = 900) and an older cohort (aged 18 to 19 years at Wave 1 and 21 to 22 years by Wave 3, N = 900) who, along with their parents/caregivers, are being interviewed three times at 18-month intervals. Girls and boys are included in equal proportions. Follow-up IDIs with low-risk and high-risk LCS participants are being used to gain further insight into the strategies that adolescent girls and boys use to navigate parental and peer influences and the threat of HIV. The two study



communities are characterised by dramatic variations in localised HIV prevalence, allowing us to assess how epidemiological circumstances impinge upon adolescent sexual behaviour.

Funding of US\$ 207,025 for the study is being provided by the National Institutes of Child Health and Human Development (NICHD), of the National Institutes of Health, USA. The Regional Institute for Population Studies' (RIPS) component of the study is being led by Professor Francis Doodoo and is partnered by the Population Research Institute of the Pennsylvania State University, USA and is being led. The project duration is 2009 to 2015.

### 5th Climate Change Project of RIPS underway- Deltas, Vulnerability and Climate Change: Migration and Adaptation (DECCMA)

Researchers from the University of Ghana in collaboration with the University of Southampton and three other institutions in India, Bangladesh and Egypt are undertaking an international project to understand the effect of climate change on people living in Deltas in South Asia and Africa, and how they respond to the effects of climate change. The US\$ 1.025m Canadian dollar DECCMA (Deltas, vulnerability and Climate Change: Migration and Adaptation) project is funded by Canada's International Development Research Centre (IDRC) and the UK's Department for International Development (DFID).

The five-year DECCMA project will investigate how people adapt to the physical effects of the climate change, such as sea level rise, alongside socio-economic pressures, including land degradation and population pressures in the delta regions. The project aims to develop methods to predict how these four deltas may evolve over the next 50-100 years and provide governments with the knowledge and tools to ensure future policy maximise planning services and programmes to the benefit of the region's population. The study will also focus on the potential benefits of planned migration versus other adaptation choices such as dike construction.

Ghana's team is led by Professor Samuel Nii Ardey Codjoe from the Regional Institute of Population Studies (RIPS) as the Principal Investigator.

The project was launched on Tuesday 6th May 2014 at the ISSER Conference Facility under the chairmanship Professor Patrick Ofori-Danson who represented the Vice-Chancellor of the University of Ghana. At the launch, the Principal Investigator (PI) and Director of RIPS, Professor Samuel Nii Ardey Codjoe said the project, which is looking at migration as an adaptation option, will provide policy directions to the government and facilitate collaboration between University of Ghana and the other consortium members.

He was supported by Dr. Gopaul-Saikali who represented the Canadian High Commissioner and the Deputy Minister for Environment, Science, Technology.

### RODAM Project

In the 2013-2014 academic year Professor Ama de-Graft Aikins engaged in two main research activities at RIPS: (1) data collection and analysis on her existing projects on diabetes and cardiovascular disease (CVD) prevention and care and (2) co-managing the collaborative writing activities of the Academic Partnership of Chronic Conditions in Africa (APCCA), an international network of multidisciplinary researchers working on Africa's chronic non-communicable disease (NCD) burden.

### Diabetes and CVD Research

Since 2011 Professor Ama de-Graft Aikins has received funding of approximately US\$ 345,000 to build and lead a research team of RIPS faculty members and postgraduate students to conduct research on Ghana's chronic non-communicable disease (NCD) burden. Conditions of focus have been diabetes and cardiovascular disease and their risk factors and empirical research has examined the prevalence of these conditions, the lived experience of these conditions and the feasibility of developing practical interventions to improve community knowledge and quality of care and social support.

The research has been conducted in Ga Mashie, Accra, where RIPS has engaged in field research since 2011 and in urban and rural Ashanti Region, Amsterdam, Berlin and London where data has been gathered as part of a multi-country study of diabetes and obesity among Ghanaians in Ghana and Europe. Four (4) peer-reviewed journal articles have been produced from the broader programme of work (Agyemang *et al*, 2014; Awuah *et al*, In Press; de-Graft Aikins *et al*, In Press; de-Graft Aikins *et*

al, 2014, *see publications for complete details*). The projects have incorporated postgraduate training and led to the production of three MPhil theses, one of which has been

developed into a peer-reviewed journal article (Awuah et al, In Press, *as above*). Short summaries of the projects are presented in the table below:

**TABLE 12: RESEARCH PROJECTS AT RIPS IN THE 2013/2014 ACADEMIC YEAR**

Project Title	Donor	PI's Name	Amount
Assessing the Dietary Patterns and Health Status of Ghanaians in Ghana and New York City	New York University, Global Public Health Challenge	Professor Ama de-Graft Aikins	US\$ 55,000.00
Task-shifting program for cardiovascular risk assessment and development in Ghana	New York University, Global Public Health Challenge	Professor Ama de-Graft Aikins	US\$ 50,000.00
Type 2 diabetes and obesity among native and migrant Ghanaian populations: dissection of environment and endogenous predisposition. (Short title RODAM – Risk of Obesity and Diabetes among African Migrants)		Dr. Charles Agyemang and Professor Karien Stronks (University of Amsterdam)	US\$ 202,000.00
Catastrophe and impoverishment from diabetes: a case study on the economic burden of diabetes in Ghanaian households	Duke University, Global Health Institute	Professor Ama de-Graft Aikins	US\$ 15,000.00

## International Climate Change Colloquium

The Trans-disciplinary Research Group on Climate Change of the University of Ghana in collaboration with the Regional Institute for Population Studies (RIPS) Climate Change Resource Centre, hosted the international climate change colloquium at the ISSER Conference Facility on the University of Ghana Campus at Legon on Friday June 20, 2014. The theme of the colloquium was “Political Commitment towards 2015 Global Climate Change Agreement”

And was chaired by the Chairmanship of Professor John Owusu Gyapong, the Pro Vice Chancellor, in charge of Research, Innovation and Development (RID). In attendance were members of the diplomatic corps, members of the academic community, parliament, and representatives of Ministries, Metropolitan and District Assemblies, the media, civil societies and international development partners like the European Union and the development partners of sector working group on environment.

The guest of Honour for the occasion was the presence of Former President John A. Kufuor who is currently the UN Special Envoy on Climate Change.



Former President J A Kuffour third from left and some other dignitaries



Participants at the Climate Change Colloquium

## Centre for Gender Studies and Advocacy (CEGENSA)

### CEGENSA examines large scale land acquisition and its implications for Women in Sub-Saharan Africa



*Dr. Akosua Keseboa Darkwah*  
Director, CEGENSA

the processes of Large Scale Land Acquisitions (LSLAs) and to ensure that the legal and policy frameworks foster

This project is a collaborative effort between the departments of Women and Gender Studies at University of Buea-Cameroon, Makerere University-Uganda and the Centre for Gender Studies and Advocacy, University of Ghana. The project is to examine the conditions under which women can be empowered to effectively participate in

better accountability and legitimacy on issues of land governance in sub-Saharan Africa.

The specific objectives of the project are as follows:

- To explore the formal and informal rules and mechanisms employed by actors that are involved in LSLA in the study areas;
- To create gender sensitive evidence-based knowledge that can be used by women, local communities, non-state actors and public authorities and international actors to enhance accountability and legitimacy in LSLA processes and to ensure that they promote and respect women's rights;
- To propose gender inclusive strategies for formal and informal institutions that will respect, promote, and protect women's rights in the context of LSLAs.

The project is led by Dr. Akosua Keseboa Darkwah, Director at CEGENSA. She received a 230,000 Canadian dollars funding support from the International Development Research Centre (IDRC)-Ottawa, Canada to undertake the project.

## Centre for Migration Studies (CMS)



*Dr. Delali Badasu*  
Director, CMS

### Migrating Out of Poverty Research Programme Consortium

The "Migrating out of Poverty" Research Programme Consortium (RPC) is a six year (2010-2017) multi-

Collaboration with institutions on various migration research forms part of the CMS's core mandate. For the 2013/2014 academic year, the major projects undertaken by the Centre are "Migrating out of Poverty" and "Facilitating Intra-regional Labour Migration in the ECOWAS Region".

partner research programme funded by the UK's Department for International Development (DFID) with total funds of £6.425m. The project focuses on the relationship between migration and poverty in six regions across Asia, Africa and Europe and is coordinated at School of Global Studies at the University of Sussex, UK. The Ghana research programme is led by Professor Mariama Awumbila, Associate Professor with the Department of Geography and Resource Development. The project aims at generating policy relevant evidence on the nature and extent of internal and regional (South-South) migration and also to maximise the poverty reducing and developmental impacts of migration as well as minimise the costs and risks of migration for the poor.

The specific objectives are to:

- Understand why migration plays a significant role in poverty reduction in some places and contexts, but not in others.

- Explore the transformational potential of migration on poverty.
- Contribute to the generation of quality data on migration.
- Have a strong policy focus.
- Influence policy and practice through sharing findings with key actors such as policy makers, the media and civil society.

The Consortium partner programme in Ghana has undertaken two major research projects on “Urbanisation, Rural-Urban Migration and Urban Poverty in Ghana” and “Migration Patterns and Characteristics of Migrant Households and Well Being in Ghana.” The team is in the process of implementing a third, titled “*Livelihood Strategies and Wellbeing of Migrants in Low-Paid and Insecure Occupations in Urban Ghana.*”

## Urbanisation, Rural-Urban Migration and Urban Poverty in Ghana

This study, which forms part of the regional research of the Ghana programme, seeks to provide a better understanding of how the migration of poor people into two urban informal settlements (slums) in Accra (Nima and Old Fadama) impacts on poverty outcomes, access to services, economic and social opportunities and the barriers that they face in the urban informal sector. A key conclusion drawn from the findings is that urban slums are not only places of despair and misery but also places where migrants are optimistically making the most of their capabilities despite obvious difficulties and trying to move out of poverty. Therefore there is need for a more nuanced understanding of the inter connections between migration and poverty. The data generated from the study contributes to the data base for evidence based policy making and policy implementation for several national policies currently being developed or implemented. Outputs from the research include the following:

- “Can Rural-Urban Migration Contribute To Poverty Reduction?: Evidence from Ghana”, Migration RPC Working Paper No. 13, March 2014 (in press).
- “Migrating Out of Poverty? Evidence from informal settlements in Accra, Ghana” Regional Research Policy Brief No. 1. December 2013.

- Two journal articles and a second policy brief on internal migration and remittances are in the process of being developed.

The research is led by Mariama Awumbila, Former Director, Centre for Migration Studies, from 2007 to 2013, and has George Owusu, Joseph Kofi Teye, Alhassan Anamzoya as part of the Ghana Team.

## Migration Patterns and Characteristics of Migrant Households and Well Being in Ghana

This study, which forms part of the global quantitative research of the consortium, is a quantitative migration survey of 1,500 households undertaken in five migrant source regions (the Northern, Upper East, Upper West, Brong Ahafo and Volta regions) in Ghana. The data generated will help improve our understanding of the factors that mediate the impacts of migration on poverty, human development and wellbeing in Ghana. It further aims at contributing to the evidence base for policy making on migration, rural and urban policies, poverty reduction strategies, and for regional development planning authorities. A research report has been produced; a working paper, a policy brief and journal publications are expected outputs from this study. Members of the research team include Mariama Awumbila, who is the Principal Investigator, Peter Quartey, Joseph Kofi Teye, and Louis Boakye-Yiadom.

## Livelihood Strategies and Wellbeing of Migrants in Low-Paid and Insecure Occupations in Urban Ghana

This study, which forms part of the global qualitative research of the consortium, aims at providing qualitative data which will offer insights into experiences, livelihood strategies and well-being of migrant domestic and construction workers working in precarious conditions in Accra. It is hoped that the findings of this research, which is on-going, will provide the evidence base for policy development and implementation, such as for ILO Convention 189 on decent work for domestic workers in Ghana and other policies and programmes.

## Centre For Migration Studies Holds Dissemination Workshop on Urbanisation, Rural-Urban Migration and Urban Poverty in Ghana

The dissemination workshop on “Urbanisation, Rural-Urban Migration and Urban Poverty in Ghana”, was organised by the Centre for Migration Studies as part of the research activities undertaken by the West African Regional Programme on the project “Migrating out of Poverty.” The CMS in collaboration with associate partners at the University of Ibadan, Nigeria and Cheik Anta Diop University, Senegal, coordinates the West African Regional Programme which is one of the project Consortium’s regional research programmes. The project is funded by the UK’s Department for International Development and coordinated by the University of Sussex.

The workshop brought together policy makers from government ministries, departments and agencies, the private sector, non-governmental organisations, academia as well as research institutes. Also present were respondents from the migrant communities, one of whom shared his experiences on rural-urban migration with workshop participants. His presence gave participants

a first-hand experience of the research findings. The workshop provided a platform for participants to share and contribute to the outcome of the research project.

Participants discussed the research findings under three broad themes: methodology, substantive and policy issues. These included issues around definitions and measurements of key terms such as migrants, poverty, urban, well being, livelihood sustainability and impact on health and well being of migrants, and the need to re-think the role of environmental factors as drivers of rural-urban migration.

Professor John Gyapong, Pro Vice Chancellor, Research, Innovation and Development (RID) and chairperson for the occasion expressed his satisfaction for the Migrating Out of Poverty’s project focus on research uptake and encouraged the Centre to do more of such. He revealed that the University would take up the issue of providing training on research uptake activities for researchers in UG.

The workshop provided the platform for academicians to disseminate their research findings with relevant stakeholders among them policy-makers on ways to improve the lives of migrants living in informal settlements.



*Pictures from demonstration workshop*



*Participants in a group photo with the Pro VC (RID)*

## Centre for Social Policy Studies (CSPS)



**Professor Ama De graft Aikins**  
Director, CSPS

In the 2013-2014 academic year the Centre continued to build on its established research on social protection for vulnerable and excluded groups with three funded projects by UNICEF and PASGR. The centre also embarked on new research on health intervention and policy with funding from New York University, Grand

Challenges Canada, ORID and UK's Department for International Development (DFID).

In the year ahead, the Centre will continue its research activities on health interventions and policy. We will also begin a new programme of work on ageing that will draw on critical insights from our existing projects on social protection and chronic non-communicable diseases.

### Developing interventions and policies for Ghana's chronic non-communicable diseases burden

A major public health challenge in Ghana is the rising burden of chronic non-communicable diseases (NCDs). Conditions like diabetes, hypertension, stroke and cancers have become dominant causes of adult disability and death. For example while HIV prevalence is less than 2%, hypertension prevalence ranges between 24% in rural areas and 37% in urban areas. The prevalence of common mental health problems like depression and anxiety disorders is estimated at 10% in the adult population. Ghana's health system is ill-equipped to deal with its double burden of infectious and chronic diseases. Therefore, it has become a policy priority to invest in interventions that minimise population risk of NCDs and prevent complications and avoidable deaths among individuals living with NCDs. The research project, titled, "Developing a community-based cardiovascular disease care in Ghana: a therapeutic lifestyle approach to hypertension", focuses on developing community-

based interventions to minimise complications and avoidable deaths from cardiovascular disease in Ga Mashie, Accra. The centre, with collaborators from The Regional Institute for Population Studies (RIPS), Noguchi Memorial Institute for Medical Research (NMIMR/Noguchi), Ghana Health Service and New York University, have gathered baseline data on risk factors, everyday experiences and knowledge of community health workers relating to diabetes, hypertension and stroke. These preliminary results have been published in the *Journal of Hypertension, Ethnicity and Health* and *BMC Public Health*. In the coming year we will focus on the development of community-based CVD interventions using two key approaches: a therapeutic lifestyle approach to managing hypertension and task-shifting CVD risk assessment and care to community health workers.

Our project, funded by Grand Challenges Canada, focuses on improving mental healthcare in the Northern Region. The centre is collaborating with Basic Needs (BN)-Ghana, the leading mental health NGO in the country, to explore the feasibility of scaling up BN's rights-based and livelihood empowerment model of mental health intervention beyond its current recipient communities.



*Blood draw exercise by Noguchi laboratory technicians for diabetes prevalence baseline study.*



*Blood pressure monitoring by RIPS doctoral student researchers for hypertension prevalence baseline study*

## Evaluating Social Protection Interventions in Ghana and the African Region

The centre completed three projects on social protection. The first project, funded by UNICEF with an amount of US\$ 80,000, evaluated the impact of the Livelihood Empowerment Against Poverty (LEAP) Cash Transfer Programme in the Central and Eastern regions. The second and third projects, funded by PASGR totaling US\$ 105,000, focused on the broader challenges of social protection interventions: project two examined the role of non state actors in the provision of social protection in the Western Region; project three examined the political economy of social protection uptake at the national level, supported by a case study in the Greater Accra region. All three projects were part of multi-country studies which collectively aimed to enhance the provision of social protection interventions in eight African countries: Botswana, Ghana, Nigeria, Kenya, Lesotho, South Africa, Uganda and Zambia. The main project outputs were research reports submitted to the project funders and the development of book chapters for edited volumes arising from the regional projects. However cross-cutting insights relating to ageing have informed the development of a new programme of research dissemination and advocacy on ageing for the coming academic year.

The “Non-State actors in Social Protection” and the “Qualitative Evaluation of the Impact of the LEAP Cash Transfer Programme in Ghana” were under the leadership of Professor Ellen Bortei-Doku Aryeetey (Associate Professor) whilst the “study on the political economy

of social protection policy uptake in Ghana” was led by Professor Ama de-Graft Aikins (Associate Professor).



*Focus group discussion with recipients of LEAP at Ga Mashie Development Agency (GAMADA), Accra*

## Research and Advocacy for Active Ageing in Ghana

Ghana’s ageing population has increased more than three-fold over the last 30 years. Life expectancy has also increased, from 53 years to 60 years within the last ten years. Over the next few decades, population ageing in Ghana is likely to increase, like other low and middle income countries of Africa, Latin America and Asia, at a rate that exceeds that of high income countries of Europe and North America. This demographic shift will have important developmental implications. The United Nations states that while population ageing “is a triumph of development”, it also “presents social, economic and cultural challenges to individuals, families, societies and the global community”. Therefore, many countries require services and policies that address the multifaceted needs of their elderly populations, such as healthcare and financial security. The Centre’s existing projects on



*CSPS Panel on Ageing at the 7th Faculty of Social Sciences Colloquium May 2014*

social protection and NCDs in five regions (Central, Eastern, Greater Accra, Northern and Western) have yielded important insights for developing appropriate interventions to improve the life conditions of Ghana's ageing population. In the year ahead, we will embark on research dissemination and advocacy on ageing in Ghana, through a seminar series on ageing, the production of

an edited volume, and a workshop (in collaboration with the Department of Psychology) on active ageing. In preparation for this new programme of work the Centre convened a panel on ageing in Ghana at the 7<sup>th</sup> Annual Faculty of Social Sciences Colloquium in May, 2014 to generate critical discussion and initiate multidisciplinary collaboration.

**TABLE 13: SUMMARY OF RESEARCH GRANTS AWARDED**

Project Title	Donor	PI's Name	Amount
Scaling Services through a proven model for mental health in Ghana.	Grand Challenges Canada	Professor Ama de-Graft Aikins	US\$ 101,028.50
Developing a community-based cardiovascular disease care in Ghana: a therapeutic lifestyle approach to hypertension.	ORID	Professor Ama de-Graft Aikins	GH¢59,955
Research mapping study of the health sector in Ghana.	DFID	Professor Ama de-Graft Aikins & Dr. Sam Adjei (Centre for Health and Social Services, CHeSS)	£63,422.50
A study on the political economy of social protection policy uptake in Ghana	PASGR	Professor Ama de-Graft Aikins	US\$ 45,000
Non-State actors in Social Protection	PASGR	Professor Ellen Bortei-Doku Aryeetey	US\$ 60,000
Qualitative Evaluation of the Impact of the LEAP Cash Transfer Programme in Ghana	UNICEF	Professor Ellen Bortei-Doku Aryeetey	US\$ 80,000

## Institute for Environment and Sanitation Studies (IESS)



**Professor Chris Gordon**  
Director, IESS

The Institute for Environment and Sanitation Studies continues to demonstrate the importance of a trans-disciplinary approach to research in order to tackle the environmental issues that confront Ghana. The increase in complexity of problems means that simplistic solutions often end up making the situation worse than before. To resolve this,

holistic solutions must be developed and policy must be grounded in evidence which require targeted and relevant research. A key strength of IESS is a very vibrant and competitive graduate programme in Environmental Science at both the PhD and MPhil level. Current areas of graduate research are under the themes (i) Global

Environmental Change; (ii) Environmental Health and (iii) Ecosystems and their Services. The topics include:

### Global Environmental Change

- Studies on the Impact of Climate Variability on *Anopheles* species population in Accra and Sekondi-Takoradi Metropolitan Area of Ghana
- Assessing the Impacts of Changing Land-use in the Lake Bosomtwi Basin on the Quality of Lake Water and on the Livelihood of the People around the Lake
- Geographic Information System Application to Changing Climate and Land-use (Impact) on Water Resources in the Volta River Basin, Ghana
- Urban Sprawl, Land use change and Socio-Economic Implications in Ga-East Municipality
- The Vulnerability and Adaptation of Climate Change Impacts on Women Farmers in the Agona West Municipality



## Environmental Health

- Bioremediation of Arsenic in the Soil, Sediment and Water Samples of some selected mining communities in Ghana
- Water Quality Assessment of Ground and Surface Water in parts of Northern Ghana
- Environmental Impact of Mobile Telecommunication Industry in Ghana: A case study in Accra
- Occupational and Public Exposure to Hazards associated with naturally occurring Radioactive Materials in Mining: Dose Assessment and Risk Estimation
- Assessment of heavy metal content in pineapple fruits in selected pineapple growing communities in the Akuapem South District

## Ecosystems and their Services

- Livelihood, Biodiversity and Ecosystem services in Cocoa Producing Landscapes in Ghana
- Bushfire Induced Impacts on Soil Fertility and Carbon Sequestration Potential and the Primary Production in the Northern Savanna Zone in Ghana
- Aspects of the Biology and Ecology of Water Hyacinth in the Oti Arm of the Volta Lake
- Effects of Tourism on Environment and the Socio-economic Activities of Selected Rural Communities in Ghana
- Assessment of Drinking Water Quality of High-Yielding Boreholes in Ga-East.
- Effects of Dredging activities at the Volta Estuary on Saline Water intrusion and the livelihood and health of surrounding communities

	T.Amang	J.Ayivor	B.F.Mensah	C.Gordon	E.T.Lawson	A.M.Mensah	D.Nukpezah	B.D. Ofori	O.Pabi	D.Yirenya-Tawiah
ASSER CLARIAA (ADRC/DFID)	x	x	x	x	x	x	x	x		x
B4C(OSF)		x		x	x	x	x	x	x	
CC&GOV(EGP)				x	x			x		
UNEP-CCSB-				x	x	x				
CLIMWARN			x	x		x				
NCCP I & II (MESTI)				x	x	x				
PECCD (CDKN)				x	x	x				
Sanitation Standard (MESTI)	x		x	x						x
Triple Wins (CDKN)				x	x	x			x	
Volta Re-Optimisation (AWF)		x	x	x			x		x	x
Youth Empowerment (HFS)				x	x	x				

Apart from these projects, staff of the Institute are involved in a wide array of on-going projects working in multi-disciplinary teams. These projects include:

- Adaptation at Scale in Semi - Arid Regions (ASSAR/CARIAA)IDRC/DFID
- Building Capacity to meet the Climate Change Challenge (B4C) Open Society Foundation
- Climate Change & Good Governance in Africa (CC&GOV) Earth Governance Programme
- Development of National Sanitation Standards for Ghana. Ministry of Environment, Science Technology and Innovation
- Early Warning System for Climate Change (CLIM-WARN);UNDP and University of Ghana, implemented by IESS.
- Halting the menace: Improving the Management of Ghana's Coasts. Hanns Siedel Foundation
- NCCP II: National Climate Change Policy Part 2Ministry of Environment, Science Technology and Innovation
- Re-optimisation of operations of the Akosombo and Kpong Dams on the Volta River in Ghana to restore downstream livelihood and ecosystem: A collaborative project with the National Heritage Institute (USA) and the Ghana Water Resource Commission
- The political economy of climate-compatible development in three countries: Ghana, Kenya and Mozambique. Climate and Development Knowledge Network (PECCD-CDKN)
- UNEP Graduate Climate Change Curriculum Source Book (UNEP CCSB)

The matrix below indicates involvement of various staff of IESS on these projects

## Assessing the Public Health Impact of the Re-Optimisation of Akosombo and Kpong dams

The construction of the Akosombo and Kpong dams on the lower Volta River system has changed the ecology of the river system and impacted significantly on communities downstream. Professor Chris Gordon, Prof . Dzidzo Yirenya-Tawiah, Dr. Benedicta Fosu-Mensah and Dr. Daniel Nukpezah of the Institute of Environment and Sanitation Studies are carrying out research to assess the public health impact of reoperation of Akosombo and Kpong Dams of the riparian communities between

Akosombo and Ada. The research project also seeks to assess the prevalent public health issues in the study area; determine dam related disease vector density e.g., schistosomiasis; determine prevailing environmental situations that impact public health of affected communities and identify mitigative strategies to improve public health of affected communities

The project runs from 2013 to 2015 and is funded by the Africa Water Facility through Africa Development Bank at a total cost of 74,000.00 Euros. It is also in Collaboration with the Natural Heritage Institute and Water Resources Commission.



Higher order market centres along the Volta Lake

Planning for market infrastructure development must understand the “market operation and environment linkages” in order to mitigate the adverse consequences of market functioning and organisation of trading activities on the environment. The hierarchical order of the market centres could be adopted as a workable framework for planning the overall development of the Volta Lake Region.

### Climate change and Early Warning Communication (CLIM-WARN)

The CLIM-WARN is a two- year collaborative project (2013 to 2014) between United Nations Environment Programme (UNEP) and the Institute for Environment

### Implications of Emerging Market Centres along the Volta Lake Region

Dr. Benjamin D. Ofori studied the implications of emergence, growth and functions of market centres along the Volta Lake as well as their functioning on the lakeshore environment. He showed that the emergence and development of 43 market centres were linked to the damming of the Volta River at Akosombo in 1964 which resulted in the formation of the Volta Lake.

The study, partially supported by the University of Ghana Faculty Development Grant, brought to the fore the connections and linkages between organisation of market and trading activities and conditions of the environment.



Map of the Volta Lake

and Sanitation Studies (IESS) of the University of Ghana. The project, which is being conducted in three case study countries – Burkina Faso, Ghana and Kenya – seeks to identify ways to provide actionable warnings of climate-related hazards to vulnerable communities. It is being led in Ghana by Dr. Benedicta Y. Fosu-Mensah and includes Professor Chris Gordon and Dr. Adelina M. Mensah of the IESS. IESS is responsible for conducting field work to collect relevant data for the project.

The project is being funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), in collaboration with the United Nations International Strategy for Disaster Reduction and the Red Cross Climate Centre with a total amount of

US\$ 125,196. It is also to identify users of early warnings, develop prototype plans for uptake of warnings, improve efficiency of delivery of climate data to users and design a comprehensive warning system

Two workshops organised in July 2<sup>nd</sup> –3<sup>rd</sup> 2013 and February 11<sup>th</sup> – 13<sup>th</sup> 2014 respectively, brought together

stakeholders to identify users of early warnings in Ghana and at the regional level (Kenya, Burkina Faso and Ghana). It also provided valuable information about target groups from the case study countries, which will be relevant for the development of a globally comprehensive early warning system.



*A three-day regional workshop to identify users of early warnings at the regional level held on February 11th – 13th 2014 at Akosombo.*

## Analysis of the Political Economy of Climate Compatible Development(CCD): Artisanal Fisheries and Climate Change in Ghana

Dr. Adelina M. Mensah with her collaborators from the Institute of Development Studies, Brighton UK and team of researchers from IESS comprising Professor Chris Gordon and Dr. Elaine T. Lawson has developed an analytical framework to explore the socio-political forces and challenges for achieving Climate Compatible Development (CCD) using three case studies – in Ghana, Kenya and Mozambique.

The Ghana case study, carried out from January 2013 to July 2014, assessed the political economy of two national policy interventions in the fisheries sector: (i) subsidised pre-mix fuel that is provided to artisanal fishermen to improve their income levels; and (ii) mangrove protection, which is important as a resource and ecosystem that supports fish production. The fundamental basis of the study is that understanding and working with the prevailing political economy of policy processes is crucial to change the understanding and commitment of decision makers, to improve coordination, collaboration and mobilisation amongst key stakeholders, and to strengthen institutional capacity to deliver climate compatible development.

The research, funded by the Climate and Development Knowledge Network, provided insight into the complex political economy of Ghana's artisanal fisheries, a sector that plays a key role in livelihoods for coastal communities but has received comparatively little attention with regards to climate change linkages. It aims to help other projects and wider initiatives for tackling climate change to locate their work within a political economy context, and target efforts in politically smart ways.



*Fishing is an important source of livelihoods for coastal communities in Ghana.*



Unsustainable harvesting of mangroves can destroy the ecosystem that supports fisheries.

For more information, a working paper of the Ghana case study is available online at <http://opendocs.ids.ac.uk>. A number of documentaries on the overall project and Ghana artisanal fisheries will soon be available at the IDS website.

**TABLE 14: RESEARCH PROJECTS AT IESS IN THE 2013/2014 ACADEMIC YEAR**

Project Title	Donor	Principal Investigator	Amount
Adaptation at Scale for Semi-Arid Regions (ASSAR) – Collaborative Adaptation Research Initiative in Africa and Asia (CARIAS)	IDRC/DFID (START)	Professor Chris Gordon	US\$ 586,747
The Political Economy of Climate-compatible Development in three countries: Ghana, Kenya and Mozambique.	Climate & Development Knowledge Network Innovation Fund (IDS)	Dr. Adelina Mensah	£135,646
Halting the menace: Improving the Management of Ghana's Coasts.	Hanns Seidel Foundation	Professor Chris Gordon	EUR150,000
Early Warning System for Climate Change (CLIM-WARN)	Government of the Federal Republic of Germany (UNEP)	Professor Chris Gordon	US\$ 125,196
Re-optimisation of operations of the Akosombo and Kpong Dams on the Volta River in Ghana to restore downstream livelihood and ecosystems	African Development Bank (Water Resources Commission)	Professor Chris Gordon	EUR 120,000
Development of Background Document: National Sanitation Standards for Ghana	MESTI	Dr. Dzodzi Yirenya-Tawiah	GH¢ 257,907
Crude oil drilling: Onshore Environmental Impact Assessment of the Jubilee oil field of the Western region of Ghana.	ORID, University of Ghana	Dr. Benedicta Fosu Mensah (project partner)	GH¢ 85,797

## Institute of Applied Science and Technology (IAST)



**Professor Sammy Sackey**  
Ag. Director, IAST

Following the University's approval of the terms of reference and composition of the Advisory Board of the Institute of Applied Science and Technology, the Board set in motion several activities to carry out and achieve the objectives of the Institute. Among these activities were the approval of the Institute's Organogram and the development

of a proposal for the establishment of a secretariat and management team.

