Final Report
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U.S. - India - Africa
International Training Programme on

Agricultural Marketing Management

USAID
FROM THE AMERICAN PEOPLE

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NIAM

U.S. - India - Africa
Triangular International Training Programme on
AGRICULTURAL MARKETING MANAGEMENT
for Agricultural Practitioners from
Kenya, Malawi and Liberia
NIAM, Jaipur, India

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U.S. - India - Africa
International Training Programme on
AGRICULTURAL MARKETING MANAGEMENT

Kenya, Liberia and Malawi

September 2015

NIAM Jaipur

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Report prepared by CCS National Institute of Agricultural Marketing, Jaipur under the USAID funded International Training Programme on Agricultural Marketing Management for participants from Africa

INDEX

Preface

Majority of the population in the Africa region rely primarily on agriculture for employment and livelihood and therefore the performance of the sector is crucial for the overall development of economy and wellbeing of the masses. A lot of efforts are being made in the region by the government agencies and development organizations with focus mainly on enhancing agricultural production. However, the real challenge is to integrate this improved production to the market for ensuring better prices to the farmer-producers. The globalization of trade and integration of economies along with other changes have created opportunities for generating more income and employment by integrating the producers to emerging high value agricultural global market. The farmers mainly from developing countries may be constraints by various factors in integrating into these competitive markets. Studies suggests the factors limiting producers mainly smallholders involvement with the competitive markets are poor access to markets, training, finance, information and poor vertical & horizontal collaboration.

Considering the implication of agricultural marketing on generation of income and employment, which in turn will define the food security in the region, the US and India Government announced an agriculture partnership called the '*EVERGREEN REVOLUTION*, to address the issue of global food security. The effort includes a triangular cooperation between US, India and Africa with a focus on food security by providing better agricultural marketing management solutions to producers and other stakeholders.

Under the program, the Chaudhary Charan Singh (CCS) National Institute of Agricultural Marketing (NIAM) has organized three training programmes on agricultural marketing management with the support of USAID, India for ninety participants from three African countries namely Kenya, Malawi and Liberia. The participants during the programmes were exposed to various components of agriculture marketing like principles of agricultural marketing management, supply chain management, agri input marketing, agro-processing and post-harvest management, project management and market research, information, communication technologies (ICT) and MIS for agribusiness, agricultural finance, food and nutritional security, food safety, quality and international protocols, business communication and presentation skill, international business and WTO and regional trade agreements.

The knowledge on these components was delivered through an innovative methodology consisting of group exercises, case studies discussion, field visits, interaction with officers and faculty, group presentation, local visit to offices and organizations and exposure to technology in addition to classroom interaction with the experts.

The knowledge acquired by the participants during the programme help them in developing an action plan to be implemented in their respective countries. The action plans were comprehensive in their coverage in terms of area of application like agricultural marketing, capacity building of farmers and other stakeholders, linking farmers to emerging value chains, development of agricultural marketing policy, development of livestock and other commodity markets, development of farmer based organizations, etc. The programme has also achieved a few success stories in terms of implementation of successful implementation of action plan, development of entrepreneurs, etc.

I express my gratitude to USAID, India for supporting the programme and to Ministry of Agriculture, Livestock and Fisheries, Kenya; Ministry of Agriculture, Malawi and Ministry of Agriculture, Liberia. I also accord my gratitude to Ministry of Agriculture and Farmers Welfare, Ministry of External Affairs, Ministry of Home Affairs and other organizations for their cooperation and partnership with NIAM.

My sincere gratitude to all the participants from Kenya, Malawi and Liberia for their intensive participation in the programme and for bringing the desired change at the ground through action plans. I also acknowledge the efforts of Dr Hema Yadav and Dr Shalendra for successful completion of the programme and prepreparation of this final report. I am also thankful to Dr Suchi Mathur and Dr Neetu Bhagat and other faculty members associated with the programme for their contribution in the programme.

This report is a compilation of the activities undertaken for successful completion of the programme. An attempt has also been made to suggest a way forward based on the learning from the programme to have a sustainable impact of the programme. This report reflects the impact of the programme in terms of transfer of learning, application of knowledge and insight gain from various pedagogical tools used in training. There are success stories evidenced in Kenya, Liberia and Malawi which establishes a the need for these kind of bilateral relations.

This comprehensive report of three programmes conducted under the USAID-India-Africa triangular programme will be of immense help for social development agencies with their focus on food security and various other stakeholders in designing similar programmes in future and in sustaining the beginning made through these kind of programmes.

(Director General)

1. ABOUT THE INSTITUTE

The CCS National Institute of Agricultural Marketing (NIAM) is a premier National level Institute set up by the Government of India in August 1988 to offer specialized Training, Research, Education and Consultancy in the field of Agricultural Marketing. The Institute is an autonomous body under the aegis of the Ministry of Agriculture, Government of India established to cater to the needs of agricultural marketing personnel at National as well as at International level.

2. ABOUT THE PROGRAMME

Agricultural Marketing Management

The state visit of US President Mr Barack Obama to India in November 2010 mark the beginning of a new chapter of collaboration between the two countries to address the issue of Food Security at Global level. The US and India announced an agriculture partnership called the '*EVERGREEN REVOLUTION*, to address the issue of global food security. The effort includes a triangular cooperation adapting technological advances and innovative solutions to address food security challenges in Africa. The triangular cooperation is focused initially on three pilot African countries, with potential to expand throughout the African continent in coming years. One component of the Evergreen Revolution is a program that offers agricultural training to 180 agricultural practitioners from public sector, private sector and non-governmental organizations from Kenya, Malawi, and Liberia at Indian agricultural training institutes.

Production and marketing are two basic elements of agricultural system. Marketing of agricultural produce is as important as production itself. As the link between producers and consumers, marketing plays an important role not only in stimulating production and consumption but also in increasing the pace of economic development. Its dynamic functions are thus of primary importance in promoting economic development activities as the most important multiplier of agricultural development. With increasing globalization, liberalization and privatization of the economy, Agricultural Marketing has become a key driver of the agriculture sector today. Future growth in agriculture has to be generated through improvements in productivity of diversified farming systems, linking production to marketing and agro-processing. India has a well-established marketing system. The organized marketing of agricultural commodities was promoted through a network of regulated markets. Most state governments have enacted legislations to provide for the regulation of agricultural produce markets.

PROGRAM GOAL

Strengthen the agricultural marketing and market advisory services in Kenya, Malawi and Liberia through exposure to Indian training and best practices.

With the opening up of the Indian economy, agricultural marketing went through a series of reforms including enabling policies that encourage the procurement of agricultural commodities directly from farmers' fields and to establish effective linkage between production, the retail chain and food processing industries. The Government of India has enacted a model legislation which provides for the establishment of private markets/yards, direct purchase centers, consumer/farmers' markets for direct sale and promotion of Public-Private Partnership (PPP) in the management and development of agricultural markets in India. These experiences and lessons learnt have direct relevance for other developing countries that seek to increase their agricultural sector productivity. Accordingly, the training is based on successful public and private sector experiences in India that have increased agricultural marketing through alternative, modern systems.

Mr R P Meena, Director General , NIAM, Jaipur welcoming Mr Bahiru Duguma, Director, FSO, USAID.

Under the program, the Chaudhary Charan Singh (CCS) National Institute of Agricultural Marketing (NIAM) has organized three training programmes on agricultural marketing management as per details provided below:

Start Date	Completion Date	Programme	Participating country	No.
22.07.13	19.10.13	AMM	Kenya, Malawi and Liberia	30
10.02.14	10.05.14	AMM	Kenya, Malawi and Liberia	30
15.09.14	16.12.15	AMM	Kenya and Malawi	30

Objectives of the Programme

1) To develop adequate conceptual base in agricultural marketing, food security and management;
2) To understand the organizational arrangements and modalities of the functions of existing agricultural marketing systems;
3) To enhance operating skills in using management tools and techniques in different functional areas;

4) To provide exposure to Agribusiness environment, challenges, and opportunities in the global context;
5) To develop an action plan for operationalization of the concepts and learning at back-at work situation

Training Methodology

The content of the programme was delivered in through a highly participatory approach. The participants were provided with an environment to contribute ideas and take part in group activities and assignments. The participants were encouraged to work individually or in small groups to undertake various tasks. The participants learnt from the experience of participants from other country from Africa. Apart from their own experiences, the participants also learnt from interaction with industry experts, trainers and other resource persons. Lectures, group and panel discussions, library based assignments, case studies, and field visits were also used to impart knowledge to the participants.

Learning Tools
Group exercise
Case Study discussion
Visit to Market Industry, labs, offices
Interaction with Officers and faculty, Scientists, farmer groups
Group Presentations
Local visit to Offices and Organizations
Exposure to technology and demonstration

The daily programme was divided into four sessions of one and half hours each. Each day programme was covered on both i.e. morning before start of the session and evening at the end of all the sessions scheduled for the day by the Internal faculty assigned the task of action plan formulation. This was done to facilitate the participants utilize the learning effectively in action plan formulation.

Participants

The participants in the program were professionals and functionaries involved in agricultural marketing management in government, private, and NGO sectors. They represented various sectoral organizations involved in Crops, Horticulture, Animal Husbandry, Dairy, Fisheries, Agribusiness, Agriculture Statistics, Information and communication etc. Considering the important role being played by women in rural development in Africa, the participation from women participants was particularly encouraged.

3. MODULE COVERED DURING THE PROGRAMME

In order to help participants develop adequate conceptual base about various issues related to agricultural marketing, food security and management, as many as twelve modules were covered during the programme. A brief of the various issues covered under these modules is as given below:

1) **Principles of Agricultural Marketing Management:** Introduction to Marketing concepts, classification, process and function; evolution of marketing; consumer behavior & product decisions; market segmentation, product life-cycle; demand estimation; channel management etc.

Immerging issues considered relevant to facilitate the integration of farmers mainly smallholders with the market were also discussed like Market Information System, warehousing and its role in marketing management, risk in agribusiness, legislation, contract farming, direct marketing, public private partnership, etc

Another vital issue of focus during the training programme was the development of infrastructure for development of marketing. It may capital intensive like roads, information facilities, markets, etc of capital extensive like extension and institution building. Considering the importance of creation of infrastructure for communication, research, training and extension, facilitation, collection/ assemblage, drying, cleaning, grading and standardization, phyto sanitary measures and quality certification, labeling, packaging, ripening chambers, retailing and wholesaling and value addition facilities for enhancing the possibility of farmers getting linked to the market, special emphasis was laid on these issues.

2) **Supply Chain Management & Distribution Management:** Supply Chain Management, Competition and Supply Chain Strategies, Facilities, Inventory, Transportation, Information, Network & Application of E-Business, Planning Supply and Demand - in Agri Supply Chain, Overview of Distribution Management; Channel environment; Distribution strategy; Distribution management of Agri commodities; Channel design; Managing the Channel members; Channel evaluation; Effective selling and field promotion; Sales organization.

The participants were exposed to various steps involved in building a supply chain in agribusiness like (i) Designing the supply chain from farmers to consumers and exporters (ii) Optimizing the supply chain (iii) Material flow planning, by determining the exact flow and timing of materials (iv) Transaction processing and short term scheduling.

Considering the importance of fisheries for African participants, the supply Chain Management in Fisheries was also covered. The importance of fish in the diet for being a rich source of protein and nutrition was discussed. There was discussion on the best places to preserve fish both here in India and some places in Africa like lakes, dams, rivers etc. Issues like public private community partnerships in order to advance aquaculture and marketing management concept and its practical marketing techniques were very well taken by the participants. Market extension as a platform to provide market information and arrange farmers in groups was also covered.

Various initiatives under government and private management were also discussed. Like FHEL which was established to develop linkages with farmers, agricultural institutes, logistics operators and government agencies. The aim was to improve agricultural productivity, quality and reduce post harvest losses occurring due to non-availability of proper cold chain Infrastructure. The issues related to supply chain management of fresh fruits, vegetables and frozen foods were discussed during the interaction.

The Walmart model was also covered. The focus was on two modern commercial business models namely B2B and B2C business models. The discussion with based on the description of these two models and how they are helping in improving the supply chain, reducing post harvest losses and improving business margins.

The participants were also exposed to Enterprise Resource Planning. Importance of Enterprises resource planning was discussed as it can help in assessing input requirement at certain level of output, productivity, and cost/benefit ratio of different inputs. It also helps to decrease the cost of production and enhancing customer relationship management. It includes Data Mining - Conversion of data to information and this is not person dependence when using ERP.

3) **Agri Input Marketing:** Special features of Agri Input Marketing; Understanding agri-business consumers; Product identification and Channel selection; Distribution strategies and channel management; Market segmentation; Pricing policy; Marketing strategies, planning and implementation; Marketing organization; Distributor and dealer development; Information system; Ethics in agri input marketing.

The participants were exposed to various theories related to input marketing. However, the participants were highly appreciative to interaction with industry. They were informed that the use of technology, high yielding varieties, other inputs like use of pesticide & Fertilizers, availability of irrigation, modern machinery and extension complimented promoted under various initiatives of the government and other agencies

have been responsible for the impressive performance of agriculture in India. Similar approach may help in improving agriculture in Africa and also in creating business opportunity. The lecture also through light on some of the technologies being promoted by Tata Chemicals like Tata Kisan Sansar, which an Agri – input Retail Shop, Customized Fertilizers, UDP Technology, Foliar Nutrition Service, DSS for fertilizer recommendation, Smart Krishi, Farm Technician – Skill Development program, Fertigation in Sugarcane for focusing future sustainable agriculture.

An interaction with an input seed production and distribution company was organized. The focus of interaction was on agri-input situation in India, product range & distribution network, role of the company in R&D and their experience in working with farmers and opportunities available. The speaker also informed that private sector plays important role in the agricultural sector in India by making inputs and extension available to the farmers which is missing primarily in Africa.

4) **Agro-processing and Post-Harvest Management:** Preparation for market; Maturity indices; Cooling practices; Transportation; Refrigeration & cool chain management; Basic fruit physiology, respiration, climacteric and non-climacteric ripening and senescence; post harvest handling of commodities; Post-harvest treatments.

The interaction during the programme covered various issues related to Agro-Industry and Agro-Processing. Issues related to value addition ranging from cleaning, grading and packaging and pasteurization to chemical alteration were discussed. The challenged faced by the industry in the form of shortage of quality raw materials, high cost of power, seasonality of production, high perishability and inadequate infrastructure near the production areas were also discussed. In addition, farmers were also exposed to the need for information, finance, infrastructure and regular market survey to understand the market.

