



Council for Scientific and Industrial Research
Science and Technology Policy Research Institute
(CSIR-STEPRI)

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CSIR-STEPRI

Annual Report 2014

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Council for Scientific and Industrial Research (CSIR)

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LIST OF ABBREVIATIONS AND ACRONYMS

AGRA	-	Alliance for Green Revolution in Africa
ASTI	-	Agricultural Science and Technology Indicators
COTVET	-	Council for Technical and Vocational Education Training
CAAST-NET	-	Network for the Coordination and Advancement of Sub-Saharan Africa – EU Science and Technology Cooperation
DRUSSA	-	Development Research Uptake in Sub Saharan Africa
DANIDA	-	Danish International Development Agency
DFID	-	Department for International Development
EU FP7	-	European Union's Seventh Framework Programme
FAO	-	Food and Agriculture Organisation
FASDEP	-	Food and Agriculture Sector Development Policy
GATCI	-	Garment and Textile Cluster Initiative
GNTDA	-	Ghana National Tailors and Dressmakers Association
ICT	-	Information Communication Technology
ICT4AD	-	Information Communication Technology for Accelerated Development
IDRC	-	International Development Research Centre
IFPRI	-	International Food Policy Research Institute
IFS	-	International Foundation for Science
IGF	-	Internally Generated Funds
JAES	-	Joint Africa-EU Strategy
MEST	-	Ministry of Environment Science and Technology
MOFA	-	Ministry of Food and Agriculture
MOF	-	Ministry of Finance
MOTI	-	Ministry of Trade and Industry
MSME	-	Micro, Small and Medium Enterprise
MWRWH	-	Ministry of Water Resources Works and Housing
NARS	-	National Agricultural Research System
NTNU	-	Norwegian Technical University
OIC	-	Opportunity Industrialization Centre
PACF	-	Pan African Competitiveness Forum
PORSPI	-	Policy Research and Strategic Planning Institute
PPP	-	Public Private Partnership
R&D	-	Research and Development
RWH	-	Rain Water Harvesting
S&T	-	Science and Technology
Sida	-	Swedish International Development Agency
SINTEF	-	Stiftelsen for Industriell og Teknisk Forsking
STEPRI	-	Science and Technology Policy Research Institute

STI	-	Science, Technology and Innovation
TASCHA	-	Technology and Social Change Group
TTC	-	Technology Transfer Centre
TDTC	-	Technology Development and Transfer Center
UNDP	-	United Nations Development Programme



Rev. Prof. S. K. Adjepong

Chairman of CSIR-STEPRI Management Board

CSIR-STEPRI MANAGEMENT BOARD

Rev. Prof. S.K. Adjepong

Chairman, Principal, Methodist University College, Dansoman, Accra.

Dr. George Owusu Essegbey

Member, Director, CSIR-STEPRI, P. O. Box CT519, Accra.

Dr. Joel Sam

Member, Director, CSIR-INSTI, Accra.

Mr. Kwabena Abankwah-Yeboah

Member, Managing Director, SHARP Pharmacy, Accra.

Mr. Kwasi Attah-Antwi

Member, National Director Rural Enterprise Programme (REP), Ministry of Trade and Industry, Accra.

Mrs. Elizabeth Afriyie Maldini

Member, Managing Director, ELSA Foods, Tema

Mr. Issahaku Adam

Member, Ag. Director of Administration, CSIR, Accra.

EXECUTIVE SUMMARY

The Science and Technology Policy Research Institute (STEPRI), one of the thirteen (13) institutes under the Council for Scientific and Industrial Research (CSIR), is mandated to conduct Science, Technology and Innovation (STI) policy studies, technology evaluation, transfer and diffusion as well as fostering Science and Technology (S&T) human resource development and management. Its vision is to become an international institution that facilitates the development, transfer, utilization and management of Science, Technology and Innovation (STI) tailored to meet the specific needs of Ghana and Africa. The Institute has a staff strength of thirty-seven (37) consisting of sixteen (16) senior members, eleven (11) senior staff and ten (10) junior staff. Senior members who constitute the core staff are a multidisciplinary staff with specialities in engineering, economics, sociology, agriculture and development studies.

In carrying out its mandate, CSIR-STEPRI collaborates strategically with international development partners and academic institutions such as the World Bank, the Association of Commonwealth Universities (ACU), Food and Agriculture Organisation (FAO), International Development Research Centre (IDRC) of Canada, Department for International Development (DfID) of UK, the International Food Policy Research Institute (IFPRI), Alliance for Green Revolution Africa (AGRA), Oxford University, United Nations University in Maastricht, The Netherlands and Washington State University in the US.

The institute implemented a number of projects among which were both new and old projects. Some of the new projects that were implemented included, Development Research Uptake in Sub Saharan Africa, sponsored by DfID, CSIR-Technology Development and Transfer Center, sponsored by World Bank and GoG, Multinational Enterprises in Emerging Markets, sponsored by the European Commission, Science Equipment Study, sponsored by IFS-Sweden, among others.

The Institute recorded some key achievements during the 2014 fiscal year. Some of these included the commissioning of a new office complex completed by the Institute through its own IGF; organisation of a staff retreat to brainstorm on the way forward and a new set of strategic directions for STEPRI for the year 2015 and beyond. The project, Development Research Uptake in Sub Saharan Africa brought the research community and policy makers closer and it increased the visibility of the Institute. The CSIR-STEPRI Management Board was reconstituted in the year under review with Rev. Prof. S.K. Adjepong maintaining his position as the Chairman for the Board.

Donor Inflows and Internally Generated Funds for 2014 amounted to \$916,529.89 and GHC87, 950.23 respectively. As usual, the main source of income for the institute was donor-funded projects. There was no government release for assets and very little came in for goods and services. This continues to pose a big challenge for running the institute.

MESSAGE FROM THE DIRECTOR OF CSIR- STEPRI

Dr. George Owusu Essegbey



The year 2014 will go down in the history of the Science and Technology Policy Research Institute (STEPRI) as the most momentous. It was a year filled almost to the brim with research activities and important institutional events. I personally look back on 2014 with great satisfaction. Not that there were no challenges. There were the usual cuts in government subvention, which made effective planning and budgeting very difficult. Still, with what we have achieved, we can hope to do better in 2015.

Altogether we had twelve (12) major projects running at various stages of implementation in 2014 including three new ones – the DRUSSA Project, the MNEmerge Project and the CSIR-COTVET Project, sponsored by the DFID of UK, the European Commission and the World Bank (through our sector ministry) respectively. The implementation of these projects engaged the research staff in field work, workshops and seminars of different kinds. The non-research staff in the Finance and Administration Division were also kept busy in a variety of ways – drivers driving researchers to the field, accounts officers working on institutional and project accounts, secretaries working on correspondence and reports of all kinds. Even the labourers and cleaners working to keep a clean and healthy environment for productive work, felt the impact of the several projects attracted into STEPRI.

By the end of 2014, it was reasonably clear that the success we achieved would become a standard by which subsequent years would be assessed. The resources that came into STEPRI and the outputs in terms of the events organized and publications would define how our institutional performance in the years ahead will be measured. It was against this background that a retreat was organized on 22nd of December 2014 to take stock and plan for the subsequent years. We analysed the enabling factors of success and formulated the roadmap to the future.

The retreat was an eye-opener to how far STEPRI has come and how much further it has to go to achieve its vision of an international policy research institution, which fosters Science, Technology and Innovation (STI) in socio-economic development in Ghana and Africa. We

will need to expand the scope of our operations and strengthen our inter-institutional relations locally and abroad. The worth, quality and impact of our research must be evident and visible to those in the corridors of power. This is possible only with greater excellence and dedication to our vision and mission.

Whatever we have achieved in the past is the pointer to the possibilities ahead of us. The year came with opportunities to step up to greater success. Fortunately, we have always enjoyed tremendous support of our key stakeholders especially the STEPRI Management Board chaired by Rev. Prof. S.K. Adjepong and the Management of the CSIR headed by our Director-General, Dr. A.B. Salifu. We have benefited greatly from the extraordinary support and goodwill of our sister CSIR institutes and their Directors. Our international partners have been an indispensable source of support and encouragement. The fact is, without them, there would not have been any research conducted in STEPRI. We are most grateful to all.

As we appreciate the goodwill and support and take account of where we are and the vision before us, we look forward to good prospects in the coming year 2015!

1.0 INTRODUCTION

1.1 Background

The Council for Scientific and Industrial Research (CSIR) has thirteen (13) research institutes and the Science and Technology Policy Research Institute (STEPRI) is one of them. The institute was established through a UNDP project in 1988 aimed at addressing policy issues relating to transferring technology from developed to developing countries especially as in the case of Ghana. Its original name of Technology Transfer Centre (TTC) reflected the core mandate of the institute at that time. However, that name was changed to Policy Research and Strategic Planning Institute (PORSPI) in 1992 as the mandate got broadened to include other relevant research themes. Two years later in 1994, the current name was adopted to underscore the diversifying nature of its programme activities.

The Vision

The vision of STEPRI is to become an international institution that facilitates the development, transfer, utilization and management of Science, Technology and Innovation (STI) tailored to meet the specific needs of Ghana and Africa.

Currently, CSIR-STEPRI has as its primary mission to conduct research to provide knowledge-based information to contribute to the formulation and implementation of policies and programmes for socio-economic development on the basis of Science, Technology and Innovation (STI). Over the years, CSIR-STEPRI has excelled in executing its mission and mandate by addressing the following five thematic programmes:

- Monitoring and assessment of STI-related policies in the Ghanaian economy;
- Popularization of Science, Technology and Innovation (STI);
- Commercialization, facilitating and diffusion of local technology and innovation;
- Development and management of STI human resource; and
- Adoption, assimilation and transfer of appropriate technology.

A number of development partners have been supporting CSIR-STEPRI in carrying out research in the above thematic areas. The institute acknowledges with profound gratitude international development partners especially, the International Development Research Centre (IDRC) of Canada, Department for International Development (DFID) of UK, the Government of The Netherlands, the World Bank, Swedish International Development Agency (Sida) and the New Partnership for Africa's Development (NEPAD), the Norwegian Development Agency (NORAD), the International Food Policy Research Institute (IFPRI),

Alliance for Green Revolution Africa (AGRA) , the International Fund for Agricultural Development (IFAD), United Nations Development Programme (UNDP), among others. The Institute also collaborates strategically with international academic institutions including the Association of Commonwealth Universities (ACU), Oxford University, Brunel University, Washington State University, UNU-MERIT, among others. These collaborations promotes greater synergies and knowledge sharing for better work outputs from the institute.

1.2 Technical Divisions

Research activities in the institute revolve around four technical divisions namely: Agriculture, Medicine and Environment Division (AMED); Industry and Services Division (ISD); Commercialization and Information Division (CID); and Finance and Administration Division (FAD). The activities of each division are as follows:

Commercialization and Information Division (CID)

This Division is responsible for:

- i.* Promotion and marketing of S&T innovations;
- ii.* Consultancy and research outreach;
- iii.* Documentation, dissemination of S&T information;
- iv.* S&T popularization and
- v.* Public relations.

Industry and Service Division (ISD)

Policy research in this division focuses on:

- i.* *Industry:* manufacturing, mining and utilities;
- ii.* *Services:* transportation, financial services, commerce, information and communications technology (ICT), education and tourism.

Agriculture Medicine and Environment Division (AMED)

This division conducts policy research in:

- i.* *Agriculture:* agricultural research and development systems; agricultural value chains; cash and food crops production; fisheries and urban agriculture.
- ii.* *Medicine:* orthodox and traditional medicine.
- iii.* *Environment:* waste management, control of pollution and environmental degradation, natural resource conservation and climate change.

Finance and Administration Division (FAD)

This division provides support services such as:

- i.* Accounting;
- ii.* Personnel administration;
- iii.* Estate management; and
- iv.* Logistics.

1.3 Research Programmes

In line with CSIR-STEPRI's mandate, and through the support of development partners, the following research programmes and development activities were carried out during the year under review:

1. Development Research Uptake in Sub-Saharan Africa (DRUSSA).
2. The CSIR-Technology Development and Transfer Center (TDTC).
3. Multi-National Enterprises in Emerging Markets (MNEmerge).
4. Rain Water Harvesting (RWH) for resilience to climate Change impact on Water availability in Ghana.
5. IFPRI-STEPRI: Agricultural Science and Technology Indicator Survey (ASTI).
6. Assessing Critical Issues in Human, Financial and Institutional Capacities in West African Agricultural Research and Development.
7. Diffusion of Innovation in Low Income Countries (DILIC).
8. Advancing Sub-Saharan Africa – European Union cooperation in research and innovation for global challenges (CAAST-Net Plus).
9. Pan African Competitiveness Forum (PACF Ghana Chapter).
10. Developing An Enabling Scientific Squipment Policy in Africa: Ghana Study.
11. Creating Strategic Framework for the Development of Public Access in Ghana.
12. Business Opportunity Identification Study (BOIS)/REP Phase II.

