TRAINING WORKSHOP FOR CSIR-TDTC FOCAL PERSONS AT MENSVIC HOTEL

TRAINING REPORT

May, 2014

Table of Contents

EXECUTIVE SUMMARY

The CSIR-Technology Development and Transfer Center is a market –oriented project under the component 2 of the Ghana Skills and Technology Development Programme. As parts of the project implementation activities, a 2-day training workshop was organized for CSIR-TDTC Focal Persons and Assistants drawn from 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), Science and Technology Policy Research Institute (STEPRI) and Building and Road Research Institute (BRRI). The 2-day training workshop was held at MENSVIC Hotel in Accra from 12th -13th May, 2014.

The objectives of the training workshop were to,

- provide insight on the TDTC project objectives, outputs and outcomes;
- highlight the complementary role of the CSIR-TDTC project to existing CSIR commercialization drive;
- identify opportunities in COTVET project for technology transfer to entrepreneurs; and
- sensitize participants on Technology Development and Transfer issues (Technology Marketing and Technology Partnerships, Collaboration Agreements and Technology Licensing, Technology Transfer Methodologies and Dissemination).

Resource Persons for the training programme were drawn from both academia and industry. These are experts who had varied practical experiences in the area of Technology Development and Transfer Issues as well as Commercialization of Research by-products. A total of 25participants attended the workshop.

There were three key sessions including the Official Opening, Technical Session and Group Discussions. The opening session of the workshop was officially chaired by the Director General of the CSIR. The training modules for the technical session covered (1) Collaboration Agreements and Technology Licensing, (2) Technology Transfer Methodologies and Dissemination, (3)Technology Technology Marketing and Technology Partnerships and (4) Success Factors in Technology Marketing.

The over all instrutor training was rated Excellent by 28%, Very Good by 69% and Good by 8% of the respondents. The usefulness of the presentation materials was rated as Excellent by 15% and Very Good by 85% of the respondents. Presented on success factors for technology transfer to the private sector was rated relatively low although the subject area is critical for impactful project implementation. Areas requirng further clarification include Lobbying Skills, Negotiation and Intellectual Property.

The 2- day training/sensitization workshop ended with a closing remarks form the Director General of the CSIR.

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

One major concern of stakeholders in the Scientific Research and Development Sector in Ghana has been the existing gap between research institutions and the private sector. The CSIR, the largest public Scientific Research Institution in Ghana, has over the past 56 years of its existence developed several technologies and services which need to be transferred to the private sector. The CSIR-Technology Development and Transfer Center is a market –oriented project under the component 2 of the Ghana Skills and Technology Development Project funded by the World Bank. This project seeks to bridge the gap between Ghana's research system and the private sector through the implementation of an improved technology development and transfer system. The overall goal of the CSIR-TDTC project is to ensure that research and development outputs or innovations address private sector needs and challenges and ultimately enhance productivity for socio-economic development of the Ghanaian Economy.

Key objectives of the CSIR-TDTC project include the following:

(i) To establish a private-sector oriented program based on institutional incentive schemes that encourage the providers to respond effectively to the technology demand from the private sector within the priority areas of the CSIR;
(ii) To develop and implement a structured model for engaging the private sector in partnerships for technology development, appropriation and transfer from the CSIR;
(iii) To develop capacity on technology transfer that enhance 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.
(iv) To create a system or platform for intensive research-industry interaction including organization of technology fairs, business meetings and online discussions via a dedicated website.

To achieve the project objectives, focal persons have been selected at the selected participating institutes with the under-listed responsibilities:

- Supervision of COTVET project activities at the institute level;
- Dissemination of project information to researchers;
- Liaise with the project officers on COTVET project implementation activities; and
- Attend project review meetings.

1.2 Training Objectives

To achieve the CSIR-TDTC project objectives and to ensure efficient delivery on project outputs, outcomes and impacts, upgrading of capacity of the focal persons is critical. The training objective includes the following:

- To provide insight on the TDTC project objectives, outputs and outcomes;
- To highlight the complementary role of the CSIR-TDTC project to existing CSIR commercialization drive;
- To identify opportunities in COTVET project for technology transfer to entrepreneurs;
- To sensitize participants on Technology Development and Transfer issues including
  -Technology Marketing and Technology Partnerships
  -Collaboration Agreements and Technology Licensing
  -Managing Technology Transfer
  - Success Factors for Technology Transfer.