The technological aspect in agro-processing and value addition with focus on smallholders was also covered. Several concepts within the realm of value addition were discussed. Notable among them were the different strategies associated with value addition. Several techniques employed in value addition were summarized and special mention of how horticultural crops have been a success in India. The discussion also emphasized on machinery used in India and the model for value addition that has integrated rural youth in investment. Information on programme offering employment to different people who get trained in machine operations was also discussed.

A leading agro-processing group was also invited to interact with participants. There was discussion on the organizational structure,

infrastructure requirement, the certification procedure involved, etc. The participants were also exposed to various agri-business opportunities and infrastructure requirements through the interaction.

5) **Project Management and Market Research:** Introduction to Project management; techniques of project appraisal and evaluation; project planning and agribusiness projects; Introduction to Market research, research design, collection of primary data; Data analysis, writing research reports.

The Agribusiness Project Management with focus on horticultural products was discussed. Most of the products from fruits and vegetable category can be made to a completely different value added products. Some of the areas of investment discussed included dehydration, juice making, fresh cut vegetables and salads that can be sold in supermarkets, fresh products just graded and packed. Discussion also covered role of organic farming in the Horticulture industry and health issues as stipulated by the Codex Alimentarius Commission.

The session on market research covering research process, research designs and projection techniques was well appreciated by the participants. Tools of analysis *viz* SPSS and PERMAP were also covered. In SPPS cross tabs, frequencies and descriptive and data mining were covered. PERMAP is an interactive computer programs those uses Multi-Dimensional Scaling Techniques to make, dimensional maps. PERMAP is a perception mapping software which can be used in market research especially in determining explaining consumer preferences. Bubble graphs as another way of presenting market research findings.

6) **Information, Communication Technologies (ICT) and MIS for Agribusiness:** ICT to enhance Farm Extension service in Africa, Designing scalable Market Information System – Examples from Africa & India, Introduction to Information Management System in business; Database management system; Networking and communication systems; Hardware & Software; Security, privacy and ethical issues in information management system and Internet.

Role of technology in delivery of extension services was covered under ICT application in agricultural marketing. The application of ICT has transformed the way extension business is conducted globally and lesson learnt from India were also passed on to the African participants. The participants were exposed to various initiatives like National Farmers' e-Literacy Mission, AGROPEDIA, KKMS, AGMARKNET, Seed Net, EMS and other major Agri-knowledge portals of ICAR/state/SAU Agricultural Portals/ information about Input Dealers/ AC-ABC; One Community Radio in each District. Discussed possible future Strategies and need for nodal planning and implementation agency at Country/ State level.

Various e-Governance models in agriculture were also described to the participants like Common Service Villages where government provides both the infrastructure and personnel; and serving farmers at a nominal fee. Use of ICT is facilitating farmers with information to help them take better decisions. Use of ICT in agro-meteorological and price forecasting helps farmers to wisely plan agricultural production and marketing.

In an environment of limited resources and large number of smallholders, technology may be immense help in reaching out to a large number of stakeholders in cost effective manner. Considering this, the successful example of IT department namely EDUSAT i.e. application of remote sensing and GIS in for education in Agriculture was also introduced to the participants.

Application of ICT may help emergence of various information dissemination model like *Kissan Call Centre* (Farmer Resource Centre). The interaction was focused on the importance of information in agriculture, use of ICT and the different aspects of ICT based initiative. It covered role of different agencies involved, Kisan Call Centre-Setup, silent features, KCC-Operating Procedure, Kisan Knowledge Management System (KKMS), Performance-KCC All India and KCC Rajasthan, Farmers' Portal, IFFCO Kisan Sanchar Limited (IKSL)-Setup & Silent features.

The participants were exposed to some basic computer applications like MS Word, Power Point Presentation and MS Excel to help them better understand other module like market research, project formulation and appraisal and application of ICT in agriculture.

7) **Agricultural Finance:** Institutional arrangement for agricultural finance; Principles of credit management; Micro Finance in Agriculture Sector.

The participants were described the banking structure specifically catering to agricultural and rural development like National Bank for Agriculture and Rural Development (NABARD) which was established during 1982 to promote sustainable and equitable agriculture and rural prosperity through effective credit support, related services, institutional development and other innovative initiatives.

Another agency operating regionally is Centre for microfinance which is a resource support organization for community based micro finance and livelihood sector. The organization mainly focuses on providing technical support to community based microfinance programmes, training, research and policy advocacy and networking.

8) **Food Nutrition, Food Security and Gender Participation:** Understanding malnutrition, Causes of malnutrition, Nutrition needs assessment and analysis, Measuring malnutrition:

individual assessment, Measuring malnutrition:, Interventions to prevent and treat malnutrition, Farm to School Program, Health interventions, Livelihoods interventions, Monitoring, evaluation and accountability, Global Information System of soil, water etc., Gender and entrepreneurship, Entitlement to resources and linking with credit, Gender disparities in access to markets, Importance of horticulture, Livestock and poultry.

The importance of women in agriculture was discussed with the participants. It was emphasized that how important is it for women to participate in agriculture considering agriculture to be considered. The lecture also emphasized on the various schemes to empower women and their participation in agriculture. The Agri-Clinics and Agri-business Centres (ACABC) scheme was also discussed. The scheme trains the graduates who are not employed and after completion of their training they choose either to open agri clinic or Agri-business centres.

The participants were also made to understand the impact of related areas on food security like storage and preservation of foodgrains. The participants were educated on the importance given by the government of India on ensuring food security in-spite of having surplus production in agriculture as reflected by initiatives like the National Food Act 2013, public distribution systems of India; definition of Post-harvest Management; causes of food-grain losses and importance of storage and its impact and role in achieving national food security.

Considering the importance of livestock in Africa, the linkage of livestock production with food security was also examined. It was emphasized on the importance of identifying the factors affecting food security and role livestock sector can play in achieving food security mainly in African countries. The importance of marketing in improving the sector was also dealt as most of the milk produced is being marketed through informal channels. There is need to improve quality and exports.

9) **Food Safety, Quality and International Protocols:** Evolution of food safety and Quality; Role of continuous improvement in Total Quality Management (TQM) launching; Role of standardization in TQM (ISO 9001; ISO 14001, sts 11); Hazard Analysis and Critical Control Points (HACCP); Concept and live examples of OSHASH, SA 8000/CMM/Six Sigma Assessment; Certification types, bodies and policy issues. Certification is an important aspect in FSQ. The discussion on the issue of certification covered the legal and regulatory framework governing Certification of Agricultural Produce in India. The main focus was, the Food Safety and Standards Act, 2006, Agricultural Produce (Grading & Marking) Act, 1937, Bureau of Indian Standards Act, 1986. Total Quality Management is the integration of all functions and processes within an organization in order to achieve

continuous improvement of the quality of goods and services. Discussions on CODEX focused on; objectives, standards, Active CODEX Committees, Scientific bases for CODEX, how CODEX standards are adopted and Codex in Indian context. Another organization with focus on rural development and consumer protection explained the issues related to consumer safety and protection in the light of international trade and development. The key principles of food hygiene by the World Health Organization were also addressed during the session. Some other issues that were also tackled related to the above were reducing pesticide residues in fruits and vegetables, food laws, food safety standards, certification of markets in India markets, etc.

10) **Business Communication and presentation skill:** Concept of Communication, Models of Communication, Verbal and Non-verbal Communication, Formal and Informal Communication Business and Effective Communication, Writing business proposal, Channels of effective communication, Application of the principles of 'Group Dynamics' in conducting effective meetings effective presentation skill, cross cultural communication.

The business environment of the 21st century is expanding to include people from different cultures and countries around the world. The participants therefore were educated on the importance of skill required for cross culture communication across cultures with courtesy and respect. Session was on cross cultural communication which gave us insight on the complexity of culture and how to deal with cultural difference. Ways of effective communication through writing and oral presentations were also discussed.

11) **International Business, WTO and Regional Trade Agreements:** Introduction to international trade; Trade Theory - comparative advantage; Instruments of trade; Globalization; World Trade Agreements under WTO; Agreements on agriculture; International markets - basic concepts; International business environment; Export market selection and entry strategies; International marketing and strategy mix; Export financing for agri products; Export insurance for agri products

Product Market Identification is important in export of agricultural commodities. Accordingly, a session dedicated on the issue was well appreciated by the participants. The session covered Kenya and Malawi`s agricultural exports and product market identification, net trade in food, export baskets, and development of exports of major agricultural product groups and export destinations. It outlined composition of world trade, use of trade map and constraints in international trade, RTAs and WTO agreements affecting. The trade

relations between countries, development of exports and export destinations of agricultural goods, impacts of SPS and TBT measures, and role of public and private standards, traceability requirements were also discussed. Strategies to enhance RTA utilization amongst SMEs, beyond WTO-RTA agreements and legal frameworks for greater market access for goods and services. Managing Global Compliance in Agricultural Produce and Evaluating Business Implications of African Regional Trade Agreements (RTAs) were also covered.

Documentation is another important aspect of international Trade. The participants were informed on the two important categories of documents. Dealing with regulatory or commercial documents and the one which are prepared by the shipping/transport companies by the importer/exporter and by facilitating agencies. Considering the complexity of doing business/ trade these documents stand out as agreed basis for smooth flow of goods/products and materials.

Emerging international markets, policies and strategies to tap international potential for developing countries were also discussed with the participants. The participants were presented with different opportunities from Africa and the global demand for agricultural products, several concepts and factors were discussed in the lecture which constituted marketing trends with emphasis on Africa, expansion of global value chains (GVC), role and the share of African countries, dimensions in agricultural trade, challenges for developing countries and strategies to overcome challenges and also about the export import agri-financing in India.

The institutional setup to promote export was also discussed with the participants like APEDA which promotes the export of agricultural and processed products with the exception of marine products and plantation crops. The organization renders a plethora of services ranging from fixing of quality standards and specifications for the scheduled products to Infrastructure for transportation handling and storage. Amongst some of the infrastructural developments to its records include centers for perishable cargo, pack houses and processing units.

12) **Industrial Visit:** Industrial visit is an intrinsic part of the module. The objective of the industrial visit is to help participants gain first-hand information regarding functioning, marketing strategies, organization planning, and procurement of the Industry. The visits will provide the participants an opportunity to plan, organize and engage in active learning experiences both inside and outside the classroom *(discussed separately).*

13) Action planning for back at work situation: Considering the orientation and experience provided, the participants are expected to develop action plan for implementation in their place of work.

4. THE RESOURCES DEPLOYED IN THE PROGRAMME

The best resources available in the area were invited for interaction with the participants. The participants were benefited by the vast experience of the resources from different agencies like government organizations, corporate, entrepreneurs, financial institutes, etc working at different level of development. A list of the external resources used and the area covered by them along with their contact details is provided at the Annexure 1.

The Institute established in 1988 has also been playing an active role in advising Government of India and various state Governments on various aspects of agricultural marketing. The expertise available at the Institute was also utilized optimally for the benefits of the participants. The details of the resources are provided at Annexure 2.

In addition, the experience gained by the students during their summers projects was shared with the participants to optimize the time and learning and broaden the horizon of USAID programme. The innovation was well appreciated by African delegates. The platform utilized for exchange of knowledge proved to be fruitful not only to the participants but also for the students. Issues like preparation of business plans and issues related to drip irrigation were covered under the format. The delegates showed lot of interest in the presentation which was evident from the queries raised by them about techniques and feasibility of business plans, affect of drip irrigation, compensations paid to BGT affected people. The knowledge of students from summer internship program helped them in having a good interaction (Annexure 3).

5. PROFILE OF THE PARTICIPANTS

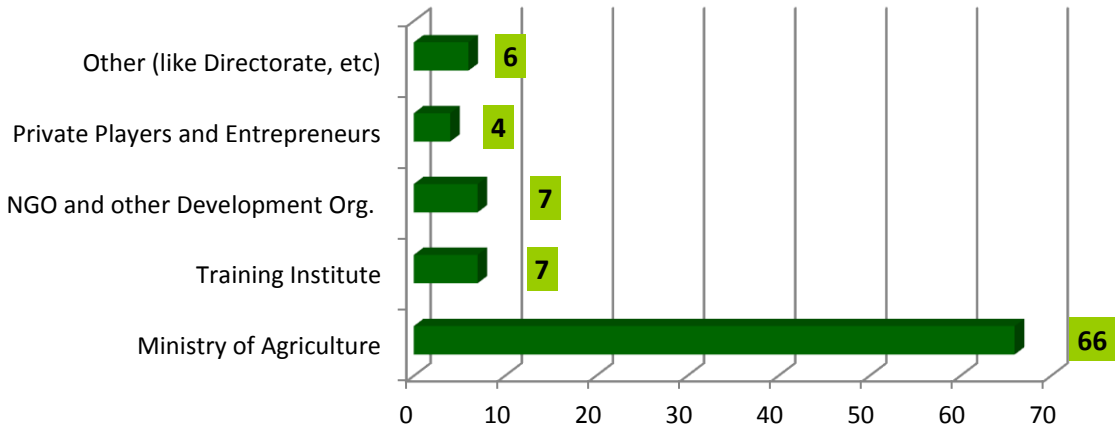
A total of 90 participants from three African countries namely Kenya, Malawi and Liberia participated in the programme. The representation of different countries is presented in the table given below:

Table 1. Representation of different countries in the programmes

Country/	Number of Participants			
Program.	**First Programme**	**Second Programme**	**Third Programme**	**Total**
Kenya	10	10	15	**35**
Malawi	9	10	15	**34**
Liberia	11	10	00	**21**
Total	30	30	30	**90**