2.0 SUMMARY OF RESEARCH PROJECTS

2.1 Development Research Uptake in Sub-Saharan Africa (DRUSSA)

Principal Investigator: *Dr. George O. Essegbey*

Research Team: *Dr Wilhelmina Quaye, Dr Richard Ampadu and Mrs. Justina A. Onumah.*

Source of Funding: *DFID*

Duration: *3 Years*

Introduction

The Development Research Uptake in Sub-Saharan Africa (DRUSSA) programme is being implemented in 24 Sub-Saharan universities across 12 countries. DRUSSA seeks to strengthen research uptake capacity and participation in the international development research system with the ultimate goal of improving the accessibility and utilisation of locally relevant research evidence to inform Sub-Saharan and global development policy and practice. The DRUSSA project is sponsored by the UK Government's Department for International Development (DfID) with technical support from the Association of Commonwealth Universities (ACU). In Ghana, DRUSSA is being implemented by the Science and Technology Policy Research Institute of the Council for Scientific and Industrial Research (CSIR-STEPRI). The collaborating institutions are the Institute of Statistical, Social and Economic Research (ISSER), Uganda National Council for Science and Technology (UNCST), the Economic Policy Research Centre (EPRC) at Makerere University and the Association of Commonwealth Universities (ACU). The participating ministries are the Ministry of Finance (MOF), Ministry of Trade and Industry (MOTI) and Ministry of Food and Agriculture (MOFA).

DRUSSA has three main components namely:

1. **Policy symposia for senior officials:** A regular series of short, invitation only symposia, bringing senior officials and senior academics together around thematic areas of research and policy focusing on topical issues concerning national policy in the respective ministerial domain.
2. **Professional development courses on 'handling science and evidence' for junior and mid-level policy advisors:** A short, modular executive education course, aimed at officials in ministries and other government agencies, enabling technical staff to improve their abilities to access, evaluate and use research evidence through professional learning.

3. **Early career policy fellowship scheme:** A scheme to embed academic expertise within a specific policy unit. Early career academics would take up a 6-12 month placement in each ministry to enable day-to-day interaction between research and policy professionals.

The overall goal of DRUSSA is to improve the accessibility and utilisation of locally relevant research evidence to inform Sub-Saharan Africa and global development policy and practice.

Specific objectives are to:

- Raise the level of discussion around research evidence at senior ministry levels;
- Equip technical staff with practical skills and support senior civil servants in the use of research evidence; and
- Encourage a culture of evidence-informed approaches to policy formulation, implementation, monitoring and evaluation.

Research Project Activities

At the project inception phase, formal agreements were reached through signing of Memorandum of Understanding (MoU) with MOTI, MOF and MOFA after a series of ministerial briefings on the project. Capacity needs assessment survey and validation workshop were organized to present and share needs assessment survey findings with senior civil servants of the participating ministries. Following up on the validation workshop, a day's planning session was held with each ministry to develop a purpose road map for the three main components and expected outputs of the project. During the year under review, CSIR-STEPRI organized five series of policy symposia. Two (2) Policy Symposia for MOFA, two (2) policy symposia for MOTI and one (1) MOF. Thematic areas discussed in the policy symposia are detailed below:

MOTI Policy Symposia

Potential Impact of the Common External Tariff and Economic Partnership Agreement

A total of 46 participants were drawn from relevant institutions such as Ghana Revenue Authority (GRA), Ministry of Trade and Industry (MOTI), Ghana Standards Authority (GSA), Ghana Export Promotion Council (GEPC), Custom Excise and Preventive Service (CEPS), Ghana Chamber of Commerce, National Board for Small-Scale Industries (NBSSI) and the Institute of Statistical, Social and Economic Research (ISSER) of University of Ghana. The rest were staff from CSIR-Science and Technology Policy Research Institute, the Association of Commonwealth Universities (ACU) and the World Bank. Female participation was estimated at 24%. The Policy Symposium was formerly opened by the Deputy Minister for Trade and Industry on Tuesday, 30th September, 2014 at the Novotel Hotel in Accra.



Participants at the CSIR-STEPRI and MOTI Policy Symposium held on 30th September, 2014

Gender in Trade and Industry: Needs and Challenges of Women Entrepreneurs in Ghana

The Policy Symposium was organized on Tuesday, 9th December, 2014 at the British Council in Accra and formerly opened by the Technical Advisor for the Ministry of Trade and Industry in the person of Mr. Kofi Smith. The two academic presentations indicated that the needs and challenges of women entrepreneurs included; empowerment in decision-making, access to finance and credit, access to land, revising laws and administrative practices and shaping macroeconomic policies and development strategies. Others were measures to reduce chronic poverty, removal of bureaucratic bottlenecks and the elimination of socio-cultural factors. The following policy directions were recommended for a proper institutionalization and strengthening of the capacity of women entrepreneurs for socio economic development:

- Have entrepreneurship as one of the programmes at the basic level;
- Gender issues need to start at the basic level;
- Every policy or intervention targeting women empowerment must start from the men;
- Policy frameworks should be examined in terms of providing support network to social groups (gender); and
- Policy making should take into consideration taxes being levied on small businesses and the regulatory framework to go through especially in agro-processing.

MOFA Policy Symposia

Decentralisation of MOFA: Constraints and Opportunities for Sustainable Food Production

A total of 42 participants drawn from Academia, MOFA Senior Officials, Research, and Local Government attended the MOFA Policy Symposium held on 1st October, 2014 in Accra which was formally opened by the Minister for Food and Agriculture, Hon. Fiifi Kwetey. Two key presentations were done on (1) The State of Decentralisation of MoFA in Ghana: The Way Forward by the Dean of the Institute of Local Government Studies (Dr Eric Oduro Osae), and (2) Decentralisation of MoFA: Implications for Sustainable Food Productivity in Ghana by a Senior Lecturer from the University of Ghana (Dr. George T-M Kwadzo). In addition, there were submissions from a group of 4 main discussants on the theme presentations including Director of Crops Services, MoFA, lecturer from Agric Extension, University of Ghana and Farmers Representative and a Director from the Local Government Services. From the discussions at the Policy Symposium, it was clear that decentralisation ensures (i) bottom-up approach of decision making; (ii) opportunities for better services to the poor in the rural areas through development planning with greater transparency and accountability; and (iii) better planning of productivity factors including management, organizational skills, land and other production inputs with District Assembly for enhanced agricultural productivity. But there are challenges with the reporting system within MOFA and between MOFA and Ministry of Local Government (MLG) as well as staff recruitment and rationalisation at the district level. Apparently in the food and agricultural sector, the challenges tend to subtract from the gains of decentralization.



Participants at the CSIR-STEPRI and MOFA Policy Symposium held on 1st October, 2014

The following recommendations were made for the way forward:

- Capacity building and education of MoFA Directors on the paradigm shift;
- Re-aligning functions and structure to reflect the current decentralized arrangements of Ghana;
- MMDAs must be encouraged to create an Agricultural Sub-Committee to facilitate full integration and agricultural development;
- District Agricultural Directors (DADs) are encouraged to devise new and innovative ways of mobilizing additional internally generated funds (IGFs) to supplement their budgets; and
- MOFA should create a knowledge repository at the regional departments of agriculture to provide adequate coordination and backstopping functions to the District Agricultural Development Units (DADUs).

Accepting GMOs: Implications for sustainable food production in Ghana

The second policy symposium with MOFA was held on 4th December 2014. A total of 68 participants drawn from the academic community, the Departments and Agencies of MOFA, Farmer groups, other line Ministries and the media attended. The Policy Symposium provided another insightful discussion and sharing of knowledge. Dr Hans Adu-Dapaah (Former Director of Crops Research Institute) was the theme speaker. Among the points made at the Policy Symposium were the following:

- Diminishing resources coupled with population growth is a threat to food security and sustainable agriculture. Biotechnology provides the opportunity to increase agricultural productivity.
- GM crops are not going to replace the conventional approach, but to complement it for efficiency.
- GM crops are safe for food and pharmaceutical uses and therefore there is the need to build human and institutional capacity rather than to reject the technology.
- The Biosafety Act should rigorously be enforced and all stakeholders along the value chain sensitized.
- There is need for intensive public education especially to get farmers to understand the science and benefits of biotechnology.

MOF Policy Symposium

Exchange Rate Volatility and Impact on Economic Growth: Way Forward in Ghana

This Policy Symposium was organized with the Ministry of Finance (MOF) on 3rd December 2014, at Novotel Hotel in Accra. Presentations and follow-up discussions focused on the impact of the exchange rate volatility on Agriculture, which is the major employer of the Ghanaian population, as well as the manufacturing sector. The presentation on the implications of Exchange Rate Volatility in the manufacturing sector discussed the right policy mix to be pursued by the MOF. That is not just to export, but also how to do so in a way

that provides for sustainable income growth and increase foreign currency reserves. Some recommendations made include improving access to inputs, capital, technology and a range of services which are critical for building Ghana's international competitiveness.



A Lecturer from University of Ghana making a presentation at the MOF Policy Symposium

Regarding the implications of Exchange Rate Volatility in the Agricultural Sector, the presentation focused on the relation between the volatility of the Ghana Cedi and the agricultural sector in terms of productivity. Again, Exchange Rate Volatility has the potential of negatively affecting productivity in the agricultural sector from the perspective of the effects on input prices. It may also have a negative effect on amount of agricultural produce exported due to risk management difficulties that come with a volatile home currency for exporters. Other factors affecting agricultural productivity that need to be revisited are infrastructural deficit, post harvest losses, lack of improved technology and poor mechanisation among others.

Policy Briefs and Early Career Fellowship

The DRUSSA team prepared Policy Briefs synthesizing the key discussion points emerging from the policy symposium. Five Policy Briefs were produced from the proceedings of the policy symposia for education and information dissemination purposes.

An initial call for the fellowship programme was circulated to all higher education institutions, detailing core skills and competencies required, as well as broad areas of technical knowledge based on the likely needs of participating ministries. Three fellows

were selected for placement at the various ministries. Terms of Reference will be designed for selected fellows setting out subject knowledge required and any further technical skills and supported activities required.



Drussa team meets with officials from the Ministry of Finance and Economic Planning

Conclusion

In conclusion, formal agreements were reached through signing of Memorandum of Understanding (MoU) with the Ministry of Food and Agriculture (MoFA), Ministry of Trade and Industry (MOTI) and Ministry of Finance (MOF) to participate in the DRUSSA programme. Project implementation activities were conducted as expected although there were challenges with getting full commitment from the MOF. Capacity needs assessment survey and validation workshop were organized to present and share needs assessment survey findings with senior civil servants of the three participating ministries. In addition, CSIR-STEPRI organized five (5) Policy Symposia and came out with five (5) Policy Briefs for MOTI, MOF and MOFA. These helped to improve the accessibility and utilisation of locally relevant research evidence to inform policy and practice.

2.2 The CSIR-Technology Development and Transfer Center (TDTC)

Principal Investigator: *Dr. George O. Essegbey*

Research Team: *Dr. Wilhelmina Quaye, Edward Decker, Justina A. Onumah and Rankie Asabo*

Source of Funding: *World Bank, DANIDA and GoG*

Duration: *2½ Years*

Introduction

The CSIR-Technology Development and Transfer Center aims at developing a structured mechanism that facilitates effective transfer of CSIR technologies to the private sector on one hand. On the other hand, the structured system ensures the generation of ideas from the private sector for the development of appropriate innovations and technologies that provide business solutions. This market-oriented project is under the Component 2 of the Ghana Skills and Technology Development Programme. The participating CSIR institutes include Animal Research Institute (ARI), Food Research Institute (FRI), Institute of Industrial Research (IIR), Water Research Institute (WRI), Forestry Research Institute of Ghana (FORIG), Crops Research Institute (CRI), and Building and Road Research Institute (BRRI).

Project Objectives

The project seeks to achieve the following objectives:

- Establish a private-sector oriented programme based on institutional incentive schemes;
- Develop and implement a structured model for engaging the private sector in partnerships for technology development and transfer;
- Develop capacity on technology transfer that enhances knowledge and skills of the TDTC staff, the researchers and other relevant staff whilst also addressing the technology adoption capacity needs of the private sector entrepreneurs; and
- Create a system or platform for intensive research-industry interaction.

Research Project Activities

During the period under review, a number of activities were conducted including establishment of Technology Development & Transfer Center (TDTC), Capacity Needs Assessment Survey of CSIR Research Scientists and subsequent capacity building of CSIR Staff, organization of business seminars, technology profiling, development of CSIR-R&D Strategic Plan and Competitive AWARD Grant Scheme among others.

Establishment of CSIR-Technology Development and Transfer Centre

The CSIR-TDTC was officially launched by the Minister for Environment, Science, Technology and Innovation, Hon. Akwasi Opong-Fosu on Tuesday 19th August 2014 at the CSIR-STEPRI Auditorium. Logistics for offices including furniture, computers, photocopiers, binding machines and projector were procured through the CSIR procurement

system. A 4x4 Vehicle with registration number GN1225-14 has been procured for the TDTC project.



Launching of the CSIR-Technology Development and Transfer Centre

Capacity Needs Assessment Survey and Training of Research Scientists

A Capacity Needs Assessment Survey was conducted to establish the gaps for capacity building among researchers and to generate institutional level information on challenges limiting technology transfer to the private sector. Findings show that the academic training received by researchers rarely covered topics in technology transfer and marketing issues. The findings supported the need for capacity building in technology transfer, focusing less on developing technical skills but rather creating and upgrading competence in Technology Marketing, Technology Partnerships, as well as Collaboration Agreements and Technology Licensing.