1.3 Resource Persons

Resource persons were selected based on experiences in technology transfer to the private sector, knowledge in specific subject areas, availability and cost effective considerations. Table 1 presents information on the resource persons and their specialities as well as subject areas handled in this workshop.

Table 1 Resource Persons for the sensitization workshop

Name	**Speciality/Expertise**	**SUBJECT AREA**
Prof Wisdom Annorsey Plahar	Food Science and Technology, Practical experience in technology transfer methodologies in the Agricultural sector	Technology Dissemination and Methodologies
Dr Joe Cobbinah	Practical experience in technology transfer and collaboration agreements in Forestry related technologies	Collaboration Agreements and Technology Licensing
Mrs Josephine Okutu	Practical experience in marketing	Technology Marketing and Technology Partnerships
Dr Mrs. Pearl Adu-Amankwa	CSIR-Commercialization	Highlights on CSIR-TDTC and its Complementary Role to the existing commercialization process
Mr. Tony Fofie	Marketing lecturer	Success Factors for Technology Transfer

Ms. Adelaide Asante	MESTI in charge of COTVET-GSTDP Component 2	Opportunities in COTVET projects for Technology transfer to Entrepreneurs

Director General of CSIR, TDTC Project Coordinator and Resource Persons

1.4 WORKSHOP PARTICIPANTS

A total of 25participants attended the workshop. This consisted of 2 Focal Person and Assistant from each beneficiary CSIR-Institute. The project beneficiary 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), Science and Technology Policy Research Institute (STEPRI) and Building and Road Research Institute (BRRI); 3 Project Core Technical Team, the Project Coordinator and the Director General of CSIR. The rest were the Resource Persons. See list of participants attached at the Appendix.

2.0 OPENING

2.1 WELCOME STATEMENT

The CSIR-TDTC Project Coordinator, Dr George Essegbey, delivered the welcome statement. In his speech, an introductory remark was made about the conceptualization, planning and proposal submission stages of the project. Other project implementing institutions under COTVET- GSTDP Component 2 project including the Ghana Atomic Energy Commission (GAEC), Ghana Technology University (GTU), Kumasi Polytechnic and University of Ghana were briefly mentioned. He acknowledged the presence of the resource persons and all participants for availing themselves for the Technology Development and Transfer training opportunity.

2.2 INTRODUCTION OF CHAIRMAN

The chairperson for the program was introduced by Dr (Mrs) Wilhelmina Quaye form CSIR-STEPRI and also a member of the CSIR-TDTC project technical team. The Director General of the CSIR, Dr. Abudulai Baba Salifu chaired the program.

2.3 CHAIRMAN'S REMARKS

Dr Abdulai Baba Salifu, the chairperson for the workshop, re-echoed the need to bridge the gap between research and the private sector to promote growth and development in the business climate of the Ghanaian economy. He mentioned that the CSIR, the largest public Scientific Research Institution in Ghana, has over the past 56 years of its existence developed several technologies and services which need to be transferred to the private sector. Therefore the opportunity created by the Ghana Skills and Technology Development Project for researchers of CSIR to engage with the private sector is laudable. He expressed his special appreciation to the initiators of this project, the Council for Technical and Vocational Education and Training (COTVET), the funding agency, the World Bank and the Ministry of Environment, Science, Technology and Innovation (MESTI). Ending the opening remarks, The Director General assured the participants and the resources persons of the CSIR's management support for a successful deliberation.

2.4 Statement of Purpose and Training Objectives

The purpose and objectives of the training workshop was delivered by Mr. Edward Decker from CSIR-Head Office and also a member of the CSIR-TDTC project technical team. This prepared the minds of the trainees on the relevance of the training workshop and also set the stage for subsequent activities.

2.5 Presentation on CSIR-TDTC Project

Presentation on the CSIR-TDTC project was delivered by the Project Coordinator, Dr George Essegbey. In his presentation, the ultimate goal of establishing a sustainable system for partnerships between the research institutes and private sector entities was stressed. Key project activities including establishment of a functional Technology Development and Transfer Centre, Strategic Plan for the TDTC, creation of Research-Private sector Interactive Platforms and Capacity building of researchers for technology transfer to the private sectors were detailed in the presentation. The presentation also covered an update on project implementation, the management system put in place and strategies developed for the way forward.