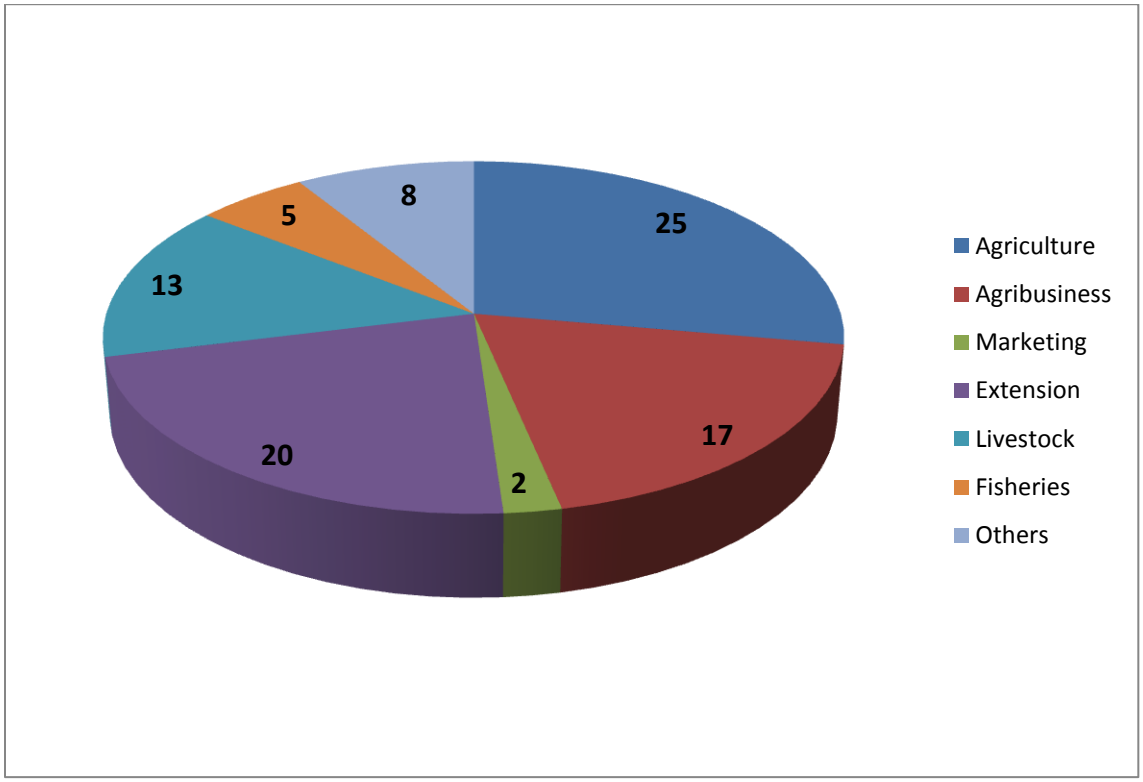
A comprehensive selection procedure was adopted to have participation from different kind of organizations working for the development of agriculture and farming community mainly the smallholders. The nominations were received from wide range of organizations like Ministry of Agriculture, training institutes, NGO and other development organizations, private players and entrepreneurs and other Directorate and corporations. The representation of different kind of organizations has been depicted in the figure presented below:

Figure 1. The number of participants nominated by different organizations



In order to have a balanced impact of the programme on all the segments of agriculture and allied sectors, the officers from different discipline were selected for the programmes. The officers working in the field of agriculture, extension, agribusiness, marketing, policy, livestock, fisheries, etc have participated in the programme. The representation from all sectors helped in having implementation of action plan from a wide range of disciplines like agriculture, policy, livestock, course curriculum development, honey, policy suggestions, etc. The representation from different discipline is depicted in the figure presented below:

Figure 2. Number of participants from different disciplines



A total of ninety officers participated from three countries, thirty participants per programme, in the three capacity building programme conducted by NIAM with the support of USAID, India during the year 2013-15. The programme-wise details of the participants are provided in annexure 4.

6. FIELD VISITS UNDERTAKEN DURING THE PROGRAMMES

The programme primarily focuses on utilizing the experience of India in providing solutions to many of challenges faced by Africa to enhance the pace of development in these countries. Accordingly, the participants were exposed to a number of success stories from India with focus on establishing linkages, improving supply chain, enhancing producing, use of information and communication technology, establishment of market information system, waste disposal system, farmers organization, etc. It was envisaged that the field visits will help them not only in relating the theories learnt through class room interaction to the practical implementation but make them believe in rolling out the initiatives even in difficult scenarios faced by many developing/ under developed counties. Following are the details of some of the field visits performed under the programme.

Self Employed Women Association

SEWA, Ahmedabad (Gujarat)

SEWA is headquartered in Ahmedabad, Gujarat and was established in 1972 by Smt. Elaben Bhatt. This association aims to empower women in all spheres of life including; health, nutrition, incomes, asset ownership, literacy and leadership. The purpose of SEWA's visit was to familiarize the participants with organization and operation of an institute operating at the grass root level and provide a working case study. The exposure to a woman run organization spurning several countries was an eye opener to the trainees. The major lesson learnt was that every man and woman is able to live a dignified life amidst all the challenges if well mentored. It is not the lack of abundance that determines how well an individual lives but its the assistance they receives to make small strides towards the long journey out of deprivation. SEWA case proofs this point where women have organized themselves to be self reliant.

> Supportive services like savings and credit, health care, child care, insurance, legal aid, capacity building and communication services are important needs of poor women. If women are to achieve their goals of full employment and self-reliance, these services are essential. Recognising the need for supportive services, SEWA has helped women take a number of initiatives in organising these services for themselves and their SEWA sisters. Many important lessons have been learnt in the process of organising supportive services for and by poor women. They provide these services in a decentralised and affordable manner, at the doorsteps of workers. Further, supportive services can be and are themselves a source of self-employment.(SEWA)

The Gujarat Cooperative Milk Marketing Federation

GCMMF & AMUL (ANAND Gujarat)

The team visited the Gujarat Cooperative Milk Marketing Federation (GCMMF) office at Anand which is the highest governing body of the 3.5million dairy producers in Gujarat and its surrounding districts. Here the team learnt that AMUL uses a three tier model in which on top of the hierarchy is the state federation which is followed by district unions, below the district unions are the village dairy cooperatives (VDC). The VDCs are made up of voluntary association of milk producers who own cows and/or buffaloes and supply milk to the VDC.

The federation is in-charge of milk marketing and logistics. The team visited a processing plant under, Kaira District Milk Cooperative Union; one of the seventeen (17) unions of the GCMMF Ltd. Amul has also embraced horizontal and vertical integration leading to investment in supportive services delivery such as animal health, artificial insemination (AI), and provision for other inputs like feeds. The team had the luxury of visiting the modern feed manufacturing plant owned and operated by the AMUL.

Amul has developed a diversified dairy products e giving their consumer a wide range of choice of products across the coutnry as well as for consumers residing overseas. The processing of milk into powdered milk during winter to be reconstituted during lean period in summer is a remarkable approach of market stabilization and ensuring minimal price fluctuation.

Amul had managed to reduce price spread by ensuring that the producers get about 80% share of the consumer price with plan underway to ensure this goes up to 85%. This shows high level of efficiency in the management of the dairy, in contrast to Kenya where the producers/farmers get less than 40% share of the consumer prices.

What can be replicated in Kenya and Malawi

The availability of AI facilities and animal health services and animal feed production and distribution by Amul had reduced cost of production for associated dairy producers. This is worth replicating in Kenya and Malawi across all the agricultural value chains. The pulling together of dairy producers have created a strong market leader increasing the farmers capacity to invest in very specialized industry of dairy processing, leading to releasing a huge range of dairy products to the market. This showed that the strength of the agricultural sector can be harnessed through the collective efforts of a large of number of producers. It was clear that the producer-consumer price ratio can be in favour of the producers in the dairy sector unlike the current scenario in Kenya. There is need to replicate this model in order to reduce the price spread and at the same time assure quality standards to the consumers. The specialization of dairy plants to a few priority final dairy products could lead to production and marketing efficiency and improve product distribution planning hence reducing warehousing and logistic complications. This if replicated would lead to improved performance of dairy and other value chains in Kenya and Malawi.

Milk Collection Centre in Gujarat

It was evident that the relationship between the Cooperative and government was very cordial to the extent that the Cooperative Chairman was tasked by the government to start the National Dairy Development Board (NDDB) so as to replicate the Amul success across India. This is a model that can be borrowed to improve agricultural value chains by identifying the success players and using them as centers of excellence.

Central Food Technological Research Institute Mysore

Participants from Africa at CFTRI Mysore

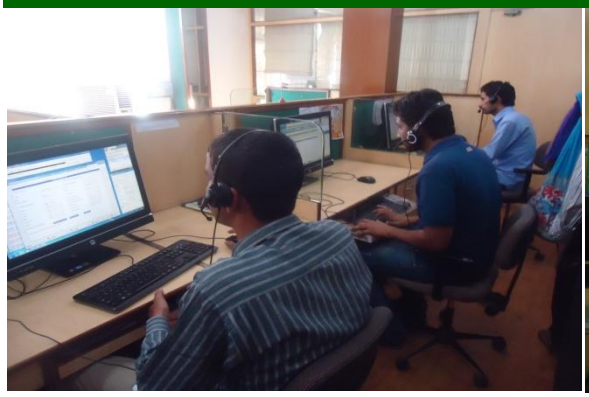
Central Food Technological Research Institute (CFTRI) located in Mysore; Karnataka is a centre of scientific and Industrial Research in India. The centre was established on 20th October, 1950 and is one of the 40 national research laboratories in India with a huge campus of 700 acres (2.8km). The centre also has extended resource centres in Bangalore, Hyderabad, Lucknow and Mumbai, rendering technical assistance to numerous entrepreneurs. There are 16 research and development departments, including laboratories focusing on food biotechnology, microbiology, sensory science and food safety.

CFTRI has designed over 300 products, processes, and equipment types. It holds several patents and has released many publications. The institute develops technologies to increase efficiency and reduce postharvest losses, add convenience, increase export, find new sources of food products, integrate human resources in food industries, reduce costs, and modernize. The achievements have been of considerable industrial value, social importance and national relevance, and coupled with the institute's wide-ranging facilities and services, have created an extensive impact on the Indian food industry and Indian society at large.

The participants were of the opinion that an Institute operating on similar line may help in improving yield and technology for enhancing the efficiency of operation. Possibilities of using the technology developed by the Institute in Africa may also be explored.

Kisan Call Centre and IFFCO Kisan Sanchar Ltd

Jaipur, Rajasthan



Officers Responding to Farmers Queries

Simon Muchigiri Speaking to a Farmers at the Centre

Making information available is a challenge which may be addressed with the help of ICT. Kisan Call Centre is one such initiative providing information to the farmers on agriculture and related issues in their local language through toll free phone facility. The process commences with a client calling the centre and once the call is put through, the officer profiles the client if the query is received for the first time from the number. Profiling entails recording the client's ID, Name, Age, location and call ID. This is significant as it forms the basis for future reference in addition to monitoring service delivery. The client's query (technical or Mandi information) is captured and the officer searches for an appropriate response from a menu of possible solutions within the system. If the officer in the studio is not able to adequately respond to the query, it is transferred to a research institution/University or a designated institution for the theme and an appropriate response given later.

Lessons Learnt

- Kisan call centres have facilitated Indian farmers with real time information based on individual requirements improving decision making.
- Kisan call centre ensures many farmers are reached with a limited staff. This reduces the strain associated with high staff farmer ratio.
- A public private partnership (PPP) brings more innovations in service delivery and a better customer focus.

IFFCO Kisan Sanchar Limited, Jaipur

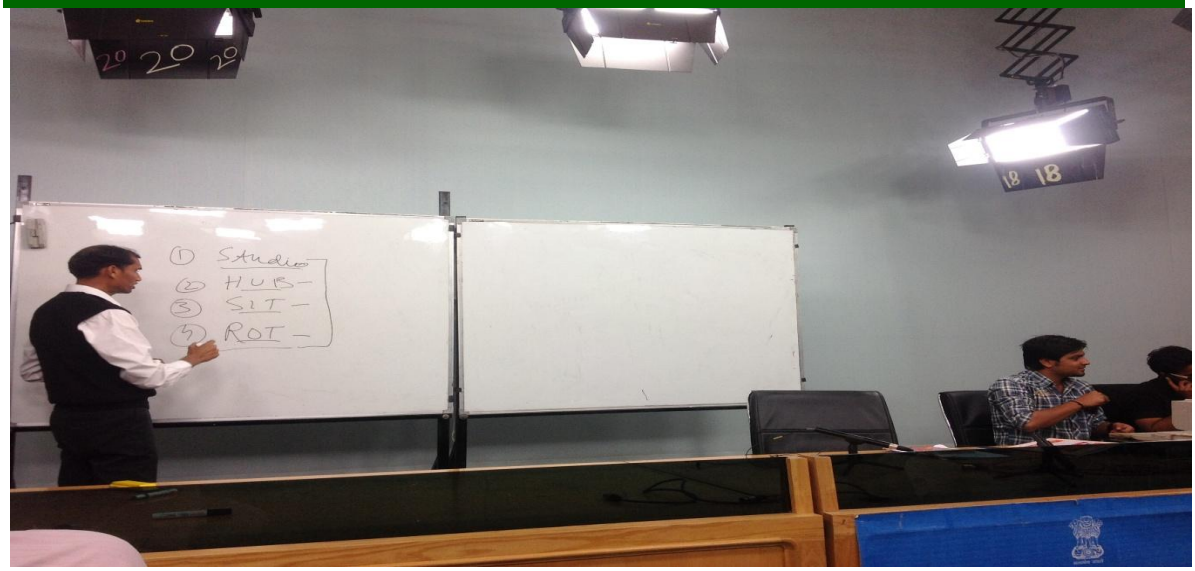
Umesh Kumawat (Content Manager) and Pramod Kumar (Executive Content) with Patricia, Fanuel and Ken during visit to IFFCO Kisan Sanchar Limited, Jaipur

The Indian Farmers Fertilizer Cooperative Limited (IFFCO) is one of the largest farmers cooperative federations with multi state based presence in India. They have created a Farmers' Portal that allows farmers to access information along the value chain from production to marketing. In addition the information includes Government schemes that they can benefit from, extension services and package of practices for respective seasons. Farmers are also able to call in case of any specific queries as well as give valuable feedback through the Feedback module specially developed for the purpose.

The IFFCO *Kisan Sanchar* offers value added services provided by IFFCO to farmers. Farmers purchase a *sim card linked with a local telephone service provider 'Airtel'* with the application for the *Kisan Sanchar* pre-loaded. Cognisant of the challenges of low literacy levels in the villages, farmers receive 4 to 5 voice messages daily to their mobile phones in the local language. The voice message carries information on weather forecast, *Mandi* Rates, Government schemes, vacancies in their regions among others. Between 10am to 6.00pm farmers can call for specific questions to be answered by the staff and scientists employed by IFFCO Kisan Sanchar Centre. In each state 4 to 5 retired research officers and university lecturers who speak the local languages are some of the personnel used to provide expert advice to farmers via phone link. Monthly programmes are also broadcast through the local radio stations and farmers are able to phone in live to engage the studio guest on the area of challenge.