In order to enable the IAST to effectively carry out its core mandates, the Board further approved permanent facilities for the Instituted and tasked the Acting Director to consider alternative sources of funding for the set-up of a permanent structure. To enhance the capacity of the Institute in securing adequate funding for the permanent structure, the Board directed an appointment of a consultant to develop concept and strategic plan for the Institute. In order to also establish mechanism for interacting with industry, the IAST, with the help of Dr. Poku Adusei from the Faculty of Law, University of Ghana, is preparing suitable standard confidential and benefit sharing agreement for the Institute.

## IAST holds 2nd Interactive Forum with Industry

The IAST, in collaboration with the National Board for Small Scale Industries (NBSSI), Women In Agricultural Development (WIAD), Ministry of Environment, Technology and Innovation (MESTI), Association of Ghana Industries (AGI) and Private Enterprise Foundation (PEF) held a 2<sup>nd</sup> Interactive Forum in May 2014 on the theme “Industrialisation of Indigenous Food Processing for Food Safety, Security and Nutrition.” The forum, which took place at the Centre for African Wetlands, University of Ghana, was attended by industrialists, regulatory bodies and academics.



**Mr. J. Kweku Bedu-Addo**  
Chairman

The Deputy Minister for Environment, Science, Technology and Innovation, Dr. Musheibu Mohammed -Alfa, commended the Institute for embarking on a needs assessment initiative within the food processing and packaging industry and emphasised the importance of the food and drinks industry to the Ghanaian economy, especially as the sector employs a large number of people. Dr. Mohammed-Alfa lauded the University of Ghana for establishing such an interdisciplinary applied research institute which recognises that the problem of development requires different approaches in the sciences, technology and innovation disciplines. Consequently, he stated that the focus of the forum, which is food processing and packaging technologies to ensure safe, nutritious food and food security in Ghana, is timely and must be supported.

The benefits of the forum is an enhancement of processed

The purpose of the Forum was to assess the needs of the food processing and packaging industries in Ghana, to better inform the research and development agenda for both industry and academia. The Forum brought together over 120 participants from both industry and academia. Present at the Forum, which was chaired by Mr. Kweku Badu Addo, Managing Director of Standard Chartered Bank Ghana, were the Deputy Minister for Environment, Science, Technology and Innovation, the Chief Director of Ministry of Trade and Industry, the Pro Vice-Chancellor for Research, Innovation and Development, the Provost of the College of Agriculture and Consumer Sciences, members of Association of Ghana Industries, NBSSI, WIAD, Institute of Packaging, Ghana, academia, the media and the general public.



*Deputy Minister for Environment, Science, Technology and Innovation,  
Dr. Musheibu Mohammed -Alfa*

products and packaging technologies, which will bring about advancement in the Ghanaian economy.

Presentations were made by various stakeholders in industry. Mrs. Isabella Mansa Agra from the Food and Drugs Authority briefed participants on the procedures for registration and certification of products. Madam Leticia Osafo-Addo, CEO of Samba Products, also presented on the challenges involved in putting new products on the market and ensuring quality of the product as well as recognising the changing trends. Professor Robert Hinson, an Associate Professor from the University of Ghana Business School, spoke on how to market and advertise products to gain the right people, customer sensitisation and creating a good image. Mr. Salman Munkaila of the Export Development and Agricultural Investment Fund (EDAIF), made a presentation on the role his organisation plays by accessing finance for start-ups and scale-up operations.

A final presentation by Madam Stepanka Gallatova from the Food and Agriculture Organisation (FAO), gave a link between the demographic trends in Africa and its implication of food demands due to population growth and urbanisation.



*Exhibitions at the forum*

Professor. Esther Sakyi-Dawson, an Associate Professor of the Department of Nutrition and Food Science, recommended the setup of facilities for small scale industries and the organisation of trainings to address issues with product and packaging.



## Institute of Applied Science and Technology Collaborates with Japan International Research Center for Agricultural Sciences (JIRCAS)

The IAST is collaborating with the Japan International Research Center for Agricultural Sciences (JIRCAS) on a project that will identify agricultural biomass with potential for biofuel production. IAST is the

host for the project with a multidisciplinary team of participating scientists including Professor Sammy T. Sackey and Professor Naa A. Adamafo of Department of Biochemistry, Cell and Molecular Biology, Professor Ofosu-Budu of the College of Agriculture, Kade and Dr. Ted Annang of Institute of Environment and Sanitation Sciences.

## West Africa Centre for Crop Improvement (WACCI)



**Professor Eric Danquah**  
*Director, WACCI*

The West Africa Centre for Crop Improvement (WACCI), a partnership between the University of Ghana (UG) and Cornell University, USA was established in June 2007 with initial funding from the Alliance for a Green Revolution in Africa (AGRA) to train plant breeders, at the PhD level, to improve the indigenous crops of the

sub-region. It's establishment is based on the premise that we can train plant breeders in Africa, who will work on African crops in African environments. The first cohort of eight students graduated in July 2013. An additional 59 students are currently at various stages of PhD training. The main sponsor of the PhD programme is AGRA but increasingly, a number of countries and funders are sponsoring students at WACCI under the West Africa Agricultural Productivity Programme (WAAPP). WACCI is working with about 20 National Agricultural Research Institutions, and other advanced research institutions globally, the private sector and farmers to train plant breeders in Africa, for Africa.

It is our hope that The World Bank (WB) Africa Centre of Excellence (ACE) funding of US\$ 8M will provide the springboard for transforming WACCI into a sustainable African Centre of Excellence for training plant breeders and seed scientists and technologists.

With these significant strides achieved within the academic year under review, I would like to extend my appreciation to all staff members, prospective and current students, collaborating universities, funders/sponsors, national agricultural research institutions, other advanced research institutions globally, the private sector and farmers, without whose efforts and contributions these would not have been possible.

## Transforming West Africa Centre For Crop Improvement to an African Centre of Excellence to Train Tomorrow's African Plant Breeders Today

WACCI has been selected as one of the 15 Africa Centres of Excellence (ACE) to be established by the World Bank under the World Bank - Association of African Universities ACE project. This is after going through all the competitive proposal processes of the World Bank and Association of African Universities. The World Bank project aims at strengthening the capacity of selected universities to deliver high quality training and applied research at the regional level within areas of Science Technology Engineering and Mathematics (STEM), as well as Health and Agriculture that are of particular relevance to Africa's development.



*Project Team Members at a Workshop on development of Project Implementation Plan*

The WACCI project aims to train plant breeders who will be at the forefront of developing superior climate-

smart and resilient varieties of staple crops to increase productivity in West and Central Africa. The Centre will also run an innovative Master's programme in Seed Science and Technology (SST) to complement the plant breeding programme.

## Fellowship Awards - WACCI

### WACCI Student Awarded Norman E. Borlaug Leadership Enhancement in Agriculture Programme (LEAP) Fellowship



*Mercy Elohor Diebiru*

Mercy Elohor Diebiru, a third year PhD student of the West Africa Centre for Crop Improvement (WACCI), was selected as a Fellow of the Norman E. Borlaug Leadership Enhancement in Agriculture Programme (LEAP) of the US Government's Feed the Future 21<sup>st</sup> Leadership Programme. Miss Diebiru, a Researcher at the International Institute for Tropical Agriculture (IITA), is working on 'Rapid Breeding Cycle for Cassava' for her PhD research.

Miss. Diebiru is being recognised by LEAP for her promise and potential in the area of agriculture. According to the Director of Borlaug LEAP, Susan Johnson, Miss. Diebiru in her application and interview showed strong promise as a leader in the field of agriculture and her research demonstrated potential to make an impact in developing countries and honor Dr. Borlaug's achievements. Funding for the Borlaug LEAP Fellowship is provided by the United States Agency for International Development.

### WACCI Graduate Participates in the 2014 Washington Fellowship for Young African Leaders

Abdalla Dao, a graduate of the West Africa Centre for Crop Improvement (WACCI), was selected to participate in the 2014 Washington Fellowship for Young African

Leaders, a new flagship programme of President Barack Obama's Young African Leaders Initiative (YALI). Dr. Dao is a Research Scientist at the Institut de l'Environnement et de Recherches Agricoles (INERA), Burkina Faso. For his PhD research at WACCI, he worked on 'Genetic characterisation, association mapping and evaluation of heterotic patterns of tropical maize inbred lines under drought and non-drought conditions.'



*Dr. Dao in group photograph with the President of Florida International University, USA, and a colleague YALI Fellow.*

As part of the Fellowship, Dr. Dao spent six weeks studying business and entrepreneurship, civic leadership, and public management at the Florida International University, and received a Certificate in Public Management from the university. After his academic residency at the Florida International University, he was honored by the Mayor of Miami-Dade County, Mr. Carlos A. Gimenez, as a 'Distinguished Visitor of Miami-Dade County'. The climax of the Fellowship was a three-day summit with USA leaders in the field of agriculture, business, government, and the non-Profit sector hosted by President Obama in Washington DC. This allowed him to hone his leadership skills and network with other young leaders from Sub-Saharan Africa and the USA. Dr. Dao's Fellowship will continue in Africa where he will have access to ongoing professional development, networking, and the option to compete for seed funding.

## Biotechnology Centre

### Developing Capacity in Biotechnology in Ghana and the West African Sub-Region

The Biotechnology Centre was established to enhance training and research in biotechnology and biosafety and to pursue activities which will successfully address important issues within the country and the West African sub-region. The Biotechnology Centre plays a leading role in research and teaching in molecular biology and biotechnology in the sub-region. Staff of the Centre have been actively involved in development of biotechnology in the West African sub-region and also participated in advocacy and training workshops in biotechnology for various stakeholders in other regions in Africa. The Centre has been provided laboratory facilities to students and staff from within and outside the University.

The Centre recognises the need to build critical national and sub-regional capacity in biotechnology and biosafety which has become imperative in today's world in view of the products, promises and challenges of agricultural biotechnology.



*Students working at the Biotechnology Centre's Laboratory*

As part of its quest to build critical national and sub-regional capacity in biotechnology research, the Centre has developed three postgraduate programmes, namely, Masters (M), Master of Science (MSc.), Master of Philosophy (MPhil), which has been given a three-year accreditation commencing September, 2013 by the National Accreditation Board (NAB). The Director of the Centre is in discussing with NAB to defer the effective starting date from September, 2013 to September 2015, to ensure effective and efficient implementation of the programme.



# Research Activities within Colleges and Faculties



# Research Activities within Colleges and Faculties

## College of Health Sciences



**Professor Yao Tettey**  
Provost, CHS

Research is one of the main objectives of universities worldwide and it is the door to the creation and development of new ideas, knowledge and technology. The College of Health Sciences has a mission to produce highly qualified and competent health professionals and medical scientists to provide promotive, preventive and curative services to meet the health needs of

the nation and the global community through excellence in teaching, research and dissemination of knowledge. Research undoubtedly is the main driving force for the achievement of this mission. The College therefore promotes and supports research among all staff and in all constituent units. In line with the new vision of the University of Ghana of becoming a “World Class University” and for that matter “A Research University”, the College is providing the necessary environment for the faculty members to carry out excellent and cutting edge research. Moreover with the introduction of the collegiate system in the 2014/2015 academic year, I am hopeful that further collaborations and partnerships both locally and internationally would emerge resulting in increased research activities and outputs.

### College of Health Sciences : 1<sup>st</sup> Biennial Public Lecture

The College of Health Sciences held its 1<sup>st</sup> Biennial Public Lectures at the University of Ghana on 26<sup>th</sup> September 2013 to commemorate the 65<sup>th</sup> anniversary of the University of Ghana. The Lecture was on the theme ‘*The Changing Trends of Motor Accidents and Challenges in their Management*’. In attendance was the Vice Chancellor of the University of Ghana, Professor Ernest Aryeetey, who also chaired the function. Other dignitaries were the Provost of the College of Health Sciences, Professor Yao Tettey and deans of all the constituent Schools of the College.

There were four lecture series presented by different experts on the theme. After the lectures a communiqué was developed with some observations, recommendations and resolutions.

### Observations

1. It was observed that the World Health Organisation (WHO) 2013 Global Status Report on Road Safety indicates that road traffic injuries were the leading cause of death in young people aged 15-29 years and the 8<sup>th</sup> leading cause of death globally.
2. Autopsy report of 1,499 road traffic accident between 2008 and 2012 at Korle Bu Teaching Hospital and the 37 Military Hospital reveal that the age at the greatest risk of dying from traffic accidents is 20-49 years.
3. The United Nations has declared that all countries should reduce the number of road – traffic accidents by half by the year 2020.
4. The National Road Safety Commission is committed to reducing accidents in Ghana to a single digit.
5. Many victims of road traffic accidents have difficulty in accessing prompt healthcare. It takes an average of three hours however the optimum is an hour.
6. Road traffic accidents are still a major cause of mortality especially among the youth of Ghana
7. About 13 cases of road traffic accidents are seen daily at Korle Bu Teaching Hospital (Accident and Emergency unit) and 25% of these cases are motorcycle accidents.
8. There has been an ascending of death of riders of motorcycle from 84 in 2006 to 210 in 2010. A majority (80%) of these victims are males who fall between the ages of 20 and 40 years. Head injuries constitute about 50% of these injuries.
9. In addition, a lot of the motorcycles on our roads are not registered; riders have no licenses and therefore no insurance covers.
10. There are peculiar injuries to pregnant women when road traffic accidents occur. There is also a compounding effect of injuries from road traffic accidents on cardiac and respiratory physiology of pregnant women.

## Recommendations to Government

1. A multidisciplinary approach is needed to solve the motorcycle menace in Ghana.
2. The motor Traffic and Transport Unit of the Ghana Police Service should ensure that all motorcycles are duly registered and riders are properly licensed and attired with crash helmets.
3. All road users (drivers, passengers, motorbikes riders, pillion riders and pedestrians) should be constantly educated on road safety.
4. There is a need for all Ghanaians to register with National Health Insurance Scheme.
5. Hospitals need to be adequately equipped to deal with trauma resulting from road traffic accidents.

## Resolutions

The College of Health Science reaffirms its commitment to:

1. The promotion of prompt management and treatment of cases of road traffic accidents to prevent complications and death.
2. Specifically champion health education programming aimed at mitigating the number of road traffic accidents that occur on our roads and its effect on all Ghanaians, especially pregnant women and victims of the motorcycle menace.
3. Continue to train the relevant health personnel to tackle the consequences of road traffic accident in the hospitals throughout the country.

## Research at the School of Public Health



**Professor Richard Adanu**  
Dean, School of Public Health

The Philosophy of the School of Public Health is “*School without Walls*”. This philosophy has been our guiding principle over the years and has led us to an enviable position of being one of the preferred public health institutions in Africa for public health research. The School has established an extensive research network with leading institutions on

a regional and global scale. Members of the faculty at the school are actively engaged in various cutting edge research endeavours.

## Completed Research

### Study of the social determinants of health which influences maternal and child health inequalities in Africa, Latin America and Europe

This study was done by a consortium, MASCOT (Multi-lateral Association for Studying Health Inequalities and Enhancing North- South and South- South Cooperation). The consortium is composed of the School of Public Health, University of Ghana, Council on Health Research for Development (Switzerland), Euroquality (France), Sociedade Portuguesa De Inovacao (Portugal), Fundacion Instituto Centroamericano De Salud Internacional (Costa Rica), Instituto Nacional De Salud Publica (Mexico), Universidad Catolica De La Santisima Concepcion (Chile), Centre for Health Policy – University of the Witwatersrand Johannesburg (South Africa), National Institute for Medical Research (Tanzania), Health Action Partnership International (United Kingdom), Hopital Farhat Hached De Sousse (Tunisia).

The project, funded by the European Commission, had a total grant of EUR 1,999.895.00. The Ghana team was led by Professor Moses Aikins. The Ghana team conducted a country assessment on inequalities in health and documented research priorities and available funding options. The School facilitated a successful knowledge exchange workshop and field learning trip on Maternity Waiting Homes in Maputo between Ghana Health Service and Mozambique Ministry of Health. Three reports: The Status of Maternal and Child Health Inequalities in Ghana; National Health Research Systems and its Role in Maternal and Child Research in Ghana; and The Impact of Health Research on Development of Maternal and Child Health Policies and Programmes, were completed and accepted by the European Commission. The project ended in March, 2014.

### Bridging Academic Institutions (ACBRIDGE)

The aim of the German Academic Exchange Service (DAAD) funded project was to promote inter-university co-operation through academic mobility and to enhance the quality of teaching and research in African universities. Four students, including three Ghanaians

and one German, were awarded scholarships to pursue PhD programmes. Professor Richard Adanu was the lead investigator at the School of Public health and the total grant money was EUR 1,967,272.00. The students have completed their doctorate programmes.

### National Health and HIV Survey of Prison Inmates and Prison Officers in Ghana (PRISONS SURVEY)

This study assessed the situation of Human Immunodeficiency Virus (HIV), Sexually Transmitted Infections (STIs), and other illnesses among prison inmates. The study identified risk factors which significantly contributed towards prison inmates acquiring and transmitting HIV, STIs and other key illnesses infection in Ghana . The study was conducted on behalf of the Ghana AIDS Commission, and had some partners from the University of Ghana Medical School. The study involved 14 male and female Prison centers in Ghana. The study has been completed and the final report submitted to the Ghana AIDS Commission. Dr. Augustine Ankomah was the lead investigator.

### Improving Health Research and Education Capacity in Africa (Africa Build)

The project aimed to improve health research and education capacity in Africa, through information technologies, and to build an African Centre of Excellence in health informatics using technology in health research. A needs assessment of the SPH/UG of ICT infrastructure

was done and an online portal developed. Dr. Richmond Aryeetey was the lead SPH Investigator.

## On-Going Research

### Urban Community-based Health Planning and Services (CHPS) Project

The Ghana Essential Health Interventions Project (GEHIP) is an innovation that aims at extending the CHPS programme to urban communities. The objectives are to improve access to integrated maternal newborn and child health (MNCH) services, promotive and preventive health interventions through the CHPS programme and effective emergency referral systems; to strengthen management and service capabilities at the district-level and below through the use of improved information technology and programme planning and analysis tools and to develop public health leadership capacity that responds to the imperative for stronger district-level health systems. The CHPS Programme has been scaled up following the creation of 10 more CHPS zones in the Dome-Kwabanya district, and the commissioning of the GEHIP building at Dome. Twenty new Community Health Officers have been trained to provide primary health care in the newly created CHPS zones. In addition, volunteers and Community Health Committees were also trained to serve in the new CHPS zones in a separate training session. This has resulted in an increase in the family planning and antigen coverage in the CHPS zones. Professor Philip Adongo an Associate Professor is the Lead Investigator.



Community Health Screening



CHO and Volunteer leading discussions on food classes

## Cardiovascular Research Training (NYU-CART PROJECT)

Health practitioners from Ghana and Nigeria are being trained in cardiovascular research and related disciplines. Each cohort of scholars are trained in three sessions within a year. The programme is in its third year and has trained a total of 65 scholars. Professor Richard Adanu is the lead SPH investigator.

## Improving maternal and newborn survival through a combined focus on evidence, advocacy and accountability across six sub Saharan Africa Countries (Evidence for Action - E4A)

The objectives of the project are to: improve training and supervision of caregivers; improve client/provider partnership for advocacy and using evidence/data for decision making. The E4A project has signed a contract with Greater Accra Regional Health Management Team (GARHMT) to launch a campaign on safe motherhood. Different safe motherhood groups are involved to create awareness about maternal and neonatal health. The project also held a one-week workshop on the analysis of large datasets, which was held at the SPH. Professor Richard Adanu is the lead SPH investigator.

## Filariasis Elimination in Africa

The aim of the project is to improve coverage through understanding of the social and behavioural factors affecting community treatment compliance, and the dynamics of urban populations in uptake of mass drug administration (MDA). The project also aims at developing innovative ways of improving reporting treatment coverage from the community through to the national level using mobile telephony platforms. Professor John Gyapong is the Principal Investigator.

## Supporting Decentralised Management to Improve Health Workforce Performance in Ghana, Uganda and Tanzania (PERFORM)

The overall aim is to identify ways of strengthening decentralised management to address health workforce inadequacies which will result in improving health

workforce performance in sub-Saharan Africa. The project has completed an initial situation analysis of three study districts and selected bundles of strategies to address the health workforce problems. The project has identified and prioritised Human Resource (HR) and Health Systems (HS) problems in three study districts. The School of Public Health has successfully hosted the Consortium workshop involving all partners. Professor Moses Aikins (Associate Professor) and Dr. Patricia Akweongo are the lead investigators of this project.

## Ghana Field Epidemiology and Laboratory Training Programme (GFELTP)

The training programme seeks to strengthen public health capacity by developing a cadre of health professionals with advanced skills in applied epidemiology and laboratory management. The programme also aims to improve national capacity to respond to public health emergencies such as disease outbreaks, natural disasters and other unusual public health events such as chemical or biological terrorism. Since the inception of the programme, a total of 25 residents have been conferred with degrees. Alumni of the GFELTP programme assisted the Ghana Health Service in investigating disease outbreaks. Professor (Col. Rtd) Edwin Afari is the lead investigator at the School of Public Health.

## Training of the One Health Next Scientific Generation in the Sahel and Maghreb (OH-NEXT-GEN)

The School of Public Health (SPH) is amongst nine (9) institutions on this project, and serves as the editorial board for the OH-NEXT-GEN project. SPH is involved with the development of curricula and course content, as well as producing the virtual learning environment for the programme. The main output of this project is the unique and sustainable web-based training programme in neglected zoonotic diseases based on the 'One Health' concept. It will also contribute to research development and improved control of zoonoses in Africa. Dr. Samuel Sackey is the lead investigator on the project at the School of Public Health.

## Investigating the Role of Mobile Phones on the quality and utilisation of prenatal and neonatal care in rural Ghana - Mobile Technology for Community Health (MOTECHE)

This project is a partnership between the Healthcare Innovation Technology (HITLAB) and SPH to



*Interviewing session with some mothers*

investigate the role of mobile phones on the quality and utilisation of prenatal and neonatal care in rural Ghana, and to demonstrate that mobile phones could serve as an efficient tool for improving maternal and child health outcomes. Dr. Augustine Ankomah is the lead investigator at the School of Public Health.



*CHO and Volunteer leading discussions on food classes*

## African Programme for Advanced Research Epidemiology Training (APARET)

APARET is an advanced training initiative whose goal is to support independent research activities by graduates of Field Epidemiology and Laboratory Training Programs (FELTP) in Africa. The four year programme is supported by a grant of over 2 million Euros from the European Union. The programme was initiated to combine the training of qualified professionals in advanced skills in epidemiology with an opportunity for the host training institutions to obtain highly remunerated research grants that can promote self-driven research. The APARET consortium is composed of 13 organisations. These are: School of Public Health, University of Ghana; Bernard Nocht Institute of Tropical Medicine, Germany; African Field Epidemiology Network, Uganda; WHO Multi Disease Surveillance Centre, Ouagadougou; Kwame Nkrumah University of Science and Technology center for collaborative research in tropical medicine, Kumasi-Ghana; Makerere University School of Public Health, Uganda; University of Ouagadougou; University of

Zimbabwe; Muhimbili University of Health and Allied Sciences; Ahmadu Bello University, Nigeria; Swiss Tropical and Public Health Institute; Vienna School of Clinical Research, Austria; and the Center for Disease Control and Prevention, Atlanta. There are presently three cohorts of scholars. Professor (Col. Rtd) Edwin Afari is the lead investigator at the School of Public Health.

## Sustainable Sanitation Ghana (SUSA)

The overall objective of the SUSA project since its inception in 2011 is to identify existing barriers to improved sanitation. The study also intends to develop business models for providing hygienic latrine technologies and waste management solutions that can be used in poor, rapidly urbanising townships in Ghana. The strategy being used to achieve this is the training of PhDs with a multidisciplinary approach to answer the objectives of the project. Dr. Mawuli Dzodzomenyo and Professor Moses Aikins are the lead investigators at the School of Public Health for the environmental health and policy streams.

## Capacity Strengthening For Health Policy and Systems Analysis Research and Teaching in Africa

The Consortium for Health Policy and Systems Analysis in Africa (CHEPSAA) project is a capacity strengthening project for health policy and systems analysis research and teaching in Africa, through harnessing synergies among African and European universities with relevant expertise. One of the proposed courses is the health policy and systems research (HPSR) methodology. Networking in CHEPSAA is also ongoing for the development of a Doctor of Public Health (DrPH) programme for the School of Public Health. Professor Irene Agyepong-Amartefio is the lead investigator at the School of Public Health.

## Developing and Evaluating Approaches for Accelerated Attainment of MDG 4 and 5 in Ghana and other Sub-Saharan African Countries

This ACCELERATE project is a collaboration between the Netherlands Organisation for Scientific Research (NWO/WOTRO), University of Utrecht and SPH. The project seeks to promote the reductions in maternal and infant mortality by developing and evaluating approaches for accelerated attainment of MDG 4 and 5 in Ghana and other sub-Saharan African countries. The intervention aims at strengthening the basic health system functions of organisations and the delivery of essential health services, human resource management and governance. Professor Irene Agyepong-Amartefio is the lead investigator at the School of Public Health.



*Some mothers with their babies at a clinic*

## New Research Projects Doctoral Programme in Health Leadership for Africa (DRPH-HLA)

The goal for the Doctoral Programme in Health Leadership (DPHL) in Africa is the development of transformational strategic high-level leadership for the health and health-related educational sectors of sub-Saharan Africa. The specific objective is to develop health professionals and practice leaders with high-level leadership skills and abilities (and the will to use them) to support the attainment of the vision and mission of public health. Professor Irene Agyepong-Amartefio, an Associate Professor, is the Principal Investigator, and the total grant amount is US\$ 399,907.00.

## Strengthening in-Country Health Systems Research Capacity in West Africa

The project objective is to undertake a collaborative planning process for the preparation of a plan to support individual and institutional capacities in understanding and using health policy systems research in the West African region. The project also aims to bring together institutions and individuals with the ability to train and mentor health policy and systems (HPS) researchers and consumers in the region. It is being coordinated by the University of Ghana, School of Public Health (UG-SPH), in partnership with the International Development Research Centre (IDRC), Canada, and the West Africa Health Organisation (WAHO). Professor Irene Agyepong-Amartefio is the Principal Investigator, and the total grant amount is US\$ 191,766.00.

## Mapping HIV Prevention Services and Activities to the District Level in Greater Accra Region, Ghana

The project aims to test the Know Your Response (KYR) toolkit in the Greater Accra Region of Ghana, specifically to identify and eliminate problems in the KYR tools and/or making the toolkit widely available in a finalised format. It also aims to determine whether data collected via the tools yield the information that is needed to assess the extent to which prevention interventions match current HIV-transmission patterns, are focused on geographic areas where HIV is spreading most rapidly, and cover technical

recommendations for HIV prevention among populations at higher risk of HIV exposure. Dr. Amos Laar is the lead SPH Investigator. The total grant amount is US\$ 100,870.00. This project is funded by USAID through MEASURE Evaluation.

## Influencing National Health Policy: Development of State of the Nation's Health Report for Ghana

The long range goal of this project is to establish a center at the School of Public Health (SPH) with capacity to independently and periodically report on the state of health of the Ghanaian people and also the Health system. The project, which is being led by Professor Richard Adanu and funded by the University of Ghana Research Fund, has commenced with stakeholder consultations to agree on the key health indicators of national interest to report on. The school of public health is also sourcing for funding to be able to sustain this initiative.

## University of Ghana Medical School (UGMS)



*Professor Jennifer Welbeck  
Dean, UGMS*

The University of Ghana Medical School (UGMS) has recognised the invaluable services rendered by clinicians, biomedical scientists and post-graduate students in terms of research and has provided a separate building with facilities for the promotion of research among the senior members, senior staff and post graduate students.

The UGMS is also putting in place innovative ways of funding for basic, applied and medical research to boost research within the Medical School.

## Center for Tropical Clinical Pharmacology and Therapeutics

The Center for Tropical Clinical Pharmacology and Therapeutics (CTCPT) is a research and clinical department of the University of Ghana Medical School (UGMS). The Center conducts multidisciplinary research

and training in all aspects of clinical pharmacology. The current research activities of the center are based on clinical studies, employing a range of pharmacometric, pharmacogenetic, pharmacoepidemiologic and laboratory investigations to improve drug therapy of communicable as well as non-communicable diseases. Ongoing research activities at the center are:

### Malaria Chemotherapy Research

- a. **Clinical trials and in vivo/ in vitro antimalarial drug efficacy testing:** These involve clinical trials for in vivo therapeutic efficacy and monitoring of resistance to antimalarial drugs in sentinel sites across Ghana. The in vivo data are complemented by in vitro testing to determine susceptibility of clinical isolates to antimalarial drugs. The objective of the studies is to provide up-to-date efficacy data on first-line antimalarial drugs to enhance timely, evidence-based decision making by the National Malaria Control Programme. The studies are being done in collaboration with colleagues from the Noguchi Memorial Institute for Medical Research and funded by the National Malarial Control Program and the US Naval Research Unit (NAMRU).
- b. **Pharmacokinetics and Pharmacodynamics of antimalarials in children with HIV or sickle cell disease:** These involve the use of modelling techniques to determine pharmacokinetic pharmacodynamic (PK/PD) parameters of importance to presumed alterations of antimalarial drug disposition in patients with HIV or sickle cell disease, to establish whether current dose regimens are adequate for these sub-groups, or whether there is a need for dose adjustment, as clinical response in these patient sub-groups, may differ from children without these conditions. The studies are being done in collaboration with colleagues from the Department of Child Health and collaborators from University of Copenhagen, Denmark, and funded by grants from the Consultative committee on development research (FFU) of DANIDA, and the University of Ghana (UGRF).



- c. **Malaria Transmission assessment in a potential site for clinical trials:** These involve establishing sentinel sites and surveillance systems to obtain accurate disease burden estimates in health facilities across the country, as a background for establishing a clinical trial site for testing of future interventions. The studies are being done in collaboration with colleagues from NMIMR and funded by the European and Developing Countries Clinical Trials Partnership (EDCTP), through the West African Network of excellence for TB, AIDS and Malaria (WANETAM).

