The workshop started at 09:45 GMT with prayer.

Welcome address by Prof. S. Asuming-Brempong (Study Coordinator and Leader of the Ghanaian team)

All are cordially welcome to this august function. Current trends in African agriculture point towards a commercial orientation but there are concerns that smallholder farmers may be left out of the potential gains in the value chains. Therefore, it is important to conduct a study to find out how smallholder farmers are integrated into the rice and cassava value chains in Ghana. In this regard, the current study is collaboration between Michigan State University (MSU) and University of Ghana (UG) with funding from the Syngenta Foundation for Sustainable Agriculture. Similar studies are being conducted in Nigeria and Mali. The main reason for the gathering is to bring stakeholders in the rice and cassava sectors to discuss the linkages between smallholder farmers and larger markets. It is also to understand the current situation in the value chains of the two commodities and get a buy-in from stakeholders concerning the current study. Finally, this workshop will afford stakeholders the opportunity to clear any concerns on the study and to provide insight into the methodology to be used. We warmly welcome the project Leader from MSU Prof. John Staatz and Dr Boubacar Diallo from Mali to share their experiences with all.

Thank you.

Participants were then allowed to introduce themselves and the organisations or groups they were representing.
Project Synopsis by Prof. John Staatz

(He made a presentation on the motivation for the study, organization sponsoring the study and objectives, how the study was going to be organized and proposed partners in Ghana).

The inability of smallholder farmers in Africa to produce high quality products and to consistently meet the needs of downstream actors (processor, exporters etc.) requires to the development of partnership between smallholder local producers and downstream actors. This will somewhat minimise the importation of raw materials by the downstream actors. This is the motivation for this study. This study is sponsored by the Syngenta Foundation for Sustainable Agriculture (SFSA) whose mission is “To create value for resource-poor small farmers in developing countries through innovation in sustainable agriculture and the activation of value chains”.

The strategy to achieving this mission is to place emphasis on smallholders, productivity and markets. The collaborating research institutions are the University of Ghana and Michigan State University. The proposed partners for the cassava value chain in Ghana are: Guinness Ghana Breweries Ltd. (GGBL), Ayensu Starch Co. (ASCo), Dutch Agricultural Development and Trading Company (DADTCO) Ghana, Accra Brewery Ltd (ABL), CALTECH, and Farmer organizations, while those of rice value chain are: WEINCO Ghana Ltd., Global Agricultural Development Company (GADCO), Mawuwoe Cooperative Rice Processing and Marketing Society Ltd. (MCRPMSL), Weta Irrigation Scheme (WIS) and Farmer organizations.

Participants were encouraged to actively participate in the discussions and they were assured that any sensitive business information discussed will be held in strict confidence. Based on information received during the day’s discussions, the research team will schedule times to meet with the key stakeholders in the month of September for more detailed discussions/interviews. During these interviews, the team would appreciate hearing from interviewees about:

- The experiences in linking farmers, directly or via other actors, to value-added activities
- **How and why** the arrangements with farmers (or other parties linked to farmers) are structured the way they are.
- The views on factors that contribute to or hinder the success of such efforts.
- The ideas on needed actions by both the private and public sectors to promote such linkages.
Preliminary report will be shared with participants and other stakeholders for feedback in October. Final report and policy bulletin outlining key lessons learned and steps needed to promote “win-wins” to be shared with participants, MoFA and the Syngenta Foundation in November 2015.

(On the rice value chain, a participant suggested that FINATRADE Ghana and Aboabo Rice market in Kumasi could be added since they are also major players in the rice sector in Ghana).

Value chain development in the agricultural sector in Ghana

Presenter: Mr. Eddie Addo-Dankwa (Ministry of Food and Agriculture - MOFA)

He presented on the role of MoFA regarding the development of value chains in Ghana. Emphasis was placed on business-orientation and best value. This means that unlike the orthodox way of production which is seen not as business but a way of life, the value chain approach of MoFA places importance on the business side from the production stage to the final consumer and ensures that all actors along the chain get best value. Value chains are increasingly becoming significant because of the globalized nature of trade in recent times. It should be possible for the rural farmer in Ghana to produce and be able to compete with any other person in any part of the world and vice versa. Since competition comes from any part of the world MoFA is now not only concentrating on the production side but all the stages from the farmer to the final consumer. In this way MoFA can ensure that standards are met. The value chain approach is also seriously considered because there was no coordination among the various actors from the production stage to the consumers in the past.