Use of ICT in Agriculture and Education

SATCOM Rajasthan



Satellite Communication Network (SATCOM) Rajasthan is an initiatives operating under the supervision of IT Department and is housed at IGPRS. It is to utilize the potentials of Satellite Communication in training and extension activities of line departments of the Government of Rajasthan in collaboration with Development and Educational Communication Unit (DECU), Indian Space Research Organization (ISRO), Government of India. Science and Technology Department is the Nodal Agency for it. Two way interactive terminals (two way audio and video), Satellite Interactive Terminals (SIT) have been installed at 32 Zila Parishads. One way video and two way audio, Receive Only Terminals (ROTs) have been installed and operational at all 237 Panchayat Samitis Head Quarters of the State. Readymade programmes of some of line Department are being relayed. A sizable studio at IGPRS is also ready for live telecast. The network

LESSON LEARNT

IGPRIS through the use of GPS and remote sensing technology has played a key role in provision of education through video conferencing to various stakeholders in the most rural parts of Rajasthan. The institution has also played a major role in agriculture and forestry in use of GPS to determine crop and forest cover providing information useful in planning and decision making. This has also been useful in disaster management and drought mitigation.

GPS and remote sensing is widely used among institutions in Kenya but there is need to promote its uses locally to guide decision making and policy formulations.

also provides a widespread communication platform through which centralized lecture facility to remote areas, extension activities and propagation of policies of State Government to common masses. The purpose of the visit was to appreciate the Application of remote sensing and Geographical Information Systems (GIS) in Agriculture by the Network. Major highlights of the visit were:

- The distance coaching lessons which are being undertaken by the Institute to students who are to write University entrance examinations
- A monthly calendar with daily time slots is planned to be prepared for various line departments. The line departments will arrange to collect the target groups accordingly
- Maps of different Geographic places were shown and how the data is

Importance for Kenya and Malawi

IGPRS through the use of GPS and remote sensing technology has played a key role in provision of education through video conferencing to students in the most rural parts of Rajasthan. The institution has also played a major role in agriculture and forestry in use of GPS to determine crop and forest cover providing information useful in planning and decision making. This has also been useful in disaster preparedness and drought mitigation. GPS and remote sensing is widely used among institutions in Kenya but there is need to promote its uses locally to guide decision making and policy formulations. A similar network would be worthwhile adopting in Agriculture in Kenya and Malawi to enhance the reach of extension services. There is potential to utilize Satellite Communication in training and extension activities**.** The spatial technologies also need to be adopted to make planning agriculture, infrastructure and mapping the vulnerable areas.

NDDB

National Dairy Development Board, Anand, Gujarat

The National Dairy Development Board NDDB) was established in 1965 to spread benefits of concept like Kaira Milk Producers Cooperate to the rest of the country under the guidance of Prime Minister Shri Lal Bahadur Shastri. The Board serves the entire country, with the headquarters in Anand, Gujarat.

The Board is mandated to promote, develop and finance dairy development programmes through cooperative development strategy. It also undertakes research, training and offers professional management services to the cooperative units at all levels. The services offered include project financing and appraisal, cooperative services, planning, animal breeding, animal nutrition, animal health, engineering services, sectoral analysis and planning, research and development biotechnology, centre for analysis & learning in livestock and food and ICT.

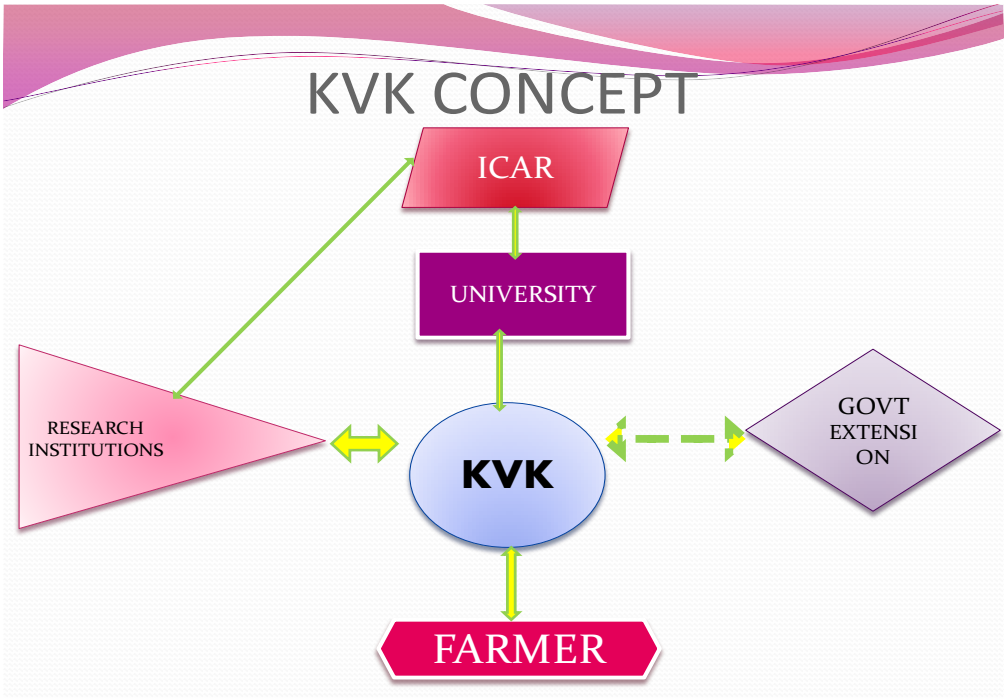
It has managed to empower millions of small and marginal farmers through village dairy cooperatives. It has integrated 117,575 dairy co-operatives. The Board lays emphasis on women empowerment, which is done thro encouragement of the formation of women dairy cooperatives as well as leadership programmes targeting women.

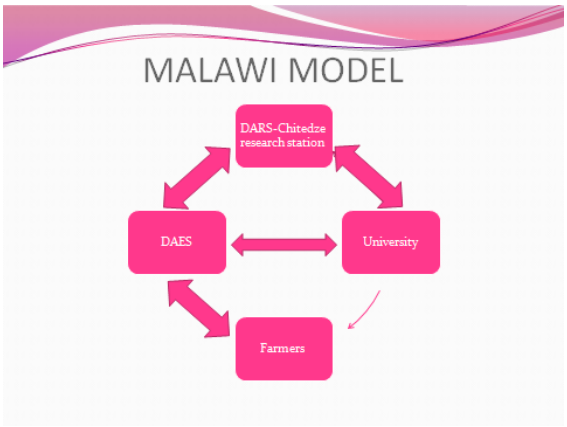
An initiative on similar line addressing issues related to health, productivity, AI, etc may help immensely in improving the status of income and food security in Africa considering the importance of livestock in their lives.

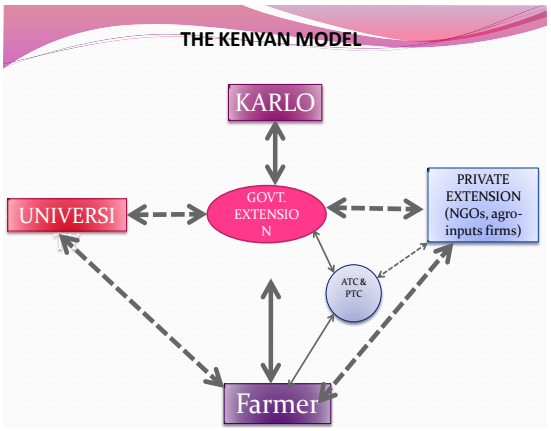
Krishi Vigyan Kendra Kumher

KUMHER-KVK is an outreach unit of Rajasthan Agricultural University – Bikaner. It was established on 2nd October 1988. The KVK is mandated to conduct on-farm testing to identify the location specificity of agricultural technologies under various farming systems; organize frontline demonstrations to establish production potential of various crops; organizing training required for farmers, on technology and skills; creating awareness on appropriate extension programmes; production and supply of good quality seeds and planting materials, livestock, poultry and fisheries breeds and products and various bio-products to the farming community; work as resource and knowledge centre of agricultural technology.

Currently the KVK is running several schemes to support and train farmers. Some of the schemes are Soil / water management; sustainable agriculture; fruits and vegetable production technology; plant protection measures; fodder production its preservation; seed production of cereal, pulses, oilseed and spices; women empowerment; food processing and value addition of locally available agricultural produce; improvement of breed, nutrition and better management of livestock.

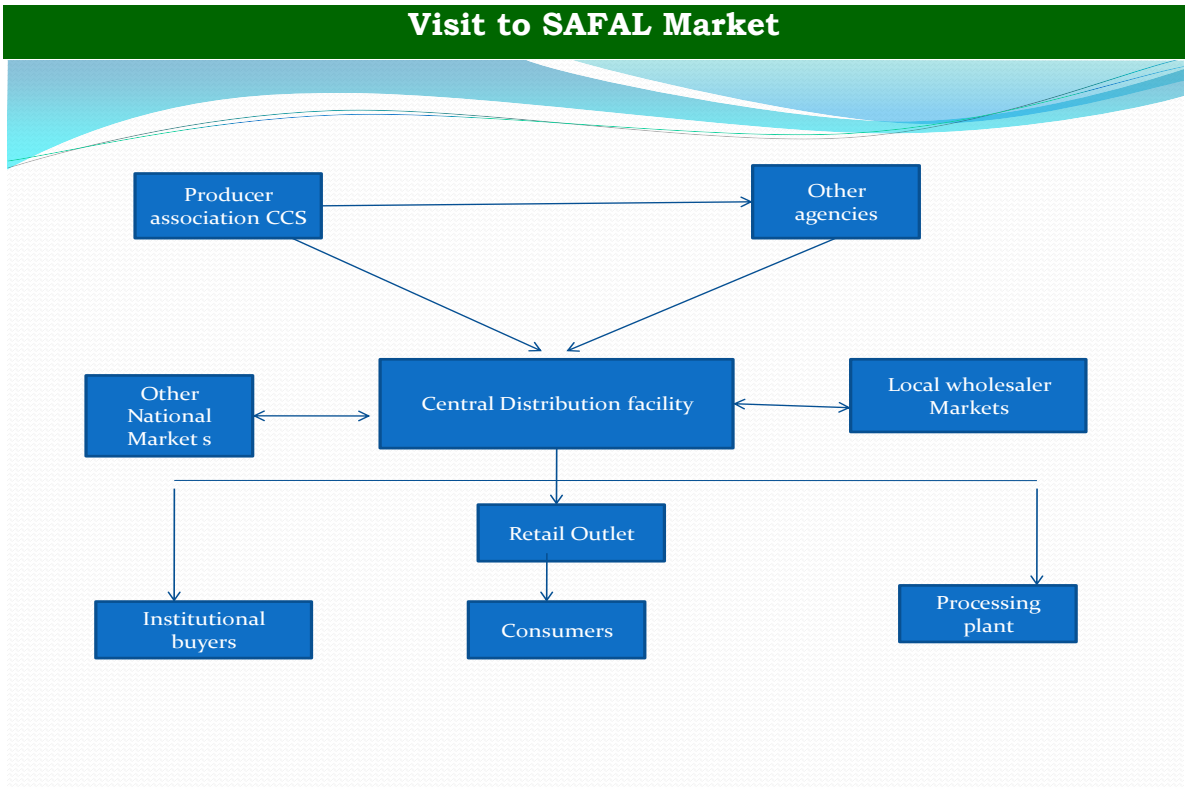






Comparing the KVK model with what is prevailing in both Malawi and Kenya reveals that there is very weak linkage between extension service and the universities in the later two (as depicted in figure above) There is obviously a need to have the universities play a more active role in seeking solutions for the challenges facing the farming community.

KVK is a highly functional and efficient extension system. It has a reliable research extension mechanism and a reliable knowledge flow feedback mechanism. It helps in building a relationship with the farming community and looks out for the welfare of the farmer. It can be replicated to fit other agricultural extension systems.



The participants visited Safal in Bangalore, Karnataka state on 12th October 2014. The participants were given a brief history and were taken through the operations of the facility. They were informed that Safal is the fruit and vegetable business initiative of the Mother Dairy Fruit and Vegetable Pvt. LTD (MDFVL) and established by the National Dairy Development Board in 1986. Its supply chain covers 16 states, about 50,000 farmers and over 200 farmer associations. It has a Central Distribution facility (CDF) for handling 200 tonnes of Fruit and Vegetable (F&V) everyday. The Safal, was established to market fresh, frozen and processed vegetables and fruits locally and in the export market with the noble objective of facilitating a direct link between fruit and vegetable growers with the consumers.

These kind of interventions are important in protecting the interests of the growers in general and that of small holders in particular. The transparent pricing system coupled with a fair weighing mechanism as well as timely and regular payment are some of the reasons farmers sell their produce to SAFAL. Training to smallholders further help them practice good agricultural practices leading to better quality, higher yield and better price. Participants also had a feel to visit one of the retail shops of SAFAL where they appreciated how organized their retail shops are designed.

Barefoot College

Barefoot college is a non-governmental organization that has been providing basic services and solutions to problems in rural communities for more than 40 years, with the objective of making them self-sufficient and sustainable. the college empowers rural women as agents of sustainable change broadly in the following categories; the delivery of solar electrification, clean water provision, education, livelihood development, activism. Barefoot is spread in many other countries apart from India; these include Afghanistan, South Sudan, Malawi, Burundi, Siera Leone, Tanzania and Senegal among others. The Founder Director, Bunker Roy's Inspiration for the college is drawn from a central belief that the knowledge, skills and wisdom found in villages should be used for its development before getting skills from outside. The College since inception has trained more than 6,525 unassuming housewives, mothers & grandmothers, midwives, farmers, daily wage labourers and small shopkeepers, who represent the profile of rural women from poor agricultural communities as Barefoot midwives, hand-pump mechanics, solar engineers, artisans, weavers, balsevika (crèche teachers), parabolic solar cooker engineers, FM radio operators and fabricators, dentist, masons, and day and night school teachers. To improve benefit sharing and penetration through the layers of depravation, women who are single mothers, middle-aged, divorced, physically challenged or illiterate are given priority over others. Barefoot approach is premised on the fact that many rural people walk bare foot and are generally voiceless. Barefoot aims to provide alternative avenues for consciousness, awakening in social, political and economic spheres.