## HIV Research

- a. **Demographic, clinical and genetic risk factors for nevirapine hypersensitivity reactions in HIV-infected patients:** The study is aimed at determining risk factors associated with nevirapine hypersensitivity reactions in HIV-infected adults, and involve estimating frequency of occurrence of specific alleles in implicated genes and relationships with selected clinical and laboratory parameters. The study is being done in collaboration with colleagues from the Department of Medicine and Therapeutics and is funded by the University of Ghana (UGRF).
- b. **Post-exposure prophylaxis in health care workers in Korle-Bu Teaching Hospital/ Factors associated with regimen switch in HIV positive patients attending Korle-bu Teaching Hospital (KBTH):** These pharmacoepidemiologic studies are aimed at evaluating the HIV post-exposure prophylaxis programme for health workers at the KBTH, and determining factors associated with antiretroviral therapy regimen switch in HIV-infected patients. The studies are being done in collaboration with the Department of Medicine and Therapeutics and the Pharmacy Unit, KBTH.
- c. **Putative protective effects of sulphamethoxazole-trimethoprim prophylaxis on malaria incidence in HIV infected children:** This study is aimed at evaluating potential mechanisms underlying the putative protective effect of cotrimoxazol

prophylaxis on malaria incidence in HIV-infected children. The study is being done in collaboration with colleagues from the Department of Child Health and collaborators from Brown University, USA and funded by the grant from UG-Brown University Academic Partnership for AIDS (UGBAAP).

## Pharmacovigilance Research

The CTCPT is involved in the INDEPTH Network Effectiveness and Safety (INESS) studies which is funded by the Bill and Melinda Gates Foundation and led by the School of Public Health, UG. The WHO Collaborating Center based at the CTCPT is leading Africa-wide efforts to deploy electronic health records for drug and vaccine safety monitoring. Pharmacovigilance activities also include cohort event monitoring of antiretrovirals and pharmaco-epidemiological studies on medicines and vaccines in multiple sites and countries in Africa. The WHO Collaborating Center is especially focused on research on communication in drug safety and the development and deployment of enterprise-wide risk management systems in health care delivery.

## Drug Therapy in Special Patient Population Research

- a. **Neonatal drug Therapy research. Interactions between amikacin and aminophylline in newborns with sepsis:** This study is aimed at determining the effect of concurrent administration of aminoglycosides alone, on outcomes in newborns with sepsis, and to evaluate the effect of the combination on selected PK/PD, and microbiological characteristics. The study is a PhD study project funded by a scholarship from the BSU partnership and supervised by faculty from CTCPT and Department of Child Health, and University of Copenhagen, Denmark.
- b. **Dietetic drug therapy in pregnancy research. Metformin versus insulin in the management of gestational diabetes mellitus and type II pre-gestational diabetes mellitus at Korle Bu Teaching Hospital:** The study is aimed at establishing effectiveness of metformin alone, or metformin in combination with insulin on selected glycaemic targets and management

of gestational diabetes mellitus in pregnant women.

## Malnutrition Research

- **Role of selected health and social determinants of malnutrition and audit of interventions to reduce the condition in moderately and severely malnourished children:** These studies are aimed at establishing determinants of malnutrition in children with moderate and severe forms of malnutrition at the Princess Marie-Louise Hospital. The studies are being done in collaboration with colleagues from the Department of Community Health, and funded by the University of Ghana UGRF) and the Building Stronger Universities (BSU) initiative.

## Department of Community Health

The departments' goal is to renew its commitment to research and increase its research capacity and ability to carry out longitudinal studies. Below are the research activities of some faculty members for 2013/2014:

- **The Multi-country Study of Global Ageing and Adult Health (SAGE Wave 2)** is being conducted in six countries (China, Ghana, India, Mexico, Russian Federation and South Africa). The aim of the study is to generate valid, reliable and comparable information on a range of health and well-being outcomes of public health importance in adults and older populations. It also aims at studying changes in health outcomes and their determinants and how they impact the life course. The study is to supplement and cross-validate the self-reported measures of health through the use of measured performance tests, health examinations and biomarkers to improve the reliability of data on morbidity and risk factors. The study involves a nationally representative sample of around 6000 participants. The Principal Investigator for Ghana is Professor Richard Berko Biritwum. Co-investigators are George Mensah and Dr. Alfred Yawson (Department of Community Health).
- **Evaluation of the management of acute hyperglycaemia in diabetics admitted in a poorly-resourced, urban primary care centre in Ghana**

The primary goal of this observational prospective study is to evaluate the management of adult patients admitted with acute hyperglycaemia on the inpatient wards at the Korle Bu polyclinic. This study is funded by BSU-PHH pilot project research grant.

- **A study on views of key stakeholders in Sub-Saharan Africa on Family Medicine**  
The general aim of the study is to explore the views of key academic and government leaders, practitioners and students in countries of Sub-Saharan Africa on the potential contribution of Family Medicine to healthcare and the need for training. It involves a collaboration of family physician researchers from nine Sub-Saharan African countries, including Ghana. Phase 1 of the project (Sub-Saharan Africa) was supported by the HURAPRIM Project, which received funds from the European Union's Seventh Framework Programme (FP7-AFRICA-2010). Phase 2 (Ghana) is ongoing.
- **Injuries associated with small scale gold mining in Ghana**  
The aim of this study is to characterise and document injuries associated with small-scale gold mining in Ghana. Data for this research is being collected from small scale gold mining areas in Ghana but with particular interest in Tarkwa. It is a collaboration between the Department of Community Health, UGMS, University of Michigan, McGill University and the Ghana Health Service.
- **A biological pediatric HIV disclosure intervention in Ghana – "Sankofa"**  
SANKOFA HIV Pediatric Disclosure study is a five year NIH funded project with Yale University and Komfo Anokye Teaching Hospital. The total project amount is about US\$ 200,000.00 over a five-year period which started in 2013. The project will provide information on a structured disclosure intervention that can be integrated into usual care in Ghana and other resource-limited settings to improve the welfare of HIV-infected children and their care givers. Preliminary work shows that several factors can be modified and the process of disclosure promoted with an intervention approach that is grounded in a

traditional Ghanaian concept, “SANKOFA”, and behavioural and bioecological systems theory. Dr. Lorna Awo Renner is the Principal Investigator of the study. Other investigators are Elijah Paintsil (PI, Yale University), Nancy Reynolds (Co-PI, Yale University), Angela Ofori-Atta (Co-Investigator, University of Ghana), Margaret Lartey (Co-Investigator, University of Ghana).

## Department of Psychiatry

Research projects in the Department of Psychiatry, 2013/2014

- **Mental Health Screening Study among Medical Students**

The stressors associated with studying tend to be exacerbated by the length of the medical school course. Thus students are particularly vulnerable to mild and serious mental health problems and there is a collective sense among faculty that more ought to be done on a formal level to help students. Each year for the past seven years, the Department of Psychiatry has screened all students as they come for orientation into Medical School and has followed them with regular assessments every two years. The measures include those of stress, emotions, life events, coping, and perception of social and emotional support. Students with scores indicative of distress have received counseling. This year, the University of Ghana Alumni Association has approved a grant to enable the analyses of seven cohorts of this longitudinal study. Results will enable us design evidence based preventative and therapeutic interventions. This is being led by Dr. Sammy Ohene.

- **The Prayer Camp Study**

This study is also known as the Joining Forces: Integrating psychotropic medications into the care of people with mental disorders in prayer camps in Ghana. It is funded by a University of Ghana Research Grant and explores the interface between modern psychiatry and faith healing in a prayer camp setting. It is the first randomised control study in a prayer camp setting in Africa. The results of the pilot study indicate that medication can be used alongside spiritual healing methods in a controlled faith healing setting in Ghana. This is led by Dr. Angela Ofori-Atta.

- **Mental Health Information System**

Four years ago, the Mental Health and Poverty Project, led by Dr. Ofori-Atta in Ghana, set up information systems in the three psychiatric hospitals in Ghana. The first report of the intervention is published in the Department’s Reader which is part of the University’s 65th anniversary series. The results of the study are being further analysed in collaboration with the Yale school of Public health and a paper is soon to be published on prescribing practices in the three hospitals. As well, a first assessment and audit of the system in one hospital has been completed by Ms. Lily Kpobi as her dissertation towards her second master’s degree in psychology from the Universities of Cape Town and Stellenbosch. The research is led by Dr. Angela Ofori-Atta.

- **Ethical Decision Making Among Health Professionals And Students**

This is an ongoing study of the way in which health professionals and students think about the dilemmas they face in the course of their duties. The study uses a semi-structured interview, as well as a structured questionnaire. The measures are administered by medical students and MPhil students as part of their training in ethics. The first results have been published in the Department of Psychiatry Reader in the University’s 65th anniversary series. The research is led by Dr. Angela Ofori-Atta.

- **Depression And Quality Of Life In Chronic Renal Disease**

This is a multi disciplinary study between the Departments of Psychiatry and Medicine. The project seeks to understand how depression impacts the course of chronic renal disease and how treatment of depression can positively enhance the quality of life of a patient and perhaps also influence the course of illness. The research is led by Professor C.C. Mate-Kole.

- **Parkinson’s Disease Project**

Another collaborative study is the Parkinson’s project, which straddles researchers from the departments of Psychology, Psychiatry and Medicine. The study will yield information about the interface between mind and body in debilitating illnesses associated with aging. This is led in the Department of Psychiatry by Professor C. C. Mate-Kole.

## Department of Anatomy

- **First Microscopic Features of Chest and Selected Facial Hairs in Negroid Males Produced**

With the increasing ease of international travels and occurrences of mass fatalities, disaster managers have formidable problems with identification of victims from co-mingled body parts. Under such circumstances microscopic features of human hairs provide a relatively simple and cheaper first line of examination to establish the race, sex, and age of victims. For the use of human hairs as identification tools, it is important to profile hairs from people for ease of reference. There is a relative scarcity of information on microscopic features of indigenous negroids. Most literature available is from African Americans whose hairs have undergone structural changes concomitant with intermarriage and genetic mixing. It is in this light that the Department of Anatomy has produced the first microscopic features of black and grey chest and facial hairs in male indigenous Ghanaians for use in forensic identification.

## Department of Chemical Pathology

- **Testosterone levels in Ghanaian men with Type 2 Diabetes**

Dr. Asare-Anane Henry and his team are researching into testosterone levels in Ghanaian men with Type 2 Diabetes. The team demonstrated that testicular function mediated by testosterone among Type 2 diabetic males is compromised. The group is also looking into the possibility of using testosterone therapy to manage diabetes in men. The research team is currently looking into serum and urinary lysosomal enzyme activities before the onset of microalbuminuria in diabetic patients. This is being done in collaboration with Dr. Charlote Osafo of the Renal Unit of Korle-Bu Teaching Hospital.

- **Low testosterone levels in men found to predict insulin resistance and future development of type 2 diabetes mellitus**

The incidence of diabetes mellitus is increasing at an alarming rate. Uncontrolled diabetes mellitus leads to serious medical complications such as

cardiovascular diseases, neuropathy, nephropathy, and retinopathy. The aim of the study was to investigate androgen levels and its association with obesity in Ghanaian men with Type 2 Diabetes Mellitus. The study showed primary hypogonadism in Ghanaian men with Type 2 Diabetes Mellitus and obesity being an independent risk factor for hypogonadism.

## Department of Medicine

- **Bacterial variation and E. Coli clones in inflammatory bowel disease**

Through a grant from the Department of microbiological surveillance and research-Statens Serum Institute, the research team led by Dr. Andrey Rederson-Hvidore (University of Denmark) with Dr. T. Archampong and Professor Mercy Newman (an Associate Professor) as co-investigators is investigating bacterial diversity in faecal samples of patients with IBO. The team is also characterising the spectrum of gastrointestinal micro-flora identified in faecal samples from patients with IBO.

- **Stroke investigation, research and education network (SIREN)**

The overall goal of SIREN (Stroke Investigative Research and Education Network), is to evaluate the premier genetic and environmental risk factors for stroke in SSA, while simultaneously training professionals and building sustainable capacities in phenomics, biobanking, genomics, biostatistics and bioinformatics for the high-level investigation of stroke (and other Non-Communicable Diseases) in SSA. This research is funded by the NIH. Dr. Albert Akpalu is the Principal Investigator.

- **Parkinson's disease in Africa project (Ghana)**

The research team is reviewing the socio-demographic, epidemiologic, clinical features and genetic causes of Parkinson's disease patients attending the Neurology out-patients clinic of the Korle Bu Teaching Hospital. The project is funded by Fondazione Grigioni Per Il Morbo Di Parkinson (Milan). Dr. Albert Akpalu is the principal investigator.

- **Ghana Wessex stroke partnership project**

This is a multidisciplinary study led by Dr. Albert Akpalu. The experiences of patients and

staff involved show how multidisciplinary work between health professionals from different settings and perspectives can improve stroke care in many dimensions, from acute positioning to neurorehabilitation, and from managing patient expectations of recovery to delivering palliative care.

- **Ghana fights against epilepsy initiative**

The initiative aims at integrating epilepsy management in the primary health care system; improving awareness of community groups to decrease stigma; and increasing demand for epilepsy care. WHO, Sanofi Espoir is funding this initiative led by Dr. Albert Akpalu.

- **Nucleoside reverse transcriptase inhibitors (NRTI) use and frequency of HIV peripheral neuropathy (HIV-PN) in Accra, Ghana**

The Holger-Pohlmann Foundation has funded this research to assess clinical evidence of PN by symptoms (numbness, burning pain, sensitive feet, etc) and physical examination (ulcerations, ankle reflexes, monofilament, etc) score in MNSI, to determine vibration perception by biothesiometer and to assess mitochondrial DNA haplogroup polymorphism by GeneChip Human® Mitochondrial Resequencing Array v2.0. Dr. Peter Pupilampu is the principal investigator.

- **Psychological well-being and quality of life in chronic kidney disease patients at Korle Bu Teaching Hospital, Accra**

The research team is engaged in this research to establish the prevalence of depression and assess quality of life among non-dialysis ESRD patients and ESRD individuals on haemodialysis. It is also examining the nature, pattern, extent and severity of cognitive deficits among these individuals. This research will therefore determine the association between quality of life, psychosocial profile and cognitive functioning in this cohort of patients. Dr. Patrick Adjei is the lead researcher with funding from the University of Ghana Research Fund.

- **Capacity building to prepare West African sites for clinical trials in hiv, tb and malaria**

The Chest department, Korle Bu Teaching Hospital, is part of a network called WANETAM (West African Network of Excellence for TB,

AIDS and Malaria) sponsored by the European and Developing Countries Clinical Trials Partnership (EDCTP). The main objective of this grant is to set up nodes of excellence in HIV, TB and malaria research in West Africa, and in the Chest Department through training, infrastructure development and capacity building in TB research. The Chest Department under the University of Ghana Medical School is a collaborator and is linked with six other institutions, including the Medical Research Centre (MRC), Gambia, which is a centre of excellence for TB research. The objectives are to provide capacity building within West Africa, which will allow the successful conduct of clinical trials for new tools against HIV, TB and malaria, and to create a network for sub-regional scientific collaborations. The team at the Chest Department have taken part in group trainings in GCP, GCLP, database and data management, and are well equipped to undertake the present proposed study.

## Department of Microbiology

**Project topic:** Stroke Investigative Research & Educational Network (SIREN)

**Brief Background:** Africa in epidemiologic transition is currently faced with an exploding but neglected burden of non-communicable diseases, including vascular risk factors like hypertension, DM, and dyslipidemia culminating in stroke. The recent United Nations high-level meeting on the global burden of non-communicable disorders (NCDs) highlighted their disproportionately huge burden in low and middle-income countries (LMIC) and stressed the urgent need to tackle them, particularly in developing countries. Stroke is the most common cause of acquired disability and the second most common cause of death world-wide.

**Aim:** The overall goal of SIREN is use a multicentre approach to evaluate the premier genetic and environmental risk factors for stroke in sub-Saharan Africa (SSA), while simultaneously training professionals and building sustainable capacities in phenomics, biobanking, genomics, biostatistics and bioinformatics for the high-level investigation of stroke (and other Non-Communicable Diseases).

**Expected Outcome:** The study will provide valuable information on factors that promote stroke in SSA and to compare Black Africans with Africans in the Diaspora. The genetic determinants including novel polymorphisms will be elucidated.

**Donor Agency:** NIH - NINDS/NHGRI (Grant Award Number: 1U54HG007479-01)

**Amount:** US\$ 600, 000.00 (Primary Grantee: University of Ibadan)

**Name of Principal Investigator:** Dr. Albert Akpalu and Dr. Eric Sampane as Co – Investigator.

**Project topic:** HIV-1 treatment failure and drug resistance in Ghanaian patients during the first three years of antiretroviral therapy.

**Brief Background:** In resource limited environments, CD4+ determination has been used to monitor patients on ART. It has been shown that in such circumstances, there is the tendency for the acquisition of drug resistance mutations. In order to assess ART programs relying on CD4+, it is important to assess HIV-1 drug resistance profiles of patients with different periods of ART.

**Aim:** The specific aims of this study therefore are to determine HIV-1 plasma viral load and risk factors for viremia in HIV-1 infected patients on first-line HAART for 1,2 and 3 years, and to compare HIV-1 drug resistance profiles among viremic patients on first-line HAART for 1, 2 and 3 years.

**Expected Outcome:** This study will help identify rates and factors associated with treatment failure, and the timing and patterns of emergence of HIV-1 drug resistance. Such data are unavailable in Ghana and in addition to improving capacity and extending expertise, they will allow subsequent interventions to be instituted to improve patient care.

**Donor Agency:** CFAR/Brown University (NIH CFAR Developmental Grant)

**Amount:** US\$ 40, 000.00

**Name of Principal Investigator:** Kwamena WC Sagoe PhD

## Department of Obstetrics and Gynaecology

- **Maternal Obesity and Pregnancy Outcome Study (MOPOS)**

The MOPOS project was a study conducted at the Korle-Bu Teaching hospital to compare pregnancy outcome in a cohort of obese pregnant women and their non-obese controls. About 630 pregnant women were recruited in the second trimester and followed until delivery. The project was funded by a small project grant from the Forgyat International Center - NIH.

- **Human Papiloma Virus (HPV) genotyping among HIV+ women on HAART**

This is a study which seeks to characterise the HPV genotypes as well as premalignant cervical lesions among HIV+ women who are taking ARV therapy at the Korle-Bu Fevers Unit. HIV/HPV co-infection is very common and HIV+ status potentiates the risk of persistent HPV infection and progression to invasive cervical cancer. Knowledge of the HPV genotypes among this high risk group will inform cervical cancer prevention policy among HIV infected women. Specimen collection has ended and the laboratory aspect of the work is on-going.

- **Advanced Maternal Age and Pregnancy Outcome Study**

This is a cross sectional study which seeks to identify the risk factors for pregnancy among women 40 years and above as well as compare the pregnancy outcome with their younger controls. Ethical approval has been received and participant's recruitment is currently on-going. The project is based at the Maternity Unit of the Korle-Bu Teaching hospital. This project is currently self-sponsored by the investigators.

- **Feasibility of establishing a prospective cohort of pregnant women with sickle cell disease**

This project is being done in collaboration with researchers from Vanderbilt University and Washington University, both in the USA. This study seeks to establish the largest cohort of pregnant women with sickle cell disease and to perform pulmonary function assessment among this group. Pulmonary complications are by far the leading cause of mortality among pregnant women

with SCD and such a large prospective study will help identify potentially modifiable risk factor for maternal mortality among SCD women. Ethical clearance processes are already underway and the actual project will commence soon.

## Department of Pharmacology

- **Antidepressant Effects of *Mallotus oppositifolius* in Acute Murine Models**

Extract from *Mallotus oppositifolius* demonstrates antidepressant activity in mice by interacting with glycine/NMDA receptor complex. This pathway is being actively investigated and is considered as an alternative therapeutic target with potentials of discovering rapid-onset antidepressants in depression management.

- **Effect of Xylopic Acid on Paclitaxel-induced Neuropathic pain in rats**

Xylopic acid, a diterpenoid isolated from fruits of *Xylopiya aethiopica*, demonstrated potent analgesic effect against paclitaxel-induced neuropathic pain in rats. Neuropathic pain is a common side effect with paclitaxel use in cancer chemotherapy - Dr. K.E. Kukuia is the Lead Investigator in this project.

- **Interaction between Amikacin and Aminophylline in Ghanaian newborns with sepsis**

The department of Pharmacology is collaborating with the Centre for Tropical Clinical Pharmacology and Therapeutics and Department of International Health, Immunology and Microbiology University of Copenhagen, Denmark in this research.

## Department of Child Health

- **Sankofa Paediatric HIV Disclosure Study**

This is a five year research project which started in 2013. It aims at providing information on a structured disclosure intervention that can be integrated into usual care in Ghana and other resource-limited settings to improve the welfare of HIV-infected children and their caregivers. It is expected to develop a novel intervention approach grounded in behavioral theories which will be useful in facilitating disclosure of HIV status to children by caregivers. The study will, for the first time, inform when to disclose (age appropriate) and affirm the psychosocial and medical benefits

of disclosure. This research is funded by the NIH through Yale University with an amount of US\$ 200,000. Professor Lorna Awo Renner an Associate Professor of the Medical School and the Principal Investigator.

- **International Epidemiologic Databases to Evaluate AIDS (IeDEA) West Africa HIV Collaboration**

The overall aims of the project are: 1) to measure the effectiveness of combination antiretroviral treatment (ART) in HIV-infected individuals in West Africa in the long term, and to assess factors that influence outcomes; 2) to increase the capacity for delivering ART durably in West Africa by increasing the capacity for monitoring clinical outcomes at the individual and population levels in adults and children; 3) to document the morbidity burden in HIV-infected individuals in care in HIV programs throughout West Africa. This research started in 2008 and it is being funded by NIAID, NICHD, NCI through ADERA (Bordeaux) with an amount of Euro11,000 per annum. Professor Lorna Awo Renner is the Principal Investigator.

- **The Aetiology of Pharyngitis in Children in Outpatient Setting**

The aim of the ongoing study is to determine the aetiology of pharyngitis in children. At the end of the study, bacterial isolates and antibiotic sensitivities would be made available to policy makers in the health sector to reduce the incidence of Rheumatic heart diseases in Ghana. Dr. C. Oduro-Boatey is collaborating with colleagues from the Noguchi Memorial Institute of Medical Research.

## Department of Anaesthesia

- **The prevalence of obstructive sleep apnea in patients attending the anaesthesia clinic of the Korle Bu teaching Hospital**

Obstructive sleep apnea (OSA) is believed to occur in 9%-24% of the general population, based on studies done in the USA. This has important implications for anaesthesia and surgery as patients with OSA have a higher incidence of post-operative complications than the general population. The aim of the ongoing research is to determine the prevalence of OSA in patients 18 years old and

above, attending the anaesthesia clinic at the Korle Bu Teaching Hospital. Professor Henry Baddoo is the Principal Investigator.

- **Assessing the Use of Over-the-Counter Medications and Herbal Preparations in Patients Presenting for Elective Surgery at the Korle-Bu Teaching Hospital**

Non-steroidal anti-inflammatory drugs (NSAIDs) are widely available and prescribed class of analgesics at frequent intervals. They are known to be among the most commonly purchased or prescribed drugs around the world, used by approximately 30 million people daily. They are also available in the over-the-counter (OTC) and prolonged use may have the potential for harm especially among patients with co-morbidities. In Ghana, like other parts of Africa, there is also intense use of herbal medicines and other forms of complementary or alternative medicines which is prevalent mainly because it's more accessible and affordable. However, their use may lead to potential complications in the perioperative period.

The aim of this ongoing study is to determine the prevalence and factors associated with the use of Over-The-Counter and herbal medications among patients presenting for elective surgery at KBTH. The study seeks to provide data on the prevalence of over-the-counter (OTC) medication use in patients presenting for elective surgery; prevalence of herbal medicine use in patients presenting for elective surgery; factors associated with the use of OTC and herbal medications in patients presenting for surgery; the relationship between herbal medicine use and renal function; the effects of over-the-counter and herbal medications use in elective surgical patients. The results from the study would help shape policies for the safe preoperative management of patients. Mr. George Aryee is the Principal Investigator.

## Department of Pathology

The Department of Pathology of the University of Ghana Medical School since its inception 50 years ago has pursued its mandate of teaching medical students, nurses and students of allied sciences, and offering diagnostic services (histopathology, immunohistochemistry and cytology) to the general population

and to clients outside the country. In addition, the Department is involved in medical and scientific research in elucidating the mechanisms and pathogenesis of certain types of cancer (breast, prostate, colorectal), malaria, viral diseases (hepatitis B virus, hepatitis C virus, human immunodeficiency virus), syphilis, sexual transmitted diseases, and other diseases in the country. Another strength of the Department lies in its numerous collaboration and alliances with universities and non-universities research institutions in Ghana, elsewhere in Africa and around the world.

The following research projects are currently on-going in the Department.

### **Prostate Cancer in Ghana: A Cohort Study**

There is strong variation in the risk of prostate cancer throughout the world. Reported incidence rates of prostate cancer among African Americans are among the world's highest. Reasons for these high rates are unknown, but would be made clearer with an understanding of rates of prostate cancer in Africa, since African Americans share genetic ancestry with Africans. However, because reported prostate cancer rates vary 11-fold within Africa, the true burden of prostate cancer in Africa is unclear. This study, funded by the National Cancer Institute, U.S.A. aims to:

1. Develop data to assess the burden of prostate cancer,
2. Detect, diagnose, and treat prostate cancer cases in the West African nation of Ghana.

The Principal Investigator is Professor Ann Hsing (NCI) and the Co-Principal Investigator is Professor Andrew Anthony Adjei and the total amount involved is US\$ 25,000.00.

### **Skin Bleaching: potential hazards to the health of Ghanaian women and men**

The use of skin lightening creams has become a serious phenomenon widely practiced by both men and women in Ghana and the practice cuts across all socio-demographic characteristics. The primary motivating factor or reason for using the products is to lighten the skin colour because light-skinned individuals are portrayed as "icons" of beauty. Other reasons include, to look more attractive; to go with existing fashion trend; to treat skin blemishes like acne or melasma; to cleanse or "tone" the face and body; or to satisfy the taste of one's spouse.



Some of the products that are used for skin bleaching include hydroquinone and its derivatives (hydroquinone monobenzylether and monomethylether), steroids, mercurials (mercuric iodide and mercuric chloride), toothpaste, washing soda, and sometimes fluid from car batteries (anecdotal report). Numerous reports indicate that short and long term use of these products cause certain diseases including hypertension, diabetes, fungal and bacterial infections, nephritic syndrome, exogenous ochronosis, dermatitis, squamous cell carcinoma, nail pigmentation, patchy pigmentation, glomerulonephritis, extensive striae, and body odour. Unpublished reports from the three major hospitals in the country (Korle-Bu Teaching Hospital, [KBTH], 37th Military Hospital, Komfo Anokye Hospital [KATH], indicate increased cases of diabetes, dermatitis, skin cancer, hypertension, nephritic syndromes, loss of skin elasticity and impaired wound healing, fungal and bacteria infections among individuals who bleach. This study, funded by Food and Drugs Authority (FDA), Ghana aims to:

1. To estimate the prevalence of skin bleaching cosmetics and toiletries use in Korle Gonno, Chorkor, James Town, Teshie, La, Nungua, Agbobloshie Market, Accra Newtown Market and Accra Central Market (Makola).
2. To assess the nature and extent of problems related to the products use.
3. To measure the levels of mercury in urine, blood, serum, blood pressure (BP), fasting blood sugar (FBS) and random blood sugar (TBS) of the subjects.
4. To monitor kidney function by measuring microalbumin,  $\alpha$ -microglobulin, urine creatinine.
5. To determine the prevalence of diseases in users of these products.

The Principal Investigator is Professor Andrew Anthony Adjei and the total amount involved is GH¢59, 000.00

## University of Ghana Dental School (UGDS)



*Professor Grace Parkins  
Dean, UGDS*

There has been ongoing research in the UGDS within departments, with departments within the College of Health Sciences and with International collaborators. There is a research committee to collate research within the school. To enhance this, the College of Health Sciences has given the School a computer to

set up a research office to help centralise all research activities. Research activities have

yielded many publications within the year as a result of much effort, in addition to the enormous clinic work and teaching faculty is inundated with.

International collaborators are from the New York University College of Dentistry, Umea University, Sweden and the University of Pennsylvania, Philadelphia.

## Research at the Department of Community and Preventive Dentistry (DCPD)

- **Type II Diabetes and Oral Health: perceptions among adults with diabetes and oral/health care providers in Ghana**  
The aim of the research is to examine oral health perceptions, awareness, and practices among people living with diabetes. This study is expected to gain salient information regarding oral health perceptions and practices and feasible mechanisms for implementing a health promotion intervention for individuals with diabetes. The study is funded by the New York University College of Dentistry (NYUCD). Dr. Hillary Broder is the principal investigator.
- **The prevalence of periodontal disease among Ghanaian adults living with type II diabetes**  
The study was aimed at conducting an epidemiological study to determine the prevalence

and severity of periodontitis among adults living with diabetes in Ghana. Results of the study showed high prevalence of periodontal disease among Ghanaians with diabetes in comparison to periodontitis prevalence rates among non-diabetics in countries of similar socio-economic background as Ghana. The collaborative study is funded by the New York University College of Dentistry (NYUCD). Dr. Daniel Tormeti is the Co-Principal investigator.

- **Comparison of patient satisfaction with three denture base materials used in the fabrication of removable partial dentures**

This is an ongoing study to compare patient satisfaction with removable of partial dentures fabricated from three different denture base materials: Chrome Cobalt, Acrylic resin and Valplast, and to establish which of them is the most acceptable and which is the least acceptable and why. The study will provide evidence on which denture patients prefer. It will guide practitioners when planning treatment for patients. Dr. Sandra Hewlett is the principal investigator.

- **Oral Health Calibration in Ghana following the CDC National Health and Nutrition Examination Survey (NHANES) Guidelines**

The research is aimed training and calibrating a group of six examiners and six recorders to conduct and record oral health examinations in a standard manner. This ongoing study will provide the framework for future research involving US and Africa in studies focused on the mechanisms and interactions between hypertension and oral disease. Furthermore with a locally standardised and calibrated team in Ghana, the prevalence of these oral diseases can be measured and monitored. This training will also afford the trainees, under guidance of the CDC, the expertise to train the next batch of trainers so eventually a workforce of oral health researchers will be built in Ghana to collect oral health data across the country thus enhancing research into oral health. The New York University School of Dentistry is funding the research. Dr. Sandra Hewlett is the site principal investigator.