3.0 TECHNICAL SESSION

3.1 SUMMARY OF TRAINING MODULES

3.1.1 Technology Dissemination and Methodologies

The specific task in the TOR for the resource person handling technology dissemination and methodologies were as follows:

- To develop training modules on Technology Dissemination & Methodologies and Managing Technology Transfers;
- To train the Focal Persons, Core Project and Research Scientists Team using the training modules developed (above);
- To provide inputs on your sessions for compilation of a composite training report

In his introduction, dissemination of research results to targets beneficiaries (farmers, private sector) as real justification for conducting research was stressed. Reports should not be the main output of research. Technology transfer was defined as the process of transitioning technologies from the research lab to the marketplace. This he said should be complementary to the process of publishing research findings. Some dimensions of technology dissemination methodologies mentioned include the following:

- The handing over of intellectual property from one organization to another;
- The development of competence amongst people to be able to use technology they possess; and
- Technology Transfer can only be said to be effective when the recipient is capable of routinely using and applying it as part of business.

Some imperfections associated with technologies transfer have to do with information dissemination problems, most intended beneficiaries are not aware of available technologies, some do not know much about how such technologies operate and the benefits, most intended beneficiaries have problems with affordability and other adoption requirements. The need for paradigm shift from liner and conventional technology dissemination methods to participatory or collaboration and partnerships was mentioned. Supply push and demand pull factors in technology transfer as well as the three critical stages (idea, prototype and product) of technology dissemination process were also discussed.

3.1.2 Collaboration Agreements and Technology Licensing

The specific task in the TOR for the resource person handling Collaborations Agreements and Technology licensing were as follows:

- To develop training modules on collaboration agreements and technology licensing and proposal writing (emphasis on technology development and transfer to the private sector);
- To train the Focal Persons, Core Technical Team and Research Scientists using the training modules developed (above); and
- To provide inputs on your sessions for compilation of a composite training report.

Lack of effective institutional arrangement, ineffective communication mechanisms, insufficient interaction with industry players at the research planning stages were some of the factors influencing poor research - industry linkage. The research system should be seen as production and demand system. Furthermore, there cannot be production without critical demand for uptake. The SWOT analysis should be conceptualized at the planning stage and collaboration is key but must be formalized in agreements. The training module throws more lights on the various forms of Collaborative Agreements (i.e., MOUs, Contract Agreements, and Intellectual Property Agreements). Some examples of Collaborative Agreement between FORIG and Foreign partners and Technology Transfer Agreement for Pozzolana technology developed by BRRI were cited as examples.

3.1.3 Technology Marketing and Technology Partnerships

This training session sought to ensure that researchers understand the importance of addressing private sector needs and challenges. The training module covered stages involved in technologies development focusing on product development processes, techniques, for ideas generation and screening, concept development and testing. According to the resource person, business analysis pin-pointing evaluation of the attractiveness of the technology needs to be done at the technology development planning stage. The resource person also touched on the importance of market research and validation for critical management decision making as well as the role of marketing as a cross functional activity within an organization. Other areas covered in the training session include technology growth strategies, market development, product development and diversification growth strategies. Presentation on technology partnerships covered types of partnerships including general partnerships, limited partnerships, limited liability partnerships

among others. Explanations were given on risks involved in partnerships and how to manage such risks

3.1.4 Success Factors for Technology Transfer

The resource person who handled Success Factors for Technology Transfer, Mr Tony Fofie, gave examples of businesses that have been successful through R&D in Ghana (e.g. KASAPREKO and PGRI). He stressed the need to have a corporate strategic marketing plan and this should be well communicated to staff. He was of the view that CSIR should employ good marketing personnel to handle technology marketing issues. Other issues discussed include management of IPs and private sector collaborations, good information system for tracking and evaluating technology diffusion.