Solar Mamas at Work , Barefoot College, Tilonia, Rajasthan

Participants interacting with trainees at Barefood College

Sayajipura Market Yard, Vadodara, Gujarat

The participants visited Agricultural Produce Market Committee, Vadodara. The market is known for its infrastructure and various initiatives taken to manage waste. The market is having a ripening chamber, cold storage, soil testing lab, fertilizer manufacturing unit and a bio gas plant. The participants were mainly impressed with the waste management. With the help provided by the Gujarat Energy Development Agency (An arm of Gujarat State Government), the APMC has established a self sustaining biogas system. The organic waste from the market is fed into the digester in a ratio of one kilogram of waste and one litre of water. 10kg waste produces $1m^3$ of gas. The plant produces approximately $85m^3$ of gas per day. This amount of gas is enough to prepare food for 300-400 Households per day. The Biogas system requires 3 labourers working 2-3 hours to feed it with waste in two cycles (i.e. morning & evening). Due to limited gas storage capacity, the generator currently runs for only 5 hours; plans are underway to install a gas balloon to increase storage capacity to $100m^3$ and with this new capacity the generator will run for 10 – 15 hours a day. The electricity is used for lighting the streets during business hours (3.30 am to 8.00 am and from 2.30pm). The generator uses biogas of about $30\text{-}40m^3$ /day. The sludge that leaves the biogas unit is dried and used as an ingredient in production of organic fertilizer. Other ingredients added include to the dried sludge include; Azotobacter, Potash, Rock-phosphate and Baggasse. The plant has a capacity of producing 150bags/day. This is a good model that can be replicated effectively in Kenya and Malawi agricultural markets to manage the enormous waste and maintain cleanliness as well as hygiene in these markets.

LESSON LEARNT

Agricultural Produce Markets in Vadodara is well organized in terms of physical market infrastructure and provide auxiliary services which include conferences, soil testing and physical amenities to farmers. They have an elaborate waste management system that converts their waste into compost for sale and Biogas for use to generate power that lights up the market at night. These kind of organized markets are missing in African countries like Kenya, Malawi and Liberia and calls for Infrastructure planning and development both at the national and county levels. The necessary Policy and legal reforms should be put into place to accommodate these developments.

Karnataka Institute of Agricultural Marketing (KIAM)

KIAM was set up by the Karnataka State Agricultural Marketing Board in 1974. The main objectives of the Institute are training of officers in marketing department, NGOs, other state officials. The institution is managed under the state public service and is headed by the principal supported by line departmental heads. The main functions includes training of officers in the marketing department; marketing functionaries including traders, exporters; farmers; officers from other states; collaborate with other institutions such as NIAM and participate in agricultural marketing advocacy. The state level institute is better equipped to train officers serving agricultural marketing on state specific issues. The objective of the visit was to familiarize the officers with state based organizations. The availability of specialized state institutes has contributed to the advancement of marketing agenda, something the both the African countries need to consider as they are nonexistent in both countries.

Grain Market (Mandi) in Jaipur Rajasthan

The APMC is run by a committee having representation of farmers, traders, commission agents, local body labour and government nominee to have a balanced structure safeguarding the interest of all the stakeholders.

The trainees during the visit were exposed not only to the organisation and operation of market but also got exposed to the kind of physical market and infrastructure available in a wholesale market in India. The market is having infrastructure like shops, auction platform, market information system and other basis facilities required by various stakeholders. It was arrival time of groundnut in market , trainees could see the arrival, the system of gathering market information, auction of groundnut. They also interacted with farmers, traders and market Secretary.

International Horticulture Innovation & Training Centre (IHITC) Jaipur Rajasthan

International Horticultural Innovation Training centre (IHITC) was established in 1958 with its headquartered in Jaipur under the guidance of a Netherland organization PTC International. This institute was identified by NIAM for participants to visit and familiarize with its operation so that good practices can be replicated in their countries of origin. The trainees were exposed to various demonstration plots and technology stations. Some of the station includes flower packaging, grading machines, ripening chambers, fruit packing machine, solar panels and other like green houses, shade nets and store.

Brij Honey Laboratory

The field visit to Brij Honey Laboratory, Bharatpur was performed with the objective to understand the collection and procurement of raw honey, to learn about the processing of honey and honey products in India, to study the marketing channels and players involved in the honey value chain, to appreciate the equipments and machinery used in the honey value chain and To understand the challenges faced in honey production and marketing.

Honey Processing at Brij Honey

The factory receives crude honey in 20kg plastic jerrican containers at a moisture content of 22-25.5%. On reception, the moisture content of the honey is reduced to 18-18.5% by melting it using a crystallizer at a temperature range of 40-45^{0}c. The melted raw honey is sieved and then processed for local and export market. Honey destined to the local market is manufactured into 16 different products presented in several different packages. The participants were of the opinion that there exists huge business potential in the honey processing and thus need to promote investment in large honey processing like brij honey. There is need to promote supplementary enterprise in Africa also so that the income of farmers mainly small holders may be enhanced.

Post Graduate Institute of Veterinary Education and Research (PGIVER)

University of Rajasthan, Post Graduate Institute of Veterinary Education and Research (PGIVER) is involved in academic, research and extension activities in 3 disciplines viz animal Nutrition, Microbiology and Livestock Production & Management. It has state of the art laboratory for analysis

of various pollutants and adulterants in milk employing recent biotechnology tools, with technologies capable of monitoring various adulterants and environmental pollutants. In the department of Livestock Production and Management, various technologies are demonstrated to farmers for adoption such as Urea molasses mineral block and complete feed block formulation; Roughage and concentrate mixture in the ratio 60:40 are pressed in a block of desired shape and weight. The trainees also saw Emu farming. PGIVER is showcasing Emu farming as a support activity to income generation for youth. PGIVER also has developed fodder cultivation under Hydroponic.

The research and development activities of PGIVER impressed upon the participants that Livestock and poultry sector needs innovations and research in food safety and testing, development of low cost feeds, livelihood options, capacity building of farmers and youth.

Visit to Morarka Organic Foundation

Delegates adding Vermicompost to Rose plants- initiating Organic Agriculture at NIAM

Morarka Foundation has ventured into areas such as Organic Farming and Certifications, Agriculture Extension, Tourism Promotion, Waste Management, Vermi Compost, Conservation of Heritage etc. The Foundation employs more than 400 full-time workers including over 40 professionally qualified post graduates, over 70 graduates and large number of well trained extension workers in Agriculture Biotechnology and Organic agriculture and provides Vermiculture know-how to over 300 Agripreneurs every year in India. It produces over 50, 000 M.T of Vermicasting every month and has over 1 Lac hectare land under Certified Organic Cultivation. It has involved nearly 70,000 farmers to join its organic agriculture activities in Rajasthan. On visit to Morarka foundation, the participants interacted with the officers of the organization and got an overview of organic cultivation, organic crop protection methods. They also understood the system of certification. The special focus was on Veerbala Project of

> The Veer Bala project, which began in 2009, was conceptualised with the twin objective of spreading the word on organic farming as well as empowering local women. Under the programme, women are trained in organic farming practices and basic computers to help them earn a living

Moraraka Foundation by which they have empowered women entrepreneurs to run a farmer service centre and to become organic experts. Presently there are 14 Veer Balas, they reach out to 2,015 farmers. First, they interact with them to gather crop data, getting information like the area of farming land, fertiliser used before sowing, seeds and their treatment, irrigation and estimated yields. Later, they also transfer technology about organic inputs and solve problems related to pests and diseases. While the cost of telephony is borne by the foundation, the women, in turn, are paid Rs. 5 for every call they make. The participants aalso visited the factory and retail outlet of Down to Earth. Morarka Organic distributes its products in the retail segment under the brand name of Down to Earth. All Down to Earth products undergo the strictest quality standard checks and are certified by the most stringent certification agencies in the world. Down To Earth is certified by OneCert Asia Agri. Certification Pvt. Ltd. (a subsidiary of One Cert Inc. USA) as per NOP (USDA), NPOP (Government of India) and EU Standards for Organic Certification

LUPIN Human Welfare & Research Foundation

A field visit to **LUPIN Human Welfare & Research Foundation** was undertaken during the programme to expose the participants to the approaches being used the organization to provide supplementary income for Integrated Rural Development.

Key Observations

The participants took an overview of an Integrated Child Development Scheme that covers nutrition for mother and child, Baby day care, Early Childhood Education, Dairy Unit, Self Help Group, Microfinance, Energy conservation (biogas and briquettes from buffalo dung), Vegetable farming, On farm feed formulation and Honey Processing Unit. There was a lot of learning on the functioning of these self help groups and how their activities are managed by the farmers themselves especially on milk collection, milk quality control and transportation to the processors. There were also visits to a youth run marble handicrafts business, a vermin compost business enterprise and an open day at the Directorate of Rapeseed-Mustard Research which is mandated to carry out applied research in mustard

Lessons Learnt and Recommendations

This trip exposed the participants to organic farming, integrated dairy farming, milk marketing, youth empowerment and integrated rural programmes for the poor. The governments of the participating countries may learn from these projects and upscale the free primary education by

starting free early childhood education and nutrition for the poor at the County government level. A key component observed in all these projects was the high level of support from the government in form of subsidies and provision of extension support services. From the research body visited it was learnt that there is need for our agricultural research agencies to improve on the methods they use to disseminate their research findings to farmers; needless to say the government should increase the funding for research

Banasthali University (KrishiVigyan Kendra)

Banasthali University (Krishi Vigyan Kendra) offers programs at school, undergraduate, postgraduate and doctorate level exclusively to women while undertaking teaching, training, research and extension as well as offer vocational training in agriculture and allied sectors through Krishi Vigyan Kendra.

Observations and lessons learnt

The KVK is a grass root level institute of the Indian Council of Agricultural Research (ICAR), New Delhi and Banasthali University. It receives 100 percent grant from ICAR for infrastructural developments and execution of programmes. The beneficiaries are practicing farmers, farm women, rural youths and functionaries of development departments and voluntary organizations. Empowerment of rural women receives priority in its programmes. The activities of KVK include; vocational trainings for farmers, farm women and school dropouts in agriculture and allied subjects based on felt needs, resources and farming systems, On farm testing of the released technologies in agriculture and allied subjects, front line demonstrations of various crops to generate production data and feedback, training to extension functionaries of the line departments/voluntary organizations connected with departmental activities and farm advisory work and other extension activities. KVK has major infrastructure facilities including a well developed demonstration cum research farm, modest livestock unit, unit to demonstrate recycling of farm waste for promoting organic farming, Home science laboratory for fruit and vegetable preservation training and fully fledged soil and water testing lab.

Recommendations

There is need to encourage short-term practical courses for the farmers and with specific focus on Women and youth to acquire more knowledge and skills to foster agricultural productivity.

Punjab Agricultural University

Punjab Agricultural University integrates teaching, research and extension programmes and committed to undertaking basic, applied and adaptive research to seek appropriate solutions to emerging problems in agriculture and develop relevant technologies while developing an effective mechanism for the transfer of technology to the farmers and agricultural organizations through different extension programmes. Some of the landmark technologies by PAU include: Crop Production, Standardized net-house cultivation of vegetables (capsicum, brinjal, tomato, cucumber) and fruit (papaya), wheat rust management and insect resistant management strategies, integrated pest management and insect resistance management techniques and technologies in cotton, sugarcane and maize.

In Food Processing they teach farmers how to make instant porridge, gluten free milk, low cost food to meet nutritional requirements and flat bread using maize and sorghum etc. The farmers are only charged a small fee. **College of Fisheries** mainly concentrates in carps, catfish and ornamental fish and various research activities. They conduct trainings for the local farmers on post harvest handling and value addition of fish to enable them attract better prices in the market. **Poultry Unit** keeps both hens and quails, with the later being reared for meat only. Their main objective is genetic improvement/multiplication of the eggs and poultry breed improvement.

The Directorate of Extension Education is instrumental in dissemination of new technologies to the farmers through its various extension hubs located on the main campus as well as at different districts of the state. PAU reaches out to farmers through training programmes for young farmers and farm women, demonstrations, field days, farmers' fairs, contact with farmers and farm literature. New methods such as touch screen information booth (kiosk), e-mail etc are also used in the directorate for the rapid transfer of improved agriculture knowledge to the farming community.

CIPHET

Central Institute of Post Harvest Engineering and Technology (CIPHET) carries out multi-sectoral research which focuses on value addition of agricultural produces and management of post harvest losses. It has four divisions including technology transfer division. Farmers with ideas are also incubated and their ideas developed further and helped with patenting their innovations. The institute has 30 patents to its name and 25 processing equipments.

National Dairy Research Institute (NDRI)

This is the main dairy research institute in India, funded by the central government to conduct various researches on improving the milk yield and semen production for the country's demand. It prides itself as having successfully cloned the first buffalo in the world. It has an automated milking machine which captures information on a cow being milked automatically and makes milking the animals easier with no contamination as there is no manual handling of the milk from milking to the processing plants.

Recommendations

The government should consider establishment of purely agricultural universities which can then focus primarily on agriculture related needs of the specific counties and country. It should also increase its funds in research including investing in post harvest management to come up with technologies to help minimize post harvest losses and value addition to their produce. These technologies should be made affordable to the farmers by giving subsidies to make them easily accessible to the poor farmers.

Universities and research institutes should focus their research more on the problems farmers are experiencing in production as well as post harvesting rather than on publications in journals. This way the production of the farms will increase thereby tackling the challenges facing food security in the country. The government should also consider giving subsidies to the farmers for the purchase of the automated milking machines, hence minimizing milk losses due to contamination from manual handling. Dissemination of research findings from universities and research institutes to farmers through an organized extension linkage should be adopted and strengthened. The government can achieve this through increased budgetary allocation for to enable workshops and exhibitions for farmers and researchers to interact.