As a follow-up to identification of capacity gaps, three training and sensitization workshops were organised for research scientists and TDTC focal persons. The main objectives of the workshops were (1) to sensitize participants on TDTC project objectives, outputs and outcomes and (2) adequately educate CSIR-Research Scientists on Technology Dissemination, Technology Marketing and Technology Collaborations & Partnerships. Three Resource Persons with adequate experience in the subjects of Technology Dissemination, Technology Marketing Technology Collaborations & Partnerships were used as course instructors for the training workshop. Participants had opportunity to conduct hands-on-practical demonstrations using the well designed training modules for applications on institutional level technology transfer strategies. Each participating institute made presentations later for feedback from the Resource Persons. Out of the 58 researchers trained 15 were females.

Organisation of Business Seminars

Two (2) Business Seminars were organised in Kumasi and Accra. The Business Seminar

offered a platform for intensive research-industry interactions. The platform engaged CSIR Directors, Research Scientists and both existing and potential Entrepreneurs in serious discussions on industry technological needs and feedback on CSIR technologies already in the market place.

Presentations by Directors of CSIR Institutes covered the following:

- Overview of the Institute's mandate and functions;
- Marketable technologies developed by the institute (with pictures of the technologies);
- Economic viability of the marketable technologies;
- Challenges in transferring these technologies; and
- How entrepreneurs can adopt these technologies or partner with the institute to commercialize the technologies.

Technology Fair

The technical team of the CSIR-TDTC participated in the second Skills Development Fund (SDF) Skills and Technology Fair held at the Accra International Conference Centre, on 30th September and 1st October, 2014. The fair attracted large scale businesses, research institutions, science and technology institutions, development partners and the media. About 40 selected grantees exhibited their products in the two-day event. Beneficiaries of the Fund were tasked to ensure that the outcomes of SDF support reflected in quality and productivity improvement in their productivity, incomes and profit to create avenues for increased employment, adding that it was only through the development of their respective businesses the jobs could be created and incomes of their respective private sector partners. Private sector participants who showed interest in some of the CSIR Technologies were directed to contact the appropriate institutes.

Technology Profiling

As part of the project implementing activities, all marketable technologies developed by CSIR have to be profiled and well-documented. This technology profiling activity is to support the promotion and transfer of already developed marketable technologies with substantial benefit to the private sector. The technology profiling covers a detailed description of each marketable technology that has been developed by CSIR institutes participating in the TDTC project. The detailed technology description consists of innovation characteristics, how the technology works, resources required for the adoption and utilization of this innovation, dissemination strategies, end-users or targeted clients, opportunities and challenges associated with the use of this technology. Close to 100 CSIR-Marketable technologies were profiled during the period under review.

CSIR-TDTC Grant Award

Under the TDTC project, 20 selected market-ready CSIR technologies are to be funded through a competitive Grant Award Scheme. The selection process involves, call for

proposals, screening and final selection by the Project Steering Committee (PSC) and Transfer of total Award Sum of maximum GHC30,000 (US\$10,000 equiv.) per research-private sector technology transfer arrangement. For the first call, ten (10) out of the total of twenty (20) proposals submissions were selected for funding under the CSIR-TDTC competitive grant Award Scheme.

Conclusion

Overall, the CSIR-TDTC project is on course and progressing as expected. For the way forward, project implementation activities will be more focused on monitoring of Awardees of the technology transfer package, selection of next batch of Awardees, strengthening of sustainability systems and synergies with the existing commercialisation activities.

2.3: Multi-National Enterprises in Emerging Markets (MNEmerge)

Principal Investigators: *Dr. G.O.Essegbey and Dr. Godfred Frempong*

Research Team: *Ms. Mavis Akuffobe, Mrs. Justina A. Onumah, Dr. Rose Omari, Ms. Portia Adade and Ms. Afua B. Sarpong-Anane*

Source of Funding: *European Union*

Duration: *3 years*

Introduction

MNEmerge is a collaborative research project funded by the European Union's Seventh Framework Programme (EU FP7) for research, technological development and demonstration under grant agreement number 612889. Its aim is to provide a comprehensive framework for understanding the impact of multinational enterprises (MNEs) on United Nations Millennium Development Goals (MDGs) in developing countries using case studies, quantitative data as well as policy analysis.

The consortium that have been assembled for this project have been an active contributor to the multinationals research already before the project and it has extensive expertise on studying societal problems in emerging markets. The project combines the strengths of the partners and it is carried out by an international, interdisciplinary team involving researchers from Finnish, British and Dutch institutes as well as Indian, Ghanaian and Brazilian organisations. The issues studied in this project are varied but there is a common thread uniting all of its sub-themes, they all relate to how MNEs manage their activities in one of the following areas: FDI, business functioning, technology and innovation strategies, corporate philanthropy or socially responsible investment. We analyze in detail how these issues can contribute to the attainment of poverty alleviation, food security, health security, environmental security and electrification in developing countries.

The project has four broad goals namely:

1. Development of a framework to analyse MNE impact towards socio-economic development,

2. Development of a model that describes the relationship between MNE, FDI and the economy,
3. Analysis of the role of public policies in supporting responsible business practices and the Millennium Development Goals, and
4. Case studies and quantitative analysis to support the methodological framework model on health, environment and energy

The collaborating institutions under this project are the University of Technology, Finland; King's College London; Brunel University, UK; University of Oxford, UK; United Nations University, Maastricht, The Netherlands; Public Health Foundation of India; University of Turku, Finland; and CSIR- STEPRI, Ghana

Research Project Activities

During the year under review (2014), the major activity conducted was the preparation of a *Background Report on Multi-National Enterprises in the Agricultural Sector: A Case Study of the Rice and Cassava Value Chains in Ghana*. The objectives of the report were to:

1. Identify MNEs operating in Ghana's generally and then with emphasis on the agricultural sector;
2. Analyse their contribution to the economy in terms of FDI, technology and knowledge transfer and corporate philanthropy;
3. Analyse the impact of MNEs activities in the Rice and Cassava Value Chains in Ghana.

The basic approach used in this study was desk research and the sourcing of secondary data through internet searches, libraries and from documents in relevant organisations. Interviews with key informants also provided some information. The desk research involved reviewing of articles related to MNEs, Cassava and the Rice Industry in Ghana. The major sources of secondary data used in this report were the Food and Agriculture Organization's Statistical website (FAOSTAT), the Statistics, Research and Information Directorate (SRID) of the Ministry of Food and Agriculture (MOFA) and the Ghana Investment Promotion Center (GIPC). FAOSTAT and MOFA-SRID provided us with production and consumption data of rice and cassava in Ghana, whereas GIPC provided us with data on Foreign Direct Investment (FDI).

Conclusion

The conclusion drawn from the study was that the cassava and rice sectors have seen improvement over the years especially with the involvement of multinational companies and international aid agencies. In the rice value chain, MNEs were located both in the downstream and upstream activities. However, few MNEs were located along the Cassava value chain and they were mainly along downstream activities such as processing. The study recommended that the development of the agricultural value chains is key to the country's growth and development and hence the government of Ghana needs to ensure that the

investment climate in the agricultural sector is conducive and favourable in order to attract investors. Without harnessing the support of the world's major MNEs effectively, the UN's Millennium Development Goal to halve the number of people living on less than \$1 a day by 2015 will be difficult to attain. The project has two more years to go and a number of activities have been lined up for the coming year including policy case studies and knowledge and management spillovers from MNEs to local firms or their local subsidiaries. These studies will be conducted mainly through surveys.

2.4 Rain Water Harvesting (RWH) for Resilience to Climate Change Impact on Water Availability in Ghana

Principal Investigator: *Dr. George Essegbey*

Project Team: *Roland Asare, Masahudu Fuseini, Mavis Akuffobe, Portia Adade and Afua Sarpong Anane*

Source of funding: *Nordic Development Fund*

Duration: *24 months*

Introduction

Ghana like other nations is prone to the effects of climate change which are evident now in the rise in sea level, high intensity of rainfall, flooding and long periods of drought. Its effect on the quality and quantity of freshwater in Ghana cannot be over-emphasized and the result of this is that most households and institutions in Ghana have no access to portable water. There is an urgent need for an alternative source of water supply to meet the short fall in current water supply. It is against this backdrop that SINTEF, a leading research institution in Norway in collaboration with the Water Research Institute (WRI) and Science and Technology Policy Research Institute (STEPRI) both of the Council for Scientific and Industrial Research (CSIR) initiated a research project dubbed “Rain Water Harvesting (RWH) resilience to climate change impact on water availability in Ghana.

The project is a two-year project (2013-2015) and is financed by the Nordic Development Fund (NDF) through the Nordic Climate Facility. The objectives of the project are to:

- Increase resilience to climate change impact on water availability in Ghana;
- Facilitate business development in RWH technology;
- Improve urban livelihoods;
- Increase water availability in selected household and schools;
- Make affordable, appropriate and innovative RWH systems more available in Ghana; and
- Strengthen human and institutional capacities in RWH.

The project aims to achieve the set objectives by: Assessment and development of appropriate and innovative model of RWH systems, installation of the model RWH systems in 20 households and 2 schools, training of a corp of artisans in building RWH

systems as a means for local business development, monitoring both the quality and quantity of the harvested water and engage stakeholders, evaluate and promote the model RWH systems in Ghana in line with the National Rainwater Harvesting Strategy.

Research Project Activities

During the reporting period the project was able to accomplish the following activities:

- Organized four training workshops for thirty artisans (masons, carpenters, plumbers and electricians) mainly on roof assessment, installation of the systems, as well as business development in RWH. Topics covered include costing, business opportunity identification, registration of business, customer relation and marketing, financial options, cluster formation etc.
- Organization of stakeholders' workshops where all the key stakeholders in the water sector were brought together and preliminary findings from the project have been presented for their input. Meetings and seminars have also been organized as a means of dialogue with the stakeholders who mainly include members from Ministry of Water Resources Works and Housing (MWRWH), Community Water and Sanitation Agency (CWSA), Water Resources Commission (WRC), Ghana Real Estate Development Association (GREDA), National Development Planning Commission, the media etc.
- Completion of installation of the RWH systems in fourteen (14) houses in Accra;
- Socio-economic monitoring and evaluation of beneficiaries of the RWH systems
- Monitoring of quantity and quality of harvested water; and
- Promotion of the RWH technology in Ghana through outreach events at a Shopping mall in Accra, Rainwater Harvesting (RWH) forum and seminars with key stakeholders including policy makers, technocrats, estate developers among others.



A member of the research team explaining the operation of the RWH system to a beneficiary of the project

Conclusion

The preliminary results from the water samples from households installed with the RWH system, showed that the quality of the water met the World Health Organisation (WHO) standard for potable water and has greatly improved water availability in these households in addition to cost savings and general improvement in hygienic conditions.

RWH technology has high market potentials and opportunities for greater adaptation in Ghana as access to water supply across the country is inadequate due to over reliance on Ghana Water Company Ltd (GWCL). Water from RWH is recognized as improved water source by the WHO/UNICEF Joint Monitoring Programme on the MDGs on water and sanitation hence the potential for greater demand exists.

A number of activities are earmarked to foster closer collaboration with the MWRWH, and media for the promotion of the rain water harvesting technology in Ghana. Also it is envisaged that findings from the project will feed into the National Rain Water Harvesting Policy and in the updated National Building Code (in draft).

Future project activities will focus on installation of the RWH system in the remaining six (6) houses and two schools in Accra. Further training of the artisans in business planning, registration and financial management, monitoring of quantity and quality of harvested water. There will be continuous monitoring of the installed systems to test for both the quantity and quality of the harvested water, as well as socio-economic monitoring of benefits to beneficiaries. Other activities will include stakeholders' dialogue, evaluation and promotion of the model RWH systems in Ghana.

2.5 IFPRI-STEPRI: Agricultural Science and Technology Indicator Survey (ASTI)

Principal Investigator: *Dr. George Essegbey*

Research Team: *Roland Asare and Emmanuel K. Tetteh*

Source of Funding: *International Food Policy Research Institute (IFPRI), USA*

Duration: *March 2012-July 2014.*

Introduction

Agricultural Science and Technology Indicator ASTI survey is a collaborative research project between the International Food Policy Research Institute (IFPRI) and the Science and Technology Policy Research Institute (CSIR-STEPRI). ASTI conducts primary surveys to collect data from government, higher education, nonprofit, and private agricultural R&D agencies. ASTI survey has been carried out in about 40 African countries including Ghana in order to update data on agricultural research investments, human resource capacity and research focus themes.

This survey has been carried over the years in Ghana and the current one which started in

2012 will end in April 2014. After analyzing the resulting raw data, ASTI in collaboration with the national focal point publishes quantitative and qualitative information and trends on funding sources, spending levels and allocations, and human resource capacities, at the country level. ASTI's data and analysis constitute a powerful decision making resource for national and regional research managers, policymakers, donor organizations, partners, and other stakeholders.

The objectives of the project are:

- To provide high-quality, up-to-date datasets on agricultural R&D;
- To conduct ongoing analysis of its agricultural R&D datasets;
- To communicate the results of its analysis to promote advocacy and support policymaking;
- To build national and regional capacity for both data collection and data analysis;
- Provide up-to-date data and information on Agricultural R&D to enable policy makers make informed decision at the national level.

Research Project Activities

During the year under review, supplementary data was collected from some of the agencies to complete the survey, in addition to carry out the analysis of the data and report writing. A Country Fact Sheet which highlights the key findings of the survey was published in July 2014.