## Research at the Department of Oral Medicine/Oral Pathology

- **Prevalence of Oral Pathological changes of the Oral Mucosal in patients undergoing chemotherapy and radiotherapy for Head and Neck malignancy.**

The aim of the research is to determine the prevalence of pathological changes of the oral mucosal in patients undergoing chemotherapy/radiotherapy for Head and Neck malignancy. This ongoing research will lead to the determination of the prevalence of oral mucosal changes to formulate management protocol to control the side effects of chemotherapy/ radiotherapy during the treatment of head and neck malignancy. The study is self funded and Professor Nii Otu Nartey an Associate Professor of the Dental School is the principal investigator working with Dr. Francis Kwamin and Dr. Richarder Dawson.

- **Hypertension among Ghanaian Adults attending the Dental School Clinic**

The study is to compare the blood pressures of two adult populations: Adult dental patients and adults accompanying their wards for dental treatment. The study will determine the blood pressure changes before dental treatment in the normal adult population. The study is self funded and Professor Nii Otu Nartey is the principal investigator working with Dr. Francis Kwamin and Dr. Richarder Dawson.

- **Effect of commonly used local oral cleansing agents on the progression of periodontal disease**

The aim of this research is to ascertain the effect of extracts of selected chewing sticks on the pathogenesis and progression of periodontal disease. The research seeks to ascertain the presence of inhibitory agents in chewing sticks. Dr. Francis Kwamin is the Principal Investigator of the study funded by the University of Umea, Sweden.

- **Aggregatibacter actinomycetemcomitans (Aa) and acute periodontitis in Ghanaian Adolescents.**

Aa is classified into non-JP-2 and JP-2 clones. Aa, especially the JP-2 genotype is associated with aggressive periodontitis in adolescents. This genotype is uncommon amongst Caucasians. The

study therefore aims to ascertain the presence and prevalence of Aa and its association with aggressive forms of periodontitis in Ghanaian school children. The study seeks to establish a statistically significant prevalence of Aa. Dr. Francis Kwamin is the co-investigator with the Principal Investigator being Carola Hoglund Aberg.

- **Developing an antidote to progression of periodontal disease**

This study by Dr. Francis Kwamin, Ander Johansson and Professor Nii Otu Nartey have shown that guava extracts inhibit the activity of leukotoxin, the toxic agent Aa secretes to affect its aggression in periodontitis. The investigators are further seeking to develop an oral cleansing agent from guava extracts in the form of oral rinse or paste. The study is being funded by the University of Umea, Sweden.

- **Oral cancer awareness of medical and dental practitioners in a large teaching hospital in Ghana**

Oral cancer is largely preventable and early detection makes it more amenable to treatment and allows the greatest chance of cure. Insufficient knowledge and awareness by both medical and dental practitioners contribute to the delays in referrals and treatment. This ongoing study is being carried out to determine the oral cancer knowledge and awareness of medical and dental practitioners of the Korle Bu Teaching Hospital. This is a self funded research by Dr. Richardar N.A.T Dawson.

## Research at the Department of Orthodontics and Paedodontics

- **Prevalence and Distribution of Anomalies of Tooth Number in Ghanaians: A Radiographic Assessment.**

The purpose of this study was to determine the prevalence and distribution of anomalies of tooth number in Ghanaian Orthodontic Patients. Data was captured from the examination of 79 pretreatment panoramic radiographs of patients requesting Orthodontic Treatment at the University of Ghana Dental School between the years of 2007 to 2012 and that exhibited anomalies of tooth number. The percentages of these anomalies were assessed in the group, in the sexes and the

distribution between the two jaws was compared. Results indicated that Hypodontia (70.9%) was more common than Hyperdontia 29.1%). The study was self funded and Merley Newman-Nartey was the principal investigator.

- **The Impact of Localisation of Clinical Dental Training on the Brain Drain of Dental Surgeons in Ghana**

The aim of this study was to determine the effect of the localisation of clinical dental training on the retention of dental surgeons trained at the University of Ghana. Between 1974 and 1992, a sandwich programme for the training of dental surgeons existed between the University of Ghana and the following foreign institutions: University of Lagos, University of Manchester and Kings College London. The challenges were funding, limited intake (about ten students per annum) and the failure of graduates to return to Ghana. After 1992, when clinical training was localised, student intake increased steadily from six per annum to about 25 per annum with a steady increase in graduating female students. Results indicate that there was a significant (80%) retention rate of dental surgeons who undertook their clinical training in Ghana, a 56% retention rate for those who studied in Nigeria and only 34% retention rate for those who studied in the UK. The study was self funded and the Principal Investigator was Dr. Merley Newman-Nartey

- **The Status of Orofacial Cleft Care in Ghana**

Orofacial Clefts (OFC) are common congenital facial anomalies. The study seeks to determine the status of care for OFC patients in Ghana. Currently, in addition to the Ministry of Health, there are six Non-Governmental Organisations, which are dedicated to the provision of logistics for the management of cleft patients. As it is possible that there could be OFC endemic areas in Ghana, sensitisation of the population of the condition and management of this anomaly should be promoted. Persons of OFCs are faced with known challenges, which result in negative self-image that affect their quality of life. Hence educating the general public, in particular pregnant women, who access antenatal care in health facilities may reduce ill effects associated

with the anomaly. Genetic studies of the anomaly should also be encouraged to help decrease the incidence. The study was self funded and the principal investigator is Pius Agbenorku.

- **Level of Awareness and Prevalence of Career Associated Medical Conditions amongst Dental Practitioner in Ghana.**

The aim of this study was to assess the awareness and prevalence of career-associated medical conditions amongst dental surgeons, dental hygienists and final year students at the University of Ghana Dental School. Self-administered questionnaires were used to capture data and results indicated that even though there was a high level of awareness of career associated medical conditions; prevalence was still high and indicative of poor practice and behavior towards preventive measures. The study was self funded and the principal investigator was Dr. Merley Newman-Nartey.

- **Residency Training in Ghana : The Residents Perspective**

This study was undertaken to ascertain the factors that have influenced residency training from the viewpoint of the trainee specialist. Data was captured using self-administered questionnaires to residents of both Korle-Bu Teaching Hospital and Komfo Anokye Teaching Hospital. The results from this study suggest that there is a need for a review of teaching methods in specialist training at the Ghana College of Physicians and Surgeons to improve upon the engagement of residents. It was recommended that adequate funds be set aside to encourage research and its dissemination at local and international conferences. The study was self funded and the Principal Investigator was Dr. Merley Newman-Nartey.

- **A Survey of the Orthodontic Knowledge of Students of the University of Ghana Medical School**

The aim of this study was to investigate the orthodontic knowledge of clinical and non-clinical medical students of the University of Ghana Medical School and data was captured using self-administered questionnaires. Results indicated an inadequate level of knowledge of orthodontics to enable them refer patients for

orthodontic treatment and it was recommended that tailored introductory lectures that specifically address dental specialties, including orthodontics, be included in the curriculum. The study was self funded and the Principal Investigator was Dr. Merley Newman-Nartey.

## School of Allied Health Sciences



*Rev. Professor Patrick Ayeh-Kumi  
Dean, School of SAHS*

The school of allied health sciences has prioritised research in line with the University's vision of becoming a research based university. Faculty at the various departments – physiotherapy, occupational therapy, medical laboratory sciences, radiography and dietetics – have vigorously pursued research endeavors. The

results have been the winning of research grants and a number of publications in high impact international journals.

## Department of Physiotherapy

### **Efficacy of Behavioural Graded Activity Compared with Conventional Exercise Therapy in Non-Specific Chronic Low Back Pain: A Pilot Study**

This research is being carried out by Dr. Ajediran I. Bello. The aims of the study were to evaluate the efficacy and cost effectiveness of behavioural graded activity compared with conventional exercise therapy for patients with non-specific CLBP. The research results indicate that CET and BGA have similar outcomes in patients with chronic nonspecific LBP with regard to the pain and quality of life. Effective application may however be hampered by the cost-related factors, thus suggesting evaluation of healthcare system in Ghana. This is a University of Ghana-Danish Universities Academic Partnership on Building Stronger Universities Initiative Platform on Human Health (BSU-PHH).

### **Development and validation of a rehabilitation service delivery model for the care of children with cerebral palsy in selected rural communities**

This is a three-year research project in collaboration with CBM International and the Presbyterian Church of Ghana, inclusive child development programme 2012. Children diagnosed with cerebral palsy (CP) are referred for rehabilitation care and globally the effectiveness of early, well-coordinated, comprehensive, caring rehabilitation has been proven. This collaborative inclusion of community health nurses in this study will open up accessibility for rehabilitation of children with CP in all areas and communities, both urban and rural in Ghana. Gifty Nyante is the principal investigator.

### **An exploration of the experiences and perceptions of primary caregivers of children with cerebral palsy living in rural communities in Ghana**

This study explores the experiences and perceptions of primary caregivers of children with cerebral palsy living in rural communities in Ghana. The study will solicit information on how primary caregivers of children with cerebral palsy conceptualise cerebral palsy and disability; the strategies used by the primary caregivers to facilitate the functioning, quality of life and participation of children with cerebral palsy and the experiences and expectations of primary caregivers of children with cerebral palsy for rehabilitation services delivery. Gifty Nyante is the lead investigator.

## **Department of Medical Laboratory Sciences**

### **Asymptomatic *P. falciparum* in Residents of Mountainous Kwahu-South District of Ghana**

This study sought to investigate the prevalence of *P. falciparum* which causes the most common and fatal malaria in Ghana, in asymptomatic residents of the Kwahu-South District capital. The study revealed that even though residents are aware of malaria in their community, not all of them actively protect themselves against infections. Some asymptomatic residents have *P. falciparum* which could become symptomatic and fatal in the under 5-year olds. In spite of the inability of mosquito vectors to thrive at high altitudes, they are present in large numbers here and transmitting malaria. This could be because of climatic and weather conditions

of the area. Ewurama Ampadu Owusu is the principal investigator.

### **Molecular surveillance of *Plasmodium vivax* infection and Duffy genotypes in Ghana**

The study aims are to answer and provide data on the possibility of *P. vivax* infection in supposedly Duffy negative populations such as Ghana. The study is being funded by the University of Ghana research fund. Dr. Charles Brown is the principal investigator.

### **Comorbid conditions among Tuberculosis Patients: The case of diabetes in the Accra Metropolis.**

This is a seed grant accessed from the University of Ghana research fund by David Nana Adjei. The study focus is on finding evidence for improving control and management of the co-morbidity condition of diabetes and tuberculosis in patients.

## **Department of Radiography**

### **Determination of accurate gantry angles for tangential breast irradiation without conventional simulator**

The objective of this study was to determine the relationship between simulated and calculated gantry angles. The results obtained show a very strong positive linear correlation with a significant level of  $p \leq 0.01$  (2-tailed) between the simulated and calculated gantry angles. With this, one can safely assume the reliability of the calculated gantry angles technique for conventional tangential breast. Dr. Samuel Opoku was the principal investigator.

### **Knowledge, Attitudes, Beliefs, Behaviour and Breast Cancer Screening Practices in Ghana, West Africa**

Led by Dr. Samuel Opoku, this study revealed poor knowledge of breast cancer and the screening methods as well as low levels of practice of breast cancer screening among Ghanaian women. The study also discovered that routine mammography screening will be very difficult to implement in Ghana at the moment due to lack of capacity and other socioeconomic factors and therefore proposes a model based on current socio-cultural and economic development in the country.

### **Cross-sectional study on the use of complementary and alternative treatment modalities (CAM) by cancer patients in Ghana**

The study revealed a high CAM usage among cancer patients. Comparable to use in the general population, there is concurrent use of CAM and conventional medicine with reported overlapping toxicity but without informing Oncologist about use. Doctor patient communication on herbal-radiotherapy and drug treatment interaction needs to be strengthened. Standardisation and regulation of CAM use is paramount. Dr. Samuel Opoku was the principal investigator.

#### **Assessment of Safety Standards of Magnetic Resonance Imaging at the Korle Bu Teaching Hospital (KBTH)**

The main outcome of the study was that policies and guidelines for the MRI facility were lacking and there was a general knowledge gap among respondents in the safety procedures required at the MRI unit.

#### **Development of a Quality Assurance (QA) Framework For Institutionalisation of QA Systems In Diagnostic Imaging**

The study found out that diagnostic imaging departments in Ghana lack organised systems and structures for effective service delivery. The absence of these systems and structures in Ghana has severe economic and radiation implications. Principal investigators were Dr. Eric Ofori & Dr. Willaim Antwi.

#### **Radiation Protection in Diagnostic Imaging**

The radiation dose levels of plain radiographic examinations in some hospitals were found to be above the internationally recommended reference levels. This has severe radiation risk implications. Dose levels have been established which will inform development of national diagnostic reference levels and standardisation of protocols to help in the optimisation and dose reduction strategies. Principal investigators were Dr. Eric Ofori & Dr. Willaim Antwi.

#### **Uterine Fibroid Classification and Patterns**

Prevalence and sonographic patterns of uterine fibroids among Ghanaian women were assessed which could aid in appropriate surgical intervention in the country. The Principal investigator was Dr. Eric Ofori.

#### **Prevalence of Hysterosalpingographic Findings in Patients Undergoing Infertility Work-Up at the Korle-Bu Teaching Hospital**

The prevalence of Hysterosalpingographic findings in patients undergoing infertility work-ups has been

evaluated. Tubal blockage was found to be the major structural cause of infertility among infertile women who underwent hysterosalpingography at the Korle-Bu Teaching Hospital. Factors such as chronic pelvic inflammatory diseases, mismanaged pregnancies and septic abortions appear to be the major causes of the tubal blockage. Principal investigators: Bernard Botwe & Bamfo-Quaco.

### **Department of Occupational Therapy**

#### ***Professional Identity Development: Exploring the Perception of Occupational Therapy Students in Ghana.***

This is an ongoing study by Peter Owusu Ndaa which seeks to explore the development of participants' professional identity as they progress through their study programme to become occupational therapists. The study seeks to answer the questions: how do Occupational Therapy students in Ghana develop their professional identity as health care professionals and as Occupational Therapists? With current limited OT professionals in Ghana, how would exposure of students to other healthcare professionals influence their professional identity development as health care professionals and as OTs? A qualitative phenomenological approach is being used to explore and understand the experience of the students' transition during the first three years of their degree programme. It is anticipated that the outcome of this study may influence and contribute to existing concepts, especially in the areas of drawing professional learners' programs and also improve on learners' support.

### **Department of Dietetics**

In keeping with its vision of becoming the best dietetic training institution in Ghana with the state of art laboratories and a cutting-edge research centre, the Department of Dietetics has within the academic year under review undertaken the following research activities:

#### **Lipids and Chronic Disease**

Research has demonstrated that high temperature cooking with oils can result in the formation of mutagenic compounds that are potentially carcinogenic. It is often the case that especially for deep frying, vegetable oil is often repeatedly heated to high temperature and also reused several times, sometimes over an extended period of time before being discarded.

The study determined the mutagenicity of high energy heated red palm oil (RRPO) and refined, bleached imported palm oil (PO) on the Ghanaian market. Results showed that unheated PO was negative for the Ames mutagenicity test with TA 98 strain. However, PO heated once and five times were mutagenic. Testing PO, using TA 100 strain was negative. RRPO was mutagenic with TA 98 strain for heated oils. Assays with TA 100 strain showed highly significant mutations that increased with increasing heating frequency.

### Adolescent Nutrition

Research into lifestyle and eating patterns of adolescents in Ghana is currently underway. Insights into snacking patterns and choice of snacks and their impact on adolescent nutrition and health is being investigated. A second study is also directed at the nutrition status of adolescent girls in Ghana, with emphasis on iron, vitamin B12 and folate.

### Improving Dietetic Practice In Ghana

Research activity in this area is partly focused on the development of tools that will facilitate the work of dietitians, by helping them obtain more accurate dietary information from patients. Work so far includes the development of a photographic food atlas-the first of its kind in the country- to aid portion size estimation and reduce to the barest minimum the errors associated with the collection of dietary information from patients.

## School of Nursing



*Dr Ernerstina Donkor  
Dean, School of Nursing*

The School of Nursing, as one of the constituent schools of the College of Health Sciences, runs both undergraduate and postgraduate nursing programmes. The undergraduate and postgraduate researches have focused mainly on quantitative and qualitative studies respectively.

Some faculty members have secured grants for research activities. The research

activities of faculty have been varied, but the ultimate goal of all is to contribute to the scientific body of nursing knowledge, to improve nursing practice, and to develop nursing theories. It is gratifying to note that these research efforts have yielded publications in reputable journals. As part of their professional responsibility, nurses constantly recognise the need to extend the nursing knowledge base by endorsing scientific investigations as a means to achieve this end. The findings from nursing investigation help to define better the unique role nursing plays.

## Department of Adult Health

### Experiences of Students with Dysmenorrhoea

This research achieved an in-depth understanding of the experiences of dysmenorrhoea among students at senior high schools and universities. Through this research, it was realised that dysmenorrhoea has a debilitating effect on students as those with severe pain do not attend lectures and are not able to perform their activities of daily living. Effective support and education is required to enable such students cope with academic work. Funding is being sort for interventions for students who suffer dysmenorrhoea and to enhance school attendance and performance. Two papers have been published in peer-reviewed international journals from this research. The study was conducted within a year. The cost was estimated at 3,000 Ghana Cedis and was funded by the project team: Dr. Lydia Aziato, Dr. Florence Dedey and Professor Joe Nat Clegg-Lampthey (Associate Professor).

## Department of Maternal and Child Health

### A pilot study to treat depression comorbid with infertility among Ghanaian women: Oh Happy Day

The purpose of this research is to test the feasibility and acceptance of a psycho-educational programme to treat depression and stress among women with infertility. This project is the result of collaborative efforts between Dr. Florence Naab of the University Of Ghana School Of Nursing and two researchers (Dr. Earlise Ward and Professor Roger Brown) of the University of Wisconsin-Madison School of Nursing in the United States of America.

## School of Pharmacy



**Professor Alex Nyarko**  
Ag. Dean, School of Pharmacy

The University of Ghana School Of Pharmacy is dedicated to teaching and research in pharmacy and pharmaceutical sciences. As a relatively new school, we are vigorously engaged in exploring opportunities for collaborations across the world that would enhance our teaching and research output. With most of the faculty currently studying for their PhD, few faculty members are currently working on various research projects expected to impact the pharmaceutical industry.

### Screening of Ghanaian Medicinal plants for antipsychotic properties

Dr. Patrick Amoateng is exploring the use of medicinal plants for the management of psychosis in Ghana and validating the claims of use of such plants for mental illnesses using experimental models of psychosis. The overall goal of the research is to obtain novel and promising herbs for subsequent antipsychotic drug discovery. This research is being financed by the University of Ghana.

### In vitro and In vivo effect of nanoparticulate formulations of antimicrobials on intracellular Leishmania Donovanii

In this study anti-infectives in various classes are being screened individually and in combination against Leishmaniasis donovani amastigotes. The effects of the anti-infectives on amastigotes are being compared with the effect of standard Leishmaniasis drugs. Dr. Henry Nettey is collaborating with Dr. Benoit Banga

and Professor Alex Nyarko of the Department of Pharmacology, Dr. Barima Afrane of the Department of Pharmacy Practice and Professor Richard Addo, of Union University in this study. They have so far found a group of antibiotics which are equally or more effective than the existing anti- tuberculosis drugs. The research is still ongoing; however, preliminary studies have shown higher *in vitro* activity for the antibiotics in question.

### Screening of Several anti-infectives for activity against Mycobacterium Tuberculosis

This study is comparing the antibiotic effect of individual antibiotics or their combinations with the effect of the standard TB antibiotics. This is a strictly *in vitro* study and the effect of the antibiotics is being determined by comparing zones of growth inhibition of bacteria on plated agar. Ms. Grace Lovia Allotey-Babington of the Department of Pharmaceutics and Microbiology is the principal investigator of the study.

### University of Ghana to Research Traditional/ Plant Medicines used to Manage Non-Communicable Diseases

The University of Ghana and Tianjin University of Traditional Chinese Medicine (TUTCM) have entered into a partnership to research traditional/plant medicines used to manage non-communicable diseases. An agreement was signed in Tianjin, by Professor John Gyapong, Pro-Vice-Chancellor in charge of the Office of Research Innovation and Development and Professor Xiumei Gao, Vice President of TUTCM. The ceremony took place when a UG delegation, led by Professor Gyapong, visited TUTCM. The agreement was signed on behalf of the University of Ghana following presentations by Professor Alexander K. Nyarko and Professor Laud K.N. Okine. Members of the UG delegation were conducted around the various laboratories at the Institute of Traditional Chinese Medicine, and introduced to the faculty and ongoing research activities.





*The UG delegation and the TUTCM team in a group photograph*

TUTCM is one of the leading Chinese universities in Traditional Chinese medicine. It is a place where the ancient and modern blend, as they apply modern scientific tools to study traditional Chinese medicines used to manage cardiovascular diseases. The partnership between TUTCM and UG began in 2010 as part of

a Chinese Governments' Vision 20-20 agenda for Chinese institutions to partner African Institutions. In addition to research, the arrangement covers faculty and student training. Four M.Phil and PhD students from the University of Ghana are currently on a training programme at TUTCM.



*UG delegation being conducted around one of the laboratories at the Institute of Traditional Chinese Medicine*

## New Research Grants

In the year under review, the following research grants were awarded faculty in the college of health sciences to carryout research:

Project Title	Donor	Principal Investigator	Amount
Influencing National Health Policy: Development of State of the Nation's Health Report for Ghana	University of Ghana	Professor Richard Adanu (School of Public Health)	GH¢ 98,805
Cryptococcal meningitis in hospitalised HIV patients in Korle-Bu, Accra	University of Ghana	Dr. Japheth A. Opintan (Medical School)	GH¢ 24,990
Screening for Musculoskeletal Deviations: Epidemiology and Access barriers to Health Care Service among Junior High Pupils	University of Ghana	Dr. Ajediran I. Bello (Allied Health Sciences)	GH¢ 25,000
Malaria in the highlands of Ghana: The Kwahu-South situation	University of Ghana	Ms. Ewurama Dedeo Ampadu Owusu (Allied Health Sciences)	GH¢ 4,993
Screening Trichilia monadelpha, a Ghanaian herb for antidepressant effect	University of Ghana	Dr. Kennedy K. E. Kukuia (Medical School)	GH¢ 4,977
Association between serum 25-hydroxyvitamin D level and its common genetic determinants in patients with chronic liver disease (CLD) at different stages and correlation with the degree of liver fibrosis at Korle Bu Teaching Hospital, Accra, Ghana	University of Ghana	Dr. Bartholomew Dzudzor (Medical School)	GH¢ 24,999
Psychological Well-Being and Quality of Life in Chronic Kidney Disease Patients at the korle-bu Teaching Hospital in Accra, Ghana	University of Ghana	Dr. Patrick Adjei (Medical School)	GH¢ 24,992
Comorbid conditions among Tuberculosis patients: The case of diabetes in the Accra metropolis	University of Ghana	Mr. David Nana Adjei (Allied Health Sciences)	GH¢ 4,940
Evaluation of the management of rabies at primary care facilities within the public health system in the Greater Accra Region	University of Ghana	Professor Margaret Lartey (An Associate Professor of the Medical School)	GH¢ 25,000
Studies on the Roles of 5-Ht Receptor Subtypes in the Sporogonic Life Cycle of Plasmodium falciparum	University of Ghana	Dr. Charles Brown (Allied Health Sciences)	GH¢ 24,953
A pilot study to evaluate the clinical and behavioural characteristics of patients receiving medical care for HIV/ AIDS	University of Ghana	Dr. Bismark Sarfo (Public Health)	GH¢4,953
Epidemiology of Pneumococcal Carriage among HIV Positive Children in Accra, Ghana	University of Ghana	Dr. Eric Sampene-Donkor (Medical School)	GH¢ 24,969
A pilot study to treat depression comobid with infertility among Ghanaian Women: Oh Happy Day	University of Ghana	Dr. Florence Naab (School of Nursing)	GH¢4,998
Validating the Multi-method adherence tool for measuring adherence in HIV clients in Accra, Ghana	University of Ghana	Ms. Gladys Dzansi (School of Nursing)	GH¢5,000
Partnering for Health Professionals Training in African Universities	European Commission	Professor Richard Adanu (School of Public Health)	EUR2,515,275
WHO Study on global Ageing and adult health (SAGE Wave 2)	World Health Organisation	Professor Richard Berko Biritwum (Medical School)	US\$ 396,423.00
Case-control study on Breast Cancer	NIH, US	Professor Richard Berko Biritwum (Medical School)	US\$ 89,200.00
Sex Differences in HIV Testing and Counseling in Ghana: Factors influencing low HIV testing among men in two fishing communities in Accra	USAID, HED and the UG-Brown University AIDS Academic Partnership	Dr. Curt Beckwith, Brown University, and Dr. Alfred Yawson (Medical School)	US\$ 5,000.00

Project Title	Donor	Principal Investigator	Amount
Strengthening in-Country Health Systems Research Capacity in West Africa	International Development Research Centre (IDRC), (WAHO) Canada, and the West Africa Health Organisation	Professor Irene Agyepong-Amartefio (An Associate Professor at the School of Public Health)	US\$ 191,766.00
Mapping HIV Prevention Services and Activities to the District Level in Greater Accra Region, Ghana	USAID through MEASURE Evaluation	Dr. Amos Laar (School of Public Health)	US\$ 100,870.00
Stigma as a barrier to family planning among young women in Kumasi and Accra	Society of Family Planning, USA	Dr. Abubakar Manu (Co-PI)	US\$ 38,236
Stroke Investigative Research & Educational Network (SIREN)	NIH – NINDS/NHGRI	Dr. Kwamena William Coleman Sagoe (Co-PI)	US\$ 600,000
Ghana Breast Health Project	National Cancer Institute	Professor Andrew A. Adjei	US\$ 1,000,000
Prostate Cancer in Ghana: A Cohort Study	National Institute of Health (NIH)	Professor Andrew A. Adjei	US\$ 20,000.00
Skin Bleaching: potential hazards to the health of Ghanaian women and men	Food and Drugs Authority (Ghana)	Professor Andrew A. Adjei	GH¢\$49,000.00
Gender, Health and Place. A Multi-site Ethnographic of women's Experiences and Perceptions of Health	Canada-Africa Research Exchange Grants (CAREG)	Dr. Patience Aniteye (Collaborator)	US\$ 35, 534

## College of Agriculture and Consumer Sciences

Leading training of agriculture workforce for the future and championing food security through innovative research.



*Professor Samuel K Offei*  
Provost

The College of Agriculture and Consumer Sciences comprises the School of Agriculture, School of Veterinary Medicine, Institute of Agricultural Research, West Africa Centre for Crop Improvement, and the Biotechnology Centre.

The College's greatest strength is its ability to anticipate and embrace change, the willingness

to break new academic and research ground, and to transform established institutions.

The College's vision of being an internationally-acclaimed African institution for scientific innovations in sustainable

agriculture and human development to meet national and global challenges, continues to motivate us to work hard in impacting required competencies to students.

We have leveraged our expertise to encourage greater collaboration across disciplines within agriculture. Within these contexts, the 2013 – 2014 academic year marked significant achievements in advancing research, teaching and dissemination in the College as evidenced by the substantial grants awarded to researchers and units within the College. The summary of the grants awarded is presented in the table below.

With the introduction of the Collegiate system, the College of Agriculture and Consumer Sciences will now fall under the College of Basic and Applied Sciences. I want to extend my profound appreciation to all our researchers, administrative staff and technicians, students, collaborators, funders, donors, and partners (both public and private) for their immense contribution to research activities and ensuring the College's continuous impact on national agriculture development.