The constraints of value chain in Ghana’s agriculture include undeveloped markets for produce, lack of capacity within MOFA and other agencies to undertake extension in value chains, lack of formal contractual arrangement among the various actors along the value chain, lack of standards and the fact that some actors do not appreciate the need for standards, among others. However, there is a potential in the sector which can be harnessed to tap into the full benefits.

The recommendations in ensuring properly streamlined value chain activities include the creation of awareness on the importance of building strong value chains at policy level, the translation of policy into action through capacity building of the public sector, and the sensitisation and training of value chain actors. Other recommendations include the shifted from production orientation to market orientation, changing perception of people to produce
high quality produce not only for export but also for local consumption, facilitate development of market for specific commodities.

In implementing the recommendations, specific programmes have been designed. Some of these are development of pilot value chains for two selected commodities in each agro-ecological zone. For example in Central Region, citrus and pineapple value chains have been established, pineapple, mango and cassava for Volta Region, maize and mango in the Bono-Ahafo region. To ensure that high quality crops are produced, the capacity of nursery operators in all tree-crop growing areas and certified seed growers is being built. They are also supported (to obtain resources) to expand and improve quality of seed. The capacity of Plant Protection and Regulatory Services Directorate (PPRSD) of MoFA for monitoring and certification of seed and seedlings is also being built.

The presentation also brought to light some specific projects that are underway because of the value chain approach. These are:

- Market Oriented Agricultural Programme (MOAP)
- Northern Rural Growth Project (NRGP)
- Root and Tuber Improvement and Marketing Project (RTIMP)
- Out-grower Value Chain Fund (OVCF)
- Ghana Commercial Agricultural Programme (GCAP)

Questions/comments and responses

1. **Question:** Is it not possible to liaise with other countries in the West African region, so that regional policies on value chains are implemented for a wider market?

   **Response:** border restrictions in West Africa are a major challenge. There is also lack of funds. It must however be noted that there are informal trade arrangements where aggregators come from Mali, Togo, Burkina-Faso and Cote d’Ivoire to buy maize from Techiman market in Ghana.

2. **Question:** What is the status of the funds (OVCF) set up by the ministry some four years ago for value chain development?

   **Response:** The fund is still being disbursed but the numbers of applicant are too many so the funds cannot support all of them. Also the criteria set up by the German government (the sponsor) for the disbursement are too stringent. Currently, the Bank of Ghana is working closely with the German government to relax the requirements for accessing the finds.
3. **Question**: Is MoFA really doing its work when it comes to value chain development?

**Answer**: The ministry lacks the necessary human resource to carry out its entire mandate and this value chain development is no exception. There are also problems with funds to carry out these duties. Farmers and farmer groups are encouraged to get in touch with the few agricultural extension agents for information. Large scale farmers who have specific needs can also call on the ministry for specific solutions.

4. **Question**: Is there any standardization on cassava and associated products in Ghana?

**Answer**: Currently no. However the issue of standards is mainly the duty of Ghana Standard Authority (GSA) and Foods and Drugs Authority (FDA). Nevertheless, cassava processors can put together a set of acceptable standards so that state agencies like MoFA, FDA and GSA can come together and deliberate on the proposed standards for possible adoption.

5. **Question**: Are there any plans by MoFA to allow some percentage of cassava flour to be mixed with wheat flour to produce bread.

**Answer**: There is currently a committee working on that. An announcement to that effect will be made in due course.

A participant observed that research in Africa should be country specific and not making generalization for the entire continent because these countries are extremely different in their way of doing things.

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**CALTECH Co. LTD.**

**Presenter: Mr. Benjamin Bentil (General Manager)**

Caltech is a limited liability company established in 2006 and the head office is located at Achimota in Accra. It was established to produce ethanol and flour from cassava. The Farm operational area is located in Ho, Volta Region, about 170 km from Accra. The company has acquired about 3000 hectares of land for its nucleus farm on which farmers are allocated plots and provided with inputs on credit to cultivate cassava for the company. Land preparation is also done on credit basis for farmers. About 70 percent of its total cassava use is provided by the nucleus farm while the remaining 30% is supplied by outgrowers who receive no assistance or resources from CALTECH. Majority of the farmers on the nucleus farm are females and they are preferred to males because they are:

- Always present on duty (Duty conscious)
- Able to complete task quickly
• Able to ensure proper management of their fields
• Easy to manage
• Readily available to be engaged
• Comfortable with their earnings
• Willing to provide for the upkeep of the home
• Credit worthy (No side selling & good payment reputation)

Successes
• Eight hundred (800) Ha of cassava plantation was established in 2008/2009 planting season
• Four hundred (400) Ha has been cultivated every year since 2010
• There are plans for ENA production and the plant will be commissioned in September, 2015.
• The company has been consistent with high quality cassava flour (HQCF) production since 2009 at 4 MT/day.
• Cassava yield levels have increased from 22 MT/ha to 25 MT/ha with improved technology and good agronomic practices.
• Improved varieties with high starch content have been introduced.