Conclusion

The study showed a continuous increase in Public agricultural R&D spending during the period 2008-2011 and this is mainly reflected across Universities, CSIR and Cocoa Research Institute of Ghana (CRIG). Government support to CSIR has remained strong, however this source of funding only covers staff salary with very small portion going into daily running of CSIR institutes. CSIR institutes therefore depend on donor funding for their research activities and there is the danger of research agenda being skewed away from national priorities.

The number of PhD-qualified researchers at CSIR is comparatively low given the level of specializations required across the institutes. This therefore calls for priority on PhD-level training and mentoring of junior scientists to ameliorate the impending loss of senior researchers through retirement in the short to medium term. Increased commercialization of research technologies and increased government investment in agricultural R&D in Ghana among others are some of the means to address funding challenges to agricultural R&D in Ghana

2.6 Assessing Critical Issues in Human, Financial and Institutional Capacities in West African Agricultural Research and Development

Principal Investigator: *Dr. George Essegbey*

Project Team: *Dr. George Essegbey, Roland Asare and Nienke Beintema (IFPRI)*

Funding Agency: *CORAF/IFPRI*

Duration: *16 months (March 2013-June 2014)*

Introduction

The Economic Community of West African States (ECOWAS) developed a policy called the Regional Research Policy. This policy seeks among others greater involvement of the West African research community in the formulation of ECOWAS programmes. The policy was validated by relevant ministers from ECOWAS member countries. The ECOWAS Regional Research Policy (ECORP) is a broad framework which seeks to harmonize and create synergy among all sectorial initiatives related to scientific research. Ministers also indicated that information on the status of scientific research capacity would need to be improved, in particular by updating country-level data. To address these issues, an in-depth assessment of the critical issues in the human, financial, and institutional capacities in West and Central African agricultural research is required to feed into this policy formulation. In addition, West African Scientists always need CORAF to propose to ECOWAS a set of options that would help the institution in preparing a regional agricultural and research policy in order to improve research conditions.

To address the above concerns, the CORAF/WECARD solicited the support of the Agricultural Science and Technology Indicators (ASTI) program of the International Food Policy Research Institute (IFPRI) to conduct a survey on assessing critical issues in human, financial and institutional capacities in West African Agricultural Research and Development.

Research Project Activities

The first phase of assessing critical issues in human, financial and institutional capacities in West African Agricultural Research and Development System is being carried in six West African countries including Benin, Burkina Fasso, Ghana, Senegal, Sierra Leone and Togo. The project execution is a collaboration between CSIR-STEPRI and IFPRI. The National Agricultural Research Systems (NARS) in the participating countries are the main target of this survey. In Ghana, ten (10) CSIR institutes engaging in agriculture and related research were surveyed. Data collection was carried out using three different approaches. These were:

- Institutional survey: Gather data on institutional human, financial resources, infrastructure and research output for the period 2008-2012;
- Motivational Survey: To collect motivational data from research scientists in the various institutes; and
- Interview: With Institutes directors.

Conclusion

A country report was completed in June, 2014 and this highlighted a number of key policy directions for consideration with regards to institutional frame work, human resource development and strategies for motivation and performance needs.

The proposed policy directions will focus on,

- Developing training and succession plan including a skill gap analysis;
- Providing mentorship with the involvement of present and past tenured researchers;
- Improving incentive systems to create a more conducive environment;
- Ensuring the government's constructive engagement to enhance public funding, while making greater efforts to increase internally generated funds;
- Improving R&D outputs and dissemination through better coordination and collaboration across research agencies and with the relevant sectors, such as the extensive system and the private sector; and
- Ensuring effective systems for monitoring and evaluation and performance assessment to enhance delivery on mandates.

2.7 Diffusion of Innovation in Low Income Countries (DILIC) Project

Principal Investigators: *Dr. George .O. Essegbey and Prof. Xiaolan Fu (Oxford University)*

Research Team: *Dr. Giacomo Zanella and Dr. Jun Hou (of Oxford University), Ms. Mavis Akuffobe and Ms. Portia Adade*

Source of Funding: *ESRC/DFID*

Duration: *3 Years (2012-2014)*

Introduction

In developing countries, technological innovation is fundamental for industrialization and catch-up. However, technological innovation has been traditionally concentrated in a few developed countries, given the costs and risks involved in fomenting technological innovation. Foreign sources of technology account for a larger part of productivity growth in most countries. The development process in Low Income Countries (LICs) therefore can be supported by tapping existing knowledge and know-how. The transfer, adoption and adaptation of knowledge to LICs hence constitute an important issue for economic growth and global development. Innovative capacity in LICs is, however, critical for the successful transfer and adaptation of knowledge. Yet several constraints and obstacles prevent firms from innovating. Addressing these constraints, to build functional innovation systems and enhance innovative capacity, is fundamental to socio-economic development in LICs.

Against this backdrop, the Diffusion of Innovation in Low Income Countries (DILIC) project which involves a team of investigators and advisors from various universities and international organisations in Europe and Africa was designed to investigate the determinants and transmission channels for the dissemination of innovations in firms under

severe institutional and resource constraints. The collaborating Institution is the Oxford University in the United Kingdom

The objectives of the project are:

- To understand the barriers to innovation and diffusion in LICs at the firm level; and
- To identify useful industrial and relevant policies to overcome the barriers under institutional, resource and affordability constraints.

Research Project Activities

The main survey for the project which was started in 2013 was completed with 100 % response rate. In line with the main research activities a conference was held on the 3rd November, 2014 at CSIR-STEPRI in Accra by TMCD and STEPRI under the theme ***“Innovation and African Development”***. The research findings of the three year research project on the determinants and impact of technology transfer in and to low income countries was presented. The DILIC Conference also launched the DILIC report which included the main findings from the innovation survey of more than 500 formal and informal firms in Ghana. A total of about 100 participants made up of policy makers, academics and practitioners from government and private institutions and organizations were present at the conference. The speakers included Pierre Mohnen (UNU-MERIT and Maastricht University), Prof. Xiaolan Fu(University of Oxford), Mr. Varghese Alexander, country representative of UNIDO and other researchers from the University of Oxford and CSIR-STEPRI.

Presentations and discussions were on the following topics:

- Importance of innovation in Africa development;
- The DILIC project and the DILIC innovation survey;
- Firms environment and innovation activities;
- Constraints and objectives of innovation;
- Sources of innovation in LICs;
- Foreign sources of knowledge and innovation;
- The role of innovation policy.

The DILIC Conference was followed by a two-day training course in Accra from 4th to 5th November, 2014. A total of about 35 participants from government and private institutions and organizations representing policy makers, academics, researchers, lecturers and entrepreneurs who had interest in innovation participated in the course. It provided the state of the art knowledge on the determinants and impact of technology transfer in and to the low income countries. It also presented to participants insights on designing and administrating innovation surveys. The course covered talks in three main areas:

- The barriers to innovation creation and diffusion in LICs under institutional,

resource and affordability constraints and the space for innovation policy;

- The determinants of knowledge diffusion in LICs from leading innovators to latecomers, in particular the role of university-industry linkage and inter-firm networks;
- The effect of external knowledge diffusion to LICs, in particular the productivity impact of South-South trade and FDI with a special focus on Chinese trade and FDI in Africa.

Conclusion

The results of the three-year project shed light on the critical role of innovation in the development of firms in LICs and on how innovations spread. The DILIC project has made important contribution to the knowledge on how innovations emerge and how they diffuse as well as the extent to which diffusion is made possible and effective in the developing country context. Finally, the project results showed that, although firms in LICs are innovative and government is regarded as important innovation partner, they go very largely unsupported. Innovations are rarely recognised and innovation efforts within the firms are not properly assisted. The project recommended that new thinking and policies should be implemented to recognise and support innovation in the context of LICs for long-term growth and development.

2.8 Advancing Sub-Saharan Africa – European Union cooperation in research and innovation for global challenges (CAAST-Net Plus)

Principal Investigator: *Dr. George O. Essegbey*

Research Team: *Mr. Masahudu Fuseini and Dr. Godfred Frempong.*

Source of Funding: *The European Union's Seventh Framework Programme (FP7)*

Duration of Project: *4 Years (2013-2016)*

Introduction

CAAST-NET Plus is a network of 26 partners based in Europe and Africa. It is based on the goal of strengthening research and innovation between the two regions to effectively tackle global challenges of health, food security, and climate change. Ghana is represented on the platform by the Science and Technology Policy Research Institute of the Council for Scientific and Industrial Research (CSIR-STEPRI).

The specific objectives of CAAST-Net Plus are:

- To encourage new and diverse multi-stakeholder partnerships that, through research and innovation, tackles the global challenges in health, food security, and climate change that affect Europe and Africa.
- To enable better understanding between the public and private sector in Africa and Europe of the link between research and innovation, and to identify and share opportunities for cooperation through networking and communication.
- To facilitate exchanges that result in learning and that support formal policy

dialogues, in partnership with the 8th Joint-EU Strategy, for more effective research and innovation cooperation.

Research Project Activities

The general project activities of the platform include:

1. Strengthening bi-regional research and innovation cooperation in health, food security, and climate change through policy and situational analysis, and multi-stakeholder networking activities;
2. Supporting informal and formal policy dialogue processes, and offering practical support to bi-regional research partnerships and networks to enable effective cooperation; and
3. Disseminating key results effectively, and providing a multi-media platform for communication and interaction within relevant African and European research and innovation communities.

However, the general project activities are executed through Work Packages. The activities are divided into seven Work Packages of which each Work Package is divided into several 'Tasks'. Ghana (CSIR-STEPRI) is involved in the Work Packages 2 and 5. Work Package 2 focuses on the facilitation of bi-regional research and innovation cooperation. CSIR-STEPRI is involved in an in-depth analysis of the extent to which recent and on-going bi-regional cooperation have contributed to meeting the climate change partnership of JAES action plan 1 and 2. CSIR-STEPRI has since conducted the expected research and made inputs to the reports produced.

WP 5 focuses on strengthening Africa-EU research cooperation partnerships. It provides training of National Contact Points and general information dissemination on the new EU STI funding framework of Horizon 2020.

For the purpose of implementation, the WP is divided into three tasks;

Task 1: Advisory and support mechanisms to African and European Researchers.

Task 2: Country Focal Point Training; and

Task 3: Monitoring and analysis of bi-regional cooperation

In pursuance of the above, CSIR-STEPRI in collaboration with other partners including Foundation for Research and Technology Hellas in Greece and Jyvaskylan Yliopisto (UniPID) in Finland have conducted a joint advisory and support for African researchers and National Contact Points trainings in Ghana, Nigeria, Tanzania, Kenya, Uganda, Malawi and Ethiopia. Other Beneficiary countries include: the Gambia, Senegal, and Sierra Leone. STEPRI has also accomplished its task of contributing to the monitoring and analysis of the bi-regional cooperation.

Conclusion

Under the Work Packages 2 and 5, information on the new European Union funding

framework, Horizon 2020 as well as training of National Contact Points have been impacted to some beneficial African countries including; Nigeria, Senegal, Sierra Leone, The Gambia, Ethiopia and Ghana. Per the work plan of the project, the number of beneficial countries would be up-scaled in the subsequent years.

2.9 Pan African Competitiveness Forum (PACF Ghana Chapter)

Principal Investigator: *Dr. George O. Essegbey*

Project Team: *Mr. Masahudu Fuseini, Ms. Mavis Akuffobe and Dr. Rose Omari*

Duration: *3 Years*

Introduction

The Pan-African Competitiveness Forum (PACF) was established in April 2008 in Addis Ababa with the support of the African Union (AU) and the Swedish International Development Cooperation Agency (Sida) in collaboration with The Competitiveness Institute (TCI). The establishment of the PACF was in response to the concern to see Africa develop in a sustainable manner and achieve the Millennium Development Goals within the foreseeable future, and get integrated into the global economy. The PACF's vision of Africa's integration and effective competition on the global stage is founded on innovation and cluster-based initiatives bringing government, academia and business into a triple helix partnership. CSIR-STEPRI is the host of the Ghana Chapter, comprising entrepreneurs, academia/research institutions, and government.

Research Project Activities

- STEPRI conducted a nation-wide cluster mapping to identify opportunities for enhanced value addition and competitiveness.
- The Chapter facilitated the participation of the Clusters in a number of conferences: PACF inaugural conference in Addis; PACF conference in Entebbe Uganda 2011; PACF conference in Nigeria 2012.
- Partly sponsoring 2010 PACF conference hosted by Ghana, including the publishing of the conference proceedings;
- Organized and facilitated separate workshops for clusters e.g. GATCI of Accra, Accra Mushroom cluster, Eastern Region GNTDA, and Central Region GNTDA in Elmina (2013 – 2014).
- The Ghana Chapter facilitated the participation of the clusters in the 7th ECOWAS Trade Fair held in Ghana from the 26th October to 14th November, 2013 with support from the National Board for Small Scale Industries.

The achievements of the project are:

- The growth of registered clusters under the PACF Ghana Chapter, from just three in 2009 to eight (GATCI of Accra, Accra Mushroom cluster, Eastern Region GNTDA, Central Region GNTDA in Elmina, Eastern Region Rabbit Cluster, Accra Dairy

Cluster, Kumasi Wood Cluster, Tamale Shea Cluster) active clusters in 2014. With each cluster's membership ranging from 6 – 40.