**TABLE 15: RESEARCH DEVELOPMENTS IN THE COLLEGE WITHIN 2013 – 2014 ACADEMIC YEAR**

PROJECT TITLE	DONOR	INVESTIGATOR	AMOUNT
Performance analysis of fish farms in Ghana	University of Ghana	Dr. Edward E. Onumah	GH¢24,998
Productivity and Profitability of organic and conventional farming systems (ProEcoOrganicAfrica)	Research Institute for Organic Agriculture (FiBL) Switzerland	Dr. Irene S. Egyir	EUR182,495
Good growth	Global Alliance for Improved Nutrition (GAIN)	Professor D.B. Sarpong	US\$ 109,907.00
Convergence of Sciences –Strengthening innovation Systems (COS-SIS) Project	Directorate-General for International Cooperation DGIS-Netherlands Government	Dr. O. Sakyi-Dawson	EUR4,550,000
Characterisation and breeding for a docile and productive grasscutter in Ghana	University of Ghana	Professor B.K. Ahunu	GH¢28,222.95
Feed the future innovation lab for genomics to improve poultry	United States Agency for International Development USAID collaborative research	Dr. Boniface B. Kayang	US\$178,325
Anaplasmosis vaccine development for West African cattle	Wellcome Trust Fellowship Grant	Dr. James E. Futse	US\$ 1,206,327
Collaboration for conservation and sustainable use of wildlife and Livestock resources in Ghana	Japan Society for the Promotion of Science (JSPS)	Dr. Boniface B. Kayang	N/A
College Agriculture Consumer Sciences Model farm	Finatrade Foundation	Professor Samuel Offei Professor John Ofosu-Anim	GH¢75,029
Grafting as a means to control meloidogyne infestation in tomato genotypes	University of Ghana	Dr. Naalamle Amissah	GH¢24,983
Strengthening Africa's Strategic Agricultural Capacity for Impact on Development (SASACID)	African Network for Agriculture, Agroforestry and Natural Resources Education (ANAPE)	Dr. Christiana A. Amoatey	US\$ 49,218.75
Nematicide trials on selected vegetables	Bayer CropScience AG, Germany	Dr. Seloame T. Nyaku	US\$ 7,969.00
Training in hydroponics farming technology for high yield and quality vegetable production	Ghana Skills and Technology Development Project - Council for Technical and Vocational Education (GSTDP – COTVET)	Professor Frank K. Kumaga	GH¢45,496
Inter University Cooperation to train crop scientists for Agriculture enhancing	European Union Commission	Coordinated by Makerere University. Professor S.K. Offei Professor J. Ofosu-Anim Professor Eric Danquah Dr. Christiana Amoatey Mr. Sampson Addo	EUR2,548,800
Developing Processing Parameters for Canning Grasscutter Meat	University of Ghana	Dr. Niilante Amissah	GH¢24,999
Pest management practices to enhance the Profitability and competitiveness of the mango industry in Ghana	University of Ghana	Dr. C. Akotsen-Mensah	GH¢24,654
Herbicide trial on perennial tree crops	Bayer CropScience AG, Germany	Professor G. Ofosu-Budu	US\$ 6,787
Global yield gap and water productivity atlas	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	Professor Samuel Adjei-Nsiah	US\$ 5,000
Maise evaluation trials	Syngenta Agro AG, Switzerland	Professor George O. Nkansah	US\$ 30,256.50
Conservation of Ghanaian local chicken	University of Ghana	Dr. A. Naazie	GH¢29,053.50

PROJECT TITLE	DONOR	INVESTIGATOR	AMOUNT
Training of young farmers under youth in agriculture programme	Ministry of Food and Agriculture	Livestock and Poultry Research Centre, Legon	GH¢23,920
Enhancing vegetable productivity in the Accra plains through integrated crop management	University of Ghana	Dr. Ken O. Fening	GH¢25,000
Impact of rice husk bio-char on soil characteristics, its agronomic effect and stability in irrigated rice cropping in the Accra plains of Ghana	University of Ghana	Dr. Dyllis.S. MacCarthy	GH¢28,088
Sorghum mother/baby hybrid trial	Wienco Ghana Ltd	Dr. Benedict Aligebam	GH¢15,637.47
Climate change impacts on west african agriculture: a regional assessment	Agricultural Model Intercomparison and Improvement Project (AGMIP)	Professor Samuel G.K. Adiku	US\$ 125,808
UrbanFood plus project	Ruhr-University of Bochum, Germany	Professor Samuel G.K. Adiku	EUR85,000
Efficacy of weedicides on annual and perennial weeds in soya bean production	Bayer CropScience AG Germany	Professor Frank K. Kumaga	US\$ 2,605
Use of Beauveria Bassiana for control of larger grain borer	Centre for Agriculture and Biosciences International CABI	Dr. Eric Cornelius	US\$ 19,992.91
African Center of Excellence Project: Developing West Africa Centre for Crop Improvement (WACCI) into an African Centre of Excellence for Training Plant Breeders, Seed Scientists and Seed Technologists	World Bank	Professor Eric Danquah	US\$ 8 million
Full scholarship for a student to study towards a PhD in Plant Breeding	Kirkhouse Trust	Professor Eric Danquah	US\$ 151,481
Establishment of West Africa Center for Crop Improvement (WACCI) Phase II	AGRA	Professor Eric Danquah	US\$ 5,214,401
Scholarship for a student to study towards a PhD in Plant Breeding	WAAP Senegal	Professorr Eric Danquah	US\$ 117,799
Developing a functional gene discovery platform for sorghum improvement	Purdue University	Professor Eric Danquah	US\$ 95,040
Evaluation of selected maize hybrids in four Agro-Ecological zones in Ghana	Premium Foods LTD	Professor Eric Danquah	GH¢7,500
Cornell NextGen Cassava Project – Training 3 Students in a PhD Plant Breeding Programme at WACCI	Cornell University	Professor Eric Danquah	US\$ 502,961
Scholarship for 3 PhD students to study towards a PhD in Plant Breeding	West Africa Agriculture Productivity (WAAP) Senegal	Professor Eric Danquah	US\$ 416,883
Scholarship for 3 PhD students to study towards a PhD in Plant Breeding	West Africa Agriculture Productivity (WAAP) Sierra Leone	Professor Eric Danquah	US\$ 401,058

## School of Agriculture



*Professor John Ofosu-Anim  
Dean, School of Agriculture*

The School of Agriculture, within the College of Agriculture and Consumer Sciences, consists of six academic departments, namely: Agricultural Economics & Agribusiness, Agricultural Extension, Animal Science, Crop Science, Soil Science and Family & Consumer Sciences. This divisions within the School has encouraged a

multidisciplinary approach to research and teaching, which has aided in the achievement of the School's stated objectives. I therefore offer my sincere appreciation to all our funders, researchers, support staff and students within the School.

## Department of Soil Science

### Research on Impact of Climate Change on Agriculture in West Africa



*Professor S. G. K. Adiku*

The Agricultural Model Inter-comparison and Improvement Project (AgMIP) is a Department for International Development UK funded project

coordinated by University of Columbia in the USA. A team of scientists led by Professor Samuel Godfried Kwasi Adiku of the Department of Soil Science received funding on the proposal entitled

**“Climate Change Impact on West African Agriculture: A Regional Assessment”** (CIWARA) through a competitive process. The study involved eight Institutions from five West African countries (Ghana, Burkina Faso, Niger, Senegal and Mali).

It had a total budget of US\$ 799,986 out of which University of Ghana received US\$ 125,808 for a period of two years (2012 – 2014). The study was multi-disciplinary and brought together crop modelers, climate scientists, economists and IT experts in the West African Sub-region to access climate change impact on agriculture using multi crop models (Decision Support Systems for Agro-Technological Transfer - DSSAT and Agricultural Production Systems sIMulator – APSIM), multiple General Circulation Models (5 GCMs), multi-crops and Trade-Of Analysis for Multi-Dimensional Impact Assessment (TOA-MD) with the aid of a unique IT platform.

The crop modelling section of the study was coordinated by Dr. Dilys S. MacCarthy of the Soil and Irrigation Research Centre (SIREC, Kpong). The study sought to address the following: the sensitivity of current agricultural production systems to climate change; the impact of climate change on future agricultural production systems; and the benefits of climate change adaptations.

Results from the study indicated that current systems of crop production in West Africa are sensitive to climate change and that cereals are likely to be more affected than legumes. The effects of climate change, however, are site specific, with Senegal expected to be more impacted than Ghana, and are influenced by management practices. The reduction in projected yield is expected to result in a decrease in the average income of farmers. In addition, adopting the use of heat and drought stress crop cultivars, will result in increase in average income and improve livelihoods of West African farmers.

## Department of Crop Science

### Grafting as a Means to Control *Meloidogyne* (Root Knot Nematodes) Infestation in Tomato Genotypes

The research project, which is funded by UG, is led by Dr. Naalamle Amissah, with Dr. Seloame Tatu Nyaku and Dr. Eric Cornelius as co-principal investigators.



*Dr. Naalamle Amissah*

Tomato cultivation is a significant economic activity in Ghana, especially in the Northern, Upper East and Southern Volta regions of the country. In 2008, tomato exports earned the country US\$ 25,992 (Ghana Export Promotion Council, 2009). Tomato is said to be the most lucrative crop in the Upper East

region being more profitable than rice, maize, groundnuts, yam, pepper and dairy. Close to 90% of the two million people living in these areas cultivate tomato (Jaiteh, 2010).

Despite its foreign exchange earning power, overall tomato production in the country has decreased steadily due to high incidences of pest and diseases, low soil fertility and high post-harvest losses (Jaiteh, 2010, Robinson et al. 2010, Yeboah, 2011).

The most destructive form of pathogen that infests tomato plants is the *Meloidogyne* spp (root knot nematodes). It infects a wide range of important crop plants and is particularly damaging to vegetable crops in tropical and subtropical countries (Sikora and Fernandez 2005). To solve the problem, major tomato producing and exporting countries like Japan and the USA have resorted to grafting desired cultivars onto specific rootstocks proven to be resistant to soil-borne diseases and nematodes. It is estimated that 40 million grafted seedlings are being used in North American greenhouses (Kubota, et al. 2008).

The grafting technology has the potential to improve pathogen resistance using identified nematode resistant rootstocks with the ultimate goal of enhancing fruit

production to meet local and foreign demand. This research seeks to evaluate three widely cultivated tomato varieties in Ghana (Pectomech, Roma and Wosowoso) grafted onto three nematode resistant *Solanum* spp. for nematode resistance, agronomic performance, yield and fruit quality attributes.

The project seeks to: determine the compatibility of widely grown tomato cultivars grafted onto *Solanum* rootstocks using splice graft techniques; and assess the response of grafted tomato genotypes to *Meloidogyne* infestation and plant yield.

The expected outcomes, are: the identification of compatible scions and rootstocks for tomato production; identification of resistant *Meloidogyne* grafts and development of a grafting manual with protocols and timelines. The expected practical impact of the project is that nematode resistant tomato grafts with desirable yield attributes will be helpful in addressing the decline in Ghana's tomato production.

## Department of Agricultural Economics and Agribusiness

### Performance Analysis of Fish Farms in Ghana

The research project, which is funded by UG, is led by Dr. Edward Ebo Onumah of Department of Agricultural Economics and Agribusiness. His co-investigator is Dr. Francis K. E. Nunoo of the Department of Oceanography and Fisheries.



*Dr. Edward E. Onumah*

This project seeks to comparatively analyse the productivity and technical efficiency levels of fish farms in four regions of Ghana: the Ashanti, Volta, Western and Greater Accra regions.

It is expected that the study will identify the potential contribution of farmed fish to the Gross Domestic Product (GDP) of Ghana and will positively influence production of all the input levels in the various regions. The study will also measure and

compare the levels of technical efficiency across regions, whilst taking into consideration differences in fish farming technologies. The study further anticipates that



Questionnaire Administration

the expected directions of the factors that influence the level of efficiency in the various regions will be identified for policy recommendations to enhance productivity.



Harvested Tilapia

## Department of Family and Consumer Sciences

### Developing Processing Parameters for Canning Grasscutter Meat

This project is funded by the University of Ghana and will be carried out over a two-year period. This is a collaborative project led by Dr. Niilante Amissah of the Department of Family and Consumer Sciences, Dr. Firibu Kwesi Saalia of Department of Nutrition and Food Science, UG and Dr. Samuel Ohene-Adjei of Department of Animal Science.



Dr. Niilante Amissah

Grasscutter (*Thryonomys swinderianus*) meat is low in fat and is a good source of calcium and phosphorus. Grasscutter meat is popular in Ghana, however there are few marketing channels for the meat, as processing post-slaughter has been limited to artisanal smoking methods. Grasscutter meat can be purchased fresh or

smoked, along major highways in Ghana or as a component

of meals prepared in chopbars. This is not readily available in supermarkets which sell other meat products.

In recent years, microlivestock farmers have been encouraged to rear grasscutter by organisations such as Heifer International and Gesellschaft für Internationale Zusammenarbeit (GIZ), to reduce the dependence on hunting and trapping grasscutter in the wild. With the increased grasscutter production expected from these farming activities, there is a need to develop value-added products for grasscutter that creates new uses for the meat and takes advantage of existing marketing channels that are not being utilised at this time.

We propose developing processing parameters for canning grasscutter meat to provide the required technological information for value added shelf-stable canned grasscutter products.

The expected results of this project, would make it possible to process, package and store large quantities of grasscutter meat in a shelf-stable canned form that does not require refrigeration or freezing. Also, new marketing channels including export markets would become accessible. Thus, the concern about the hygiene and spoilage of a properly canned product compared with smoked or dried grasscutter meat, would be reduced.



## Department of Animal Sciences

### Feed The Future Innovation Lab for Genomics to Improve Poultry

The Feed the Future Innovation Lab for Genomics to improve poultry projects' team is being led in Ghana by Dr. Boniface B. Kayang of Department of Animal Science, with Professor K. G. Aning of School of Veterinary Medicine and Dr. Naazie of Livestock and Poultry Research Centre as co-investigators. It is sponsored by the USAID with an amount of US\$ 178,325. The overall objective of the proposed study is to genetically enhance disease resistance to Newcastle Disease Virus (NDV) infection and heat stress, while improving production performance. Essentially, the project can be distilled into two fundamental questions: what and how. What optimal genotype of African chicken ecotypes best enables them to innately resist the disease caused by the prevalent local strains of NDV in their hot temperature environments? How can genomic information about genes and markers contributing to NDV resistance be applied to develop resistant ecotypes? What is the best system to effectively place them into the hands of small-holders for use, while developing the capital and human infrastructure needed in Africa to sustainably support and continue the process of genetic improvement?



*Dr. Boniface B. Kayang*

The outputs of this project will be the new essential and fundamental knowledge of the genomics of resistance to NDV, and the application of this knowledge to develop ecotypes of African chickens with greater innate resistance to NDV. In the process of achieving these outputs, project outcomes will include the development of physical and human

infrastructure in Africa, including training of African students and scientists both on-site in Africa and in the US in the essential skills that will enable the African partners to sustain and disseminate the results of this project.

The impacts of the project are expected to be reduction in poverty, hunger, and malnutrition, through the increased agricultural productivity that will result from decreasing the major losses that occur as a result of Newcastle Disease in African chickens. The associated increases in chicken and egg production will be particularly beneficial to women, who are usually the caretakers of poultry.

## School of Veterinary Medicine

The School of Veterinary Medicine (SVM) was established in August 2009 under the College of Agriculture and Consumer Sciences to meet a dire need to train veterinarians locally. The School offers a 6-year programme leading to the Doctor of Veterinary Medicine (DVM) degree. This consists of a pre-professional phase of Biological Science option of the level 100 of the Faculty of Science. The professional phase of the curriculum consists of Basic Veterinary Sciences, Para-Clinical



*Professor K. G. Aning*  
*Ag. Dean*

Courses and Clinical Veterinary Medicine. Our vision is to achieve excellence in teaching, training and research in the field of Veterinary Medicine. And our mission is to improve disease detection, prevention and management in livestock, companion animals and wildlife, using the best clinical practice, through training of the

highest quality that produces the best veterinary surgeons or practitioners, research scientists and public health experts. Within this context, we are training five cohorts making a total of 70 students. A new building is under construction within the University to house the School and our facilities for training and research in veterinary medicine.

To ensure that we have a well-qualified and competent faculty, five of our faculty members have received awards from Carnegie Foundation, TRECC Africa, DAAD and their names and the titles of their research projects are the following:

**TABLE 16: AWARD WINNING FACULTY MEMBERS AND THEIR RESEARCH PROJECTS**

PROJECT TITLE	DONOR	NAME	AMOUNT
Prevalence, pathophysiology and diagnostic imaging of indigestible rumen foreign bodies in sheep and goats in urban and peri-urban Kenya (Veterinary Surgery)	TRECC Africa, Intra-ACP Mobility Fellowship	Dr. Hope R. Otsyina	€32,400
	Leventis Foundation		US\$ 18,000
Prevalence, clinical manifestation, anthelmintic efficacy diagnosis and management of helminthosis in dogs in Ghana and Kenya (Internal Medicine)	Carnegie Fellowship /	Dr. Sherry A.M. Johnson	US\$ 23,000
	Leventis Foundation		US\$ 18,000
Structural and physiological changes in selected organs in rams and bucks implanted with plastic bags in the rumen	TRECC Africa /	Ann Nancy Etsey (Mrs)	€32,400
	Leventis Foundation		US\$ 18,000
The role of peroxisome in pulmonary fibrosis (Molecular Cell Biology and Anatomy)	DAAD, Germany	Eistine Boateng (Mr.)	€36,000
Characterisation, predictors and community perception of porcine trypanosomosis in the Eastern Region of Ghana.	TRECC Africa	Dr. Kofi Afakye	€10,800

Let me take this opportunity to extend my gratitude to all our lecturers, administrative staff and technicians, students, collaborators, sponsors, and partners in both the

public and private sector for your efforts in ensuring that we achieve our vision and mission.



*Students at a histology practical session*



*Students dissecting bovine cadaver during practical session*



*Histology steeple chase examination*

## Inter-University Cooperation to Train Crop Scientists for African Agriculture (CSAA)

CSAA is a partnership of 13 African Universities in Eastern, Central, Southern and Western Africa led by Makerere University in Uganda. The members of the partnership are University of Ghana, Legon (Ghana), University of Pretoria (South Africa), Mzuzu University (Malawi), University of Juba (South Sudan), University of Free State (South Africa), Makerere University (Uganda),

University of Abomey Calavi (Benin), Universite Cheikh Auta Diop de Dakar (Senegal), Mekelle University (Ethiopia), Kwame Nkrumah University of Science and Technology (Ghana), and Eduardo Mondlane University (Mozambique). The partnership was awarded a total of EUR2,548,800 by the European Commission. The University of Ghana's team is led by Professor S.K. Offei, Provost of College of Agriculture and Consumer Sciences, Professor J. Ofosu-Anim, Dean of School of Agriculture, Professor Eric Danquah, Director of West Africa Centre for Crop Improvement, Dr. Christiana Amoatey, head of

Department of Crop Science, Dr. Thomas A. Adjadeh, head of Department of Soil Science and Mr. Sampson Addo, Research Development Officer of the College of Agriculture and Consumer Sciences.

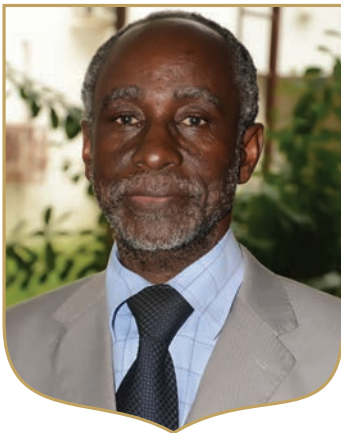
The project objectives are to produce graduates with broad skills to manage both fragile and non-fragile ecosystems; build capacity of students from West Africa and other regions for sustainable management of Protected Areas and Natural Grasslands; have diversified opportunities in universities as researchers and at research centres in West Africa as biometricians are very scarce in the region. This is also true of other regions in Africa; and train and equip highly-motivated students, who possess leadership and innovative extension delivery attributes, with the requisite knowledge and skills in crop science.

It involves the training of professionals to enhance agricultural productivity and assure food security for sub-Saharan Africa. In all 43 Masters, and 20 PhD will

be trained in the thematic areas of Plant Production and Protection, Environment and Adaptation to Climate Change, Management of Protected Areas and Natural Grasslands, Dryland Management for Agriculture, Agro-forestry and Environment, Research Methods and Approaches in Agriculture and Women and Gender in Agriculture. Additionally, 10 administrative staff will participate in a capacity building programme mainly in areas of financial and international student management. Mobility partners will either act as sending or hosting institution. The University of Ghana will receive 4 Masters and 4 Doctorates, and send 2 Masters, 1 Doctorate and 1 Staff for training.

The project is expected to contribute to: access to quality education and training; resource rationalisation; regional networking and peer support; quality assurance and student mobility; hasten training of mid-career level scientists; and providing a new cadre of scientists and mobility of staff and students.

## Faculty of Arts



**Dr Cosnos Badasu**  
Ag. Dean

Research work in the Faculty during this academic year has been very impressive. In response to the Readers Series project launched by the Vice-Chancellor, seven readers, containing a total of 94 articles, were produced by the various units of the Faculty. Senior members won university and international awards to undertake major research projects.

In addition to weekly departmental seminars as a first step in the dissemination of research findings, two international conferences were organised and/or hosted by the Department of Theatre Arts: the Legon International Film Event and the 8<sup>th</sup> Annual African Theatre Association's International Conference.

The Faculty also held its 12<sup>th</sup> Annual Colloquium under the theme, "Strengthening the Humanities through Interdisciplinary and Trans disciplinary Research". The

two-day colloquium brought together researchers to share ideas through the presentation of papers on 48 different research topics in the Humanities and Sciences.

Also, a book titled "*Trajectories of Religion in Africa: Essays in Honour of Very Reverend Canon Emeritus Professor John Samuel Pobee*," consisting of 20 refereed essays, was edited by Rev. Professor Cephas Omenyo, of the Department for the Study of Religions, and Professor Eric Anum.

## Colloquium

Professor Edmund John Collins of the Department of Music delivered the keynote address on the theme, "Inter- and Trans-Disciplinary Research through the Lens of the Performing Arts".

Professor Collins explained that while interdisciplinary studies remain a solely academic pursuit, transdisciplinary studies go beyond scholarly debates as they impact society at large and involve research in which the public become co-producers of knowledge rather than being mere receivers or participants. He noted that music and dance therapy, for instance, used in hospitals and prisons as an aid to physically, mentally challenged

persons, is of great interest to the Performing Arts, Psychology and the Medical Sciences.



Professor Edmund Collins, of the Music Department delivering the keynote address

The Department of Theatre Arts, under the auspices of the School of Performing Arts, organised the 1<sup>st</sup> Legon International Film Event, called LIFE 1 under the theme “Ghanaian Cinematic Practice: Achievements, Challenges and Prospects.” This event sought to explore the ways in which Ghanaian cinema has, at different times, composed images of national culture to represent the nation to itself and to the world.

This year, a number of Faculty Members received University Research Grants to undertake various research projects. They include: Dr. Joshua Alfred Amuah of the Department of Music, School of Performing Arts; Professor Nana Aba Appiah Amfo of the Department of Linguistics; Dr. Gladys Ansah and Dr. Jemima Asabea Anderson, both of the Department of English. Others include Professor Helen Yitah, Department of English and Dr. Evelyn Sika Ahadzi of the Language Centre.



Forward and backward thrust of the arm together with the shoulder to a 4/4time rhythm in the Azonto dance.

## Conceptualisation of mental Breaking Grounds with Popular Dance Technique: Findings on Azonto Dance

According to Mr. Terry Bright Ofosu, an Assistant Lecturer of the Department of Dance Studies, the *Azonto* dance evolved from several different dances and has been influenced by factors such as musical types, human activity and some personalities. His research reveals that *Azonta* dance is influenced by the Ga popular/traditional *Kpanlogo* and *Gome* dances, recent popular dances like *Korgon*, *Gbeohe*, *Awukye*, *Kpe* (mimicking of gun shots), some Francophone dances and *Apa*. Its popularity soared because personalities like Asamoah Gyan, Sarkodie, Gasmilla, Bukom Banku, stand-up comedian and actor Funny Face all embraced the dance. One other significant influence is the musical type in vogue, the *Azonto* music, which also has *Kpanlogo* and *Gome* rhythm as its antecedents.

The main movement of the *Azonto* dance that makes it unique is the forward and backward thrust of the



Mr Terry Bright Ofosu

arm together with the shoulder to a 4/4time rhythm, which is sometimes terminated by a punch in the air. Meanwhile, one of the dancer’s limbs simultaneously does an isolated twist from the hip, on the ball of the foot to the same rhythm with knees bent about 160 degrees.



Azonto dancers’ knees bent about 160 degrees

The execution of the movements is characterised by a body posture (raised shoulders) and facial look that depicts the dancer's self-importance and esteem, termed on the street as “*swag*”, which some dance educationist

term as ‘Aesthetic of the Cool. This attitude exists in most Ghanaian traditional dances, which the *Gas* refer to as ‘*he woo*’ and the *Akans* ‘*ntsere ho*’.



*Azonto dancer's doing an isolated twist from the hip*



*The Azonto “swag” (raised shoulders) and facial look that depicts the dancer's self-importance and esteem*

Any other additional movements are picked from human activity or are morphed or subsumed dances of popular and some traditional dances. Intriguingly, the term *Azonto* originally referred to a cheap individual, especially a poor woman, and also used to refer to the type of dance they often do. Therefore, a term that was originally meant to belittle a group of people and their dancing activity turned out to be admired by even the elite. The research, by Mr. Terry Bright Ofose, contributed to the Department's decision to include Popular Dance in Theory and Practice in the courses for the next academic year.

which examines the intersections of individual creative expressions and enduring cultural legacies with a focus on the use of music, both as a significant cultural symbol and as a marker of Ghanaian modernity, “tradition,” and new aesthetic directions and as represented in the works of select contemporary visual artists of Ghana.

## ‘Select’ Contemporary Ghanaian Visual Artists



*Professor Daniel Avorgbedor*

Professor Daniel Avorgbedor, Department of Music, is undertaking a study entitled “Visualising Music, Musicalising the Visual: A Study of the New Modernity and Sensibilities among Select Contemporary Ghanaian Visual Artists.”

This is an ongoing longitudinal research,

The overall objective is to establish a model for interpreting and assessing the scope and directions of the global impact on Ghanaian art, the role of popular culture and internationalism in contemporary Ghana, the aesthetic-cultural significance of individual response and creativity, and the significant place of music and related cultural expressions that qualify and thus explain cultural affirmation and innovative tendencies in contemporary Ghanaian visual art.

The study considers also the hybrid and yet selective audiences as part of the new Ghanaian modernity in the context of contemporary visual art where music symbolism and general artistic sensibilities are continued and at the same time dynamically reconstituted. Data and research findings are complemented by a study of parallel processes, products, and representations from the contemporary Ghanaian literary market of fiction and novel where music continues to serve as a potent cultural symbol and marker of “tradition”, progress, and innovation. The study draws on principles of musical hermeneutics, art history, aesthetics and criticism, postcolonial identity, global tourism, locality, and postmodern consumerism.

## African Theatre Association's 8th International Conference

The conference, under the theme '*African Theatre and Performance and the Academy*' took place from July

9<sup>th</sup> -July 12<sup>th</sup> 2014. It attracted delegates from Barbados, Burkina Faso, Cameroon, Canada, Germany, Ghana, Lesotho, Nigeria, Puerto Rico, South Africa, The United Kingdom and the United States of America.



Group picture of Participants at the African Theatre Association Conference

Ninety-eight abstracts were received and 70 papers presented. The first keynote address was presented by Professor Emerita of Dance Studies at Temple University, USA, Brenda Dixon-Gottschild on the topic, *Researching Performance – The (Black) Dancing Body as a Measure of Culture*. Her presentation formed part of the opening ceremony of the conference on Wednesday 9<sup>th</sup> July and was well received. The second keynote on the topic *Popular Performance Research and Practice in the Academy* was delivered by Professor John Collins of the Music Department of the School of Performing Arts. His presentation was very informative and met with a positive response. The final keynote was delivered by the Zimbabwean cultural activist and award-winning novelist and film maker, Tsitsi Dangarembga on the topic *Aspects of African Film-Making Practice: Hopes, Achievements and Struggles* on the last day of the conference. This was followed by a poster exhibition and plenary session on the topic *Notes to the Academy: Performativity and Performance in African Theatre* by Dr. Kene Igweonu and Professor Osita Okagbue.

There were a number of performances and workshops during the conference. Notable among these was an ensemble piece based on Efua Sutherland's short story, *Samantaase Village* drawn from Ghanaian oral narratives. This was adapted and directed by Eku

Ekumah and Sarah Dorgbadzi of the Theatre Arts Department and performed by Abibigromma, the Resident Theatre Company of the School.

Dr. S.K. Kuwor and Oh! Nii Kwei Sowah held two workshops on drumming and dance. *I Stand Corrected - who stands with LGBT communities in the African theatre academy?* was another notable workshop led by the London-based performer and writer, Mojisola Adebayo. This session shared performance extracts, photography, theatre techniques and approaches used to create a theatrical production, by exploring how to safely scrutinise sensitive subjects such as homophobia.

### “Boys, Girls and Teenagers with Opportunities” from Columbia in Cultural Exchange with the Department Of Music, University of Ghana

The Department of Music, School of Performing Arts, hosted “Boys, Girls and Teenagers with Opportunities” from Columbia in a cultural exchange on Tuesday, September 24, 2013 at the Departments' Seminar Room.

The delegation was led by the Ambassador of Colombia in Ghana H.E. Claudia Turbay Quintero, who hoped that the exchange would be an annual affair where

teenagers from Columbia would have the opportunity to interact with their Ghanaian counterparts. She observed that similarities exist between some music traditions of the two countries, hence the need for such cultural exchanges. There were performances from the Music Department's African Ensemble. Teenagers drawn from the University of Ghana and Presec Staff Basic Schools

performed on the Seprewa and Atenteben instruments. The Columbians and Ghanaians together performed one musical piece combining elements from their respective traditions. Welcoming the Columbians, the Acting Head of Department, Dr. Joshua A. Amuah expressed the hope that the relationship that had begun would be sustained for the benefit of the youth in both countries.



*Students from Columbia University joined University of Ghana students in blowing the flute*

### Theatre for Development and Eco-Education: Dr. Elias Kwaku Asiamah received International Funding and Recognition

The Ghana-Danish Collaboration on Story-Telling and Cultural Heritage Recovery Projects presented Dr. Elias Kwaku Asiamah with equipment worth US\$ 3,500 to enable him execute and implement some of his Ph.D research findings such as the need to consciously recover some valuable cultural heritage assets among the

minority ethnic groups found in the Volta-Region, such as the Buem and the Emili Badze people. The project also seeks to translate some of the findings into theatre and performances; promote a conscious exposure of the minority ethnic groups through publications and other forms of documentation using video, audio and television; and upgrade Akrofo Human and Environmental/ Ecological Resource and Development Centre into a place researchers might find useful and helpful. Dr. Asiamah is also extensively involved with Theatre for Development in educating communities on climate change.



*The people of Odomase in Afram Plains discussing the impact of climate change on their social and economic life.*



## Performing Arts in Conflict Resolution and Peace Building

In June, 2014 a collaboration between the School of Performing Arts and Catholic Relief Services (CRS) saw three lecturers – Dr. Samuel Benagr, Department of Theatre Arts; Dr. Sylvanus Kwashie Kuwor, Department of Dance Studies and Mr. Eyram Fiagbedzi, Department of Music share their research findings on the power of the performing arts in conflict resolution and peace building.

The theme for the training workshop was, ‘Empowering the youths with performing arts in conflict resolution and peace building’. With full funding from CRS, participants

were drawn from other African nations including Burkina Faso, Guinea, Togo, Senegal, Mali, Benin, Nigeria, Kenya, South Sudan, Nigeria, Liberia, Sierra Leone, Namibia, Gambia, Democratic Republic of Congo, Cote d’Ivoire and Madagascar. The highlight of the programme was the fascinating role of performing arts in employing drama, dance and music in a form of total theatre as an impressive tool for communication. In addition to the conceptual sessions the participants were trained as actors, dancers, poets and musicians. The participants performed their collaborative creative theatrical pieces and were charged to become ambassadors of peace, reconciliation and good governance in Africa.

## Faculty of Social Sciences



*Professor Charity Sylvia Akotia  
Ag. Dean*

The Faculty of Social Sciences is the largest Faculty in the University with nine Departments and ten Institutes, School, and Centres. Our mission is derived from that of the University’s which is aimed at “developing a world class human resources and capabilities to meet national developmental needs and global challenges through quality teaching,

learning, research and knowledge dissemination”.

At the faculty, we bring this mission into fruition by making teaching, research and extension services the core business of the faculty. We have restructured many academic programmes within units in the faculty to reflect excellence and to meet national needs.

Academics in the faculty continue to strive for excellence. In the year under review, many have won both local and international research grants. Faculty members’ research areas continue to expand over the years and include the following;

- migration and employment policy,
- mining policies and interventions,
- media relations,
- small/medium enterprises,
- climate change and climate variability,

- ageing and social inclusion,
- mental health issues,
- poverty, child neglect and abuse.
- Non-communicable diseases,
- energy use and pollution,
- public policy and governance.