Shree Shubam Logistics limited (SSLL)

The participants were taken to SHREE SHUBHAM LOGISTICS LIMITED (SSLL) WAREHOUSE to expose them to the operations of private warehousing and the role of public Private Partnerships in the running of warehouses. Shree Shubham Logistics Limited (SSLL) is a private organization that provides services encompassing storage and preservation with a chain of dry storage units, weighing, Testing and Certification (grading and sorting facilities for standardization of agricultural produce), collateral management for commodity financing against warehouse receipts/stocks with the help of Banks, fumigation and pest management, commodity procurement. The company entered into a Memorandum of Understanding (MOU) with Rajasthan State Warehousing Corporation (RSWC) to provide various facilities/services to farmers, traders, processors and various commodity market participants and is the largest private warehouse in the world with a capacity of 16 Million metric tons. It is the largest private warehouse in the world with a capacity of 16M metric tones that utilizes warehouse receipt system to facilitate farmers' access to credit and carries out scientific quality analysis of produce stored in the warehouse thus generates income from charges made depending on the value of produce placed in the warehouse.

Lesson Learnt
There is immediate need to strengthen the existing warehousing structures and the system followed to manage them with proper and clear policies and guidelines put in place.

7. FEEDBACK OF THE PARTICIPANTS

The change in agriculture, economy and the trade environment globally creates opportunities as well as the challenges mainly for the smallholders. It is important to equip the system properly so that the small farmers may be educated properly on the new emerging requirements in terms of quantity and quality and may easily be linked to the international market. Taking this into consideration, a programme based on innovative method of learning was developed for the participants from Africa to make them not only develop adequate conceptual base about various issues related to agricultural marketing, food security and management, but also to be able to implement them in the field.

Though, the methodology of the programme to deliver knowledge was developed based on thorough research in terms of literature review, need of participates, interaction with various stakeholders, etc. An attempt has been made to obtain the feedback of the participants of the methodology adopted and to assess the degree of success achieved. This is purely based on the perception of the participants, though an attempt in the later section of the report has also been made to record the impact in terms of successful implementation of action plans and emergence of success stories based on the learning of the programme.

The general feedback of the participants on various components of the programme is presented in Table 2. The table reveals that the participants were in complete agreement in all the cases considered except sufficient availability of time for classes as suggested by 17 percent of the participants. Feedback on the components of the programme like objectives, participation and interaction, content being wide and presented in user friendly manner, selection of experts for delivery of interaction, quality and relevance of the reading material, etc, the participants were found to be fully satisfied.

The feedback of the participants on the various module covered in relation to their need was also analyzed and the results are presented in Table 2.

Table 2. Feedback on various module included in the programme (percent)

Component	Strongly Agree	Agree	Disagree
The objective of the training were clearly defined	90	10	0
Participation and interaction were encouraged	73	27	0
The topics covered were relevant	63	37	0
The content was user friendly	47	53	0
The material distributed were helpful	70	27	0
The training experience will be useful in my work	97	3	0
The resources of high quality	83	17	0
The trainers were well prepared	50	50	0
The training objectives were met	63	33	3
The time allotted for the training was sufficient	37	47	17
The classroom and other facilities were adequate	57	40	3

On time allotted on the training, the duration of class was 90 minutes and each module was given 8-10 classes. The session on international business, input marketing, supply chain, market information, etc were found to be insufficient and hence there was a requirement to have more classes on these modules.

The feedback of the participants was also obtained on the different subject covered during the programme on agricultural marketing management. The observation was recorded under three categories namely necessary, not necessary but found interesting and not necessary at all. The results are presented in the Table 3. The table reveals that all the courses covered under the programme were either found necessary or interesting by all the members. A few courses that participants found interesting but were not sure about their utility for them in near future as per their present work profile were courses like computer application, food safety quality and international trade, procurement, agricultural finance and food and nutritional security and livestock marketing. As mentioned in the start of the report that more than two-third participants were from agriculture, agribusiness and extension background and therefore probably could not relate to subjects like

marketing of livestock product. Computer application was included in the programme for skill development considering the heterogeneous nature of the participants. On the other hand participants from training institute, private and other development agencies may have found inability to connect to subjects like procurement management, food and nutritional security, etc.

Table 3. Usefulness of courses covered during the programme (percent)

Component	Necessary	Not necessary but found interesting	Not necessary at all
Agricultural marketing management	100	0	0
Computer and internet skill	73	27	0
Marketing of livestock	90	10	0
Supply chain management	100	0	0
Agri input marketing	100	0	0
Post Harvest Management	97	3	0
Food safety and quality	90	10	0
Procurement management	87	13	0
Market Information System	100	0	0
Food and nutritional security	93	7	0
Agri finance and risk management	90	10	0
International trade	77	23	0
Action Plan Preparation	100	0	0

Unlike the traditional classroom lectures, an innovative methodology was adopted for transfer of knowledge. It consisted of group exercise, case study discussion, field visits, interaction with officers and faculty, group presentation, local visit to offices and organizations and exposure to technology in addition to classroom interaction with the experts. The observations of participants on different tool adopted for transfer of knowledge during the programme are presented in Table 4. The table suggests that group based components like group exercise, case study discussion and group presentations were found to be more relevant and adequate. The participants opined the need for investing more time on

components like field visit and exposure to technology having practical field level implications to make the programme more fruitful and result oriented.

Table 4. Methodology adopted during the programme (percent)

Component	Adequate	Inadequate
Group exercise	100	0
Case study discussion	93	7
Field visits	77	23
Interaction with officers and faculty	83	17
Group presentation	93	7
Local visit to offices and organizations	80	20
Exposure to technology	67	33

The feedback of the delegates was also examined on the overall design of the programme was also assessed. The results are depicted in Table 5. The table shows that all the components of the programme were rated either excellent or good by the participants. The components rated highly by the delegates are subject coverage, group task, selection of resource person and the reading material provided during the programme.

Table 5. Component-wise overall design of the programme (percent)

Component	Excellent	Good	Average
Subject coverage	80	20	0
Conceptual framework	60	40	0
Orientation to practical	57	43	0
Participation and group task	73	27	0
Relevance of resource person	77	23	0
Reading material and presentation	70	30	0

Some other observations of the participants from the programme are as summarized below:

(i) The objective of the training was covered and module were found to be relevant with lots of field application

(ii) Field visits and interaction with the producer-farmers were found to be interesting and educating by the participants

(iii) The participatory nature of the training programme help in quick learning

(iv) The good level of interaction between the trainees and the trainers

(v) The field visits arrangements in relation to the topics covered in the classroom were very effective

(vi) The right selection of trainers was one of the highlight of the programmes

(vii) The component of field visit linking class room interaction to practical learning was well appreciated

(viii) The learning will help in delivering the services more efficiently back home in their respective areas of work

(ix) The programme orientation will lead to incorporation of vital marketing component of all the extensions plan being implemented by the government

As suggested above, the programme was rated very high by the participants. They had a few suggestions to improve the quality and impact of this kind of designed developed for the development of agriculture in African continent. A few worth mentioning are as listed below:

(i) The duration of programme to be increased to six month so that all the module may be covered with balance between theory and practical exposure

(ii) The time distribution was found to be skewed by some of the participants in favour of some module and suggested to have a balanced approach with equal time invested on all the module

(iii) Some more time for relaxing activities like entertainment, sports, exercise, etc as an integral part of the programme

(iv) Since many of the officers are having reasonable experience are already aware about the basic theory and therefore more time should be devoted on field visits

(v) More focus should be given on learning on problem solutions

VISIT OF HIGH COMMISSIONER OF MALAWI

The High Commissioner of Malawi being welcomed by Shri Harry Gioche Mwangi

"I will be the last person to remind you the Importance of Agriculture to the Africa"

On the occasion of graduation Ceremony on 18th October 2013 at CCS NIAM, Ambassador Powell said, "The successful completion of this training program is a concrete example of the growing relationship between India and Africa and the emerging peer-to-peer relationship between India and the U.S. in addressing global food insecurity. Under the U.S.-India Strategic Dialogue, our governments have agreed to work together to develop, test, and replicate technologies to extend food security in India that can also benefit Africa. The India-U.S.-Africa Triangular Training program is a key step toward that goal."

Ambassador of US addressing the Participants

As part of the broader US-India global partnership, the triangular engagement will share proven innovations from India's private and public sector to address food insecurity, malnutrition, and poverty in the target African countries.

Mr Bahiru Duguma, Director, USAID Food Security Office

HE of Malawi and HE of Kenya at Ingural Function of the programme

" The officers trained at NIAM are expected to take a leadership role in Kenya and Malawi by applying the successful models of India in Reforma and co-operative"

HE Dr Perks Ligoya, High Commissioner of Malawi

8. SUCCESS STORIES

The knowledge gained by the participants during the programmes help them in translating their work into many success stories. An attempt has been made under this section to document selected success stories on the basis of following criteria:

(a) Impact on vast array of stakeholder
(b) Innovative and freshness of idea
(c) Potential for replication
(d) Scope for scalability

1. Graduate Farmer Incubation Program

Work Plan Implementer: *Andrew Chamanza, Senior Agribusiness Manager, MOA, Lilongwe and Warren Hastings, ACADES, Lilongwe*

Background

Associated Centre for Agro-based Development and Entrepreneurship Support (ACADES) in consultation with National Institute of Agriculture Marketing, Jaipur, Ministry of Agriculture Water and Irrigation Development and Lilongwe University of Agriculture and Natural Resources developed the Graduate Farmer Incubation Program which aims at increasing the involvement of young agricultural professionals in commercial agriculture production. The program was thus designed to create a platform where young graduates will be challenged to be more actively involved in agribusiness as a career.

The Program will initially select at least 20 agriculture graduates with interest and demonstrated passion in agribusiness. The selected young agriculture professionals will be allocated 40 hectares of land (0.5 to 2 hectares each) to carry out systematic commercial irrigation agriculture in an incubation setup. The Ministry of Agriculture Water and Irrigation Development through the Green Belt Initiative has already offered 50 hectares of land to be used for the implementation of this program.

The selected clients will also be offered a loan (irrigation equipment loan and startup capital) and will be supported with on-going advisory services. These young professionals will therefore be supported to carry out collective and systematic production at the incubation site for a period of two years within which they will be expected to repay the loan. After two years these clients will be phased out and another cohort of young agriculture professionals will be brought to the site and will also be supported to carry out production at the site for another period of two years and the program will continue to be rolled in that circle.

Goal

The main goal of the Graduate Farmer Incubation Program is to increase commercial agriculture productivity for import substitution and export markets

Objectives

- To increase the participation of young agriculture graduates in agribusiness
- To facilitate access to agribusiness skills for young agriculture graduates
- To facilitate access to agribusiness startup capital for young agriculture graduates

Program strategy

In order to achieve the aforementioned objectives, the program will use a consortium-based Graduate Farmer Incubation Centre. The program will bring together the resources of key agencies that are working in agribusiness into a common pool under the Graduate Farmer Incubation Program. It is thus envisaged that with shared capacity among stakeholders, the program will be much more responsive to the agribusiness services needs of young agriculture professionals.

The Program will support and work with youthful graduates considering that they are technically apt to successfully carry out various activities within the agriculture value chains (such as agribusiness planning, management, marketing) than smallholder farmers. The Graduate Farmer Incubation Centre will as much as possible provide solutions to challenges that hinders the involvement of agriculture professionals in agribusiness. The centre will thus provide a platform where young agriculture professionals will be challenged to be more actively involved in agribusiness.

Implementation Methodology

The Program will initially select 20 agriculture graduates with interest and demonstrated passion in agribusiness. The selected young agriculture professionals will be allocated 40 hectares of land (between 0.5 to 2 hectares each) to collectively carry out systematic irrigation agricultural production in an incubation setup. The Ministry of Agriculture Water and Irrigation Development through the Green Belt Initiative has already offered 50 hectares of land to be used

Program beneficiaries

The primary beneficiaries of the program are the young graduates from various agricultural institutions in Malawi. The program will work towards supporting young agriculture graduates so that they become

productive and financially independent through the successful establishment of growth oriented agribusiness ventures. These young professionals will benefit from a two year incubation training and the agribusiness startup loan (Irrigation Kit and Capital). The secondary beneficiaries include unemployed people who will secure employment opportunities either directly or indirectly through this program.

Current Program Partners

The partners of the Graduate Farmer Incubation Program will be responsible for the provision of financial, technical and material support towards the management of the Graduate Farmer Incubation Program. The current stakeholders of the Graduate Farmer Incubation Program are;

- Associated Centre for Agro-based Development and Entrepreneurship Support
- CCS National Institute of Agriculture Marketing, Jaipur
- Ministry of Agriculture, Irrigation and Water Development, Lilongwe
- Lilongwe University of Agriculture and Natural Resources

2. Rabbit meat marketing for small farmers

***Work Plan Implementer**: Ann Jacklyne, Kungu, Kaimbu, Kenya*

Kaimbu county of Kenya has found a profitable way to support livelihood by value addition to rabbit meat. Rabbit rearing has been practiced in Kaimbu for sometime The rabbits are sold as pets, for breeding and for meat. A rabbit replicates with an average of 3 to 4 times a year with an average of 9 young ones in a year Rabbit breeding has become a livelihood support activity in Kaimbu.

Rabbit Breeder, Kaimbu County

The live animals do not fetch good price. A service doe sells for Kenya Shilling 5,000

while a weaning bunny sells for Kenya shilling 2,000. With this price rabbit breeders were only making a break even. The issue of marketing remained a big challenge for small farmers of Kaimbu.The rabbit breeders undergo a training on value addition in rabbit meat which was provided by Jomo Kenyetta University, Nairobi.

The real change in came in the approach of marketing of rabbit when Ann Jackylene, County Director (Agriculture) geared up to provide training to youth and farmer goup and women of Kaimbu county on preparation and cooking of rabbit meat.

Ann Jackylene came to India as a trainee in US-India- Africa trilateral training programme on Agricultural marketing. National Institute of Agricultural marketing (NIAM) had provided her training on marketing, value addition, strategies, group marketing , market led extension, use of ICT for marketing etc. As a County Director of Agriculture she was in a lead position to bring a difference. Equipped with knowledge and experience she was determined to take up the challenge of marketing and lead Youth and women groups to enhance income through value addition. The youth of Kaimbu now know to prepare sausages, samosas out of Rabbit meat. Rabbit meat is the best white meat rich in Iron and Zinc with low fat content. The snacks of rabbit meat have become very popular with urbanites.