The presentation 'Success Factors for Technology Transfer, covered the following key areas:

- Case studies of successfully transferred technology in the Ghanaian context;
- Critical success factors for the successfully transferred technology;
- Ideas on technology market demand, marketing and communication strategies; employed to transfer the technology to the niche market; and
- Barriers or challenges to technology transfer and coping strategies.

3.1.5 Opportunities in COTVET Projects for Technology Transfer

The presentation on the above topic was done by Ms Adelaide Asante of MESTI who is also in charge of the coordination of all COTVET-GSTDP Component 2 projects. The GSTDP is a five year programme initiated in 2011 and will end in 2016. The overall goal of the project is to improve demand-driven skills development and increase adoption of new technologies in selected economic sectors including ICT, Construction and Housing, Tourism and Hospitality, Livestock and Horticulture. The COTVET-GSTDP focuses on institutional strengthening of Science and Technology Development. The project support technology development and diffusion that is more responsive to the needs of the economy by enhancing interactions between selected research institutes, university departments, and their external clients (e.g., private sector), thereby encouraging domestic innovation.

In her presentation, she stressed on the indicative project outputs including development of strategic plans, funding schemes for technology transfer to the private sector and short-term training for institute staff in areas such as technology transfer, research proposal writing, and technology licensing and collaboration agreements. The Skill and Development Fund (SDF) supports the following key areas:

- Upgrading the skills of employees for productivity improvement and to enable employees to adopt emerging new technologies.
- Supporting industrial attachment for students in training;
- Apprenticeships;
- Enabling current employees to acquire higher technical and vocational skills, qualifications and incomes;
- Introduction of new technologies or innovations at firms (Research and Development, consulting services, equipment);
- Transfer of off-the shelf technologies.

There are four windows in the SDF. Window 4 on Science and Technology give funding support to firms to introduce new technologies and innovations into their business practices and support to technology providers working in partnership with industry to identify, adapt, and transfer relevant technologies. Firms/Institutions would receive matching grants for technology development of up to US$200,000 requiring 25% co-financing by the firm. Technology centers grants would be up to US$1 million to support sector-wide technology transfer centers at Ghanaian institutions. Matching funds are in kind. eg, land , human resource, building etc,. Calls for window 4 were adequately explained by Ms Adelaide Asnate for researchers to prepare and submit winnable proposals.

3.1. 6 CSIR-COMMERCIALISATION: Experiences, Challenges, Gaps and Lessons learnt, and Possible Interventions

Presenting on experiences, challenges gaps, and lessons, Dr. Pearl Adu-Amankwa gave an overview of the improving performance of commercialization activities in terms of income generated over 2008-2012 period. She also mentioned that the CSIR has developed a Strategic Marketing Plan for 2010-2015 year period.

Gaps identified with the CSIR's commercialization efforts were lack of visibility of CSIR-Institutes, weak reporting system and inadequate infrastructural facilities to support the commercialization drive. She emphasized the need for effective monitoring and evaluation, and consistent reporting. Challenges were numerous including high cost of operation-expense ratio, poor staff attitudes, lack of entrepreneurial skills and weak enforcement of contracts agreements among others.

Interventions proposed in her presentation were as follows:

- CSIR re-branding to be commercial oriented & aggressive as private sector;
- Staff oriented as customer services persons (DG-Security) through motivation & commitment;

- Guidelines should be in place for streamlining the governance system of commercialization of CSIR Institutes;
- Effective coordination, monitoring & evaluation activities at institutes levels;
- Policies, procedures & system are implemented for uniformity & consistency of action across institutes;
- Intellectual Property Rights (IPR) – in CSIR; draft document for commercialisation of developed technologies; patent; copyright; outright sales, licensing;
- Institutionalization of Incentive and Award schemes;
- Inventor/innovator- role in technology transfer;
- Royalties sharing-corporate/institute/inventor; and
- Improve communication skills; interactive social network etc,.

3.1.7 Highlights on CSIR-TDTC and its complementary role to existing commercialization process

The Project Coordinator, Dr George Essegbey, presented on the complementary role of the CSIR-TDTC project to the existing CSIR commercialization drive. He took the opportunity to explain the roles of the Focal Persons as ambassadors of technology transfer to the private sector efforts at the institute level. The Focal Persons will coordinate project activities at their various institutes. Key project activities stipulated to complement the existing commercialization drive include the following:

- Technology profiling and documentation;
- Competitive Grant Scheme for technology transfer to the private sector;
- Tracking of impacts of technologies transferred at least 20 enterprises will be supported to adopt CSIR technologies in their business operations;
- Research-Private sector interactive platforms;
- Organization of technology fairs, exhibitions and business seminars.