The challenges facing the company in its operations include high cost of farm inputs, absenteeism resulting from engagement in social events like festivals and funerals (by nucleus farmers), high interest on loans, inadequate capital among others.

The way forward:
✓ Increasing the number of farmers on nucleus farm while reducing the number of farmers from the outgrower farms i.e. less dependence on outgrowers who are less trustworthy
✓ Increasing the number of women farmers
✓ Organizing microfinance package for farmers
✓ Increasing social responsibility support for communities in the vicinity of the company.

Questions/comments and responses
1. Question: What is the contractual specification between CALTECH and the farmers?
**Answer:** The land belongs to CALTECH and each farmer is allocated about 2.5 Ha to cultivate. CALTECH ploughs the land and provides the inputs. A percentage is added onto the crop budget as the farmers’ margin after harvest. Each farmer makes at least GHC 6000.00 from the 2.5 Ha. There should be no side selling. A lot of monitoring mechanisms are put in place to ensure that this is enforced. Farmers outside the nucleus farm can also sell to the company if they so wish.

2. **Question:** what is the main cause of the absenteeism by nucleus farmers?

**Answer:** It happens mostly when there are social events for example funerals, naming ceremonies etc. The people see themselves as one people so what happens to the other seem to affect the rest of the people.

3. **Question:** what are you doing to reduce the challenges associated with the absenteeism?

**Answer:** Currently the company is using mechanised system of harvesting (i.e. mechanized uprooters). This had significantly reduced dependence on manual uprooting. For example, formally 50 farmers were needed to harvest a hectare but now with the uprooters, only 8 workers are needed harvest a hectare of cassava.

4. **Question:** What other challenges does the company face?

**Answer:**
- Lack of respect for contractual agreement. Farmers don’t want to even respect agreement they have willingly signed.
- There also the issue of side selling.
- High Energy cost. The cost of buying fuel to power electricity generating plants in this time of energy problem in the country is very high. Sometimes machineries are shut down during power outages.

**Dutch Agricultural Development and Trading Company (DADTCO)**

**Presenter: Kwadwo Osei-Sarfo (Supply Chain Manager)**

DADTCO is a unique private sector agribusiness company, established in 2002 which bases its approach on the combination of private entrepreneurship with a social vision. DADTCO Ghana buys cassava from local farmers and processes them into starch and flour...
for local industries and for export. DADTCO opted for cassava for its starch production because it has high level of starch as compared to other crops, high level of purity, excellent thickening characteristics, and desirable textural characteristics among others.

Participants were taken through some failed cassava projects in Africa and why some of these projects have failed. Some of the reasons outlined in the presentation as the causes of failure are the perishable nature of cassava, irregular supply of roots because of the small and scattered nature of farmers, high cost of transporting cassava to processing plants because of poor nature of roads, concerns of quality issues, processing machines were not suitable for the local needs of processors etc. DADTCO’s products include cassava cake, cassava starch cake, DADTCO flour, Starch grade B and starch grade A.

Under the arrangement with farmers, DADTCO Ghana does not supply input to farmers or provide them land unlike CALTECH. DADTCO only assists with technical know-how in terms of access to disease-free high yielding varieties, production, stocking, treatment and planting of stems, replanting dead stems and increase plant density.

NEW DEVELOPMENTS

There are plans to produce bread with 20% of DADTCO’s Starch grade B. Trials have been conducted in collaboration with the Research and Technology department of AB MAURI in the Netherlands by replacing 20% of wheat flour usually used in baking bread with DADTCO’s starch grade B. DADTCO is in partnership with SABMiller and they have launched the world’s first commercially produced cassava lager in Mozambique.

Questions/comments and responses

1. **Question**: What is the contractual specification between DADTCO and the farmers?