In the faculty, members have collaborated with government in drafting important national policies including migration policy, social protection policy, and the climate change and sustainable development policy. We are very proud that through the researches members conduct, we can impact national policies and help plan interventions that would improve on quality of life.

In line with the Vice Chancellor’s Readers’ Project, members of the faculty produced 14 Readers within the time period. Out of this, four were launched and the rest are yet to be launched by the University.

In the year under review, a number of conferences/seminars/colloquia were organised by various units in the faculty. The Seventh Annual Faculty Colloquium was held on the 15<sup>th</sup> and 16<sup>th</sup> of May, 2014. The first Faculty Colloquium was held about seven years ago and since then, the colloquium has become a very important activity on the Faculty’s calendar. The theme for this year’s Colloquium was ‘The Social Sciences and Development in the Post Millennium Development Goals (MDGs) Era: Old and Emerging Issues’. This theme was carefully chosen to reflect the achievements of the MDGs and the challenges beyond. During the Colloquium,



a considerable number of young colleagues, mostly postgraduate students presented papers. With this, the faculty demonstrated its commitment to the University's mission of becoming a world class university.

Other conferences held during the year under review include "Archaeology and Heritage Management in Ghana" (Department of Archaeology and Heritage Studies), "Psychology for Everyday Living" (jointly held by the departments of Psychology and Psychiatry), Institute of African Studies 50<sup>th</sup> Anniversary International Conference under the theme "Revisiting the First International Congress of Africanist in a Globalised World," and "International Climate Change Colloquium" (Regional Institute of Population Studies).

## Faculty Awards

To encourage hard work and excellence, the Faculty has instituted a number of award schemes. These awards, we believe, would serve as motivation for faculty members to engage in cutting-edge research, which will positively impact nation building. This year, three of such awards were given out:

1. The Most Promising Young Scholar in the Faculty was won by Dr. Seidu Mahama Alidu of the Department of Political Science.
2. Professor Ama De-Graft Aikins, Director of the Center for Social Policy Studies, won the award for the Most Valuable Faculty Member,
3. Mr. Gabriel Brahini won the Best Worker Award in the Faculty.

## Research Themes from the Departments Under Faculty of Social Sciences

### PERIPERI U Project

This is a research partnership known as "*Partners Enhancing Resilience of People Exposed to Risks*" (PERIPERI U) and it involves ten universities in Northern, Southern, Western and Eastern Africa. The project is financed by USAID and is currently in its second phase. The first phase

had a total amount of US\$ 227,000 and the second phase involves US\$ 396,000 and is expected to be completed in 2016. The objective is to develop and expand institutional capacity for active teaching, training, research and policy advocacy in Africa on disaster risk and vulnerability reduction, with particular emphasis on climate and hydro-meteorological risks.



Fieldwork activities involving scrap dealers, urban environment in Accra, and waste management interventions by Zoomlion and partners at Adjen Kotoku near Nsawam.

The specific objectives are:

- Developing and running short courses on disaster risk reduction to public/private policy makers/ implementers, public field workers including

NADMO and community health/development practitioners, NGOs/CSOs/CBAs, traditional and religious authorities.

- Developing and delivering academic courses at undergraduate and graduate levels on integrated disaster risk reduction.
- Building institutional capacity at UG for research and training in urban environmental health and disaster risk relationships as an integral component in disaster risk reduction efforts in Ghana and beyond through research on integrated environmental health and disaster risk reduction in low income urban communities in urban Ghana.

In July 2014, the Integrated Research on Disaster Risk (IRDR) Science Committee (SC) approved to establish

an IRDR International Centre of Excellence for Risk Education and Learning (IRDR ICoE-Real) at the Periperi U Consortium. This is the first of its kind in Africa and very important as a sustainable component of the project objectives to ensure that research and collaboration is deepened at both the local and international front.

The lead researcher is Professor Jacob Songsore of the Department of Geography and Resource Development, whose main areas of specialisation include urban studies and regional development planning. Dr. Osman Alhassan, Institute of African Studies, is the co-principal investigator.

**TABLE 17: THE LIST OF THE 10 UNIVERSITIES INVOLVED IN THE STUDY**

No.	Institution	City, Country	Focus Area
1	University of Ghana (Dep't of Geography & the Institute of African Studies)	Accra, Ghana	Urban risks (floods, fires, epidemics, housing stress)
2	Bahir Dar University	Bahir Dar, Ethiopia	Food security
3	Disaster Mitigation for Sustainable Livelihoods, Stellenbosch University	Stellenbosch, South Africa	Urban risks
4	Gaston Berger University	St. Louis, Senegal	Food security
5	Built Environment Laboratory, Univ. of Science & Technology Houari Boumediene	Algiers, Algeria	Earthquake hazards
6	Ardhi University	Dares Salam, Tanzania	Urban risks
7	Makerere University School of Public Health	Kampala, Uganda	Community health (in complex emergencies)
8	Moi University School of Public Health	Eldoret, Kenya	Community health
9	Technical University of Mozambique	Maputo, Mozambique	Severe weather events
10	University of Antananarivo	Antananarivo, Madagascar	Severe weather events

## Media/Civil Society Organisations Relations in Peacebuilding



*Professor Audrey Gadzekpo*

Professor Audrey Gadzekpo, an Associate Professor of the School of Communication Studies won a US\$ 15,000 grant from the Social Science Research Council under their African Peace Building Network call. Her research is titled “A Critical Assessment of Media Relations, Functionality and Impact in Interventions by Civil

Society Organisations Working in Peacebuilding: Case Studies from Ghana and Sierra Leone.” The study will be

completed within six months and will contribute to existing knowledge on the effectiveness of CSOs and media engaged in peacebuilding work in West Africa. The premise of this research is that there is an obvious symbiotic relationship between CSOs and the media which has been under-explored in academic literature on peacebuilding. While there is ample evidence demonstrating how civil society contributes to peacebuilding and how media can influence peacebuilding processes, there is scant research on the nature of the seemingly mutually beneficial relationship between CSOs and the media, and how each contributes to or undermines the role of the other.

## Rural-City Connections in Africa

The Africa Rural-City Connections (RurbanAfrica) is research on connections between rural areas and cities in Sub-Saharan Africa. The project involves nine universities in Europe and Africa. The RurbanAfrica

project is advancing the research agenda on rural-city connections in sub-Saharan Africa by addressing a range of crucial components: agricultural transformations, rural livelihoods, city dynamics, and access to services in cities. The overall objective of the African Rural-City Connections (RurbanAfrica) project is to explore the connections between rural transformations, mobility, and urbanisation processes and analyse how these contribute to an understanding of the scale, nature and location of poverty in sub-Saharan Africa. The Research is organised into six work packages: Agricultural transformation, rural livelihoods, city dynamics, access to services, knowledge platform and policy dialogue, and synthesis, dissemination and management. The project will contribute to capacity building and potentially impact curriculum development.

The Rural-City Connections project is a 48-months project, which commenced in 2012 and is expected to be completed in 2015. The project was financed by the European Union. The budget for Ghana's part is Euro148,000. The project is in its third year of implementation. The first stakeholder dialogue took place in December 2013 at the Institute of Statistical, Social and Economic Research.

Professor Jytte Agergaard of University of Copenhagen is the coordinator for the whole project. The Lead Researcher/Coordinator for Ghana is Professor Paul W. K. Yankson of the Department of Geography and Resource Development. Other collaborators from University of Ghana are Professor George Owusu, an Associate Professor of the Department of Geography and Resource Development and Dr. Martin Oteng-Ababio also of the same Department, and Dr. Robert Osei of the Institute of Statistical, Social and Economic Research.

The project challenges a number of generally accepted 'truths' about rural and city development, and the importance and implication of migration in shaping these. It thereby questions the overall negative interpretations of the economic role of rural-urban mobility and migration in sub-Saharan Africa and generates new insights into the relationship between rural-city connections and poverty dynamics.

## Small Medium Enterprises – Access to Funding

The African Economic Research Council (AERC) is conducting collaborative research in Africa on 'Financial Sector Reform and Development in Africa'. Professor Peter Quartey an Associate Professor of the Department



Professor Peter Quartey

of Economics is the lead researcher in the West Africa sector of the AERC study titled "Financing the Growth and Transformation of SMEs in Africa: The Case of ECOWAS".

Two other co-investigators are Dr. Ebow Turkson of the Department of Economics and Professor Joshua Abor, an Associate

Professor of the University of Ghana Business School. The objective of the research is to model SME access to credit using firm specific characteristics for selected countries within the ECOWAS sub-region. The study develops a credit risk model that suits the purposes of SMEs in Ghana, making use of their sector-level characteristics. Focus will be on how to improve the prediction accuracy of SMEs with reference to credit and loan repayments. In addition, an attempt is made to explore the alternatives to SME financing with particular reference to the sector-level characteristics of firms and the options enumerated above. Data will be obtained in a survey soliciting qualitative and quantitative information of SMEs that have been in existence from 2000 to 2013 and have either accessed any financing schemes for SMEs either by the Government of Ghana or private enterprises. A total sample of 100 SMEs will be interviewed from food/agro-industries, textiles and garments, as well as metal work and foundry and wood work. Quantitative data on sector-level characteristics, including firm size and age, reporting and compliance with auditors, operational risk and other information on credit and loan repayments, will be solicited.

A rigorous quantitative procedure in multivariate regression will then be used to analyse responses. This will be complemented by a comprehensive discussion of the sector-level characteristics of firms. This study will be useful to SME financiers and entrepreneurs when completed.

## Fragmentary Ancestors? Figurines from Koma Land

Collaboration between the Department of Archaeology and Heritage Studies and University of Manchester in England has resulted in the discovery of unique terracotta figurines dating from the 6<sup>th</sup> to 18<sup>th</sup> centuries AD at Koma Land in the Northern Region of Ghana. In collaboration with the Ghana Museums and Monuments and the Wellcome Trust, there was an exhibition of findings from Koma Land between October 25, 2013 and May 5, 2014 at the Manchester Museum in the United Kingdom. This was a first-ever officially approved showing of clay figurines in the UK made by a previously little understood people of Koma Land in Northern Ghana. The exhibition was free and open to the public. The key archaeologist for this research collaboration is Professor Benjamin W. Kankpeyeng, an Associate Professor of the Department of Archaeology and Heritage Studies. He provided an exclusive tour of the new exhibition, exploring the background to the fieldwork that led to the figurines discovery, and investigated the meaning and purpose of these enigmatic figurines.



Exhibits at the Manchester Museum

## Mining Policies and Interventions

Dr. Daniel Kwabena Twerefou of the Department of Economics is researching on the “*Attitudes of local people to mining Policies and Interventions*,” which is funded by International Growth Centre with a grant of £29,700. The overall objective is to investigate the attitudes of local people to mining policies and interventions. Specifically, the research is intended to address the following questions:

- What are the attitude of mining communities to mining policies and interventions?
- Why are mining sector interventions not providing the required results?
- Why do local people violate mining regulations?
- How can small-scale mining be more meaningful for the economy?
- How can policy take into consideration local attitudes?
- What informs conflicts in mining communities?
- How can policies and interventions on mining be more effective?



Dr. Daniel Kwabena Twerefou

The research is on-going and at the end, the findings are expected to impact policy decisions on community mining relations, which will ultimately reduce the many conflicts in mining areas. Dr. Twerefou is collaborating with Dr. Kwadwo Tutu as a co-researcher at the Department of Economics.

## Urbanisation and Poverty in Mining Africa (UPIMA)

The study examined the processes of urbanisation at local, national and continental levels in Africa where mining was already or is in the process of becoming a major sector of the national economy. Following a review of continental trends, the project engaged in in-depth study of urbanising mining settlements in three countries namely; Tanzania (gold and diamonds), Angola (diamonds) and Ghana (gold). The study involved a comparison of mature as opposed to newer small-scale mining settlements, as well as sampling of areas dominated by long established large-scale mining to reveal differences in patterns of urbanisation and mineralisation of the economy with regard to scale of mining, type of minerals, settlement's degree of maturity and poverty incidence.



*Galamsey (indigenous mining in Ghana)*

The Economic and Social Science Research Council sponsored the UPIMA project, which commenced in October 2010 and ended in 2013. It was led by University of Glasgow and Loughborough University both in the UK with Professor Paul W.K. Yankson of the Department of Geography and Resource Development as the lead researcher in Ghana. His role involved field data collection, policy interviewing and also being jointly responsible with Professor Katherine Gough for the analysis of the Ghanaian case study.

Publication and dissemination activities are currently on-going. One of the publications that came out of this project is titled *‘Exploring The Connections: Mining and Urbanisation in Ghana’* by Katherine V. Gough & Paul W.K. Yankson in *Journal of Contemporary African Studies*, Volume 30, Issue 4, 2012, Special Issue: Mining & Urbanisation in Africa: Population, Settlement and Welfare.

## Employment Effects & Policy



*Ms. Abena D. Oduro*

Ms. Abena D. Oduro is a Senior Lecturer at the Department of Economics and undertaking a number of research projects, including on *Women and Savings and Participation in credit markets’ and the debt burdens of men and women*. She is currently the lead researcher from Ghana on a three-year project

titled *“Employment Effects of Different Policy Instruments,”* which is currently at its implementation stage.

The objective of the research is to investigate the relationship between Foreign Direct Investment and technological upgrading, as well as determine the nature of the linkages between the formal and informal sectors. This project is funded by the Swiss National Science Foundation and the Swiss Agency for Development and Cooperation to the tune of CHF234,168. There are six countries involved in this study and these include other researchers from Bangladesh, Ethiopia, Madagascar, South Africa and Vietnam. The output of this project will be of particular relevance to the Ministry of Trade and Industry and the Ghana Investment Promotion Centre.

## Strategic Ghana-German Partnership in Development

Dr. Wazi Apoh, a lecturer in the Department of Archaeology and Heritage Studies, won a highly competitive three-year Volkswagen Foundation Senior Postdoc fellowship in August 2013. This postdoc grant in the amount of 152,000 EUR is under the auspices of the University of Hanover (Faculty of Philosophy, Department of History, African History), Freie Universität (Department of History) and within the framework of the VW Foundation’s “Humanities in Sub-Saharan Africa and North Africa” fellowship programme. The postdoctoral project, entitled “The Archaeology of German Colonial Heritages in Ghana: Repackaging Shared relics for Strategic Ghana-German Partnership in Development,” is meant to conduct detailed archaeological, ethnographic and archival research on key German colonial sites in Ghana and Togo in order to assess their viability for the promotion of German heritage tourism. The sites include Kpando, Ho, Misahohe, Bismackburg, Yendi, Sansane-Mango, Bassare and Kete-Krachi. This on-going three-year project will also support and train a number of masters and doctoral students in the Department of Archaeology and Heritage Studies. The impact of the research at the end of the three years would be stronger collaboration between Ghanaian and German heritage experts as well as local capacity building.



Dr. Wazi Apoh delivering a talk on the project at the annual Denkmalpflege conference in Berlin in June 2014.



Training of students and capacity building is an integral aspect of the project.

## Urban Transition in Ghana and Its Relation to Land Cover and Land Use Change

Professor Samuel Agyei-Mensah, Department of Geography and Resource Development and Mr. Foster Mensah, Centre for Remote Sensing, are part of a team conducting research titled *'The Urban Transition in Ghana and Its Relation to Land Cover and Land Use Change through Analysis of Multi-scale and Multi-temporal Satellite Image Data'*. This is a three year National Aeronautics and Space Administration (NASA) funded project from January 1, 2013 to January 1, 2016.

The premise of the study is that most countries in sub-Saharan Africa remain in the midst of a major transformation from being predominantly rural to having a majority of people living in cities. This has enormous consequences for urban and rural land cover and land use (LCLU). As urbanisation proceeds, food security concerns grow not simply in tandem, but at a higher rate because urban development implies a higher caloric intake per person meaning that agricultural output (or income to buy another country's output) must grow at a higher rate than the population (Weeks 2011).

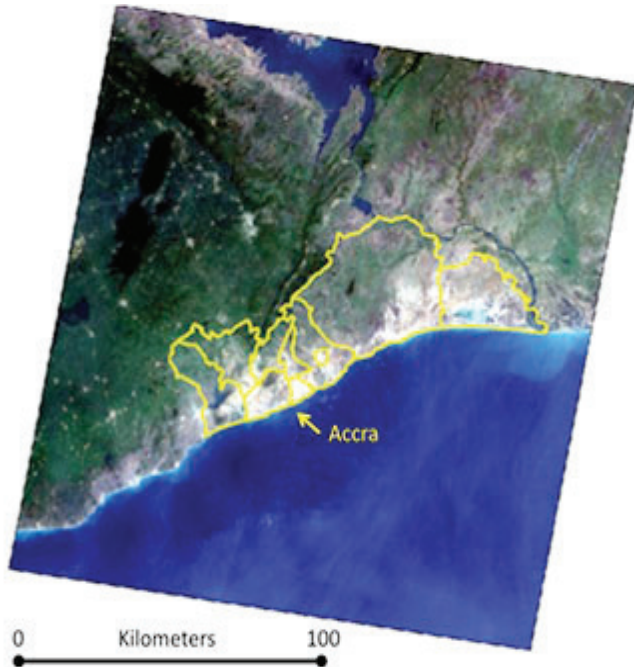
The objectives of the research are as follows:

1. To identify, map, and quantify LCLUC within an extensive study area of Ghana over 25 years (1986 through 2010).
2. To understand the relationship between rural-to-urban migration as an outcome of LCLUC and concomitant drivers for the 2000 through 2010 period.
3. To assess LCULC and its effect on demographic and quality of life factors for four major Ghanaian urban centres during this time period.

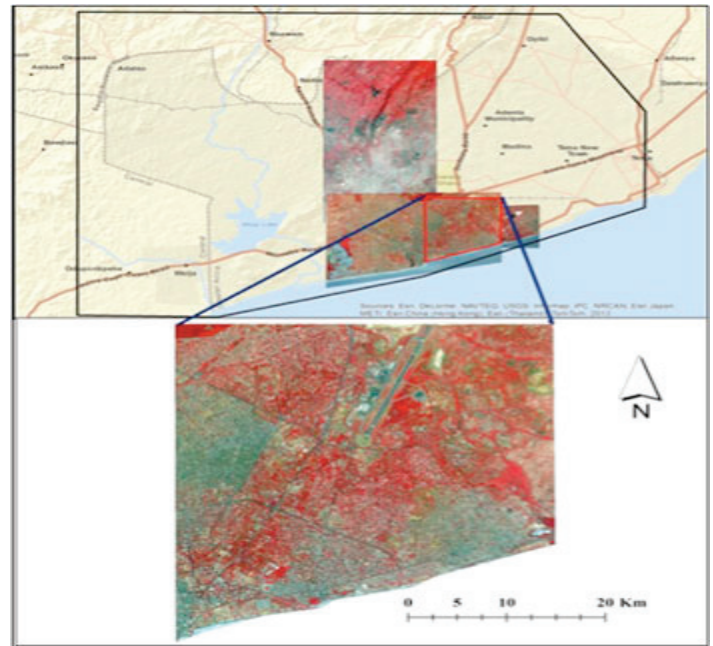
The interdisciplinary team consists of remote sensing, human-environment, landscape, ecological, and social scientists from the following institutions:

1. San Diego State University which is the lead institution (Professor Douglas Stow, Professor John Weeks, Pete Coulter, Magdalena Benza-Fiocco, Sory Toure, Ace Shih, Sean Taugher, Milo Verjaska, Nicholas Ibanez)
2. The George Washington University (Dr. Ryan Engstrom, Avery Sandborn)
3. University of California Santa Barbara (Professor David Lopez-Carr),
4. University of Ghana (Professor Samuel Agyei-Mensah and Foster Mensah-CERSGIS).

There are four regions of interest for which LCLUC is being identified, quantified, and mapped. These are the Greater Accra, Central, Ashanti, and Eastern regions. With these regions, LCLUC is being mapped with the greatest detail for the cities of Accra, Kumasi, Obuasi, and Cape Coast. The cities are shown in red in Figure 1, and the four regions are shown as light coloured polygons, with Greater Accra at lower right, Central at lower left, Ashanti at upper left, and Eastern at upper right.



Regional Landsat data for the Greater Accra Region



Example of high spatial resolution satellite imagery for the Greater Accra area

## Early Childbearing/Parenthood and Persistence of Poverty in Rural Ghana



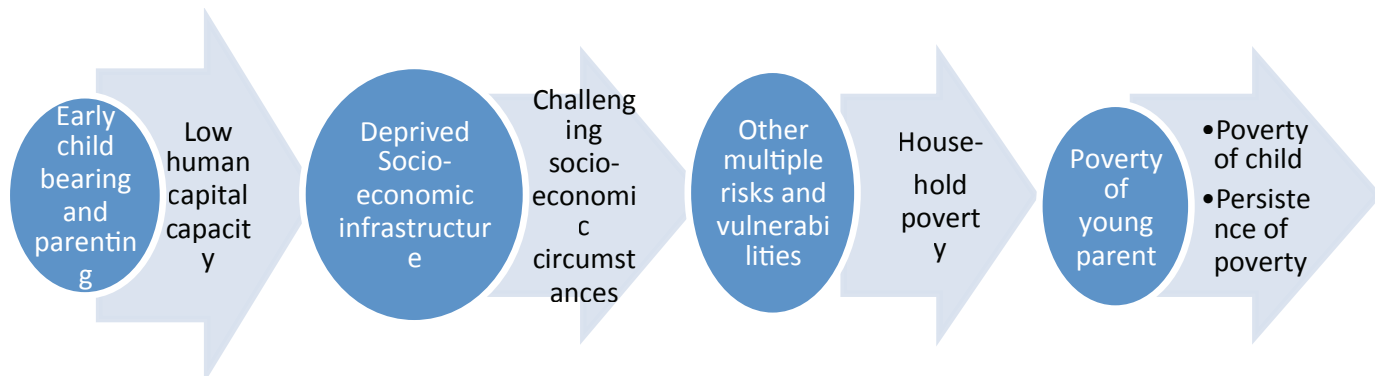
*Dr. Stephen Afranie*

Dr. Stephen Afranie of the Department of Sociology is examining the nature and character of poverty resulting from early childbearing and parenting in multiple risks and vulnerable socioeconomic environment of people in rural settings of Ghana. His aim is to demonstrate how early childbearing and parenting contribute

to the understanding of the creation and persistence of poverty in Ghana with particular reference to rural Ghana. The research is premised on the assumption that persons who assume childbearing and parenting responsibilities in their early ages are likely to become poor and transmit the poverty to their children. The survey were conducted in the Adansi district (Ashanti Region), Ketu South district (Volta Region) and West Gonja (Northern Region).

In spite of their involvement in multiple activities, people in the research communities largely describe their living conditions as poor. That is, the nature and state of their economic activities are such that the people still find it very difficult to meet their basic needs. In addition, the people are highly deprived of basic socioeconomic utilities and amenities such as electricity, pipe borne water, telephone, post office, bank, market and motorable roads. The results and relationships are that:

- Early child bearing and parenting hinder human capital formation of the parents.
- Low human capital capacity translates into lower employment opportunities and lower income earning potential.
- The lower income earning potential translates into inadequate resources to take care of young parent.
- The presence of the young mother and child(ren) add to the burden of parents of young mother – overstressing the already scarce resources.
- Inability to provide young parent and children with better life chance opportunities, so the cycle of poverty continues (Glicken 1981).



## Attitudes Towards the Physically Challenged



*Mr Wiafe Akenteng*

Mainstreaming the physically challenged in the area of socio-economic, political and indeed all spheres of life has been given a lot of attention in the past years. Among others, this is meant to reduce marginalisation, change the generally negative perceptions and attitudes towards the physically challenged,

to decrease their economic dependence, enable them gain requisite skills and contribute more effectively to national development and thus enhance their self-esteem. This study by Mr. Wiafe-Akenteng of the Department of Psychology, reviews policies and programmes aimed at enhancing access to education by the physically challenged at the basic level and gauging the attitudes of parents, teacher and non-physically challenged pupils towards those who are physically challenged.

The attitudes of a total of 182 respondents (comprising parents, teachers and pupils) in the Greater Accra region towards the physically challenged were measured. Analysis of data shows that even though there are policies in place to increase access to education at the

basic level to the physically challenged, there are serious implementation gaps and infrastructural deficit. There are also limited programs to address the peculiar needs of the physically challenged. In addition, differences were observed in the attitudes of the tripartite towards the physically challenged.

Mr. Wiafe-Akenteng concludes that there is a comprehensive policy covering all aspects of special education. However, serious deficit in physical access, regular training of teachers and managers is lacking. There are very few specialised teachers in the normal/regular schools and their attitudes are not very favourable because the absence of requisite tools makes their work difficult. The attitudes of parents are more favourable because either they have a child with special needs or are sympathetic to their colleagues who have one. The attitudes of pupils are not favourable mainly because they see those with special needs as somewhat different from them.

The research suggests that:

- Pupils and teachers must be educated and sensitised to embrace those who are physically challenged.
- The physically challenged themselves must also be helped to overcome any psychological and social barriers they may have that makes it difficult to stay in school.
- Parents of the physically challenged should be encouraged and supported to send their children to school.



## Faculty of Science



**Professor Daniel Asiedu**  
*Dean, Faculty of Science*

Research activities within the Faculty of Science, has seen a tremendous improvement within the 2013/2014 academic year. Research by faculty has increased significantly and many faculty members are actively engaged in funded research. For this academic year, a total 141 peer review articles were published by faculty. Research activities were mainly in the following broad areas: molecular genetics; biochemistry of natural products; biodiversity conservation and environmental sustainability; medicinal plant research; malaria research; food processing; safety and toxicology; maternal and child nutrition; offshore technology; coastal management and sustainable fisheries; health, safety and the environment; numerical analysis and scientific computing with applications to image processing and differential geometry and the geology of Ghana.

This academic year, a lot more research collaborations have been established and more grants have been won to promote research activities. This is evident in the activities within the departments as shown in the Research highlights below.

### Management of Coastal and Marine Resources in the ECOWAS Region

Over 3 million people in Western Africa are directly or indirectly employed by the fisheries sector, which also contributes up to 30% of GDP in some of the countries. Fishery resource is the main animal protein in the region and vital to economic and socio-cultural well-being of the people. These benefits are presently threatened as a result of poor management practices and increasing practice of illegal, unregulated and unreported (IUU) fishing. The main challenge to resource management in Africa, as a whole, is lack or inadequate continuous data to guide the formulation of science-based policies. Satellite Earth Observation (EO), presently, is the platform of choice for environmental monitoring. However, the capacity of

governments and institutions in the region to utilise EO data and geospatial technologies is limited.

In addressing this challenge, a financing agreement was entered into in 2012 by the Africa Union Commission on behalf of the five regional economic communities of Africa, and the European Commission for the establishment of Regional Implementation Centres (RICs) in each economic community. The European Commission has so far provided 1.92 million Euros to the University of Ghana through the 10<sup>th</sup> European Development Fund (EDF). Each of these RICs will utilise EO data to implement operational services in line with the needs of the region. The continent-wide programme is termed Monitoring for Environment and Security in Africa (MESA). The objective of this project will be to increase the information management, decision-making and planning capacity of Economic Community of West African States (ECOWAS) institutions mandated for coastal and marine management, by enhancing access to and exploitation of relevant Earth Observation (EO) data.

In West Africa, ECOWAS has established a Centre in the University of Ghana to co-ordinate the implementation of EO activities in 14 countries (i.e. Benin, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Senegal, Sierra Leone, Togo; and 2 non-ECOWAS countries – Mauritania, Sao Tome and Principe). The project is being led by Dr. George Wiafe a senior lecturer at the Department of Marine and Fisheries Science and the Director of the ECOWAS Marine Centre. The Centre will provide geospatial information on potential fishing zones coupled with vessel traffic to help protect fishing grounds from IUU. It will also disseminate forecasts of ocean conditions to mariners via SMS texting and other electronic media. By building human capacity in the region to utilise geospatial tools and products, decision making at all levels will be enhanced. Implementation of the marine services in the region will provide a sustained data and information flow to a network of key stakeholders, which will reinforce an integrated and holistic approach to address marine resources management. This project will also lead to actions that will effectively strengthen political and policy development frameworks to ensure active and sustainable participation of African stakeholders in coastal and marine resources management.



*Dr. Wiafe Director of ECOWAS Marine Centre in a pose with some fisher folks*



*Portion of the Ecowas Coastal Region*

## Innovative Project to Improve the Health and Household Food Security of Infants and Children

A team led by Professor Grace Marquis, of McGill University in Montreal, Canada, in collaboration with the University of Ghana, Heifer International Ghana and World Vision Ghana is developing an innovative project to improve the health and household food security of infants and children in south-eastern Ghana's Upper Manya Krobo district. The implementation of this project is led by Dr. Esi Colecraft of the Department of Nutrition and Food Science at the University of Ghana.

The initiative, supported by the Government of Canada with an amount of 1,600,000 Canadian dollars, is aimed at integrating capacity building of rural staff and health and agricultural interventions. Ghana's Upper Manya Krobo district, which has a population of about 75,000, is both isolated and poorly serviced; most roads are

unpaved and access is hindered especially during the two rainy seasons. This project, which involves a five-year study of 3,000 households in the area, is designed to foster collaboration among workers in the diverse sectors (health, agriculture, education, finance) in the region in order to develop district-level capacity in nutrition. It will also examine intervention packages where integrated activities (for example, agricultural and health) are combined to promote food security and health. In order to improve the health of infants and young children, about 300 families will gain access to training in poultry raising, kitchen gardens, and nutrition education through collaboration with Heifer International Ghana. Using Heifer's *pass on the gift* approach, the project will both help families improve their diet through the addition of animal protein, expand the diversity of foods grown, and gain income through the sale of eggs. Families in turn, will pass on chickens to the next group of families to receive the intervention.



*Participants at the launch*



*MP for Manya Krobo delivering his speech*

This project will provide evidence to encourage integrated approaches in policy and programme planning for development throughout rural Africa. It will also demonstrate the benefits gained by integrating nutrition into all areas of rural development and provide coherent messages along with the necessary skills and tools to implement them. Practices are expected to be changed and the nutrition and development status of women, infants and children in these poor rural communities improved.

At the launching of the project, the Vice-Dean of the University of Ghana's Faculty of Science, Professor Ebenezer Oduro Owusu, expressed the University's continual commitment in strengthening its relationship with the UMK District through research and innovation.