3.2 QUESTIONS/COMMENTS AND REACTIONS

3.2.1 QUESTIONS/COMMENTS

- As a follow-up to the previous speaker…… if it happens that the project is donor sponsored, do you have the right to process the technology and refuse to disseminate it as a public good?
- Stakeholders should be involved in the planning, implementation of project and related work. What happens when a stakeholder pulls out of the project/technology implementation?

- Issue of Research Scientist submitting a technology to promotion board but often scrapped. Does cooperate CSIR have criteria/indicators for defining technology?
- In contract research where TORs are provided and solutions are provided to private sector, how will CSIR/Research Scientists protect rights to technology if solutions/outputs involve technology transfer for mutual benefit?
- The roles of the various actors in the technology transfer have been spelt out in one of the presentations. I expect roles of the researcher also to be spelt out in terms of transfer of technology and signing of agreements so that the researcher will be clear about his involvement in the process for effective participation.
- What is the difference between coalition partnership and innovative platform?
- Can Research Scientist be able to effectively market and transfer technology and continue monitoring?
- There is the need to have cost effective technology.
- Researchers need to be proactive in pricing of technologies before an investor expresses demand.
- What sort of agreement does CSIR have concerning dissemination of information and adoption of technologies? What benefit comes to the institute?

- How do you price/cost the technology transferred since the society is not prepared to pay for the cost proposed by the scientist?
- What kind of technology was transferred to Neat Foods and what happened to the original technology because there seem to be a big difference between the two (fufu powder from Neat foods and that from Food Research Institute)?
- In the Pozzolana situation, apart from non- payment for the renewal of the agreement, the PMC/PGL management is finally offering the company (PGL) for sale. What do we do under such circumstances?
- What will be the roles of Marketing Officers in the various institutes with the inception of TDTC? Are they going to be integrated or they will operate individually?
- How do you protect your ideas at the initial stages of project development before it gets to a point where you can patent it?

- Product development may take a long time (e.g. technologies from industrial research). What is the council's stand on retiring staff on projects/technology which are being developed and there is no proper documentation on the technology and it therefore becomes difficult for other scientist to continue? What can we do as a Council?

3.2.2 REACTIONS

Some reactions expressed during discussions are captured below.

- In connection with scientists who run away with technologies they may be working on when they leave the council, it was suggested that when scientists are being employed, there must be a clause in their appointment letters which states "any innovation, I P, technologies etc they develop remains the property of the council". Again, Institute Directors should have a succession plan, take steps to monitor projects being undertaken by scientists, seek to build the capacity of others by bringing them on board to ensure project continuity.
- On proposal submission to COTVET and feedback communication failure, it was explained that proposal screening was very extensive. This involved due diligent reports by selected experts, human resource needs assessment, equipment needs assessment, experiences on agreements and partnerships among others. Further explanation was given on the clarity of sustainability plan for proposal selection.
- Frustrations on inefficient capacity and timeliness to deliver on contracts were shared. Some examples cited include GIHOC experience with IIR delays and EDIF Funds for PGRI to produce seedlings.

3.3 GROUP DISCUSSIONS AND PRESENTATIONS

3.3.1 **Presentation on mushroom cultivation Technology Transfer**

The presentation covered the 7Ps - product differentiation, pricing strategies, place (distribution), promotion, people, process and physical Evidence. Pozzolana is produced from clay, replaces OPC by 25-33% and is environmentally friendly. In terms of product differentiation, pozzolana resists acidic attacks, prevents hair-line cracks, suitable for abandoned refuse dump sites, cost effective with 15-20% reduction compared to ordinary portland cement (OPC). Product distribution through regional and district depots.