Ann Jackylene, County Director (Agriculture) with Joseph Kamani of Kipayo Rabbit breeder

For Josphat Kamani, age 22, life has been good ever since he got training from Extension officers of County. He learnt to add value on rabbit meat and has made a successful agri venture. Josphat started Kipayo Rabbit Breeder with one Rabbit and today he has become a successful rabbit breeder. He now sells rabbit meat snacks and samosas every evening and is enthusiastic to sell in other Districts. He sells 100 samosas everyday fo Kenya Sh 3000.To make 100 samosa it requires 2 Kg of meat, 1 kg onion, I kg oil for frying, 1 kg of flour The cost of material for preparing 100 samosa is SH 1300 ,cost of labour and transportation is KSh 200. The total cost of production is KSh 1500. (I Kenya Shilling equals 0.69 Rupee).He make a 100% profit on this venture. Kipayo Rabbit breeders gets prior order for serving samosas in parties and are getting popular in their town.

Rabbit breeding has been growing with leaps and bounds. Looking at this trend the farmers of mobilised each other and formed the Rabbit Breeders Association of Kenya (RABAK). Their goal was to empower communities with health and wealth. By 2005, the association had registered more than 3000 rabbit farmers from different parts of the country. The association also provides breeding stock to upcoming rabbit keepers.

The Kenya government believed in the initiative and partnered with the association by offering an office, which is hosted at Thika District Commissioner's office.

A visit to Kaimbu and Theka with Ann Jackylene provided an opportunity to interact with enthusiastic Rabbit Breeder Association of Kenya and Kipayo Rabbit breeders.

The training by USAID- NIAM provided an inspiration to make an action plan to bring to bring value addition in rabbit meat and encourage youth entrepreneurship so as to enhance livelihood options of farmers of my country.

However issue of food safety, quality, certification, branding remains a big challenge to be addressed by the local youth and association. They have to gear up to invest is cool chain infrastructure to maintain food safety standards.

Team from National Institute of Agricultural Marketing, Jaipur visited Kaimbu to meet County Director and Youth who have taken up this venture.

3. Sustainable Food and Seeds Project In Liberia

Work Plan Implementer*: Late Ben K Saye and Nora Bendu,* County Agriculture Coordinator of River Cess County *Liberia*

On July 21st 2013, a team of delegates left Liberia headed for India for training in "Agricultural Marketing Management." The District Agriculture Officer, Nimba Mr. Ben K. Saye was among the eleven delegates who attended the training.

At the conclusion of the training program on October 15th,2013, a Proposed Action Plan was drafted by Mr. Ben K. Saye; District Agriculture Officer of Saclepea Mah District and Ms Nora Bendu Kemokai; County Agriculture Coordinator of River Cess County. This comprehensive action plan was aimed at working with poor rural farmers to help them secure their future in terms of food and income security through innovative contract farming practices.

Sustainable Seeds and Food Project: As an outcome of the comprehensive action plan, a town hall meeting was organized in Saclepea City, Nimba County explaining the new farming methodology to farmers and the concept was embrace by small holder farmers.

Consequently, on January 28, 2014, members of Sustainable Seeds and Food Project thought it necessary to organize into a local nongovernmental organization with acclaim aim of implementing the new agriculture concept acquire from India by the District Agriculture Officer**,** Saclepea Mah District, and Nimba County. Consequently Sustainable seeds and Food project was formed as an NGO.

Sustainable Food and Seeds Project is a Non-governmental agricultural base organization established to promote sustainable development through improved agricultural practices among rural farmers in Liberia. The mission is to promote sustainable development initiatives through community empowerment programs and partnering with like-minded organizations to serve humanity and promote human dignity at all levels.

SFSP long time goal is to build communities capacity to secure their own food, and income at household level with main focuses on sustainable improvement of livelihoods of small scale farmers through sustainable agriculture and contract farming.

Financial Support: Sustainable Food and Seeds Project (SFSP) operates on donations from sister organizations/ implementing partners, self initiative program and financial contributions from individuals who subscribe to its Mission, Vision & programs objectives.

Project Operational Locations:SFSP is currently implementing project in the below 17 administrative Districts of Liberia; Weegbeyi Mah, Leewehpea, Mehnpea Mah, Bain Garr, Sehgeoa, Yarpeh Mah, Yarmehn, Zogbao, Buuyao, Gbor, Mehnsonnoh, Yarwin, Doe, Gbi, Boe & Quilla, Gbeh, and Twah River. However, SFSP hopes to extend it services to other part of Liberia when imminent needs assessments are made.

Women growing Corn

Keys Highlights:

- Sustainable Food and Seeds Project has been legally incorporated with the government of Liberia, and formally launch.

- 105 smallholder farmers have been trained in vegetable production in Twah River and Leewehpea administrative districts.
- Stainable Food and Seeds Projects have signed a memorandum of understanding with the United Liberia Inland church Men department to give technical support and training to United Liberia Inland church farmers.
- Sustainable Food and Seeds Projects (SFSP) is presently conducting a baseline survey to examine the consequences of the Ebola epidemic on smallholder farmers in the seventeen (17) administrative districts in Nimba County.
- SFSP small holders farmers are engaged in corn farming across Leewepeh Districts in Nimba.
- Sustainable Food and Seeds Project is currently providing training and technical services to Saclepea Mah United Commercial Farmers Cooperative Society and Daydeah Farmers Cooperative Society

Preparation of Swamp for Paddy Sowing

- Sustainable Food and Seeds Projects (SFSP) have distributed corn and cowpea seeds to the nine region of United Liberia Inland church

Challenges:

The following are challenges that confront Sustainable Food and Seeds Projects contract farming methodology:

- Luring small holder farmers from the concept of small scale farming to adapt the new method of contract farming
- Donor fatigue during the project implementation phase to drive the contract farming methodology toward sustainability.
- Poor road net work in project operational locations may hinder the transportation of harvest to markets.
- Limited access of storage facilities in project communities may lead to post harvest lost.
- Unavailability of farming implements such as: tractors, power tillers and water pump machines for large scale commercial food production.

Conclusion

Since the introduction of contract farming concept in the 17 Administrative Districts listed in this report, Sustainable Food and Seeds Project (SFSP), small holder's farmers and cooperatives across the 17 administrative districts in Nimba continue to shown great enthusiasm in adapting the concept.

Impact of Ebola Outbreak on Market Assembly in Liberia
The Ebola epidemic outbreak in Liberia and particularly in Nimba precipitated the imposition of stringent suspension of market assembly and group farming was discouraged for three months.
Market assembly in Nimba is a major livelihood conduit for rural farmers residing in the 17 Administrative Districts, Weegbeyi Mah, Leewehpea, Mehnpea Mah, Bain Garr, Sehgeoa, Yarpeh Mah, Yarmehn, Zogbao, Buuyao, Gbor, Mehnsonnoh, Yarwin, Doe, Gbi, Boe & Quilla, Gbeh, and Twah River. Market gathering is also a major opportunity used to trade by small holders farmers.
SFSP though its base line suvey is examining the severity of the impact which will help to influence key decisions making for interventions. -
Sustainable Food and Seeds Projects (SFSP is currently involved in mass Ebola sensitization and awareness campaign in the seventeen (17) administrative district in Nimba County; Weegbeyi Mah, Leewehpea, Mehnpea Mah, Bain Garr, Sehgeoa, Yarpeh Mah, Yarmehn, Zogbao, Buuyao, Gbor, Mehnsonnoh, Yarwin, Doe, Gbi, Boe & Quilla, Gbeh, and Twah River. The aim of the campaign is to raise awareness on Ebola prevention among smaller holder farmers -(Late) Ben K Saye

Using contract farming to increase Seed multiplication and improve Food, Nutrition and Income Security for rural poor farmers in Liberia is the vision, mission, and long term goal of SFSP and will require donor support to drive the concept towards sustainability.

4. Permaculture- A Success story of entrepreneurship in Malawi

***Work Plan Implementer**: Matthews Shaba Mpofu, Malawi*

Matthews Shaba Mpofu from Malawi attended the first training programme in July 2013 at NIAM. While undergoing training and learning from experience from India he imbibed the concept of sustainable agriculture for resilient communties. A need for outreaching to communities with a capacity building pogramme, sharing experience on vegetable and herb production was identified as his work plan for Malawi. On reaching back to Malawi Matthews became an entrepreneurs by developing a nursery for plants which are ecologically sustainable. He

registered a facilitating firm providing training, facilitation and consultancy services to interested organizations, as Perm-A- Outreach and started working in January, to train, facilitate and help projects on value addition, medicinal plants and indigenous food crops.

Approaches used to implement the action plan

- Training – capacity building to the communities and other stakeholders
- Facilitation- to strengthen and improving the existing skills and knowledge on the marketing
- Project advise - to help in developing projects on homestead gardens,nursey, value addition and other projects
- Role modeling- to share the evidence based experiences and expertise on vegetable and herbs production using the locally available resources.

❖ Permaculture - holistic designing approaches to create sustainable environment for productive landscapes for building resilient communities living in harmony with nature. The approach is about tool for sustainable designing process for agro-ecology development and livelihoods. Permaculture has inspirational values, ethics and principles for care for earth, people and sharing fairly what is available. It is the interweaving connecting process of ecological elements such as water, soil, plants, animals and energy whilst providing natural abundance.

❖ Tropical Natural medicines and Nutrition–sharing the combination advantages of modern and traditional medicines to support ant treat common ailments and HIV/ AIDS opportunistic diseases using the local tropical healings plants such as Moringa, neem, amaranthus. It promotes basic indigenous skills and knowledge of making common medicines such as herbal teas, medicinal oils, ointments, lotion, soap and other economic activities.

❖ Adding value- to empower targeted communities with basic income generating activities to attain towards self reliance with skills and indigenous knowledge and have access to credit and micro-finance institutions. More emphasis is also made on post- harvest management as 40 per cent of the harvests are lost after the harvest.

Outputs from the delivering tools

- Development of the training manuals for the hosting organisations, for example prison communities, Community Veg Farm project,
- Improved livelihoods for the targeted communities particularly, 21 households participating on the Moyo Mukhonde (Productive homesteads programme)
- Farmers are appreciating the skills, knowledge and experiences shared, especially those interested in horticulture organic farming
- Established informal markets on the vegetables, herbs and spices

Learning experiences from the trainings

- Farmers are growing and producing a lot of harvest but have no access to the market
- Communities have resources to improve their livelihood but are lacking information on adding value and post- harvest management
- Access to better nutritional and food secure is still a challenge
- Participants attending the training expect to be paid
- People have the desire to learn and improve their livelihood
- Communities are very proud to eat what they grow with their own hands

Successes from the trainings

Initiatives to remain active and share the skills and knowledge gained from NIAM

- Mathews managed to secure financial support from Eco- Peace Leadership Centre to provide the capacity training on adding value to the 21 communities on Moyo Mukhonde Program-Homestead Food production program.
- Moyo Mukhonde program Grow bag of vegetables and is producing milk from the soya beans and managed to promote urban food production
- Three months after the training received at NIAM in 2013, Mathews was sharing experiences, skills and ideas with various communities to value what they grow and eat
- Attending the 2015 International trade fair. The products and services display at the trade fair and had very good number of visitors.

The way forward for continue implementation

- To establish the administrative office with qualified and capable personnel
- To improve the existing informal vegetables (dried), herbs and spices markets
- To develop partnership with like- minded organization for the demonstration centre

- ❖ To continue sharing the experiences, skills and knowledge through trainings and facilitation
- ❖ To create documentary inventory for records, references, reports, data and publishing

Recommendations

- ❖ There is need to develop more links and networking for technical and material handy support
- ❖ The initiative to have communities and farmers projects linked to markets
- ❖ Continuation of the monitoring and evaluation through reports and visits to assess the progress
- ❖ There is need for reliable source funds

The follow up visit by the NIAM team to International trade fair, for monitoring and guidance have been very inspiring and adding value to the training program. The arrangement has also been encouraging because it reminds us , specifically me, for having the training investments and the communities should learn the gained skills and knowledge and appreciate the benefits in transforming their livelihoods.

Matthews Shaba Mpofu
For Perm-A- Outreach

5. Curriculum Development on agricultural marketing

Work Plan Implementer *: Muthui Thomas (AHITI, Kabete), Samuel Kiminza (AHITI Nyahururu), Gladwell Mwasi (Nairobi County) and Peter Njoroge (DTI Naivasha)*

The Animal Health and Industry Training Institute (AHITI) Kabete. Kenya provides training to middle grade technicians and field extension staff in livestock and related discipline.

Currently the Institute caters to the needs of about 300 trainees taking different animal health and production related course from kenya. The specific course are on Animal health and production, Animal health and range management, range management and animal production.

In USAID- NIAM training programme three faculty members from AHITI and one from Dairy technology Institute (DTI) attended the programme.The work plan to carry out a curriculum review of the various certificate, diploma and short duration training courses offered in the State Department of Livestock with a view to incorporating the lessons and ideas learnt during the USA - India – Africa triangular training

Thomal Muthui, Samuel Kiminza, Gladwell Mawasi, Dorcas Inoti and Peter Njorge have been working jointly on development of new

curriculum being offered at AHITI. The team trained at NIAM has developed Draft diploma curriculum by adding module on agricultural marketing and value addition in:

- Animal Health & Production
- Draft diploma curriculum in Animal Health & Range Management
- Draft diploma curriculum in Leather Technology

ASPECT OF AGRICULTURE MARKETING AND VALUE ADDITION (Incorporated in the curricula)

- Meaning and nature of agricultural marketing;
- Careers in Agricultural marketing
- Market structures
- Special Characteristics of Agricultural products
- Marketing of Agricultural inputs
- Marketing Services and Agricultural Marketing Channels in Kenya
- Middlemen; Agricultural Marketing Institutions; Marketing Boards; Co-operative movement; Producer organizations
- Agricultural Marketing Information Systems (MIS)
- Value Addition and group marketing approaches
- Livestock Value chains Analysis
- International trade; Trading blocs
- Value addition

Chronology of Events towards the New Curricula

- In AHITI-Kabete board meeting of which Muthai Thomas is a Director of Studies, Secretary felt the need for curricula review and a felt that this was the time to incorporate the aspect of agricultural marketing to the curricula so that these trainees become better Kenyans as they graduate. Workshop held at Machakos ATC –This included all the Head of the Deparmentd from the various institutes that were offering the courses. (AHITI-Kabete, AHITI-Nyahururu, AHITI-Ndomba, DTI, MTI). (January 2015)
- Stakeholders meeting held in KARLO-so as to get their views. (February 2015).
- Report to the principal secretary (with training levies for approval), then the curricula brought back to the institutes (March 2015).
- Publicity exercise-This covered the whole country, each institute covered a certain region the publicity was to be done through print media, local radio station, electronic media (emails). (April 2015).
- Admission this year in August 2015-the process is ongoing. So far 300 applications have been received.
- Then 1st selection and the class will started in August 2015.