- Improved relationships among the enterprises and their suppliers; for instance there is an improved working relationship between the mushroom growers and marketers which has contributed significantly to the increase in the sale of mushroom by farmers.
- Intensification of relationship between businesses and research institutions. For instance, the mushroom cluster was linked up with the Forestry Research Institute of Ghana (FORIG) of the Council for Scientific and Industrial Research to learn new ways of producing other varieties of mushroom.
- The Garment and Textile Cluster has championed the standardization of dress codes in the informal sector of their trade. The Ghana Standards Authority has approved the standards and through the MSME project the standards have been replicated in the Eastern Region of Ghana, with the Ghana National Tailors and Dressmakers Association.
- The very establishment of Clusters outside the Greater Accra region is an achievement by itself. Some potential clusters were discovered from a nationwide cluster mapping, commissioned by the Ministry of Trade and Industry (MSME Project).
- Contracts were facilitated for clusters in other businesses such as in the Oil and Gas industry.
- Provision of venue of meetings for mushroom cluster at STEPRI.

Conclusion

The concept of clustering has huge potential benefit for the development of businesses as well as the formulation of effective policies by policy makers in the highly competitive world of business. Considering the impact that the PACF has created for businesses within the platform, a lot more businesses will stand to benefit if the necessary funding issue is addressed.

2.10 Developing An Enabling Scientific Equipment Policy in Africa: Ghana Study

Principal Investigator: *Dr. George .O. Essegbey*

Research Team: *Mr. Stephen Awuni and Mr. Winfred Nelson(NDPC)*

Source of Funding: *IFS - Sweden*

Duration: *1 Year (January-December 2014)*

Introduction

The scientific endeavor in Africa and the developing world is saddled with challenges of which one of the most critical is infrastructure. A major concern in infrastructure is equipment. It is important to recognize that the problem of equipment is intimately associated with the deficiency of policies and frameworks that facilitate and enable procurement, commissioning and decommissioning of science equipment, and management

systems for maintenance, including the availability of trained manpower. The urgency of the task facing today's scientists in Africa and across the developing world will require continuous support to enable them contribute to securing affordable food, water and energy for the increasing population. Scientists need to have an enabling environment that will enable them to deliver on their mandates. All of this is dependent on the hardware conditions they work with.

There are sector-specific policies in Agriculture, Health, Education, Environment, Energy, Trade, Industry, Natural Resources, Human Settlements and Communications which shall be driven by sector specific S&T programmes. The Ghana STI situation and the lack of coherent and well-articulated policies on scientific equipment is a frequently encountered feature of the African S&T experience. This study is a follow-up to the Scientific Equipment Project Inception Workshop held by the African Academy of Science (AAS) in Nairobi from 6-7 November 2013. The collaborating institutions were the International Foundation for Science (IFS) and the (AAS). The rationale for the study was to understand the prevailing situation of scientific equipment in Africa generally. Three countries were identified for pilot studies, namely Ethiopia, Ghana and Kenya. In Ghana, the study aimed at presenting the scientific equipment situation and formulating recommendations for amelioration.

The objectives of the study are:

The overall purpose of the study was to assess how science equipment policy can facilitate scientific endeavour across Africa. The specific objectives of the study included:

- Reviewing the effectiveness of science equipment policies (if available) of key organisations in Ghana in relation to organisational structures and systems.
- Mapping the national research and policy landscape, i.e., identifying the key scientific institutions, and the national and institutional policies of relevance to scientific equipment.

Research Project Activities

The data collection was based on the work plan agreed between IFS and STEPRI in February 2014. It began with desk research to gather relevant information from institutional offices and libraries and on the Internet. An interview guide was designed based on the work plan and administered to a total of 25 institutions or organisations. Two interview guides were developed. One was administered at key oversight organisations including the Ministry of Finance, Ministry of Education, and MESTI. The other interview guide was administered to institutions that use scientific equipment in their activities. The interview guide had three sections on procurement of scientific equipment, case studies of institutions, and input of science, which was made up of human resources, tangible assets and organizational skills. The ministries responded to the policy aspect of the survey, whilst the research institutions, the universities and the polytechnics responded to the scientific equipment sections. The sampling of the institutions/organisations was purposively drawn and focused on key scientific institutions in Ghana.

The findings included the following:

- Procurement processes and procedures in Ghana have gone through a number of changes, with the main objective of minimizing the level of corruption, realizing value for money, and promoting efficiency in the procurement process. A major event was the passing of the Procurement Act, Act 663, in 2003.
- The establishment of the ministries in Ghana is primarily meant to facilitate policy formulation and implementation, monitoring and evaluation in definitive sectors of the economy. Ministries exercise oversight responsibilities over public agencies whose functions fall within the purview of the respective ministerial responsibilities. The ministries and their agencies play roles in the acquisition, use and maintenance of scientific equipment. The National Development Planning Commission, being the constitutional body established for planning for the country, also have a role to play in guiding scientific institutions on their equipment policies.
- There are various national policy documents and plans which may provide at least minimal guidance to acquisition of scientific equipment apart from the specific procurement law. Key examples are: National Infrastructural Plan, National STI Policy and Development Plan, and Ghana Shared Growth Development Agenda (GSGDA).
- There are no specific regional science equipment policies but there were a few documents which one may consider relevant only in terms of their emphasis on scientific research. Examples are: ECOWAS STI Policy, AU plan of action 2007-2008 which stated that at least 1% of GDP of member countries should be set aside for research and development.
- Educational scientific equipment and research laboratory equipment are admitted under the exempt regimes. To control the abuse of the exemption policy, MDAs are mandated to apply for exemptions based on institutional needs.
- Ghana has a number of sectoral policies formulated to drive development. These policies may be considered as precedents to scientific equipment policies in that they define the directions of the use of the equipment. For example Agriculture: Food and Agriculture Sector Development Policy (FASDEP), Industry: Industrial Policy, ICT: National ICT Policy.

The study indicated that Ghana's scientific institutions are grappling with several challenges including:

- Inadequate funds to budget for scientific equipment;
- Bureaucracy and delays in provision of tax exemption on duty of research equipment, resulting in some institutions paying for duty even though they qualify;
- Inadequate logistics;
- Obsolete scientific equipment which do not provide reliable results;

- Inadequate training of scientific staff on use of scientific equipment, and high rates of staff turnover; and
- Almost no or little local content in scientific equipment because there are no local manufacturers of scientific equipment, especially for schools.

Conclusions

Ghana has built a fairly solid science and technology system to facilitate national development. In particular, the institutional framework for research and development has been structured over the years. Appropriate technical scientific institutions have been established such as the CSIR and GAEC. These institutions have scientific equipment in their laboratories to undertake their required activities. However, there are several cases where additional equipment is required. The challenges surrounding the acquisition and use of scientific equipment make it difficult for the realization of the dream of facilitating national development through STI application. This must be a national priority.

2.11 Creating Strategic Framework for the Development of Public Access in Ghana

Principal Investigator: *Dr. Godfred Frempong*

Research Team: *Masahudu Fuseini and Kafui Prebbie (TechAide)*

Source of Funding: *University of Washington, Seattle USA*

Duration: *January to July, 2014*

Introduction

The importance of Information and Communication Technologies (ICTs) to socio-economic development cannot be over-emphasised. Therefore increase in ICT services has assumed great importance. Percentage of households with internet access, by region in 2011 showed a wide gap between Europe (71%) and Africa (4%). In Ghana, 14% of the population have access to the internet. At the household level, RIA studies showed that internet at that level had been low though improving. It was 0.3% in the 2007/8 household survey and increased to 3% in the 2011/12. Recent Digital Divide Study conducted in 2013 put Ghanaian internet users at 14.2%.

The fear of exclusion has resulted in the development of programmes and initiatives that should significantly increase access and use of ICTs by majority of the people. Some of these structures include public access venues (PAVs) which provide ICT services to the public for a fee. Studies have shown that with the low penetration of internet at household levels, majority of Ghanaians patronise PAVs to meet their informational needs. In a recent study by Research ICT Africa, nearly 84.7% of internet users patronised internet cafes, followed by use at educational facilities (50.9%) and at home (44.3%). Mobile dongles are used for internet access by 31%, while 33.6% used community information centres.

Public access survey led in Ghana by TASCHA emphasised the importance of such facilities for socio-economic activities of the users and also providing opportunities for users to

acquire ICT skills. From the study, about 36% used the facilities of the PAVs for leisure, 27% for education and learning, 10% for health related activities and the rest used it for culture and governance activities. This finding emphasised the need for more attention to be given to the development of these facilities to provide efficient services to the users.

The development of PAVs had underlined Ghana's quest to achieve universal access to ICT services in the country. General provisions have been in the Ghana's ICT for Accelerated Development and National Telecommunications Policy to support the development and deployment of PAVs as one of the mechanisms to achieve universal access. The Ministry of Communications has initiated the process of reviewing the national ICT4AD to align the policy to current developments in the ICT sector and the national development agenda. This provides a good opportunity to contribute to the process by assessing how far government's policy objectives had been achieved in relation to public access.

This research project was basically a follow up policy activity on the PAV survey with the general objective of contributing to policy making process to support the development of public access to internet and broadband services.

Research Project Activities

The following activities were undertaken as part of the follow up activities:

1. Reviews of:

- Policy documents (eg. Ghana ICT4AD and National Telecommunication Policy)
- Research reports of relevance to public access to determine the extent of utilisation of PAVs by Ghanaians (eg. Deployment and Utilisation of Public Access Venues in Ghana, Ghana ICT Performance Review, Ghana Digital Divide Report)
- Activities of the Ghana Investment Fund for Electronic Communications

2. Key Informant Interviews with officials of:

- Ministry of Communications
- Ghana Investment Fund for Electronic Communications
- Researchers with knowledge and interest in public access
- Public Access operators (internet café operator, Community information centre, public library etc.)
- NGOs

3. Report writing based on the information gathered from the field and supplemented by our rich experiences and knowledge of the ICT landscape in Ghana. Dissemination workshop with key stakeholders to share and obtain their inputs on the recommended policy issues.

Conclusion

The project has successfully been concluded and final report submitted to the University of Washington, US. A number of recommendations were made geared towards supporting largely private domain to grow to provide access to ICT services, especially for those who cannot afford individual ownership of ICT facilities. The recommendations include provision of technical training and support, provision of guidelines for PAV activities and improving quality of service.

2.12 Business Opportunity Identification Study (BOIS)/REP Phase II

Principal Investigator: *Dr. George Owusu Essegbey*

Project Team: *All Research Scientists in CSIR-STEPRI, Cordinated by Dr. R. Ampadu-Ameyaw*

Funding: *IFAD*

Duration: *6 months*

Introduction

Micro and small enterprises (MSEs) play critical roles in rural development through the provision of jobs and incomes in both the farm and non-farm sectors. They play crucial role not only in rural communities but also in national economic development through poverty reduction. These projects are located mostly in the district capitals. The government of Ghana through the Rural Enterprise Programme (REP) and with funding from IFAD, consulted STEPRI to conduct a Business Opportunity Identification Survey (BOIS) to inform REP's intervention strategy for promoting small business operations in the rural areas of Ghana. This project aimed at exploring the potentials of these businesses while identifying new ones that can all be scaled up. The programme specifically aims at using a district-based model for development based on access to business development services, rural financing and appropriate technology transfer and skill training modules.

Research Project Activities

The study was conducted in forty - nine (49) selected districts in Ghana. It employed both research and non research staff (mainly national service persons and graduate interns) who assisted the researchers in the collection of data. Four key data collection instruments involving a survey, key informant interviews, focus group discussions as well as personal observation were used. The research team interacted with key informants in the selected districts/municipalities including District/Municipal Chief Executives, the Coordinating Directors and the Planning Officers of the Assemblies. Information gathered included the natural resource endowment, the business environment, local and traditional skills, and potentially viable businesses (existing and new). Other information gathered included the capacity of existing BAC staff and offices in handling business training at the district levels. The background information obtained from the districts was analyzed and used to develop a training module for the training of the BAC staff on how to update the inventory of business opportunities in their respective districts.

Conclusion

Generally it was observed that rural MSEs provide another window of opportunity for a heavy mass of people who resides in rural Ghana and even has the potential of extending to urban areas through trade. These are all areas of opportunities that government can explore as a way of attempting to reduce poverty. These sectors holds greater opportunity for the rural people, especially the teeming young people who are leaving the rural areas for urban areas in search of greener pastures. The study confirmed the fact that Ghana is endowed with rich resources which could be exploited to generate wealth. Through this exploitation of its natural and human resources, Ghana would be able to reduce poverty through the generation of employment, food security and sustainable income as well as a good livelihood options. Although several challenges were identified to be limiting business development and growth, the major ones which needed immediate attention from government and other partners included lack of access to markets and finance. What is important now is the development of these businesses and this will require a serious attention from government (local and national) and through research investment and training.

13. Other Activities

In addition to the research activities and projects in the year under review, two other activities including the commissioning of the Institute's new office block and a staff retreat were organized.

A. Commissioning of STEPRI's New Office Block

STEPRI, from its IGF completed an office building which begun in 2004. The building was commissioned on 28th February, 2014. The activity saw the presence of the CSIR Director General, past CSIR-STEPRI Directors, Directors and staff from CSIR sister institutes as well as staff of STEPRI. At the time of the commissioning, about 70% of the offices were fully furnished. An exhibition hall was opened and the Institute showcased a number of its books, reports and other publications. There were also poster presentation of the Institute's projects by the research staff. In the course of the year, the building housed the CSIR-Technology Development and Transfer Center (TDTC). Below are the images from the commissioning.