With pricing, the group adopted a 3- price segmentation approach:

- Ordinary pozzolana sells at GH₵13.00 compared with OPC at GH₵27.00;
- Pre-mix pozzolana sells at GH₵23.00 compared with OPC at GH₵27.00; and

#	Area	Type of Partnership
1	Land	Collaboration
2	Transport/Haulage	Strategic Alliance
3	Production	Integration /
4	Packaging	Collaboration
5	Distribution	Collaboration
6	In-Service Training	Collaboration

- Customers who buy huge volumes have the opportunity to negotiate price.

Promotion has been done through the Institute website and social media, print and electronic media,flyers and stakeholder engagements as well as on site adverts. To improve on building the people's relationship, there is the need to build capacity of frontline staff, establish a special desk for the product, develop feedback mechanisms, orient staff in customer care, put in place accountaibilty and effective M&E system.

Kinds of possible partnership arrangement are shown below.

Table 2 Possible partnership arrangement

3.3.2 GROUP PRESEANTATION ON MUSHROOM PRODUCTION TECHNOLOGY

Mushroom is a substrate for growing mushroom previously used to be on ant hills or dead palm trees. Now it can be grown on farm residues, sawdust from industrial waste etc -the nutritional value has been identified (protein, minerals) for nutritional purposes.

CONCEPT DEVELOPMENT, POSITIONING AND TESTING

- Mushroom can replace protein in meals for households
- It can be used by people who need nutritional supplement (vegetarians)
- It can be used as a preventive and curative applications (cancer)
- Primarily used in meals and preparation of medicine (as a laxative)
- Develop questionnaire for the target groups including mushroom Growers Association and Consumers
- Can be used as a replacement of animal protein which is expensive
- Low cost and available all year round

BUSINESS ANALYSIS

Business analysis should cover the capital investment needed, the production cost, feasibility and marketing research.

COST BENEFIT ANALYSIS

•Capital investment- infrastructure
•Production Cost
•Raw materials
•work force
•packaging
•promotion
•Distribution
•Profitability analysis

FUNCTIONAL TEST
This covers the laboratory test to determine protein, minerals and vitamin contents, packaging and environmental functionality

COMMERCIALIZATION
For the commercialization effort, CSIR-FRI has looked at when and where to sell, availability throughout the year unlike the natural ones that are seasonal, the Unique Selling point as the nutritional value, increase in men vigor, cultural and religious acceptance. Pilot production work has been done and there are products such as spawn-for trained mushroom producers, compost bags-for laymen to adopt and fresh mushrooms

3.3.3 MARKETING OF PREKESE SYRUP IN GHANA

Tetrapleura tetraptera (Prekese) is an indigenous tree species which grows mostly in the wild. The fruit is used to prepare soup for mothers from the first day of birth to prevent post partum contraction (Nwawu and Akali, 1986). Its fruits are used for the management of convulsions, leprosy, inflammation, rheumatism (Ojewole and Adesina, 1983), flatulence, jaundice and fevers (Bouquet, 1971). Its leaves are essential for the treatment of epilepsy (Aka and Nwabie, 1993) and present strong molluscicidal activity (Adewunmi, 1991). The aqueous fruit extract has also been shown to possess hypoglycaemic properties (Ojewole and Adewunmi, 2004). The root extract has also been proven to be used for the treatment of gastrointestinal related clinical problems (Noamesi *et al*., 1994).

The varied use of this plant makes it important for commercial production of its syrup in Ghana. Some other important characteristics about *prekese* are shown below:

- Developed by FORIG in the 1980s
- High demand for the product on the market because of its rich medicinal values
- The initiative will help build entrepreneurial economies across Ghana and is expected to retain more than 5,000 employees in the country.
- build the capacity of rural enterprises producing Prekese syrup to raise income levels of the communities.

For Technology Marketing the following have been considered:

- Idea generation through to market testing has been completed on prekese syrup.
- The product-use test, trade show, and distribution dealer display rooms have been carried out.
- Has been registered with the Registrar General's Department and certificated as CSIR Prekese Syrup
- The prekese project was one of six projects in Ghana which won the 2010 SEED Awards by the United Nations Environmental Programme (UNEP).

Partnerships

To fully commercialise the product, strategic alliance and integration partnerships would be adopted so that resources such as products, distribution channels, manufacturing capabilities, project funding, capital equipment, knowledge and expertise could be shared to ensure greater benefits.