   **Answer**: There is no formal contractual arrangement between DADTCO and farmers. However, DADTCO has a data base of all the farmers it is working with. Before the start of the planting season DADTCO invites farmers to know how many hectares each farmer will cultivate and how many of the quantity cultivated will be sold to DADTCO. With this DADTCO is able to plan. It must be noted that farmers are not under any obligation to sell to DADTCO but this arrangement is done for planning purposes.

2. **Question**: On our preliminary visit to DADTCO factory there was some quantity of starch that were not sold and the colour had changed. Was the starch going bad?

   **Answer**: The starch can stay up to a year so if the colour change does not mean it has gone bad. It will be sold.
3. **Question:** What assurances is DADTCO giving such that if government allows five percent usage of cassava flour in bread, can processors produce to meet the demand?  

**Answer:** The industry has the capacity to meet the demand that is why we have advocating for it.

4. **Question:** Why don’t you publicly educate people and advertise the need to add cassava flour to wheat flour to bake bread?  

**Answers:** We have been doing that for example we do go to Koforidua to educate bakers but it takes time for people to change.

5. **Question:** Do you have a specific cassava variety you require from farmers for processing?  

**Answer:** DADTCO does not but CALTECH does. CALTECH normally requires a variety called “Danpong”

6. **Question:** What do you do with the by-products from processing?  

**Answer:** Cassava peels are sold to piggeries. The effluent is mixed with saw dust and used as manure. The liquid waste is used for production of biogas.

### Weta Irrigation Scheme (WIS)

**Presenter:** Mr. Ebenezer Appiah Adu (Agronomist)

The WIS is a 950 hectare irrigation scheme which was started in the 1960s by the Russians. It was later handed over to the Chinese in the 1980s and currently being managed by Ghana Irrigation Development Authority (GIDA) on behalf of the government of Ghana. Major rehabilitation of the dam took place from 2005 to 2008 by Shandong Geo-Mineral International Engineering Limited. The scheme is currently cultivating 880 hectares out of the 950 hectares.

**The Irrigation Infrastructure**

- Normal water level: 15.49m
- Dead water level: 12.21m
- Live storage capacity: 12.5x106m³
- Total storage capacity: 31.40x106m³
- Maximum height of dam: 11m
Type of spillway: Open
Designed discharge: 2.5m3/sec
Length of canal lined: 8553m
Number of laterals: 12

Collaboration with WIENCO

Collaboration with WIENCO started in 2013 major season with 50 farmers. There is an MOU between Ghana Irrigation Development Authority (who manages WIS) and WIENCO Ghana Limited for a one year period (renewable). This collaboration requires both WIENCO and WIS to provide the technical support, water, crop protection products, treated rice seeds, spraying machines and other rice inputs to enable farmers obtain the yield potential on the farm.

WIENCO Ghana’s role and responsibilities

- WIENCO pays for agreed irrigation service charges (ISC) on behalf of selected farmers to WIS. This is to improve the revenue mobilization efforts of the scheme.
- WIENCO supplies the inputs package to farmers on time to allow farmers adequately prepare, use and harvest timely.
- WIENCO in conjunction with WIS will provide agronomic and technical training to field supervisors on its rice inputs.
- WIS allows WIENCO use of its warehouses and other facilities with terms and conditions that are agreed upon
- Selected smallholder farmers will be trained in business skill to improve their farm management capabilities
- Farmers will be trained on use, safety and handling of crop protection products

WIS-GIDA role and responsibility

- Allow use of its facilities for storage of inputs and logistics for the small holder rice project with terms and conditions agreed there upon.
- Prepare and maintain water canal in readiness and on time for the selected farmers to crop rice
- Provision of technical support to WIENCO’s selected farmers with terms and conditions agreed there upon
- Ensure all technical problems are addressed without delay
- Input credit support from WIENCO and GADCO
Provision of seeds, agrochemicals, fertilizers, payment of ISC, training and extension services (cost of WIENCO package GHC 800 per acre (2014 minor) and this exclude cost of land preparation, harvesting

The farmers on the scheme are around the community in which the dam is located. This is also one criterion for the allocation of land that is the farmer must be in the catchment area of the irrigation scheme. There are some 1024 farmers working on the scheme. About 70% of farmers on the scheme are self-sponsored (i.e. farmers who bear their own cost of production) while the remaining 30% are been sponsored by WIENCO Ghana Ltd (an agribusiness company in Ghana). The scheme has a cooperative called AVICOFAMS and is registered with the department of cooperatives. The cooperative has sections under it. The sections too are divided into blocks. There are executives in charge of each division (that is the cooperative, section and blocks).