### Characterisation of Lifetime Infections with Trypanosomes in Individual Cattle in Ghana

Dr. Theresa Manful of the Department of Biochemistry, Cell and Molecular Biology is collaborating with Professor Mark Carrington of the Department of Biochemistry, University of Cambridge, to undertake a project on the *Characterisation of Lifetime infections with trypanosomes in individual cattle in Ghana*. This project is being funded by Cambridge-Africa Alborada Research Fund and Leverhulme-Royal Society Africa Award with funding amounts of £11,400 and £160,300 respectively.

Animal Trypanosomiasis remains one of the major constraints on livestock productivity and negatively impacts on economic development in sub-Saharan Africa, including Ghana. The most common trypanosome species detected in cattle in Ghana are *T. brucei*, *T. congolense*, *T. vivax* and *T. simiae*, and the prevalence of animal trypanosomiasis ranges from 5-50%. Little is known about the nature of infection over the lifetime of a cow or how the pattern of lifetime infection is affected by environment. Nothing is known about competition between different trypanosome species in an individual.

This research project makes use of molecular fingerprinting to identify individual trypanosome genotypes and characterises the epidemiology of the trypanosome populations present in individual cows over their lifetimes. The outcome of this project will be a better understanding of animal trypanosomiasis and

trypanosome biology, and will inform control strategies in the affected areas in Ghana.

### Generation of Ultra Short Pulses Using Graphene as a Nonlinear Element

Graphene, an allotrope of carbon, has been investigated and proven to be an excellent optoelectronic material. Graphene-integrated medium is amenable to convenient tuning of its electronic and optical properties by varying the applied voltage. Dr. Ferdinand Katsriku of the Department of Computer Science, is carrying out a research project in collaboration with Professor Richard Penty and Professor Ian White on the generation of ultra short pulses using graphene as a nonlinear element. The research is under the support of CAPREx and Alborada Fund.

It is aimed at generating ultra short pulses using graphene as a nonlinear element in a pulse compressing scheme. Initially, a modal characterisation of graphene cladded fibre is undertaken followed by an experimental setup in which picoseconds pulses obtained after initial stage of phase broadening and intensity modulation is passed through a graphene cladded fibre to obtain the resulting subpicosecond pulses.

This work demonstrates that the capacity exists within the Computer Science Department to undertake numerical modeling and simulation work to support cross disciplinary research within the University of Ghana and beyond. The methods developed here can readily be extended to model solar cell design and development.

### Mitochondria as Targets for Pharmacotoxicological Evaluation of Medicinal Plant Extracts

Dr. Augustine Ocloo of the Department of Biochemistry, Cell and Molecular Biology in collaboration with Dr. Andrew J. Murray of the Department of Physiology, Development and Neuroscience, University of Cambridge is undertaking a research project titled "*Mitochondria as targets for Pharmacotoxicological Evaluation of Medicinal Plant Extracts*".

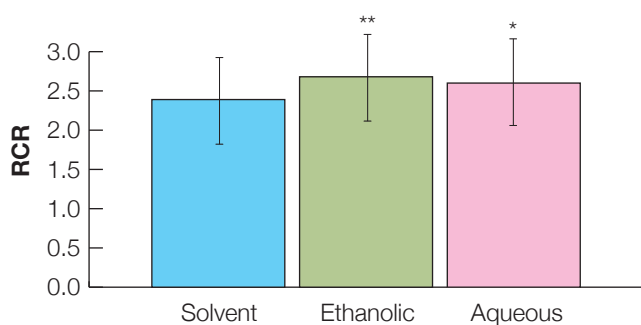
Mitochondria are unique cellular organelles. In addition to producing about 90% of the cellular energy requirement, they also participate in many cellular activities including urea synthesis, programmed cell death (apoptosis), calcium homeostasis and are the main site of reactive oxygen species (ROS) production, which

have been strongly implicated in the cellular process of ageing. They also have unique properties such as alkaline (negative) interior and cardiolipin rich inner membrane, which make them serve as either primary or secondary targets for xenobiotics. Mitochondria are therefore known to be responsible for many unexpected adverse and beneficial effects of drugs and plant extracts.

The project aims to investigate whether there are phytochemicals in Ghana's medicinal plant extracts that interfere with mitochondrial function. The outcome of this research will lead to the discovery and development of anti-ageing, anti-diabetic, anti-cancer and anti-obesity phytochemicals; the discovery and development of phytochemicals for the management for many neurodegenerative diseases; identification of compounds that improve mitochondrial function, which can be good candidates for managing OXOPHOS diseases; understanding the mechanism of action of many herbal products; and unearthing long term toxic effects of plant extracts.



Dr. Ocloo at the Animal Experimentation Unit of the Department of Physiology, Development and Neuroscience, University of Cambridge



Increased mitochondrial respiratory control ratio in presence of extracts from dandelion



Dr. Murray demonstrating the measurement of mitochondrial oxygen consumption during the practical session

## Dynamic Drivers of Disease in Africa: Bats and Zoonotic Disease Transmission

The project titled “*Dynamic Drivers Of Disease In Africa: Bats And Zoonotic Disease Transmission*” is the Ghana component of the Dynamic Drivers of Disease in Africa Consortium (DDDAC), which is funded by the Ecosystems Services for Poverty Alleviation (ESPA) with an amount of £200,000 over a four year period. The project is being implemented by a consortium of institutions in five African countries (Ghana, Kenya, Sierra Leone, Zambia, Zimbabwe), with partners in the UK. This multidisciplinary study focuses on the relationships between ecosystems, zoonoses, health and wellbeing. The overall hypothesis of DDDAC is that disease regulation as an ecosystem service is affected by changes in biodiversity, climate and land use, with differential impacts on people’s health and wellbeing.

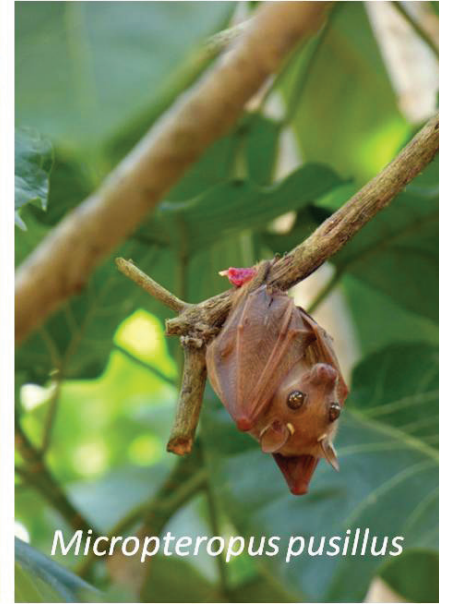
The Ghana component, led by Professor Yaa Ntiamo-Baidu of the Centre for African Wetlands, focuses on disease spillover from wild animal reservoirs to humans, using henipaviruses and bats as a case study. Henipaviruses (Hendra and Nipah) are zoonotic, and cause encephalitic disease in human beings with extremely high case fatality rates of around 75%. Hendra virus spills over into people via infected horses, whilst Nipah can spill over via infected pigs, or directly from bats into people. The natural reservoir hosts are thought to be pteropid fruit bats. While there are no pteropid bats in mainland Africa, the closely-related straw-coloured fruit bat (*Eidolon helvum*) is widespread and is known to maintain henipaviruses across its geographic range.



*Epomophorus gambianus*



*Myonycteris angolensis*



*Micropteropus pusillus*



*Epomops franqueti*



*Eidolon helvum*

*Bat roost/different species of bats trapped during field studies*

The multidisciplinary investigations under this study has three main components: Sociological studies that seek to examine the historical, social and cultural dimensions of bats and disease transmission; disease dynamics involving surveillance of bats, domestic animals and human populations for evidence of henipavirus prevalence; and ecological studies to understand the distribution and

population dynamics of bats as well as their role in the ecosystem and interrelationships with environmental changes. The study is focusing initially on three major bat roosting sites: the 37 Military Hospital (Accra), Tano Sacred Grove (Tanoboase, near Techiman) and Golokuati (Volta Region).



Study teams & field data collection

From the preliminary findings, the study identified over 50 bat roosts, spread across Ghana, mostly in close proximity to human settlements. The persistence of henipavirus infection in the common fruit bat, *Eidolon helvum* was found and evidenced the fact that this bat species is an important maintenance host for the virus(es). Another fruit bat, *Epomophorus gambianus*, however, appears to be only a spillover host for henipavirus, as seropositivity has been found so far in this species only where it is sympatric with *E. helvum*. Evidence was also found of henipavirus spillover from bats to pigs in Ghana. This presents an important zoonotic risk in terms of potential impact of these viruses on pig production and possible role of pigs as intermediate or amplifier hosts. It was found that people's perceptions of bats depended on the benefits (or lack of) that people obtained from them. Human-bat interactions occur mainly through hunting, selling and preparing bat meat for consumption.

This study has become even more important with the recent outbreak of Ebola in West Africa. It is expected therefore, that the findings, in particular, on the risk and dynamics of spillover of zoonotic diseases to humans, will inform policy interventions in a number of sectors, notably, health, veterinary services, animal husbandry and wildlife conservation.

## Other Research Highlights

Several exciting research activities undertaken within the **Department of Marine and Fisheries Sciences** include:

- *Deitas, Vulnerability and Climate Change: Monitoring and Adaptation (DECCMA) Project*, which spans a five year period worth US\$

1.1 million from International Development Research Center (IDRC) and Department for International Development (DFID). This project focuses on the inter-relationships between climate change impacts, migration, land use change, agricultural production systems, vulnerability and poverty, and seeks to identify sustainable gender-sensitive adaptations in deltaic regions.

- *IAEA Technical Co-operation Regional Africa Project (RAF 7009)* worth €900,000 from the International Atomic Energy Agency (IAEA) for a period of four (4) years. *The project* involves twelve (12) African countries including Ghana and is aimed at supporting an Integrated Approach for Marine Pollution Monitoring using Nuclear Analytical Techniques.
- *Fishing for Security in the Gulf of Guinea* a collaborative project between the Department of Marine and Fisheries Sciences, University of Ghana and Wollongong University, Australia. The project worth US\$ 54,000 is funded by the Commonwealth of Australia through the Australia Agency for International Development ("AusAID") for a two (2) year period.

Similarly, the **Department of Nutrition and Food Science** has also been engaged in a lot of collaborative research. Notably among them are:

- *VLIR Team Cocoa Project (2013-2018)*, which is a collaborative research between the University Ghana (Ghana) and Ghent University (Belgium) with funding from the Flemish Interuniversity Council-University Cooperation for Development [VLIR-UOS]) and the Belgium Government.

- *UG-University of Georgia CRSP Peanut Collaborative Support Research Project* which was part of the USAID Peanut CRSP (Collaborative Support Program) project for Ghana and Uganda. The project also partnered with a Food Processing industrial (Nkulenu Industry) in Ghana.
- *UG-INF-AJICO Joint Complementary Foods Development Project*, a collaborative project among the University of Ghana, Nevin Schrimshaw International Nutrition Foundation (USA) and Ajinomoto Co. Inc (Japan). It has so far attracted several other partners, including CARE Japan, CARE Ghana, Plan Japan, Plan Ghana, GAIN, USAID and Yedent Agro Processing Ventures.
- *Trial for the Reduction of Infant Undernutrition through Modified Feeding (TRIUMF) Project*, a collaborative project between University of Ghana (Department of Nutrition and Food Science), The International Nutrition Foundation and Ajinomoto Co, Inc., in collaboration with Ghana Health Service, Plan Ghana and the University of Cape Coast.
- *What is Normal Milk? Sociocultural, Evolutionary, Environmental and Microbial Aspects of Human Milk Compostion' (INSPIRE) Project*: This is a collaboration between the Nutrition and Food Science Department of the University of Ghana, Washington State University and other partners in Sweden, Spain, Central African Republic, Gambia, Peru and Kenya with funding from the National Science Foundation, USA.

The Department of Animal Biology and Conservation Science also undertook a project on *Global Conservation and Sustainable Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach in Coastal Ghana*, which is a UN-FAO collaborative project with GAEC; and on *Fruit Flies Control Technologies Dissemination and Capacity Building of West African Fruit Value Chains Stakeholders*, a US\$ 454,020 CORAF/WECARD funded commission/competitive project.

**Professor Robert Kingsford-Adaboh** of the Department of Chemistry's Research Group has won the Leverhulme-Royal Society Africa Award. Professor Peter J. Skabara of the Department of Pure and Applied Chemistry, University of Strathclyde, is the UK collaborator.



*Professor Robert Kingsford-Adaboh*

of photon energy from the sun into electricity. Isolated chlorophyll shall be utilised as a photosensitiser in the fabrication of the photovoltaic cell. This has the potential to improve power conversion efficiency of known organic photovoltaic cells. The project will also utilise *Ab initio* and quantum mechanical methods in computational studies to investigate possible theoretical mechanisms involved in the expected efficiency of the synthesised polymers (materials) and fabricated photovoltaic cell. In all, the project is expected to make a significant contribution to knowledge and solutions towards sustainable electricity generation.

The Award will offer a maximum of £50,000 per annum for a 3-year project to cover research expenses and cost of mobility, and for Ph.D training. Up to £10,000 per year of the award may be used to purchase or maintain equipment; the total maximum amount of award is £150,000.

The **Department of Chemistry** also undertook the following research projects during the academic year:

- *Sustainable Biodiesel Production from Ghanaian and Tanzanian Plant Oil Seed Crops*: This is a £180,000.00 funded Leverhulme-Royal Society Africa Awards Phase II Project in collaboration with Aston University, Birmingham and University of Dar es Salem, Tanzania
- *Developing an alternate anti-epileptic product from medicinal plants: exemplifying utilisation of natural resources for quality health*: This is an ORID funded project being carried out in collaboration with Department of Pharmacology & Toxicology, School of Pharmacy and the Department of Animal Experimentation, NMIMR.

They will be working on the project, "Investigation of the efficient conversion of photon energy to electricity by newly synthesised low band gap semiconducting polymers with chlorophyll as a photosensitiser." The project is aimed at synthesising novel low band gap semiconducting conjugate polymers for the efficient conversion

- *Screening Ghanaian Medicinal Plants for Antipsychotic properties*: This ORID funded project is being carried out in collaboration with Department of Pharmacology & Toxicology, School of Pharmacy, the Department of Animal Experimentation, NMIMR and the Department of Botany.
- *Pharmacological study of the antinociceptive effects of *Synedrella nodiflora* in neuropathic pain*: This is a US\$ 12,000 project being funded by the International Foundation of Science (IFS). The project is being carried out in collaboration with Department of Pharmacology & Toxicology, School of Pharmacy and Department of Animal Experimentation, NMIMR.
- *Screening Ghanaian Traditional Medicinal Plants for Bioactive Anticancer Agents*: This is a GH¢100,000 ORID funded project being carried out in collaboration with Department of Clinical Pathology, NMIMR and the Department of Botany.
- *Investigation of the Dichapetalins as Potential Anthelmintic Agents*: This ORID funded project is being carried out in collaboration with Department of Parasitology, NMIMR.
- *Cost-Effective Pest Management Practices to Enhance the Profitability and Competitiveness of the Mango Industry in Ghana*: This ORID funded project is being carried out in collaboration with FOHCREC, Institute of Agricultural Research, College of Agriculture and Consumer Sciences and ARPPIS.

The **Department of Earth Science** undertook a Capacity Building Project worth GH¢ 500,000.00 funded by Ministry of Lands and Natural Resources to carry out research on the Precambrian geology of Ghana, with the focus on enhancing research capacity in core geology. The project is currently funding the research work of 14 graduate students (2 PhD and 12 MPhil). The project adopts a multidisciplinary approach to study the Paleoproterozoic rocks of Ghana. It integrates field mapping (structural geology), geographic information system (GIS), mineralogy, petrology and geochemistry, geochronology and radiogenic isotopes to aid in understanding the geodynamic evolution of the Paleoproterozoic terrane of Ghana.

The **Department of Biochemistry, Cell & Molecular Biology** undertook some collaborative studies with

other institutions. In collaboration with the University of Cambridge, the Department undertook studies on the “*Contribution of strain diversity to rotavirus vaccine effectiveness in Ghana: Investigating human reservoirs and strain diversity in farm animals*” and the “*Epidemiology of lifetime infection with trypanosomes in cattle in Ghana.*” Funding support is GBP 11,400. The Department also collaborated with the Centre Suisse de Recherche Scientifique en Cote d’Ivoire on “*Zoonotic risks of nontuberculosis mycobacteria between humans and small mammals*”, a project worth GBP 350,000. In collaboration with the University of DaresSalam, the Department worked on the “*Application of nanotechnology in the evaluation of antimycobacterial activity of natural products using in vivo efficacy models*”, a project worth US\$ 45,000. Other collaborative research was done with the National Institute for Medical Research and the University of Edinburgh on the “*Application of nanotechnology in the evaluation of antimycobacterial activity of natural products using in vivo efficacy models*” and “*Mechanisms of brain endothelial adhesion in cerebral malaria*” respectively.

The **Department of Physics**, with funding from the National Science Foundation, is involved in a research project which focuses on *Energy, Air Pollution and Health Inequality in the Neighbourhoods of Accra*.

## Catastrophic Spending on Education in Ghana: An analysis of the Ghana Living Standards Survey (Fifth Round)

Drs. Felix O. Mettle, Abeku A. Asare-Kumi and Isaac K. Baidoo of the Department of Statistics carried out a study that seeks to provide a basis for monitoring a household’s ability to fund education of the members of household in Ghana and identify the characteristics of the households that significantly influence catastrophic expenditure on education.

In their study, the researchers propose that a household could be deemed to have spent catastrophically on education if its expenditure on education is at least 20 percent of its total non-food expenditure

Sex, age, highest educational qualification of household head, size of household, region, socio-economic group, nationality and poverty status of household, significantly predict catastrophic spending on education.



# Faculty of Engineering Sciences



**Professor Richard Bani**  
Dean, Faculty of Engineering Sciences

Within the 2013/2014 academic year, the Faculty of Engineering Sciences successfully completed two projects which were supported with funds from DANIDA and has initiated the implementation of two new projects which are being supported with funds from University of Ghana Research Fund and DANIDA.

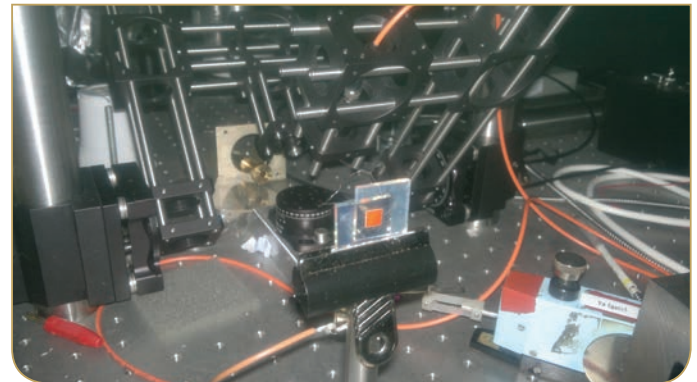
One project, titled "Development of Electro-Porcelain Composites From Local Raw Materials," has the objective of investigating the use of local Ghanaian materials in the production of electro-porcelain for use as alternative source for electrical power insulation materials. The other project, titled "Green Cohesive Agricultural Resource Management," aims to promote growth and employment through research on green, cohesive Water, Energy-from-Biomass, Soil, Organics, and Crop (WEBSOC) agricultural management strategies in Ghana. It will investigate the use of crop residues to produce biochar and woodgas for household-use to lessen the pressure on forests for firewood and charcoal as an intelligent way of recycling organics and reducing CO<sub>2</sub> emission. Details of projects within the faculty are listed below:

## Exploring Alternate Sources of Energy – Making Use of Graphene Based Natural Dye Sensitised Solar Cells

Exploration for alternate sources of energy has become necessary as the demand for energy use increases. In finding solutions to the energy needs, Dr. David Dodoo-Arhin is investigating novel techniques in fabricating graphene-based counter electrode natural Dye Sensitised Solar Cell (DSSC) with improved characteristics to produce a Graphene-based low-cost natural DSSC prototypes from cheaper and locally abundant materials. He is investigating various tropical (photosensitisers) from Ghana and correlating them with the solar cell parameters to improve solar cell performance.



*Dr. Dodoo-Arhin carrying out investigations at the laboratory*



*The Graphene Based Natural Dye Sensitised Solar Cells being tested*

Preliminary findings show that pristine graphene ink, produced at room temperature without chemical functionalisation and significantly cost saving, is an attractive replacement of commercial platinum counter electrodes in DSSCs.

This research is being carried out in collaboration with Dr. Tawfique Hasan of the Cambridge Graphene Centre and the Centre for Advanced Photonics and Electronics at the Cambridge University in the United Kingdom. It is also being carried out under the auspices of Cambridge Africa Partnership for Research Excellence (CAPREx), Cambridge Africa Alborada Research Fund and the University of Ghana-Carnegie Next Generation of Africa Academics

It is envisioned that the University of Ghana Energy Materials Research Centre at the Faculty of Engineering Sciences will be a leading centre of excellence in energy materials in the sub-region.

## Identifying Lead Compounds in Ghanaian Herbal Mixtures Using Biophysical Applications



*Dr. Elvis Tiburu*

Dr. Elvis Tiburu and two other researchers – Dr. Onwona-Agyeman and Jianqin Zhuang from the University of Ghana and the College of Staten Island, New York – are conducting research which aims at identifying lead compounds in Ghanaian herbal mixtures using biophysical application. The project is making use of Nuclear

Magnetic Resonance (NMR) spectroscopy, which is a powerful technique for wide biomedical applications. In combining it with other biophysical techniques, the NMR can provide the mechanism of how drugs interact with enzymes, receptors and other biological targets.

In this research work, five different herbal extractions from plants were obtained from a herbalist. These mixtures were extracted with warm water and the resulting mixture further concentrated into smaller volumes.

The tannins from the mixtures were removed by passing the mixtures through high performance liquid chromatography column. Next NMR experimental schemes were used to identify potential drug candidates after the tannins were removed. The tannins are also being processed for possible identification of high molecular weight metal-free organic dyes for potential use in solar cell application.



*Samples of the herbal mixture*

Two potential lead compounds were identified against the therapeutic important GPR55 receptor from two of the plant extracts. The GPR55 receptor is implicated in prostate and breast cancers as well as other disease states. The potential lead compounds will be further refined through a combine effort to understand the mechanism of their action against the receptor.

The ability to utilise NMR-based screening techniques to identify a single potential lead compound from a mixture of herbal medicine is an important step towards characterising the plethora of our local herbal mixtures and identifying their biological targets through a collaborative efforts.

## Development of a Prototype Solar Powered Drip Irrigation and Fertigation System

An interdisciplinary research cooperation to develop a prototype solar powered drip irrigation and fertigation system adapted to soils and climate conditions in Ghana was executed and completed successfully in seven months ending October 2013. The project was in collaboration with Aarhus University, Copenhagen University, Denmark and the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana with funding of DDK 175,000.00 (US\$ 30,809.86)



*The construction of the bell*



*The set up of the automatic drip system*



*Uniformity test for the drip system*



*Fertigation with the Dosatron*

## Green Cohesive Agricultural Resource Management

The Green Cohesive Agricultural Resource Management project is a five year project from Jan. 1, 2014 to Dec. 31, 2018. The project is in collaboration with Aarhus University, Denmark, Copenhagen University, Denmark, Technical University of Denmark and the University of Cape-Coast, Ghana Worth DDK 9,999,996.00 (US\$ 1,831,278.00).

The project aims to promote growth and employment through research on green, cohesive Water, Energy-from-Biomass, Soil, Organics, and Crop (WEBSOC) agricultural management strategies in Ghana, as present agricultural development depends on deforestation and show little or no increase in productivity per unit of land. WEBSOC is also intended to intensify agriculture to create jobs in poor rural areas.

The project will investigate the use of crop residues to produce biochar and woodgas for household-use to lessen the pressure on forests for firewood and charcoal as an intelligent way of recycling organics and reducing CO<sub>2</sub> emission. The application of biochar to agricultural fields increases carbon sequestration into the soil and thereby represents a CO<sub>2</sub>-negative approach to sustain increased soil fertility, crop yields, and carbon storage. Further intensification will be achieved by small-scale solar drip fertigation systems allowing one to two more growing seasons per year to produce high-value horticultural crops. This is a triple-win situation where farmers get sustained higher yields (from irrigation and improved soil fertility), CC gas emissions are reduced (from increased carbon sequestration), and households get energy (from pyrolysis of straw). Finally, agricultural value chains, both on the supply and processing side, will be developed in cooperation between local SMEs and universities. The research into these options will be pursued within the framework designed to educate PhD students and young scientists.

## Development of Electro-Porcelain Composites from Local Raw Materials

Dr. Abu Yaya of the department of material science engineering won an amount of GH¢ 25,000 from the UG research fund to carry out a research to develop Electro-Porcelain Composites from Local Raw Materials. The aim of the project is to investigate into the use of local Ghanaian materials in the production of electro-porcelain

for use as alternative source for electrical power insulation materials.

Electro-porcelain insulators are one of the most widely-used families of materials for use as electric insulation materials for both low and high tension insulation. These are complex multi-component ceramic materials, and therefore composite materials, whose three starting ingredients are clays, fluxes and fillers. These three ingredients react together when fired to produce the final product. Despite significant research already conducted in this field, challenges still remain in the understanding of properties relating to raw materials, their processing, microstructure and phase evolution.

The production of electro-porcelains is mainly based on natural raw materials such as clays, quartz and feldspar. This is because these materials possess good operating characteristics, are readily available and are relatively inexpensive. However, while Ghana has its own sources of raw materials for producing electro-porcelain, it does not yet exploit these resources. Instead, it currently imports porcelain insulators at a high cost.

It makes sense economically for Ghana to address the feasibility of having its own electro-porcelain industry given the sources of raw materials known to be in Ghana. For example, quartz, used as a filler, is found in Akwatia, feldspar, used as a flux, is found in Akyem-Akroso and kaolin, used as a clay, is found in Nkroful, Assin-Fosu and Kumasi.

In this CAPREx project, electro-porcelain ceramics will be formulated from these deposits and the properties of the resultant fired materials will be explored in relation to their workability, firing temperature, dielectric and mechanical characteristics. A comparison will be made with internationally sourced electro-porcelain ceramics in order to ensure our electro-porcelain ceramics are able to meet international standards.

## Design and Development of a Web Service for Android Applications for Extensive Data Processing

With the current trend in technology, having access to information on the go comes in very handy, especially when one happens to find oneself in a managerial position of an international corporate organisation. Having access to company information on the go can be very profitable for such organisations as it could speed up the decision-making process. Decision-making is very vital in such corporate organisations as it helps an organisation overtake or stay at par with its competitors. This research by Dr. Robert Sowah was to develop a Simple Object Access Protocol (SOAP) based web service client that would process data from a company's database and serve the results to a mobile device; in this case one that runs on the Android OS.

## Faculty of Law



**Professor Kofi Quashigah**  
Dean, Law Faculty

of Education, the faculty collaborated with University of Western Australia, Perth in the development of a

This research report gives a snapshot of recent developments at the Faculty of Law, the leading law Faculty in the country and home to legal scholars in a variety of fields. As the legal information landscape changes, so has the research interest of members of the Faculty. Through the initiative of a former Minister

post graduate programme in mining law and policy for sustainable development.



UG team with faculty member from University of Western Australia

The first of these collaborative executive short courses intended to serve as training sessions toward the development of an LL.M programme in Mining Law and Policy commenced this academic year. The course is aimed at building the capacity of major stakeholders in the mining industry. The short executive courses were under the auspices of the International Mining for Development Centre (IM4DC) with support from the Australian government.



Participants at first short course on mining law and policy

## Efforts to Attract Research Funds

Dr. Kwadwo Appia Agyei-Atua won a grant from Open Society Foundations, (Osiwa Open Society Initiative for West Africa) to organise a short course titled West Africa Executive Course on Human Rights and Drugs Policy. The course, which was organised for participants from the West African sub-Region, aimed at developing their competencies to help support African states to adopt drug policies which are underpinned by public health and citizen security issues, anchored in evidence-based harm reduction approaches and backed by laws or practices that are compliant with human rights norms.

Dr. Peter Atupare of the Faculty of Law, in collaboration with Dr. Justice Tankebe of University of Cambridge, is working on “The death penalty and the rule of law in Ghana”. The Funders are Cambridge-Africa Alborada Research Fund.

## Nuclear Power Generation Using International Law and Comparative Study Approaches

**Samuel Obeng Manteaw** is a Lecturer at the Faculty. He holds a PhD in Law with Distinction from the University of Ghana and is the first PhD produced by the faculty. His Ph.D work reviewed the sufficiency of Ghana’s nuclear regulatory regime in dealing with the requirements of international legal instruments, international standards and best practices. It probed how any gaps may be addressed. The key research question for this research was whether Ghana’s nuclear power safety regulatory framework is effective, and what should be the main elements of such a framework in Ghana? The



Samuel Obeng Manteaw

hypothesis tested by this question was that effectiveness of Ghana’s nuclear power safety regulatory framework is best measured by using a two-pronged nuclear regulation conceptual approach: (1) the “3S” concept (*i.e.*, safety, security, and safeguards) and (2) liability and compensation for nuclear and radiological damage.

The main method used to address the research questions and test the hypotheses was a case study of the regulatory framework effectiveness of the GAEC and the Radiation Protection Board (RPB) using legislation study, questionnaires and in-depth interviews. The GAEC and the RPB were selected for the case studies because of their respective legally mandated nuclear promotion and radiation protection functions. The substantive content of nuclear norms, laws, principles, practices and performance indicators of nuclear energy regulation were identified, assessed, and synthesised to provide an apt framework for conducting a composite evaluation of Ghana’s readiness for effective nuclear power safety regulation. Several key research findings were made.

Research findings included: (1) Ghana’s efforts to develop a nuclear legal regime is ongoing (the key draft law was critically analysed in the study); (2) Ghana does not have a nuclear power plant but GAEC has

good safety record in using a nuclear research reactor for extensive public services; (3) evaluating nuclear energy regulatory effectiveness, often conceptually focuses on the institutionalised regulatory body's operations; (4) such a conceptual approach is narrow and may omit other key actors and factors in nuclear energy regulation including the public, environment, operators, liability regimes; (5) a two-pronged "3S"+liability nuclear energy regulation gauge covering safety, security, safeguards and liability for nuclear

damage offers a *safety-led* (concentric cycle, *not a Venn* linked) comprehensive basis for evaluation; (6) regulatory effectiveness requires both direct and indirect normative and performance indicators (and this study used many of the indicators to evaluate Ghana's regulatory effectiveness and regulatory readiness); (7) regulatory readiness is an endless continuum of a sufficient and effective safety culture regime.