3.4 TRAINING WORKSHOP EVALUATION RESULTS

Training workshop participants were tasked to evaluate the workshop in terms of adequacy of knowledge of subject matter, the training course content, listening and responses to questions as well as logistics provided at the workshop. Details of traning workshop evaluation results are presented in Table 2. The over all instrutor training was rated Excellent by 28%, Very Good by 69% and Good by 8% of the respondents. The usefulness of the presentation materials was rated as Excellent by 15% and Very Good by 85% of the respondents. Areas requirng further clarification include Lobbying Skills, Negotiation and Intellectual Property. Presented on success factors for technology transfer to the private sector was rated relatively low although the subject area is critical for impactful project implementation. Presentation on Technology Transfer Methodologies and Dissemination had the highest rating by participants with Excellent (46%), Very Good (46%) and Good (8%).

Table 2. Training Workshop Evaluation Results

Training Course Evaluation Results					
Instructors	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. Knowledge of subject matter	62%	38%	0%	0%	0%
2. Listening skills	23%	69%	8%	0%	0%

Training Course Evaluation Results					
Instructors	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
3. Topics covered into much detail	15%	77%	8%	0%	0%
4. Overall instructor rating	23%	69%	8%	0%	0%
Course Content:	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. Collaboration Agreement and Technology Licensing	23%	69%	8%	0%	0%
2. Technology Dissemination & Methodologies	46%	46%	8%	0%	0%
3. Technology Management	31%	69%	0%	0%	0%
4. Technology Marketing	38%	54%	8%	0%	0%
5. Technology Partnerships	23%	77%	0%	0%	0%
6. Success Factors for Technology Transfer	8%	30%	62%	0%	0%
7. Which other area(s) would you like further clarification	Lobbying Skills, Negotiation and Intellectual Property,				
Logistics/Materials:	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. Overall quality of course materials	23%	77%	0%	0%	0%
2. Value of presentation materials	15%	85%	0%	0%	0%
3. Flow /structure of information	23%	77%	0%	0%	0%
4. Accommodation	70%	20%	10%	0%	0%
5. Communication	23%	54%	23%	0%	0%
6. Meals	38%	31%	31%	0%	0%

4.0 CLOSING REMARKS

The 2- day training/sensitization workshop ended with a closing remarks form the Director General of the CSIR. He thanked the resource persons for impacting their knowledge with participants. Stressing on the urgent need to bridge the research-private sector in Ghana, the focal persons of the CSIR-TDTC project were encouraged to work assiduously and help the project management team to deliver on expected project outcomes. The closing prayer was said by Dr. (Mrs) Mary Obodiah from CSIR-FRI.

APPENDIX 1

CSIR-Technology Development and Transfer Center
COTVET GSTDP-COMPONENT 2 Project

TRAINING WORKSHOP FOR CSIR-TDTC FOCAL PERSONS
May, 2014 at MENSVIC HOTEL

PROGRAMME

DAY 1

08:00 – 8:30 am	Registration of Participants	All
09.00 – 09.05	General Introduction of participants	Facilitator
09:05 – 09:45	Official Opening:	
	Welcome Statement	Dr G.O Essegbey (Project
	Introduction of Chairman	Coordinator)
	Chairman's Remarks	Wilhelmina Quaye
	Statement of Purpose and Training	Dr A. B. Salifu (DG-CSIR)
	Objectives	Mr Edward Decker
	Group Photograph	All
10:00 –10:15	Presentation on TDTC Project	Project Coordinator Dr G.O Essegbey
10:15-10:30	Health Break	
10:30 –11:15	Technology Dissemination & Methodologies	Dr Wisdom Plahar
11:15-11:45	Managing Technology Transfers	Dr Wisdom Plahar
11:45 -12:30	Questions	
12.30 – 1.30pm	Lunch Break	
1:30 – 2:15	Technology Marketing	Mrs Josephine Okutu
2:15 - 3:00	Technology Partnerships	Mrs Josephine Okutu
3:00-3:45	Questions	
3:45 - 4:30	BREAK INTO TWO WORKING GROUPS FOR DISCUSSIONS	Participants