The Director-General of CSIR unveiling the New Office Block



Showcasing some of STEPRI's publications



Walkway to the New Office Block



The new block of CSIR-STEPRI with the roofed walkway connecting to the old block



Commissioning of the new block for STEPRI

B. Retreat at the Forest Hotel in Dodowa

STEPRI held a retreat, the first of its kind for the institute at the Forest Hotel, Dodowa on 22nd December 2014. The aim of the retreat was to review the activities of the institute and draw a strategic plan for the coming year (2015) and beyond. In attendance were the Board Chairman for STEPRI, the Director of CSIR-INSTI, the Internal Management Committee (IMC) members of STEPRI, STEPRI's Research staff as well as the Accountant of STEPRI.

Dr. George O. Essegbey, Director of STEPRI welcomed members to the occasion after which Dr. Godfred Frempong, the Deputy Director of STEPRI made a brief presentation on the history of STEPRI. The Board Chairman, Prof S. K. Adjepong, made a speech in which he recounted the importance of the retreat. According to him, at the end of the retreat clear focus and resolution with benchmarks and time frames should emerge for the institute. He added that, the need to generate 30% of IGF requires positive attitude to work. The Director of INSTI, Dr. Joel Sam, who moderated the retreat urged participants to indicate their expectations of the retreat.

The majority of the participants expected the retreat to culminate into the development of future goals for the institute and activities to achieve the expected goals. The preparation of a strategic and action plan that include but not limited to development-oriented research programmes, defined roles and responsibilities and strategies for generating income were also expected to emerge from the retreat.

Responding to the expectations, the Director said, setting strategic plans is important and necessary to overcome some of the challenges, especially inadequate government subventions confronting not only STEPRI but CSIR as a whole. He said, the implication is that, CSIR institutes including STEPRI will be paying for utilities as well as administrative expenses from internally generated Funds (IGF). A strategic plan, he said, could serve as a guide to achieve these challenges.

Researchers in charge of research projects in the institutes made presentations on their projects with regard to that worked very well in executing their projects, challenges, lessons learnt and the way forward.

The Director also made a presentation on CSIR – STEPRI in 2015 and beyond the imperatives. He visualize the institute in 2015 and beyond and emphasized that STEPRI will not be static in the coming years. He admonished members of staff to work hard to bring in more projects. He added that, since his assumption to office in 2006, tremendous changes had taken place in the institute through the help of researchers and the supporting staff. He said, the number of researchers had increased from 5 to 15. He added among other things that under his leadership the institute had been able to complete an office space which was started by his predecessors but for which work had become static for years.

The new directions for STEPRI from 2015 and beyond include the aim of increasing the number of Research Scientists from 15 to 25 and that of the supporting staff from 22 to 25 to achieve a 1:1 research staff to supporting staff ratio. There should be a new office block, which will not be financed by the government but from the resources of the institute. More importantly, STEPRI looks into the future with the hope of strengthening the Institute's networks and partnerships. This is fundamental to achieving its overall vision.

The following specific actions also were decided on at the retreat:

1. Research Programme

- Five (5) research proposals (at least one must succeed)
- Each researcher should work on at least two (2) projects

2. Infrastructural development and logistics

- Good computerization (phase out old computers every 3 years)
- Strengthening internet presence (use of institutional addresses by end of first quarter 2015)
- Maintenance of buildings
- Solving problem of stable electricity supply (Purchase of a power plant and new meters to be installed due the GHS 92,000.00 debt).

3. Staff Development and Progression

- Contracts will be enforced in 2015
- At least two seminar presentations in a year per researcher
- At least one conference/workshop participation abroad
- Payment for good open access journals

4. Financials

- There will be the 15% or mandatory deductions at least from all project budgets and this must be made to IGF account promptly.
- All projects will be expected to contribute additionally in bringing assets and resources to STEPRI.

5. Mentorship

- A mentorship scheme will be put in place. For now, the Director and the Deputy Director will be offering guidance and counseling to the staff in a more structured manner.

6. Good Human Relations

- Fostering good human relations is important for creating a conducive atmosphere for work. This will be one of the priorities of management.

3.0 FINANCE

Below is STEPRI's financial report for 2014. It comprises funds received as subvention from government, donor funds and internally generated funds as shown in Table 1 and Table 2 below.

3.1 Government Subvention

Table 1 presents the summary of CSIR-STEPRI's receipts for January to December, 2014 on the various components of government subvention.

Table 1: Government Subvention – Budget and Receipts (2013 and 2014)

Income - Government Subvention	2014		2013	
	Budget GH¢	Release GH¢	Budget GH¢	Release GH¢
Compensation for employees (P/E)	1,609,936.83	1,965,974.33	1,433,810.88	2,262,157.98
Goods and Services	650,335.00	12,654.00	650,335.00	68,719.42
Assets	330,650.00	-	550,000.00	-
TOTAL	2,590,921.83	1,978,628.33	2,634,145.88	2,330,877.40

3.2 Donor Funded Projects

The year 2014 has been the year when STEPRI attracted the highest amount of donor funding. Table two displays the various project and sources of the fund.

Table 2: Donor Funded Projects - 2014

Project Name	Funding Source	Income USD\$
Science Equipment Policy	IFS/ AAS	24,176.00
Rain Water	Nordic Development Fund	18,511.31
ICGEB Workshop	ICGEB	39,384.02
DILIC	University of Oxford	21,641.56
FAO	FAO	10,469.00

Table 2 cont.: Donor Funded Projects

AGRA	AGRA	78,952.00
BOIS	REP	331,993.00
IFPRI -ASTI	IFPRI	11,748.00
DRUSSA	DFID/ ACU	39,017.00
EMNERGE	European Commission	73,334.00
AGRA FELLOWS	AGRA	7,305.00
Global Impact Study	IDRC/University of Washintong	9,999.00
CO TVET Project	World Bank	250,000.00
Total		916,529.89

An amount of nine hundred and sixteen thousand five hundred and twenty-nine dollars, enghty-nine cents(\$916,529.89) was received in 2014 as against \$609,688. 00 in 2013. This shows that the donor fund received in 2014 increased by 50.3%.

3.3 Internally Generated Fund:

CSIR-STEPRI's internally generated funds are derived from sales of publications, hiring of auditorium, fax, etc. Table 2 shows the Internally Generated Fund.

Table 3: Internally Generated Fund

Items	2014 Amount (GHC)	2013 Amount (GHC)
Hiring of Auditorium facilities	19,937.23	14,133 .00
Sale of Publication	1,590.00	1,232 .00
Support from Project	59,374.00	71,827 .00
Sale of obsolete items	5,102.00	
Total	87,950.23	87,192 .00

Hiring of auditorium and sale of publication increased by about 41% and 29% respectively whlies support from project decreased by 17%. However there was a marginal general increase in internally generated fund by 0.087%.

3.4 Conclusion

STEPRI performed exceedingly well in 2014 especially, in the area of the sourcing for donor-fund projects. However since donor fund cannot be used for administrative expenses of the Institute, government still needs to take up its responsibilities of releasing the goods and services component of the subvention. The Government pays the salaries of all established staff directly into their accounts from the Controller and Accountant General's Department. The amount paid to staff as above exceeded the budget because of arrears arising from single spine salary levels. There was no release for goods and services for the year under review. The amount indicated in Table 1 under goods and services represented arrears for 2013. There was also no release for assets in 2014.

4.0 ADMINISTRATION

4.1 Management

The STEPRI Management Board, the highest decision-making body of the Institute was reconstituted in 2014. The Board is chaired by Rev. Prof. S.K. Adjepong, Principal of the Methodist University College, Dansoman, Accra

4.2 Staff Strength

During the year under review the staff strength stood at 37 but one person retired before the year ended. The breakdown at the end of December 2014 was as follows:

Research Staff Category

Research Scientists - 16

Non-Research Staff Category

Senior Staff - 11

Junior Staff - 10

4.3 Internship and National Service

CSIR-STEPRI has over the years given students the opportunity to learn and acquire skills that will be useful in their future endeavours. The students either apply as interns or as national service personnels. Interns are categorized into two namely: the Masters and PhD students from Ghana or foreign countries, and continuing students offering degree programs or graduated students. The names and institutions of students who came to do their national service and internship are categorised as follows:

Internship		
Name	Qualification	Institution
Abigail Okyere	Higher National Diploma (Secretaryship and Management Studies) – Continuing Student	Koforidua Polytechnic
Naa Maeley – Dromoh	Bachelor of Arts (English and Music) – Continuing Student	University of Ghana

Name	Qualification	Institution
Eric Kuuguu	Bachelor of Science (Agricultural Technology)	University for Development Studies, Nyankpala
Eliada Quaye	Bachelor of Arts (History and Political Studies) – Continuing Student	Kwame Nkrumah University of Science and Technology
Paul AduNtifo	Bachelor of Arts (Statistics and Economics)	University of Ghana
Pamela Setorwu Nutsukpo	Master of Science (Environmental Science Policy and Management)	Institute of Local Government Studies
Victor Debrah	Bachelor of Science (Agriculture) – Continuing Student	Kwame Nkrumah University of Science and Technology
Daniel Gyasi	Bachelor of Arts (Economics and Psychology) – Continuing Student	University of Ghana
Selina Asare	Bachelor of Science in Administration (Accounting Option)	Central University College
Daniel Akrofi Foster	Bachelor of Science (Environment and Natural Resource Management)	Presbyterian University College
Margaret A. Mensah	Higher National Diploma (Accounting option)	Takoradi Polytechnic
Masters Degree Holders		
Winifred Arthur	Master of Philosophy (Foods Science and Post-Harvest Technology)	University of Ghana
Abena Nyama Opoku	Master of Philosophy (Agricultural Economics)	University of Ghana
Hilde Marije Dorresteijn	Masters in International Development Studies	Wageningen, Netherlands

Doctor of Philosophy (PhD)		
Amegnaglo Cocou Jaures	Applied Agricultural Economics and Policy	University of Ghana

National Service		
Name	Qualification	Institution
Stephanie Afua Pomma Asafu-Adjaye	Bachelor of Science (Agriculture)	Kwame Nkrumah University of Science and Technology
Marilyn Yeboah	Bachelor of Arts (Social Science (Economics and Sociology))	University of Cape Coast
Henry Gyekye Ampong	Bachelor of Science (Agribusiness Management)	Central University College
Michael Sarfo Asante	Bachelor of Arts (Economics and Political Science)	University of Ghana
Linda Ofori	Bachelor of Business Administration (Human Resource Management)	Zenith University College
Alfred Osei Owusu	Bachelor of Business Administration (Accounting)	Methodist University College
Mildred Bampoe-Asiamah	Bachelor of Arts (Economics/Geography and Resource Development)	University of Ghana
Bernice Ohene Nyarko	Bachelor of Science. Agriculture – Soil Science	University of Ghana
Redeem Agbedanu	Bachelor of Arts (Social Development and Administration)	University for Development Studies
Vicentia Osei Kyerewaa	Bachelor of Arts (Development communication)	University for Development Studies
Kingsford Owusu	Bachelor of Arts (Political Science/Linguistics)	University of Ghana

National Service		
Name	Qualification	Institution
Ofeibea N. M. Mante	Advanced Diploma in Human Resource Development	Institute of Commercial Management
Paul Adu Ntifo	Bachelor of Arts (Economics/Statistics)	University of Ghana
Ransford Teng-Viel Karbo	Bachelor of Arts (Political Science and Archaeology)	University of Ghana

4.4 Temporary Staff

STEPRI undertook a project in collaboration with Association of African Universities which involved both francophone and Anglophone countries. There was therefore the need to temporarily engage the services of a bilingual research assistant to help translate and transcribe various reports and proceedings from French to English. Ms. Lucyndia Kemi Nouatin was employed for the above mentioned position.

The institution has taken the initiative by engaging the services of two security men and a labourer on a temporary basis and paying them through its internally generated funds. This brings a financial burden on the institute's fund (IGF). There is therefore the need to beef-up recruitment in the institute to meet expectation

4.5 Staff Training

As part of CSIR staff capacity building process, members of staff are allowed to pursue higher qualifications by taking study leave with or without pay. This is relevant because it allows staff to acquire more knowledge and skills needed for their job and also rise through the occupational ladder within the organization. The under-listed staff are currently on study leave pursuing programmes leading to Doctoral degrees.

Mr. Gordon Akon Yamga	-	University of North Texas, USA
Mr. Paul Boadu	-	Imperial College, UK/KNUST
Mr. E. K. Tetteh	-	University of Cape Coast

4.6 Promotions

The Director of the Institute, Dr. G. O. Essegbey was promoted to Chief Research Scientist which is the equivalent of a full Professor in the university system.

Dr. (Mrs.) Wilhemina Quaye was also promoted from Senior Research Scientist to Principal Research Scientist which is equivalent to an Associate Professor in the University system.

Two of the senior staff were promoted to various positions within their division. These were Ms Mary Masopeh who was promoted to the position of Chief Administrative Assistant and Mr. Robert Okpoti who was also promoted to Security Asst. I.

4.7 Retirement

Mr. G. A. Sampson, the Public Relation Officer retired from the service of the Institute effectively from August 2014. His services were appreciated at the end-of-year party.