Farmers who are working with WIENCO are supplied with inputs and at the end of the harvest are expected to pay back in kind (rice equivalent with the cost of inputs given). There is a semi-formal contractual agreement between sponsored farmers and WIENCO. WIENCO requires high quality standards from its farmers. Farmers who are not able to pay back for one reason or the other are taken off the subsequent production cycle.

**Pricing**
Price is usually negotiated for considering the cost of production and farmers margin. The farmer’s margin is normally from 25-35% of crop budget. Apart from WIENCO that buys the rice, there some other aggregators who come different parts of the country such as Hohoe, Asutuare, Kumasi, and Accra to buy from farmers. The collaboration between WIENCO and GIDA has significantly helped to improve the quality of rice.

**Snapshot of finance/ha**
*Crop budget per WIENCO farmer: GHC 3790.50*
*Average yield: 5 MT/Ha (last season 3.2 MT/Ha due to lodging)*
*Initial selling price: GHC 65.00/42kg*
*Marginal profit: GHC 1162.00/Ha*

**Challenges**
Inadequate staffing: both GIDA and WIENCO have 4 staff each and this is inadequate considering the total farmer population (1024).
Future Expectation

✓ Increase in farm productivity through the collaboration with WIENCO to make public investment in irrigation infrastructure worthwhile through this public private partnership (PPP) arrangement.

✓ Development of strong local brand that meets consumers’ needs in terms of quality and packaging.

✓ Expect an expansion of this program to 80% of the total farm area since it currently covers about 30%.

✓ Establishing a long term relationship which will see an additional investment in maintenance of the irrigation infrastructure especially the drains by our partners.

Questions/comments and responses

1. **Question**: why did GADCO fail and how is WIENCO addressing the challenges so they do not fail?

**Answer:**

- GADCO did not have enough funds to run an outgrower scheme.
- GADCO was not willing to partner or collaborate effectively with WIS.
- There was poor monitoring and supervision by GADCO staff.
- There were delays in payment to farmers.

How WIENCO is addressing the Challenges?

- WIENCO is collaborating effectively with WIS.
- WIENCO is providing agricultural extension services.
- WIENCO pays higher price for paddy rice to farmers than local brokers.
- WIENCO uses scale to weigh the paddy which is to the advantage of local farmers.
- WIENCO is restricted to selected only some sections of the field. This ensures effective monitoring and supervision.

2. **Question**: WIS, when do farmers default?

**Answer:** Farmers ONLY default when there is poor yield. If yield is good, they promptly pay back. That is why there is a concern that defaulting farmers are taken off the scheme in the next production season because they would be willing to pay but poor yields prevent them. We are trying to work out a mechanism where credit repayment will be spread over a time span.
3. **Question:** Are there any sanctions for breaking contractual agreements?

**Answer:** Yes, the farmer will not be rolled in the next production cycle.

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**Mawuwoe Cooperative Rice Processors and Marketing Society Limited (MCRPMSL), Hohoe**

**Presenter:** Ms Sarah Honu (Daughter of Proprietor)

Mawuwoe Cooperative Rice Processors and Marketing Society Limited (MCRPMSL) is located in the Hohoe Municipality of Volta Region of Ghana. It was registered as cooperative in September 2009. The cooperative is managed by Mrs Forgive Honu. This woman has been trading rice on small scale for so many years and by 2008 she started packaging with the help of Dr. Kofi Dartey of CSIR, Fumesua in the Ashanti Region of Ghana under the GATSBY Project. The cooperative currently has 13 members of which 10 are female and 3 are males. The products are registered with the Food and Drugs Authority (FDA).

**Vision:** To become one of the leading rice processors and marketers of locally produced rice in Ghana by 2020.

**Partnership with Farmers**

Buy rice from farmers within and outside the catchment area. The cooperative has six trusted farmers to whom it supplies inputs for the production of rice. The arrangement with this group of farmers is that after harvest the cost of input given will be subtracted from the total monetary value of the output and the balance given to the farmer. The cooperative also supports farmers with transportation. This is to enable the farmers to deliver the products to the cooperative quickly and on time. The cooperative also purchases trampoline for farmers to use for drying paddy. The Ministry of Food and Agriculture provides technical officers who provide advice on best agronomic practices to ensure high yield for farmers.