DAY 2

08:30 – 09:00 am	**Registration of Participants**	All
09.00 – 09.30	Presentations on Group Discussions	Facilitator
09.30 – 10.45	Collaboration Agreements and Technology Licensing	Dr Joseph Cobbinah
10:45 - 11:00	Health Break	
11:00 - 12:00	Proposal Writing	Dr Joseph Cobbinah
12:00 – 12:30	Opportunities in COTVET projects for Researchers	COTVET PSU Rep.
12.30 – 1:30pm	Lunch Break	

1:30 – 2:30	Presentation on CSIR-Commercialization: Experiences, Challenges and Lessons learnt	Dr Pearl Adu-Amankwa
2:30 - 3:00	Highlights on CSIR-TDTC and its Complementary role to existing commercialization process	Project Coordinator Dr G.O Essegbey
3:00- 4:00	Questions	
4:00pm	**Closing Remarks**	DG

APPENDIX 2 LIST OF PARTITICIPANTS

CSIR-Technology Development and Transfer Center
COTVET GSTDP-COMPONENT 2 Project
SENSITIZATION WORKSHOP FOR CSIR-TDTC FOCAL PERSONS
12-13TH May, 2014 at MENSVIC HOTEL

LIST OF PARTICIPANTS

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APPENDIX 3 SAMPLE OF TERMS OF REFERENCE TO RESOURCE PERSONS

Council for Technical and Vocational Education and Training (COTVET)

COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH TECHNOLOGY DEVELOPMENT AND TRANSFER CENTRE (CSIR-TDTC)

TERMS OF REFERECE (TOR) FOR RESOURCE PERSON

BACKGROUND OF CSIR-TDTC Project

The CSIR-Technology Development and Transfer Center is a market –oriented project under the component 2 of the Ghana Skills and Technology Development Project funded by the World Bank. This project seeks to bridge the gap between Ghana's research system and the private sector through the implementation of an improved technology development and transfer system. The overall goal of the CSIR-TDTC project is to ensure that research and development outputs or innovations address private sector needs and challenges and ultimately enhance productivity for socio-economic development of the Ghanaian Economy.

The CSIR-Technology Development and Transfer Center housed in CSIR-STEPRI is directly under the office of the Director-General. The CSIR-TDTC focuses on strategic partnerships with the private sector (business entities and entrepreneurs). Key objectives of the CSIR-TDTC project include the following:

(v) To establish a private-sector oriented program based on institutional incentive schemes that encourage the providers to respond effectively to the technology demand from the private sector within the priority areas of the CSIR;

(vi) To develop and implement a structured model for engaging the private sector in partnerships for technology development, appropriation and transfer from the CSIR;

(vii) To develop capacity on technology transfer that enhance 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.

(viii) To create a system or platform for intensive research-industry interaction including organization of technology fairs, business meetings and online discussions via a dedicated website.

To achieve the above-mentioned project objectives, focal persons have been selected at the participating CSIR-institutes with the under-listed responsibilities:

- Supervision of COTVET project activities at the institute level
- Dissemination of project information to researchers
- Liaise with the project officers on COTVET project implementation activities
- Attend project review meetings

In view of the above stated responsibilities of the focal persons, the CSIR-TDTC project is organizing a 2-day sensitization workshop for the focal persons. Focal persons will be sensitized on the CSIR-TDTC project objectives, outputs and outcomes. Other thematic areas to be covered during the sensitization workshop include Technology Marketing, Technology

Partnerships, Success Factors for Technology Transfer, Highlights on CSIR-TDTC and its Complementary Role to the existing commercialization process.
The management of the CSIR-TDTC project is seeking for your services as a resource person to handle Success Factors for Technology Transfer aspect of the sensitization program **scheduled for 13th May 2014 at 09:30-11:00am**.

TERMS OF REFERENCE (TOR)
Specifically, the terms of reference (TOR) for the resource person (handling Success Factors for Technology Transfer) will include but not limited to the following:

- Present a case study of a successfully transferred technology in the Ghanaian context;
- Highlight the critical success factors for the successfully transferred technology;
- Share ideas on the market demand, marketing and communication strategies; employed to transfer the technology to the niche market;
- Highlight any barriers or challenges and coping strategies ;
- Develop a training module covering the above-mentioned areas for facilitation and reporting purposes.