4.8 Publications and Scientific Meetings

A number of books, technical reports, conference papers, and journals papers were produced by the research staff. These publications have been displayed in the Institute's book case with copies deposited in the library. The details are given in Appendix 1. Some of the

research staff participated in workshop, seminars and conferences, held at the national, regional and international levels (Appendix 11). These activities contributed to improving knowledge generation and knowledge circulation and capacity building. The Institute encouraged and supported its researchers to participate in these activities.

APPENDIX 1: Institutional and staff publications

Refereed Journal Publications

Ampadu-Ameyaw, R. and D. Awunyo-Vitor (2014) Effect of Price and Non-price Incentives on Production and Marketable Surplus of Food Crops Supply in Ghana, *Asian Journal of Agricultural Extension, Economics & Sociology* 3(6): pg. 666-679

Diego Naziri, **Quaye, W.**, Bernard Siwoku, Sittichoke Wanlapatit, Tu Viet Phu and Ben Bennett (2014). The diversity of postharvest losses in cassava value chains in selected developing countries. *Journal of Agriculture and Rural Development in the Tropics and Subtropics* 115(2):111-123

Obirih-Opareh, N. and **Onumah, J.A.** (2014): Climate Change Impact Pathways on Agricultural Productivity in Africa: A Review. *Journal of Environment and Earth Sciences*, 4(4): 115-121

Omari R., Essegbey G. and Ruivenkamp G. (2014): Barriers to the use of locally produced food products in Ghanaian restaurants: Opportunities for investments. *Journal of Scientific Research and Reports*, 4(6): 561573

Omari R., Quorantsen E.K., Omari, P., Oppey, D., Asigbee, M. (2014): Prevailing food safety practices and barriers to the adoption of the WHO 5keys to safer food messages in rural cocoa-producing communities in Ghana. *Internet Journal of Food Safety*, 16:36-44

Onumah, J.A., Williams, P.A., Quaye, W., Akuffobe, M. and Onumah, E.E. (2014): Smallholder Cocoa Farmers Access to On/Off Farm Support Services and its Effect on Production. *Asian Journal of Agriculture and Rural Development*, 4(10): 484-495

Owusu-Amankwah, R., Ruivenkamp, **G., Frempong, G., and Essegbey, G.** (2014) “Mobilising social capital to deal with child labour in cocoa production: The case of community child labour system in Ghana”, *International Journal of Development and Sustainability*, Vol.3 No.1, pp. 196–220.

Owusu-Amankwah, R., Guido Ruivenkamp, **George Essegbey & Godfred Frempong** (2014): “Implications of Third Party Voluntary Cocoa Certification on Labour and Livelihood Systems in Ghana”, *International Journal of Agriculture Innovations & Research*, Volume 2, Issue 6, May 2014, pp. 1047–1059.

Quaye W., J Jongerden, G.O., Essegbey, Frempong G., and Ruivenkamp G. (2014): The Social Construction of Cowpea Variety Development in Ghana: What is missing? *OIDA International Journal of Sustainable Development* 07(01):77-89.

Tetteh, E. K & Essegbey, G. O (2014): Firm Level Innovation: The Case of Ghanaian firms. *European Journal of Business and Innovation Research*, Vol 2, No. 2 pp. 1-18

Tetteh, E. K; Obirih-Opareh, N & Barimah-Antwi, K (2014): Microcredit and Women Empowerment: Evidence from Microcredit Clients of the Upper Manya Krobo Rural Bank in the Eastern Region of Ghana. *International Journal of Emerging Trends in Science and Technology (IJTST)*, Vol. 01, Issue, 06, pp:875-893

Conference Papers

Akuffoeba, M., Williams, P. A., Asare, R. and Essegbey, G. O. (2014): Implications of Agricultural Knowledge and Information Systems on Technology Development and Dissemination in Ghana: A Review. A paper presented at the International Research Initiative Conference (IRIC) on 7th -8th October, 2014, Accra-Ghana.

Omari, R. (2014): Aflatoxin awareness creation in West Africa: Application of principles and best practices of risk communication. A paper presented at the Regional Workshop on Aflatoxin Challenge in Eastern and Southern Africa held on March 11-13, 2014 at Lilongwe, Malawi

Quaye, W., Essegbey, G.O., Decker, E and Onumah, J.A. (2014): The Role of Science, Technology and Innovation in Socio-economic Development of Ghana – Linking Research to the private sector at the CSIR-Technology Transfer and Development Centre (TDTC). A Paper Presented at the International Research Initiative Conference (IRIC), on the 7-8th October, 2014, Accra, Ghana

Quaye, W., Ruivenkamp, G., Essegbey, G. O, Onumah, J. A. and Jongerden, J. (2014): Approaches to Promote the Inclusion of Smallholder Farmers as Suppliers of Large-Scale Institutional Food Purchase Programmes: A Case of the Ghana School Feeding Programme (GSFP). A paper presented at the International Food and Agribusiness Management Association (IFAMA) Conference organised in Capetown, South Africa between 15-19th June, 2014

Williams, P. A., **Akuffoeba, M., Asare, R. and Essegbey, G. O.** (2014): Product Innovation among Ghanaian Firms – The Contribution of Research and Development. A paper presented at the International Research Initiative Conference (IRIC) on 7th -8th October, 2014, Accra-Ghana

Ampadu, R. A (2014) Gender and SMEs in Ghana's Rural Communities. A paper presented at a policy symposium for the Ministry of Trade and Industry at the British Council Hall, Accra on the theme “Gender in Trade and Industry: Needs and Challenges of Women Entrepreneurs in Ghana. 9th November, 2014.

Unedited Conference Papers

Naziri, Diego; **Quaye, Wilhelmina**; Siwoku, Bernard; Wanlapatit, Sittichoke; Phu, Tu Viet; Bennett, Ben (2014). Not all those who wander are lost: A Comparative Analysis of Postharvest Losses in Cassava Value Chains in Ghana, Nigeria, Thailand and Vietnam: Poster Presentation at 14th Congress of European Association of Agricultural Economics held at Ljubljana, Slovenia 26th-29th August 2014.

Book chapters

Omari, R. Contributed two case studies on risk communication activities in relation to aflatoxin contamination and recurrent cholera outbreaks in Africa and Ghana respectively and participated in the development of the book: *FAO and WHO (2014) A Handbook on Risk Communication Applied to Food Safety*.

Onumah, E.E., Opoku, A.N. and **Onumah, J.A.** (2014): Profitability Analysis of Broiler Production in Greater Accra Region of Ghana. A book chapter in “*The Developments in Agricultural Economics and Contemporary Issues in Ghana*”, University of Ghana Readers. Digibooks, ISBN 9988-1-9900-5

Books

Barnabas Amisigo, , **Roland Asare**, Kamal Azrague, Thor Bjørkvoll, Sigrid Damman, Herman Helness, Deborah Ofori, **Portia Adade & Mavis Akuffobe**a (2014), Rainwater Harvesting (RWH) for resilience to climate change impact on water availability in Ghana: Sustainability Assessment of Selected RWH Designs, Report from Activity 1, October 2013 ISBN: 9789988193508, SINTEF-STEPRI, Print Innovation, Accra, Ghana.

Technical Reports

Frempong, G. (2014). What is happening in ICT in Ghana: A supply-and demand side analysis of the ICT sector. Evidence for ICT Policy Action *Policy Paper No. 4*

Adade P. and Akuffobe M. (2014): Diffusion of Innovation in Low Income Countries (DILIC) Training Course Report.

Adade P. (2014).). Report on 6 Districts of the Business Opportunity Identification Survey (BOIS): REP/CSIR-STEPRI, Accra. 2014.

Akuffobe M., Adade P., Essegbey O. G (2014). Diffusion of Innovation in Low Income Countries (DILIC) Project: Report of Survey Methodology.

Akuffobe M. and Adade P. (2014): Proceedings of the Diffusion of Innovation in Low Income Countries (DILIC) Conference.

Akuffobe, M (2014). Report on 6 Districts of the Business Opportunity Identification Survey (BOIS): REP/CSIR-STEPRI, Accra. 2014.

Ampadu, R. A., Quaye, W., Onumah, J. A and Essegbey, G. O. (2014): Proceedings from CSIR-STEPRI and MOFA Policy Symposium on the theme “Accepting or Not Accepting

GMOs: Implications for Sustainable Food Production in Ghana

Ampadu, R. A (2014). 14 Report on 14 Districts of the Business Opportunities Identification Survey (BOIS): REP/CSIR-STEPRI, Accra. 2014.

Asare, R. (2014). Report on 6 Districts of the Business Opportunity Identification Survey (BOIS): REP/CSIR-STEPRI, Accra. 2014

Awuni, S. and Essegbey, G.O. Developing an enabling scientific equipment policy in Africa: Ghana study. IFS/AAS/STEPRI Collaboration. July, 2014. www.ifs.se/IFS/Documents/.../Ghana%20Country%20Study%20Report

Awuni S. (2014). Report on 7 Districts of the Business Opportunity Identification Survey (BOIS): REP/CSIR-STEPRI, Accra. 2014.

Beintema, N., **Essegbey, G. O., Asare, R.** and Michael Rahija (2014), Ghana Key Indicators, 2000 – 2011, *Agricultural R&D Indicators Factsheet*, ASTI-IFPRI, Rome.

Essegbey, G.O. (2014) *Assessment of Climate Change Policy and Institutional Context: The Case of Ghana*, CCAFS Platform, Accra.

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Onumah, J. A. Quaye, W. Ampadu-Ameyaw, R. and Essegbey, G. O. (2014): Ministerial Capacity Needs Assessment Survey Report

Onumah, J. A. Quaye, W. Ampadu-Ameyaw, R. and Essegbey, G. O. (2014): Proceedings from CSIR-STEPRI and MOFA Policy Symposium on the theme “Decentralisation of MOFA: Constraints and Opportunities for sustainable Food Production”

Onumah, J. A. Quaye, W. Ampadu-Ameyaw, R. and Essegbey, G. O. (2014): Proceedings from CSIR-STEPRI and MOFA Policy Symposium on the theme “Gender in Trade and Industry: Needs and Challenges of Women Entrepreneurs in Ghana”

Quaye, W., Onumah, J. A., Ampadu-Ameyaw, R. and Essegbey, G. O. (2014): Report on DRUSSA Ministerial Planning Sessions

Quaye, W., Ampadu-Ameyaw, R., Onumah, J. A. and Essegbey, G. O. (2014): Proceedings from CSIR-STEPRI and MOF 1st Policy Symposium on the theme “Exchange Rate Volatility and Impact on Economic Growth: Way Forward in Ghana”

Quaye, W., Ampadu-Ameyaw, R. and Onumah, J. A. (2014): Review of Existing Land Tenure Arrangement in Cocoa Growing Areas and their Implications for the Cocoa Sector in Ghana. A UNDP consultancy report

Quaye, W., Ampadu-Ameyaw, R., Onumah, J. A. and Essegbey, G. O. (2014) Proceedings from CSIR-STEPRI and MOTI 1st Policy Symposium on the theme, “Potential Impact of the Common External Tariff and Economic Partnership Agreement”

Tetteh, E. K (2014) Regional Capacity Building Workshop for Member States' Experts on Research and Development (R & D) Indicators Report. Abidjan, Côte d'Ivoire, 12th to 16th May 2014. Submitted to the Ministry of Environment, Science Technology and Innovation (MESTI).

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APPENDIX II: Workshops, Seminars, Conferences and Mass Media

Dr. George Owusu Essegbey, Director participated in the following:

Kick-off Meeting on MNEmerge at Lappenranta, Finland from 12th – 14th January, 2014.

CAAST-NET Programme to conduct (WP)5 Training Workshop for National Contact Points (NCPs) at Uganda, Kenya, Tanzania and Malawi from 18th to 25th January, 2014.

Expert Consultation Meeting of Policy Institutions, Experts and Networks in Implementation of the Comprehensive African Agriculture Development Program (CAADP) organized by NEPAD in Johannesburg, South Africa from 7th to 9th April, 2014.

Joint Start-up Workshop on Revision of CAADP implementation Guidelines organized by FARA – NEPAD in Magaelisburg, South Africa from 13th to 15th April, 2014.

AHC-STAFF Inception and Planning Workshop organised by FARA in Addis Ababa, Ethiopia from 26th to 27th April, 2014.

National Contact Person (NCP) training for African NCPs and Horizon 2020 Information session organized by CAAST-NET Plus and IST-Africa in held at Le Meridien LLe Maurice, Pointe aux Piments, Mauritius from 5th to 9th May, 2014.

A speaker in the Seminar Series on Intellectual Property and the Informal Economy organized by WIPO in Geneva, Switzerland from 20th to 21st May, 2014.

The 2nd Annual Assembly Project Meeting on CAAST-Net Plus in Lisbon, Portugal from 17th – 19th June, 2014.

Made a trip to Banjul as UNESCO expert to review the draft National Science, Technology and Innovation Policy of The Gambia. He was away from 25th to 29th Aug. 2014.

Workshop for CCAFS partners organized by ICRISAT in Bamako, Mali from 25th to 28th September 2014.

Regional Policy Dialogue on the Importance of the Elaboration and Implementation of National Policies Relating to Intellectual Property and the Promotion of Research and Innovation for Competitiveness organized by WIPO in Casablanca from 20th to 24th October, 2014.