## University of Ghana Business School



**Professor Kwame Domfeh**  
Dean, UGBS

this academic knowledge into intellectual capital and intellectual property for the general good of the school and Ghana is a resource-intensive process that typically consumes a huge amount of resources. There is good reason to hope that UGBS is going on to becoming a world class business school.

University of Ghana Business School is widely acknowledged to be the pinnacle of business education in Ghana. Faculty members who are outstanding researchers, skilled lecturers and practitioners are distinguished by their commitment to creating and disseminating knowledge. Translating

Dr. Richard Boateng joined The Global Mobile Study (GMS) as its research partner from Ghana and he is currently collecting data on mobile phone usage and mobile internet usage in Ghana. The GMS is a consortium of academic and governmental organisations and is organised by the Institute for Communication Technology Management (CTM) at the University of Southern California.

Last year 350 students were engaged in internship programmes under the leadership of Dr. kwesi Amponsah-Tawiah, in collaboration with the Chamber of Commerce,

Enterprise Development Centre (EDC) and Centre for Management Research and Professional Development (CMRPD), are the media in which research uptake is channeled as well as research communication.

The school inaugurated a new state-of- the-art graduate block to enhance graduate work as well as promote and conduct research.



New Graduate Building, University of Ghana Business School

In conclusion a final year finance undergraduate student, Nicholas Tanye, was a member of a team of six from University of Ghana which participated in the 2013 edition of the Google Online Marketing Challenge (GOMC). The GOMC is a global annual challenge for tertiary institutions. Students are given the opportunity to “create online marketing campaigns using Google AdWords and Google+ for a business or not-for-profit organisation”, the team was among five (5) regional AdWords finalist from the Middle East and Africa.

Nicholas and his team ran an online campaign for Health Passport Africa, a health oriented NGO in Ghana with US\$ 250 from Google.

UGBS’s commitment to attaining excellence and a world class status is manifested in the number of faculty members attaining both higher academic laurels as well as partaking in various extension services. UGBS hopes to report on many more outstanding feats by both our faculty members as well as our students in the coming years.

**TABLE 18: RESEARCH PROJECTS AT THE BUSINESS SCHOOL**

Project Title	Donor	Investigator	Amount
Agency Conflict and Bank Interest Spreads in Ghana	International Growth Centre, DFID, UK	Professor Joshua Y. Abor	US\$ 18,000.00
Understanding the nature of political party funding in Ghana: Challenges and implications	International Growth Centre, DFID, UK	Professor Emmanuel Kojo Sakyi	£13,000.00
Banking in Africa: Market structure, Funding and Diversification Strategy	Economic Research Consortium (AERC)	Dr. Mohammed Amidu	US\$ 12,000.00

## International Collaborations

Professor Bill Pupilampu, Professor Daniel Ofori, Dr. Kwesi Amponsah-Tawiah and Dr. Kwasi Dartey-Baah all from the Department of Organisation & Human Resource Management in partnership with the Institute of Development Studies, University of Dar es Salaam, Institute of Work, Health and Organisations, University of Nottingham and the World Health Organisation, engaged in a research collaboration on the theme: “Corporate Social Responsibility and Occupational Safety and Health: a potent contrivance to achieve the Millennium Development Goals.” It was funded by Development Partnership in Higher Education (DelPHE), UK. The product of the CSR-OSH Project partnership was two books published in 2013 by Cranfield Press, UK: *Occupational Safety & Health and Corporate Social Responsibility in Africa and Developing Countries* and *Occupational Safety & Health and Corporate Social Responsibility*.

Dr. Kwesi Amponsah-Tawiah and Dr. Kwasi Dartey-Baah of the Department of Organisation & Human Resource Management are collaborating with Dr. Samuel Idowu, of the London Metropolitan University, UK; Professor Stephen Vertigans, Robert Gordon University, UK and Professor Matthias S. Fifka, University Erlangen-Nuernberg, Germany to contribute a chapter on CSR in Ghana: Sectorial Analysis to a book that focuses on

Corporate Social Responsibility in Africa. The chapter looks at the lack of uniformity in the definition of the concept CSR as worrying and therefore calls for a baseline understanding of the concept as practiced by different sectors of the Ghanaian economy. This work therefore adopts a sectorial approach to the classification and understanding of the concept. The book is expected to be published by the first quarter of 2015.

Additionally, Dr. Kwasi Dartey-Baah and Dr. Kwesi Amponsah-Tawiah, in an international collaboration with Professor Cecile Garmon and Ebo Osam, Center for Leadership Excellence, USA, have finalised a research proposal on “The Effect of Organisational Leadership Communication on the Perception of CSR Activities among Communities in Ghana”. The research should begin before the end of the 2014.

Dr. Richard Boateng, through collaboration with researchers from eight African universities and five Danish universities, coordinates a university task force and a grant of US\$ 171,961 awarded to the University of Ghana under the Building Stronger Universities (BSU) phase II programme to strengthen its capacity in e-learning and Problem-based Learning (PBL). A move to capacity building under ORID



Dr. Richard Boateng at the Mobile Lab

## Events

### Graduate Colloquium

UGBS continues to extend the frontiers of knowledge by organising a monthly seminar series on the last Friday of each month and holding colloquia. The OHRM Department as part of its efforts at disseminating and promoting research instituted its 1<sup>st</sup> Annual International Graduate Colloquium under the theme “Transforming Business Practices through Interdisciplinary and Purposeful Research.

### Management Day Celebration

To develop actionable steps towards research uptake and transfer, the school held its 35th Management day celebration on the theme “Harnessing the Digital Economy for National Development”. The Management day hosted by OMIS aimed at exploring how the country could exploit the benefits offered by the internet

and related technologies that are revolutionising the economic, social, political and technological environments for the advancement and wellbeing of the citizenry.

### 2nd UGBS Conference on Business and Development

As part of its activities for the academic year, the School organised the 2nd UGBS Conference on Business and Development on the Theme: Sustainability Enterprise Development. According to Professor Joshua Abor, Dean of UGBS, the event was also to discuss how new and emerging innovations developed and transformed the performance of businesses and lives of customers.

As Part of the UGBS conference, the School organised a business forum called THE PITCH, which sought to provide firms the opportunity to showcase their new products and services.



# School of Graduate Studies



# School of Graduate Studies



*Professor Kwadwo Ofori*  
Dean

Postgraduate studies, which were started some 50 years ago by the University of Ghana, have seen tremendous improvement in recent years in terms of increased student enrolment and graduation figures. By the year 2000, postgraduate enrolment reached approximately 1000 masters' students and about 90 doctoral students. Since then, the

School has realised remarkable increases in postgraduate enrolment, recording about 3000 masters' and more than 200 doctoral students by 2013.

In 2000, the School graduated about 350 masters' students and less than 10 doctorate graduates. By 2013 these figures had increased appreciably to about 2000 masters' and 40 doctorate graduates. In July 2014, the School graduated 33 doctorate students at a single Congregation, the highest in the history of the University.

The School hopes to graduate about 100 doctorates in 2014 alone. These successes are attributable to the hard

work and dedication on the part of members of the Board of Graduate Studies, faculty engaged in thesis supervision and assessment, staff of the School of Graduate Studies, and funding agencies such as the University of Ghana-Carnegie Next Generation of Academics in Africa (UG-CNGAA) project.

These positive developments have rekindled enthusiasm not only in our current postgraduate students but also in the local and international community to make the University of Ghana their institution of first choice for postgraduate studies. The University's adoption of a new structure of PhD in 2013 with course work, comprehensive examinations and experiential research learning as key components is unique in Africa and has the potential of producing top-notch researchers. It is our hope that the School would continue to receive more support from the University and other benefactors than it is currently enjoying, to enable it chalk more successes in quality postgraduate study delivery and output. Ultimately, the School hopes to play its expected role in our collective effort of making the University of Ghana a research University in the near future. Below is a synopsis of some outstanding doctoral research works undertaken by doctoral graduates of the School of Graduate Studies in recent years in the areas of medical biochemistry, plant breeding, family and consumer sciences, and linguistics.

## Outstanding PhD Thesis

Determination of Genetic Polymorphisms Associated with Phenotypic Diversity in Sickle Cell Disease



<b>Name:</b>	ABABIO, GRACE K. – PhD
<b>Department:</b>	Medical Biochemistry
<b>Topic:</b>	Determination of Genetic Polymorphisms Associated with Phenotypic Diversity in Sickle Cell Disease

Studies of haplotypes linked to the sickle cell gene in Africa provide strong argument for five origins of the mutation: Benin, Senegal, Cameroun, Arab- Indian, and the Central African Republic (Bantu). To date clinical laboratory parameters have not been clearly established to identify individuals more likely to manifest a particular phenotype. This makes it imperative that data is collated on the phenotypes by hematologic profiles and also genetic haplotypes to identify markers within population groups.

The study was located at the Center for Clinical Genetics, Sickle cell unit, Korle-Bu Teaching Hospital with 973 subjects recruited. Full blood

count was performed on all subjects and a genetic study was done on a selected few, which was considered representative, due to logistics. Nine haplotypes were identified for the first time in the Ghanaian (the southern sector) population with a predominant Benin haplotype, Atypical haplotype and very rare Senegal and Cameroun.

There was considerable heterogeneity in sickle cell disease (SCD) haplotypes in this Ghanaian population. Hematological indices differed in genotype groups by haplotypes and SCD. The HbS allele was in linkage disequilibrium (LD) with the Ben haplotype (LD= 0.32, p=.001) while the HbA allele was in linkage with the Ban haplotype (LD=0.21, p=.001). From the sequence analysis, the study identified two SNPs: a G:T1860 and A:G1872

### Genetic Improvement of Sweetpotato (*Ipomoea Batatas* [L.] Lam) for Beta-Carotene and yield in Burkina Faso

The thesis was undertaken to develop sweet potato varieties combining yield and quality as a contribution to food security, in alleviating poverty and malnutrition in Burkina Faso.

The breeding research included investigation of sweet potato farmers' and consumers' production constraints, their preferences and their acceptances of orange-fleshed sweet potato; the collection and characterisation of local germ plasm using morphological and molecular markers to determine if there is enough diversity to be used in the breeding

process; the development of new populations of sweet potato and the analysis of inheritance of yield and quality traits from parents to offspring and the genetic gain from breeding; and the genotype by environment analysis of 33 new orange-fleshed sweet potato varieties in order to evaluate their stability.

The results suggested that:

Low productivity of cultivars due to shortening cropping cycle, declining of soil fertility, susceptibility to weevil and virus were major constraints in sweet potato production. Farmers' preferences were for orange fleshed sweet potato varieties that combine high and stable yield, high dry matter content, good storage ability, good vegetative growth, early maturity and storage root with homogenous shape.

The diversity analysis showed high diversity of 0.73 from eight discriminant morphological characters, to moderated diversity of 0.49 from the SSR-based

within the HBG2 gene that were significantly associated with the HbSC gene. This data paves way for future research *in point of care diagnostics* for faster decision making and improve patient satisfaction in disease management.

Recommendations of the study include:

1. Increased public health education on SCD is warranted in rural and urban Ghana.
2. Pain is debilitating and so strategies on pain coping mechanisms need to be developed.
3. There is the need to characterise the atypical beta haplotypes found in Accra, the southern sector.
4. A repeated study of this kind in the northern sector would be helpful.



<b>Name:</b>	SOME KOUSSAO – PhD
<b>Department:</b>	West Africa Centre For Crop Improvement (WACCI), College Of Agriculture And Consumer Science
<b>Topic:</b>	Genetic Improvement of Sweetpotato ( <i>Ipomoea Batatas</i> [L.] Lam) for Beta- Carotene and yield in Burkina Faso

characterisation indicating that the germ plasm can be used as source of parents for population improvement. Duplicated accessions were identified from the collection different depending on the approach used. A core collection was constituted using the SSR-based data while the eight more discriminative phenotypic descriptors will be used to distinguish among cultivars in future studies.

Parent-offspring regression analyses and estimated genetic gain suggested rapid progress in dry matter content with high heritability (0.76±0.03) and high genetic gain (22.60%) and in beta-carotene content that was also highly heritable (0.90±0.04). Low heritability (0.21±0.16) associated with low genetic gain indicated that increasing significant storage root yield would be slow to attain.

Significant variation in the beta-carotene content was observed between the 33 new orange-fleshed

sweet potato varieties obtained. These new orange-fleshed sweet potato varieties yield varied from 11.5 t/ha to 20.33 t/ha with the best genotypes for yield (BF82xTainung-8 with 20.33 t/ha) and for beta-carotene (BF82xTIB-8 with 10.85 mg/100g of fresh weight) showing 82.99% and 32.64% increase respectively for yield and beta-carotene content over the performance of the best checks for storage root yield (CIP-199062-1 with 11.5 t/ha) and beta-carotene content (BF14 with 8.18 mg/100g of fresh weight). However, the best F1 genotype for dry matter content, BF82xTainung-11 with 32.15% had 4.29 % dry matter less than the best check, Caromex with 32.59%. Genotypes for specific environments as well as widely adapted genotypes were identified.

**Recommendations:**

- Three farmers' varieties: Samzoodo, Lillon and Fardanga were identified to be very stable but poor in cooking and eating quality. Genetic improvement of these cultivars to enhance quality will contribute to a change in status from undesired cultivars to elite varieties.
- Introduction of additional divergent parents along with recurrent selection will be necessary to achieve significant improvement in yield and yield related traits
- Twelve OFSP F<sub>1</sub> hybrids and ten white to yellow F<sub>1</sub> hybrids were identified as promising varieties. On farm evaluation will contribute to the selection of the best varieties according to farmers' and consumers' needs and lead to their release.

**Caring for People Living with Aids in Accra, Ghana: The use and Management of Household Resources**

In recent years, AIDS has been known to be a chronic rather than an acute and fatal disease because of the advancement of medical treatment. Families play an increasingly significant role in caring for the chronically ill persons living with AIDS at home by supporting them with household resources. The central argument of this thesis is that chronically ill AIDS persons require a critical period of care.

The aim of this study therefore, was to explore how caregivers of AIDS persons managed resources in poor communities in Ghana. Grounded theory method was adopted, because very little is known about this subject. Key results showed that participants perceived care as practices that were dependent on the use of household resources. Caregivers took decisions daily about limited resources. Most caregivers were women; there was only one male caregiver. Interestingly, housing and religion emerged as important resources during AIDS care. Participants associated poor caring practices with lack of space, overcrowding, and poor toilet/bath facilities. Caregivers combined care with economic activities such as commercial food services. Drawing from the conclusions, the study recommends that:

- The Ghana AIDS Commission should come up with policy guidelines to identify AIDS-affected households in order for them to reach out with information on resources management.



<b>Name:</b>	VIVIAN TACKIE-OFOSU – PhD
<b>Department:</b>	Family and Consumer Sciences, School of Agriculture
<b>Topic:</b>	Caring for People Living with Aids in Accra, Ghana: The use and Management of Household Resources

- The Ministry of Health/Education should incorporate family life education in their programs to assist caregivers improve their skills to balance care with commercial food business.
- Involvement of men in caregiving could minimise the burden on women.
- Religious centres should be involved in counseling and resource management practices.
- AIDS-affected families should be supported with information on resource management. A model was proposed to give insight to household resource use in the context of AIDS care.

### Serial Verb Nominalisation in Akan

This thesis focuses on nominalisation of serial verb constructions (SVCs) in the Akan language. The study develops a relevant typology of serial verb nominalisation on the basis of semantic integration and lexicalisation using a prototype theory (PT) framework. The three degrees of semantic integration for serial verbs in Akan are Full Lexicalised-integrated Serial Verb Constructions (FL-ISVCs) Partial Lexicalised-Integrated Serial Verb Constructions (PL-ISVCs) and Clause Chaining Serial Constructions (CCs or CSCs.). Each type of SVC is analysed on the basis of how it is nominalised, the degree to which nominalisation occurs and whether nominalisation can occur at all. Various corpuses were consulted in three major literary dialects of Akan Asante Twi, Fante and Akuapem Twi. Further, native speakers of each of these dialects were consulted to ascertain the goodness of various attested serial verb nominals (SVNs) in Akan.

Because Full Lexicalised Integrated Serial Verb Constructions behave as lexicalised idioms, four criteria of idiomaticity are applied to them including collocability, familiarity, flexibility and compositionality (Barkema, 1996). The results from the study show that over 98% of



<b>Name:</b>	OBADELE KAMBON – PhD Linguistics
<b>Department:</b>	Institute of African Studies, University of Ghana
<b>Topic:</b>	Serial Verb Nominalisation in Akan

all FL-ISVCs identified have nominal counterparts while less than 3% of all PL-ISVCs identified have nominal counterparts. CSCs seem to nominalise haphazardly as frozen sentences, proverbs, idioms and figures of speech which primarily function as *denotata* and *designata*. While there was some degree of interdialectal variability with regard to individual SVNs, the pattern of nominalisation behavior on the basis of degrees of semantic integration and lexicalisation remained consistent across dialects.

### Institutions and Human Security in the Post-Conflict Development of Liberia

One of the significant challenges confronting the international community in the post-Cold War era is dealing with the numerous intra-state conflicts in various parts of the world, particularly in Africa. In addressing this issue, it has also become essential over time, to address the question of what states must do upon the cessation of hostilities to prevent a recurrence of the conflict. Consequently, post-conflict development, including the rebuilding of infrastructure, political and social institutions, demobilising, disarming and reintegrating ex-combatants and generally creating conditions for sustained development has become the 'core business' of the international humanitarian and development community. While there have been successes, there have also been significant failures in this regard.

In 2003, Liberia brought to an end a fourteen-year-old civil war with the signing of the Comprehensive Peace Accord. With a legacy of institutions shattered by war and long periods of mal-governance, the country began a process of post-conflict development aimed at addressing the human security needs of its people. The study examined this process from an institutional perspective. A critical aspect of this was the interrogation of the extent to which the record of human security could replicate historic



<b>Name:</b>	PHILIP ATTUQUAYEFIO – PhD
<b>Department:</b>	Legon Centre for International Affairs and Diplomacy
<b>Topic:</b>	Institutions and Human Security in the Post-Conflict Development of Liberia

socio-economic inequities and how that could threaten the sustainability of Liberia's post-conflict development.

By disaggregating the record of human security in Liberia, the study concluded that the floundering state of institution-building was discharging spatially unbalanced human security across the various counties and thereby reestablishing the socio-economic inequities partly at the root of the civil war. This was affirmed as a recipe for a relapse into violent conflict. To avoid this scenario, the study recommended strategies that could contribute towards the implementation of a regionally balanced human security agenda - one that recognises the country's peculiar socio-economic context.

# Balme Library



# Balme Library



**Professor Ellis Badu,**  
*University Librarian*

The Balme Library was established to support the mission of the University in the areas of teaching, learning, research and knowledge dissemination.

During the 2013-2014 academic year, the Balme Library has contributed to research through services provided by the Research Commons and the Faculty Research Commons respectively,

the Ghana-Korea Information Access Centre (IAC), and the exhibition of published works of Faculty.

The Balme Library, through the initiative of the then Deputy Librarian, was able to digitise the Furley Collection and other rare materials. This has paved the way for the digitisation of these which would be eventually uploaded into the Institutional Repository. Employees of the library attended various conferences, seminars and workshops to update their knowledge in respective fields and improve service delivery to Faculty, students, the university community and the public. The Balme Library has increased the acquisition of new titles to support the newly introduced doctoral programmes.

## Exhibition of Published Works

Exhibitions of publications are carried out as part of the library's core responsibilities. Exhibitions serve as an opportunity to showcase the published works of the University, to market the resources of the library and encourage young Faculty to publish.

During the year under review, the exhibition of the published works of Professor Helen Lauer, Department of Philosophy and Classics, was mounted. Professor Lauer was appointed a full Professor in Philosophy in June 2013. During her tenure as Head of Department of Philosophy in 2008, the Department transitioned to Philosophy and Classics.

The exhibition, which was held from Monday, 23<sup>rd</sup> June to Friday, 27<sup>th</sup> June, 2104, preceded her Inaugural Lecture which she delivered on Thursday, 26<sup>th</sup> June, 2014. As part

of the exhibition were numerous book chapters, conference papers, journal articles, course materials as well as articles in progress which dwelt largely on symbolic logic, critical thinking, logic for law and cross-disciplinary anthologies in African Humanities and Social Sciences.

## The Ghana- Korea Information Access Centre

The Ghana-Korea Information Access Centre (IAC) is an initiative by the Korean Government to enhance existing IT equipment in the Centre. The IAC has seminar rooms, an internet lounge, video –conferencing facilities and a training laboratory. During the 2013-2014 academic year, the IAC has hosted at least four programmes for companies from the private sector. The latest programme held in June at the Centre was the opening ceremony of an African Summer School on the Application of Ocean and Coastal Data and Modeling Products, which attracted 30 successful candidates from across Africa.

As part of the agreement between the two countries, IT volunteers from South Korea come annually to provide university-wide training to enhance the work of IT employees of the University. The duration for the training is four weeks. This year, four volunteers trained staff in Photoshop and Web Technologies from 2<sup>nd</sup> to 31<sup>st</sup>, July 2014.

## Digitisation and Institutional Repository

Digitisation in the Balme Library started with the need to preserve the Furley Collection and other rare materials in the Africana Section of the library. Currently, 230 rare materials, including the Furley Collection, have been successfully digitised. Upon the successful completion of the project, which was a collaborative effort between the University of Ghana and the The Royal Tropical Institute (KIT) of the Netherlands, the Balme Library embarked on the digitisation of masters and doctoral theses with sponsorship from the Carnegie Corporation. The Carnegie Corporation helped the library to acquire more sophisticated machinery for digitisation. By the close of the 2013-2014 academic year 630 theses had been digitised and were being uploaded for use by Faculty and students <http://ugspace.ug.edu.gh/handle/123456789/4688> .



Staff operating one of the ATIZ Scanners

As part of efforts to build capacity for digitisation and support, employees who were involved in the digitisation had a joint training workshop with staff of Academic

Computing Unit of the University of Ghana Computing Systems (UGCS).

A three-day workshop on the theme “*Providing practical guidance for effective digital collection programmes at the University of Ghana*”, was held from 18th to 20th February, 2014 at the Ghana Korea Information Access Center (IAC), University of Ghana. It was a collaborative workshop between University of Ghana Computing Systems (UGCS), Balme Library and University Archives. It targeted staff members who are likely to be working with records or archives and library management or have some responsibilities for digitisation in their offices. Thirty eight participants attended the workshop and nine papers were presented.

In line with improvements in technology and best practices, a new equipment known as Zeutschel was installed from 29th June to 3rd July, 2014, to enhance the efficiency of the digitisation process. Employees of the Digitisation Unit were trained in the use of the equipment.



Group Photography of Participants with the Registrar of the University of Ghana

### Institutional Repository

An Institutional Repository is an online archive for collecting, preserving and disseminating digital copies of the intellectual output of an institution, especially a

research institution. As part of the digitisation drive, the Balme Library has uploaded the Furley Collection and other rare materials into the Institutional Repository. So far 78 materials have been uploaded onto the Institutional Repository.



The University Council has approved an Institutional Repository Policy to guide the use and contents of the Institutional Repository. The policy was developed jointly by the Balme Library and the Office of Research, Innovation and Development.

## Electronic Resources

The University of Ghana, through the Balme Library, subscribes to a variety of online databases for research. These are mainly journal articles with a few e-books in Science Direct. Majority of the databases were acquired by virtue of its membership of the consortium of Academic and Research Libraries in Ghana (CARLIGH). Other databases include Science Direct, Scopus, Scifinder and CINAHL. The Carnegie Corporation sponsored the acquisition of additional e-resources.

The numerous databases are accessed both within the university network and by students/Faculty who are off campus and have registered for the service. The Library also offers virtual reference services to support research via social media.

Research guides have also been created by professional librarians on different disciplines to bring research information closer to students and faculty. In other words, these are subject-specific virtual libraries. They are available at <http://libguides.ug.edu.gh/>.

## Library System Upgrade

The University of Ghana Library System will be migrating from Millennium to Sierra integrated library management system in August 2014. Sierra has a comprehensive library of Application Programming Interfaces (APIs) for 3rd-party and library-developed applications, as well as tools to facilitate interaction with web properties and social networking sites. It will enable the library to take advantage of open access to key workflow and data in Sierra as well as Open source tools like the PostgreSQL database and Lucene keyword engine which gives users and developers a familiar manner to interact with Sierra. The migration is a joint effort of Balme Library and Academic Computing Unit of University of Ghana Computing Systems (UGCS). The project is funded in part by Phase II of University of Ghana ICT-based Distance Project which seeks to enhance Distance and Continuing education using Information and Communication Technologies.

## Conferences, Workshops and Seminars

During the 2013-2014 academic year, eight out of the 13 Senior Members in the Balme Library have attended international conferences and seminars in the United Kingdom, the United States, Singapore and South Africa. These conferences and national workshops centred on innovative usage of libraries, licencing and negotiation, the role of libraries in national development, exploring the possibilities of future libraries and transforming libraries to adapt to the needs of society. The Balme Library also hosted a Collaborative International Workshop which brought together the Ghana Library Association and the Nigerian Library Association at which the wife of the Vice-President of the Republic of Ghana and former President of the Ghana Library Association, Mrs. Matilda Amissah-Arthur, gave the keynote address. The conference, which was held from the 13th to 17th April, 2014, featured other speakers such as Professor Ellis Badu, the University Librarian, and Mr. Ayo Alonge, President of the Nigerian Library Association.

Some themes for the conferences and workshops attended are stated below:

- Librarianship and the demands for new leadership skills
- Licencing and Negotiation Meetings
- Libraries: Key to National Development – 1962-2012
- Future Libraries: Infinite Possibilities
- Transforming our Libraries, Ourselves
- The Discoverability of African Scholarship Online

For the period under review, Senior Members in the Balme Library have published six journal articles and produced reports on the conferences, workshops and seminars they attended.

## Acquisitions

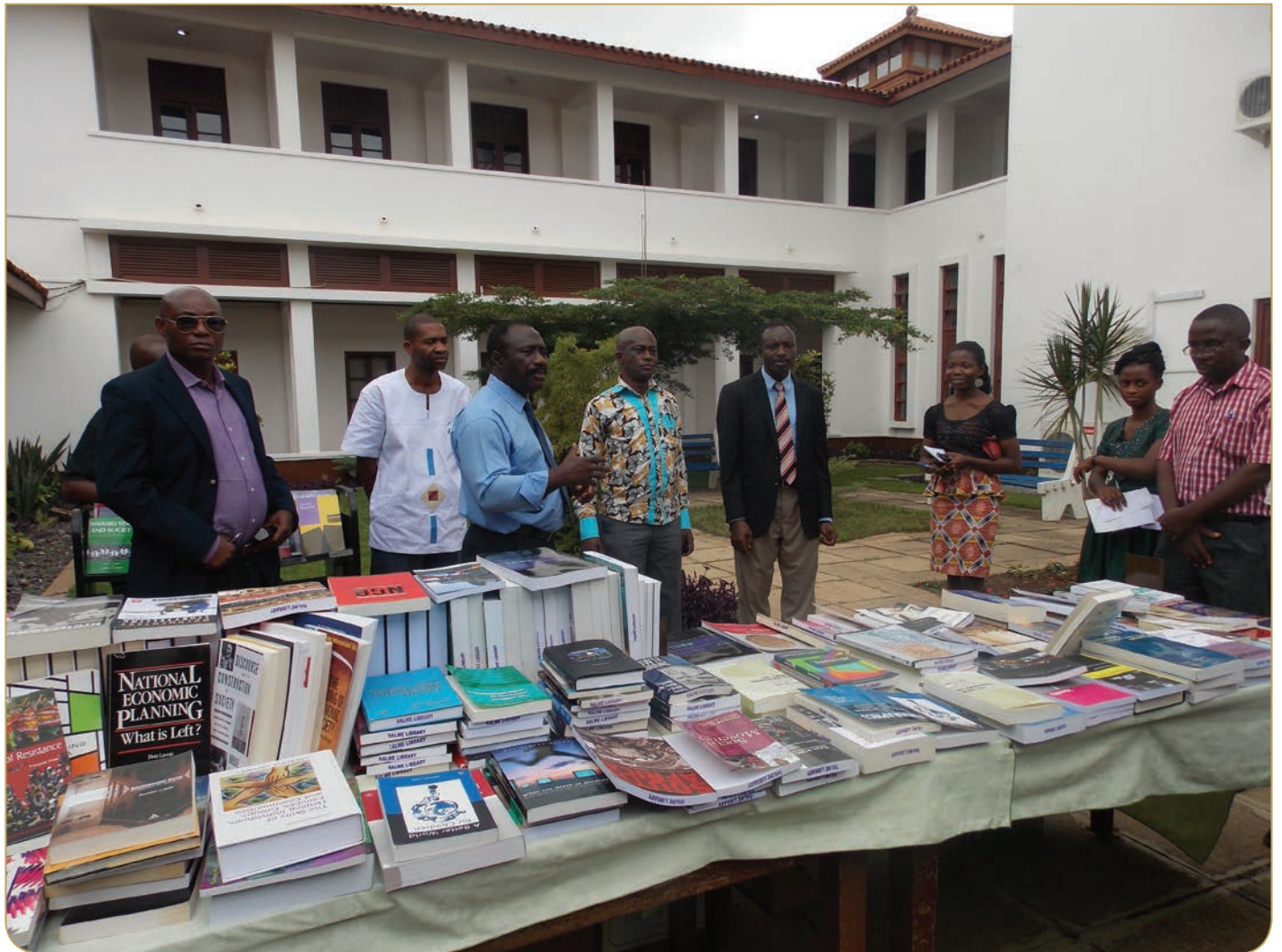
A total of 7,424 new books have been added to the stock of books in the Balme Library. The Acquisitions Unit increased its new titles in view of the newly introduced PhD programmes, as a way of contributing to the University's efforts becoming a research university. The Carnegie Corporation contributed to the purchase of 3,436 of the requested titles, which is about 46 per cent. More than 70 per cent of the new requested titles have

been acquired so far. The total stock of books in the Balme Library as at February 2014 stood at 402,657.

## Book Donation by Alumnus

An Alumnus and a Visiting Scholar of the History Department, Professor John K. Osei-Tutu, donated 620

titles in various disciplines in the Arts and Humanities. The University Librarian observed that the titles were very relevant and would encourage more research and learning.



*Some staff members of Balme Library and the Alumnus/Visiting Scholar in a group picture.*

# Research Development Officers

The primary responsibility of Research Development Officers are to: facilitate research within the various Colleges, Faculties, Schools, Research Institutes and Centres, build portfolios of funded research projects, assist in generating research funds and also contribute to research productivity.



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of Infectious Pathogens (WACCBIP)



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