**Milling Facility**

The cooperative is presently having a milling facility that is able to mill a 1.5 MT per hour. This processing machine was acquired through the NERICA Project at the cost of GH¢ 40,000.00.
Products
The rice that is bought from the farmers is classified into Grade A, Grade B, Grade C. The presenter used the opportunity to showcase some of the products of the cooperative. These are Brown Rice, Natural Perfume Rice, “Tombrown”, Brown Rice Tea, Granulated Brown Rice, and Rice Cookies

Success
Cooperative is recognized by Ministry of Food and Agriculture and was awarded the prize of the National Best Farmer Based Organization during the celebration of the 29th National Farmers Day Celebration at Sogakofe on Friday, 6th December 2013.

Challenges
- Inability of farmers to ensure good post-harvest practices, for example threshing and drying.
- Limited storage space for storing paddy rice.
- Drying floors not protected from rains.
- Inadequate equipment for land preparation.

Questions/comments and responses
4. Questions: MCRPMSL, does the cooperative have a permanent relationship with farmers and what is the nature of the contract with farmers?
Answer: Yes, there is a permanent relation with the farmers and there is a written agreement with farmers. This is to ensure that farmers know how much they are to pay back after harvest.

5. Question: How do market forces affect the already agreed price?
Answer: If at the point of harvest the agreed price is far less the than the prevailing market price there is opportunity for renegotiation. This is done to motivate the farmer to keep the relationship.

6. Question: is there any arrangement with farmers considering your future expansion.
Answer: Yes, but it should be noted that we do not rely on the six trusted farmers we are currently working with. We even go outside our catchment area to source for paddy.
7. **Question:** Are all the members in the cooperative doing the same type of work?

**Answer:** No, members are involved in different activities. Some are involved in rice milling while others are involved in processing and packaging.

8. **Question:** Do the cooperative support farmers in terms of social events such as funerals?

**Answer:** No

9. **Question:** Are there any sanctions for breaking contractual agreements?

**Answer:** No. That is why we have chosen only trustworthy farmers.

**General Discussion and Suggestions**

At the end of the presentations there were general comments from participants. The important ones follow:

- MoFA should institute measures to ensure uniformity in the local branding of rice. This is because the texture and colour varies from place to place and from one day to another.
  - Some suggested these problems arise because of poor seed quality and sometimes farmers don’t take good care of the product after harvest. Others also think poor soil nutrition and wrong formulation of fertilizer might be the reason.
The methodology training started at 08:00 GMT. The research team members were taken through the methodology that will be used for the research by Prof. John Staatz. The conceptual framework underlying the research was presented to the team. This was given as transaction-cost economics (TCE). The presenter explained that TCE theory and that the type of contractual arrangement that predominate at a given vertical stage in a particular value chain is that which reduces the combination of the transaction and production cost of the actors involved.

The key factors in this concept include:

- Asset specificity
- The frequency of transaction
- Uncertainty
- Externalities

The study will look at the contractual relationship between producers and buyers (large scale processors) and what inform these relationships. The presenter also explained that how big a market is will determine whether an investor will invest in that market with economies of scale in mind. *(Many times the argument is whether to invest to open a market or there should be a market before one invests).*

The presenter also indicated the approach for the research will be the *Case Study Research* approach proposed by Yin (2015). The emphasis will be on chapters 1-3 of the book. Case Study Research approach is appropriate when there are few firms. It also focuses more on in-depth discussions rather than large scale surveys. The context of the study is the value chain.

There were in-depth discussions on how the arrangements among the various buyers and producers or actors in the chain considered for this research will affect or should guide the research. For example Ayensu Starch Co. Ltd (emphasis on the processing machine) is owned by the government of Ghana but receive support from Guiness Ghana Brewery Ltd. (GGBL). In this instance, there is public private partnership. However in the case of
WIENCO, the processing machine (miller) is owned by WIENCO. Members suggested all these arrangements among the various actors should guide research.

A sample of the questionnaire that was used in the Nigerian study was presented so that the team in Ghana can make necessary adjustments to adapt to the Ghanaian situation. It was suggested that questionnaires would be developed for the various actors in each chain.

At the end of training Apostle Prof. Samuel Asuming-Brempong thanked all present especially Prof. Emeritus John Staatz for coming all the way from the US for the training and Dr. Diallo from Mali to share their experiences with the team. Team members later exchanged pleasantries and took a group photograph before departure.

**Present at discussions:**

Prof. Emeritus John Staatz/MSU
Apostle Prof. Samuel Asuming-Brempong/UG
Dr. Boubacar Diallo/MSU
Dr. John Kuwornu/UG
Mr. Patrick Ofori/MOFA
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