Project Meeting on MNEmerge in UNU-MERI, Maastricht, The Netherlands from 12th to

15th November, 2014.

First Stakeholders Forum on Transferring Knowledge in Solutions: Africa-EU Policies for Research and Innovation Systems Addressing Societal Challenges held by CAAST-Net Plus in Entebbe, Uganda from 24th to 25th November, 2014.

Dr. Godfred Kwasi Frempong participated in the following:

Kick-off Meeting on MNEmerge at Lappenranta, Finland from 12th – 14th January, 2014

International Network of Research Managers Societies (INORMS) Meeting held at Hilton Hotel Washington DC, in April 2014.

Second MNEmerge Project Meeting at UN-MERIT, Maastricht, The Netherlands from 13th to 14 November 2014.

Dr. Wilhemina Quaye, Dr. Richard Ampadu Ameyaw and Mrs. Justina A. Onumah participated in the following:

Policy symposium for the Ministry of Trade and Industry organised at Novotel, Accra on the theme “Potential Impact of the Common External Tariff and Economic Partnership Agreement”, on September, 30, 2014.

Policy Symposium for the Ministry of Food and Agriculture organised at the CLOSSAG conference room, Accra on the theme: “Decentralisation of MOFA: Constraints and Opportunities for sustainable Food Production”, on 1st October, 2014.

Policy Symposium for the Ministry of Food and Agriculture organised at the CLOSSAG conference room, Accra on the theme: “Accepting or Not Accepting GMOs: Implications for Sustainable Food Production in Ghana. November, 2014

Policy symposium for the Ministry of Trade and Industry organised at the British Council, Accra on the theme “Gender in Trade and Industry: Needs and Challenges of Women Entrepreneurs in Ghana, on 9th November, 2014

Policy symposium for the Ministry of Finance organised at Novotel, Accra on the theme, “Exchange Rate Volatility and Impact on Economic Growth: Way Forward in Ghana” on 3rd December, 2014.

Dr. Richard Ampadu Ameyaw participated in the following:

Disseminating Data and Analysis to Support Evidence Based Agriculture Policy Making in Ghana. A workshop organized by MoFA and GIZ, Legon, Accra, June, 2014.

Stakeholders Forum on Sustainability of Rural Technology Facilities (RTFs) in Ghana,

Sunyani, on 29th September, 2014

Policy symposium for the Ministry of Trade and Industry organised at the British Council, Accra on the theme “Gender in Trade and Industry: Needs and Challenges of Women Entrepreneurs in Ghana on 9th November, 2014.

Training Workshop AfricaRice's Multistakeholder Platforms in Selected African Countries, Benin, November, 2014.

Dr. Wilhelmina Quaye Participated in the Next Generation Model for Framing Systems in Africa organized by Bill & Melinda Gates Foundation in Seattle USA in August 2014.

Mrs. Justina A. Onumah participated in the following:

International Food and Agribusiness Management Association (IFAMA) Conference organised in Capetown, South Africa from 15th to 19 June, 2014.

International Research Initiative Conference (IRIC), held at Accra Institute of Technology (AIT) Cantonments-Accra Ghana from 7th to 8th October, 2014.

DILIC conference on the theme “Innovation and African Development” at CSIR-STEPRI, Accra – Ghana on 3rd -5th November 2014.

Mr. Stephen Awuni participated in the following:

Presentation on IFS/AAS Project on developing an enabling scientific equipment policy in Africa. National Scientific Equipment Policy Workshop. CSIR-STEPRI Auditorium, Accra from 31st March to 1st April, 2014.

Action on green economy (PAGE) steering committee meeting at EPA- in 25th November 2014.

Mr. Masahudu Fuseini participated in the following:

An Annual General Meeting of the CAAST-Net-Plus, at Lisbon, Portugal, from 17th to 19th June 2014.

PACF-ECOWAS sub-regional section meeting on Cluster Economic Development Forum in Senegal at the Terrou-Bi Hotel Dakar, from 21st and 22nd July 2014.

Presentation on Innovation Cluster and Socio-economic transformation of Africa, at the 6th Annual Conference of the Pan African Competitiveness Forum at Bagamoyo, Tanzania,

from 11th to 15th August 2014.

Mr. Roland Asare participated in the following:

Rain Water Harvesting (RWH) training workshop for artisans on the theme “Customer Relation and Cluster Formation” at CSIR-STEPRI, Accra-Ghana on June 25th, 2014.

International Research Initiative Conference (IRIC), Held at Accra Institute of Technology (AIT) Cantonments-Accra Ghana: 7-8 October, 2014.

Agricultural Science Week and 11th General Assembly of CORAF/WECARD, in Held at Niamey Niger. from 16th-20th June 2014.

Validation workshop, on ASTI/IFPRI, CORAF/WECARD study on In-depth Assessment of National Agricultural Research Capacities in Six (6) West Africa countries: Benin, Burkina Fasso, Ghana, Senegal, Sierra Leone and Togo. Held at Azalaï Hotel de la Plage, Cotonou Benin; 2nd-4th April, 2014.

Ms. Portia Adade participated in the following:

International Research Initiative Conference (IRIC) and presented a paper on “Implications of Agricultural Knowledge and Information Systems on Technology Development and Dissemination in Ghana: A Review”, at Accra Institute of Technology, Accra Ghana, from 6-7th July, 2014.

Ghana Academy of Arts and Sciences (GAAS) Public Forum on Genetically Modified Organisms (GMOs) at the British Council Hall, Accra – Ghana from 28th to 30th, July 2014.

DILIC conference on the theme “Innovation and African Development” at CSIR-STEPRI, Accra – Ghana on 3rd-5th November 2014. Made a presentation during the training session on the topic “Collecting Innovation Data in LICs: Challenges and Opportunities

Ms. Mavis Akuffobe participated in the following:

PACF-ECOWAS sub-regional section meeting on Cluster Economic Development Forum in Senegal from 21st and 22nd July 2014 at the Terrou-Bi Hotel Dakar.

International Research Initiative Conference (IRIC) and presented a paper on “Implications of Agricultural Knowledge and Information Systems on Technology Development and Dissemination in Ghana: A Review”. Held from 6-7th July, 2014 at Accra Institute of Technology, Accra Ghana.

The organization of an international conference and a training session on Innovation and African Development. Held on 3-5th November, 2014 at CSIR-STEPRI, Accra-Ghana. Made a presentation during the training session on the topic “Collecting Innovation Data in

LICs: Challenges and Opportunities” at CSIR-STEPRI, Accra – Ghana in 5th November 2014.

Workshop on “Sugar Duddy” Babies and their Mothers: Cross-Generational Sexual Relationship and Outcomes among Girls in Accra in the era of HIV/AIDS. Organized by The Economy of Ghana Network, Institute of Statistical, Social and Economic Research (ISSER) and Ghana Coalition of NGO are in Health. Held on Wednesday, 20th August, 2014 at the Institute of Statistical, Social and Economic Research, University of Ghana, Accra-Ghana.

Stakeholder's workshop on “Innovation Policy in Ghana”. Organized by the Department of Economics, Tilburg University, Netherlands in collaboration with the Department of Economics, University of Ghana Held on Wednesday, 24th June, 2014 at the Department of Economics, University of Ghana.

Dr. Rose Omari Participated in the 1st Platform Meeting of Partnership for Aflatoxin Control in Africa (PACA) at the African Union Commission, Addis Ababa, Ethiopia as a resource person to help develop aflatoxin risk communication strategy for Africa, from 7th to 9th October, 2014

Mr. Emmanuel Kodjo Tetteh participated in the following:

Capacity Building Workshop for Member States Experts on Research and Development (R&D) Indicators in Abidjan, Cote d'Ivoire, 12th to 16th May 2014.

DILIC conference on the theme “Innovation and African Development” at CSIR-STEPRI, Accra – Ghana in 3rd -5th November 2014. Made a presentation during the training session on the “Firm level innovation in Ghana

Awards and Fellowships

Akuffo-bea, M., Williams, P. A., Asare, R. and Essegbey, G. O. received a **SILVER AWARD** for the paper “Implications of Agricultural Knowledge and Information Systems on Technology Development and Dissemination in Ghana: A Review” presented at IRIC 2014 under Engineering, Science, Technology and Innovation category of the conference in 19th November 2014.

Mrs. Justina A. Onumah was awarded a CIRCLE Visiting Fellowship (CVF) scholarship for one year at the University of Dar es Salaam, Tanzania

Mrs. Justina A. Onumah was selected as a CSIR-AWARD Mentorship Programme Fellow

Mass Media Activities

In line with CSIR-STEPRI's function of popularizing STI and reaching out to the general public on information and education, several efforts were made to engage the mass media.

Consequently, many of the institute's activities have been reported in the mass media. The print media such as the Daily Graphic and Ghanaian Times gave good coverage to some of the Institute's activities. The GNA also ensured that the reporting got onto the internet via Ghanaweb. The project workshops and seminars which the Institute organized in particular, received wide coverage in the print and electronic media especially as the respective ministers and high-level government officials were invited to the events.

APPENDIX III: List of Members of STEPRI Staff

A. Senior Members

1. Dr. G.O. Essegbey, B.Sc. (Zool.), Post-Graduate Dip. (Communication Studies), M.A. (International Affairs), Ph.D. (Development Studies) – Chief Research Scientist, Director.
2. Godfred Frempong, B.A. (Sociology/ Law), M.A. (Technology Policy), Ph.D. (Sociology), Principal Research Scientist. Deputy Director

Commercialization and Information Division (CID)

3. E. K. Tetteh, HND (Stats), B.Ed. (Pop. Studies), M.A (Demography) Research Scientist. PhD Candidate, University of Cape Coast (Head).
4. G.A. Sampson, Dip. (Journalism), M.A.(Mass Communication), Post-Graduate Dip-Marketing, Public Relations Officer
5. Masahudu Fuseini, B.A Sociology, M.Sc. Social Research, Research Scientist.

Agriculture, Medicine and Environment Division (AMED)

6. Dr. R.A. Ampadu, B.Sc., M.Sc. (Agric. Econs.), PhD (Development Studies) Research Scientist (Head).
7. Gordon Akon-Yamga, B.A. Geography, MPhil. (Env. Sci), Research Scientist (*Study leave*).
8. Paul Boadu, B.A. Economics, MPhil (Econs.), Research Scientist (*Study leave*).
9. Stephen Awuni, BSc. Zoology, M.Phil. (Env. Sci), Research Scientist
10. Mrs. Justina A. Onumah, Bsc., MPhil (Agric Econs), Research Scientist

Industry and Services Division (ISD)

11. Dr. Mrs. Wilhemina Quaye, Mphil (Agric Econs), PhD (Rural Sociology), Principal Research Scientist (Head)
12. Dr. Mrs. Rose Omari B.Sc., M. Phil. (Food Science), Research Scientist.
13. Miss Afua Bonsu Sarpong-Anane, B.A Social Science, Principal Technical Officer.
14. Roland Asare, B.Sc. Geology, M.Sc. Environmental Engineering, MBA (Finance). Research Scientist
15. Ms. Mavis Akuffobe, B.A., M.Phil. (Sociology) Research Scientist
16. Portia Adade, Bsc. Agric Econs, M.Sc. (Bus. Administration), Research Scientist

Accounts

17. S. G. Cudjoe, C. A. (Ghana), EMBA, University of Ghana.

B. Senior Staff

Accounting staff

18. D.A. Sowah, G.C.E. A' Level, Senior Accounting Assistant.
19. Catherine Ashiley, Institute of Chartered Accountants (I.C.A.) Part II, Accounting Assistant.
20. Sabita A. Pilly Apreko, Higher National Diploma (H.N.D.) Accounting Assistant.
21. Enoch Okutu, Institute of Chartered Accountants (I.C.A. Part 1, BA Accounting) Accounting Assistant.

Administrative and General Services

22. Ms. Mary Magdalene Masopeh, Diploma in Management Studies, University of Ghana (UCC). Principal Technologist
23. Ms. Gloria Boakye, HND, Bachelor of Management Studies, (Secretaryship), Senior Technologist.
24. Mr. Rankine Asabo, BA (Psychology & Sociology), Senior Technologist
25. Ms. Selina Lawer-Angmler, Higher National Diploma (H.N.D.) Secretaryship and Management Studies, Senior Technologist
26. Mr. Kwesi Aboagye, Transport Management, Assistant Transport Officer.
27. Mr. Joseph Kingsford Noonoo, Senior Supervisory Management Level Cert. (Electrical/ Mechanical), Principal Works Superintendent.

C. Junior Staff

28. Paul Debrah, GCE "O" Level, Security Officer.
29. Adorta Abenya, Security Assistant Grade II
30. Robert Okpoti, JSS, Security Asst. Gd. I.
31. Robert Anneeh Atawosu, Middle School Certificate (MSLC), Traffic Supervisor
32. Richmond Gasu, Basic Education Certificate Examination (BECE), Driver Gd. I.
33. Rosmund Ocansey, Senior Secondary School Certificate (SSCE), HND (Purchasing and Supply). Front Desk Executive.
34. Rankine Asabo, SSSCE, Technical Assistant Grade II.
35. Vida N. Quaye, MSLC, Supervisor Grade I.
36. Godfred Angabe, Snr. Labourer.
37. Sammy Akanfella, Snr. Labourer.