In conclusion there is a high demand for the courses now that there are new aspects like marketing and value addition. The officers trained at

NIAM were able to proactively participate in curriculum development. They have made a significant contribution by adding component on agricultural marketing for the benefit of the students.

6. Women Empowerment through Social Entrepreneurship Development- *Mchinji-Chioshya EPA*

***Work Plan Implementer**: Stater Mogambo and Thoko Chiwala, Malawi*

Mchinji is a district in the Central Region of Malawi. As. The area's economy is sustained by rain-fed agriculture. Mchinji Boma, located at 12 km from the Zambian Border and 109 km from Lilongwe the Capital City of Malawi, is the major hub of government and general business.

Harvesting rain-fed agriculture is the main occupation in Mchinji, with groundnuts, tobacco, soya and casava beans being the primary cash crops Maize, yams, velvet beans and pumpkin are prominent food crops. During the dry season, secondary activities are pursued, such as brick-making, beer brewing, bicycle repair and carpentry. Due to a food shortage partially caused by the region's many droughts and partially caused by poor government planning, a UNDP rural development program was established in Mchinji. Mchinji is currently the location of a pilot project of a social cash transfer to benefit very poor members of rural areas.

Chishoya Extension Planning Unit was selected for mobilization women groups to improve income by Stater Mogambo and Thoko Chiwala attended the second programme conducted at NIAM in the month of February 2014.

Stater Magombo has been engaged facilitating smallholder agricultural commercialization through; farmer organization development (FOs), agro enterprises market analysis, facilitation of agricultural marketing, promotion of value addition, strengthening commodity value chains and capacity building among frontline staff and the farming community in Mchinji district of Malawi.

Objective of the Action plan

Improve income of women through engagement into income generating activities.

Key outputs:

After getting trained at NIAM and on getting back to work Stater establish a group of 77 women to be engaged in leather tanning and stitching. All women are widows who are negatively impacted by extreme poverty and have a burden to raise their children and care for the sick

within their communities. The group is called Widows for Action. The women group was established with the support of the Church which provides them the facilities to do group activities and training.The group is involved in a number of income generating activities such as bakery, soap making and tannery and shoe making. Besides these activities Widows of Action is also involved in Village Savings and Loans. The group was trained in basic business management concepts. The groups received some funds from Department of Social Welfare which was used to start small businesses among its members.

The Widows for Action were trained on leather tanning, leather tanning, stitching and soap making. The skills were developed to help them to develop income generating activities. Although its a small group but with increase in activities the women group will be able to agglomerate the produce.

The necessity to develop group management and business development was recognized by the work plan implementers. A weekly meeting is done with widows for action to train them and provide knowledge about marketing.

Members of Widows for Action

Way forward: Leather tanning and shoe making has not fully taken shape because of limited start up resources. In addition, there is only one person with the necessary capacity on tannery and no trainings have been done so far. The group is highly recognized in the community for the unique herbal soap it produces. The group also attends different

district functions to showcase their products. Presently the group has lack of knowledge about marketing leather products.

On visit to Chishoya EPA it was found that the stitching thread, needles, cutters are very basic and old. The group needs to be provided with machines to enable them to make leather goods so that they can compete in the market.

The key success point is selection of the Widows who are impacted by poverty due to limited opportunities for income generation and handholding them by building their capacity to produce leather goods and herbal soaps for market. The consistent effort to build capacity and link them to markets is a long term activity but an initial action of consolidating a vulnerable community with the help of church is a step in right direction.

7. Value Chain Development with Namkungwi Farmers and Marketing Copperative Society Limited, the Case of Ntcheu District, Malawi

Work Plan Implementer: *Madalitso Mgombe*

Introduction

In Malawi Ntcheu district is one of the 4 Agricultural Districts under Lilongwe Agricultural Development Division (ADD) and has a total of 159 027 farm families in 7 Extension Planning Areas (EPAs)

The Action Plan developed after completing the Agricultural Marketing Management Programme at NIAM aims at supporting the Namkungwi Cooperative through Business Plan development, Market linkages and Value Chain development among other interventions. The action plan aims at upporting Namkungwi Irish Potato Farmers and Marketing Cooperative Society Limited through Value Chain Development

Irish potato ('potato') is the fourth major food crop in Malawi after maize, cassava, and sweet potato. The NSO 2010 crop estimates of national smallholder production are 775,000mT from 48,700ha. Mzuzu ADD accounts for only 23% of total potato production with Lilongwe ADD, containing the high production areas of Dedza and Ntcheu, producing over 60% of total production

Irish potato farming in Malawian is helping smallholder farmers feed their families and boost their incomes by supplying to local market. But despite increased volumes in the production of the commodity, Malawi's Irish potato farmers are faced with yield wastage and low prices, especially during plentiful harvest seasons due to lack of proper

market structures. There is an understanding of price fluctuations in line with supply and demand amongst the potato producers but no real effort to take advantage of this dynamic. Farmers grade according to size and quality but have very poor storage facilities and aim for a quick sale. Households growing potatoes act on an individual basis with no direct targeting of the market as an informal or formal group.

The National Supply Chain

When potatoes are traded from high production areas such as Dedza and Ntcheu they follow the two/three tier trading system to reach market. The market for these potatoes are consumers in Lilongwe, Blantyre, and Mzuzu as well as other trading centres nationwide where potato production is low. Potatoes are a robust commodity but can degrade if stored incorrectly and their weight requires more resources to transport. Traders of potatoes often specialise in this as opposed to other horticultural traders who may deal in many crops. It is thought that potato traders undertake a degree of grading before supplying to the market.

The Universal Industries Supply Chain

Universal Industries (UIL) are the only commercial processor of potatoes in Malawi. The preference of UIL is to buy directly from smallholders. To work with smallholders UIL requires that they are organised into a formal group and have experience in producing potatoes. UIL give farmers a detailed specification of the produce they require and pay a price of MK90-95 per kg accordingly. Currently smallholders can only supply Universal with a small amount of their 100mT per month demand. The remaining produce is sourced from traders in high production areas.

When UIL buy from traders the flow of market information becomes fragmented and thus they are forced to purchase potatoes that do not meet their quality demands. Traders seemingly do not have the capacity to act as an efficient link between the market and producers in situations that require more than simply transferring volumes of produce. UIL pay traders around MK34-40 per kg for potatoes and buy using their own staff members. When dealing with smallholders UIL foot half of the transport cost. In this way the smallholder begin to move up the value chain in greater co-ordination with the market.

(***Value Chain Analysis: Micro Ventures Market Linkages Project***)

Key Success points:

During implementation of the said Action Plan the Cooperative was incorporated in Public-Private Partnership (PPP) Programme which is

meant for supporting farmer organizations such as Cooperatives and Associations in Malawi. This development has streamlined flow of resources towards meeting the goals outlined in the aforementioned Action Plan.

So far the Cooperative has been appraised on its sustainability and it qualified for the said PPP program support. Furthermore, both the Cooperative members and field frontline Staff were sensitized on the Project. Consequently, a Cooperative Constitution was strengthened and Business Plan development is underway to promote and protect collective marketing. Under this action plan 135 were trained in Management of Collective Marketing, business plan development, linking them with micro loans.

The Cooperative was also linked to Universal Industries (one of the major Irish potato buyers in Malawi) and to Microfinance institution. However, signing of contracts with the aforementioned potato buyer is yet to be finalized for the sake of marketing security.

Acceptability of the Project by the Farmers Cooperative

The farmers have welcomed the Project in that it directly addresses the challenges they have been facing all along as follows.

- Lack of reliable Markets i.e. previously they were heavily exploited by intermediaries
- Lack of knowledge in market research, identification of profitable enterprises and collective marketing management
- Lack of capital owing to limited access to credit institutions
- Postharvest loss because of poor marketing plan and limited value addition

Conclusion

The Project implementation commenced well by training 135 farmers and 5 field staff in collective marketing. It is expected to bring about more impacts as the farmer co-operatives gets strengthened in marketing . Furthermore, the Malawi Government is rendering enough support towards implementation of the Project in the Country, Ntcheu District in particular.

8. Asal-Based Radio Programme

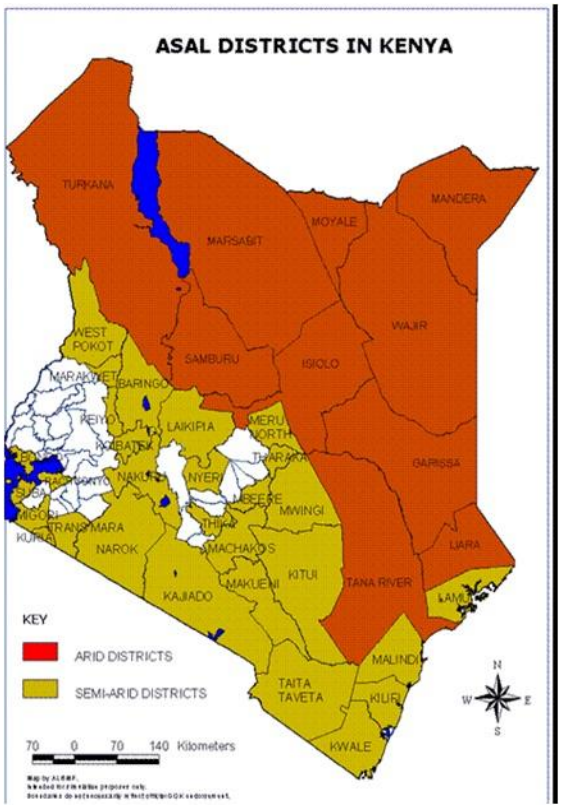
***Work Plan Implementer**: Dorcas Inoti, AHITI, Kabete*

The Arid and Semi-Arid Lands constitute 80% (466,120) square kilometers of the landmass and is unsuitable for rain-fed crop agriculture but is able to support many species and breeds of domestic animals and game.

Approximately 30% of the Kenyan population lives in the ASALs and derive virtually all their livelihood from animal resources.

The ASALs also support the majority of Kenya's National Parks and game reserves such as Tsavo, Maasai Mara, Meru, Samburu and Amboseli and hold game animals outside protected areas.

Livestock contribution to agricultural GDP in Kenya is only slightly less than that of crops and horticulture combined (IGAD LPI).



Livestock population statistics

According to national statistics (2009 census), Kenya has approximately 17 million head of cattle kept in different production systems. About 13.5 million head of cattle kept are beef breeds while the remaining 3.5 million head are dairy breeds together with their crosses (MoLD 2007).

ASAL Characteristics

- Fragile ecosystems exacerbated by climatic shocks
- Rapid population growth with limited alternative livelihood options
- Economic policy environment which neglects Pastoralism
- Conflict and poor governance
- Weak infrastructure with few social services
- Weak regional, national and local institution and donor coordination
- Slow responses to alerts

The ASAL radio programme is funded by FAO. The objective of the programme is improving response and resilience to drought for ASAL livelihoods.

The programme is being steered by Ms Dorcas Inoti, Mr Samuel Kiminza, Ms Gladwell Mawasi. They have developed the content of the programme on the basis of the learnings from NIAM training.

The programme is being implemented in the following 12 counties. Turkana, Samburu, West Pokot, Kajiado, Garissa, Wajir, Mandera, Isiolo, Kitui, Tana river Marsabit and Makueni.

" The marketing components were learnt at NIAM along with how Institutions play a key role motivated me to enrich the curriculum of radio programme. I have been able to successfully make a radio programme and dilver to pastrolists of ASAL" says Dorcas Inoti, AHITI, Kabete, Kenya (2014).

9. Value Addition, Entrepreneurship and Business Development Training Series

***Work Plan Implementer**:* Rashid Mpinganjira, Dowa Agriculture Office Extension Department, Agribusiness Section

Background

Lead farmers are a means that has been identified to help in implementatin of agricultural extension service in Malawi. Lead farmers can champion agricultural innovations as they are in most cases early innovators themselves and indeed change agents. With this back ground lead farmers from Mvera and Chibvala EPAs in Dowa district were brought to a training in Value addition, entrepreneurship and enterprise development. The trainings took place from 16th to 17th at chibvala EPA and 18th to 19th at Mvera Extension planning Area (EPA).

Owing to relevance and lessons from India, an action plan was initiated by Rashid Mpinganjira, an action plan on Value addition, entrepreneurship and business development. The programme envisages bringing awareness and awakening conscious on value addition. Value addition is an area that if well harnessed may help farmers beat most of the problems they face at the market. Value added products fetch premier prices and would help farmers realize higher profits.. As long as farmers continue to sale raw products much will not be achieved and the assertion that farming is a business will be far from being realized.

This action plan thus set out to offer trainings in value addition to willing Farmer Based Organization (FBOs) and lead farmers who will help

champion the same course. The trainings are expected to raise awareness about value addition. The lead farmers are particularly targeted to do away with the problem of high frontline staff vacancy rates in agriculture. The plan also envisages partnering with departments or sections with similar interest such as nutrition, horticulture and crop protection. Realizing that Government Departments and sections are fraught riddled with issues of little or no funding the action envisages to partner with organization which have interest in Value addition and agribusiness in general.

Lead farmers are a means that has been identified to help in implementatin of agricultural extension service in Malawi. Lead farmers can champion agricultural innovations as they are in most cases early innovators themselves and indeed change agents. With this back ground lead farmers from Mvera and Chibvala EPAs in Dowa district were brought to a training in Value addition, entrepreneurship and enterprise development. The trainings took place from 16th to 17th at chibvala EPA and 18th to 19th at Mvera EPA.

Content of the training

The training covered value addition, entreprenuership and enterprise development, On the part of market entrepreneurship the sessions aimed at enabling participants to apprecite how on generates business ideas, where they can acquiire capital and how o do a SWOT analysis before finally venturing into the business. value addition was discussed as a means of improving the economic capacity of raw products. Emphasis was made to increase awareness and awaken conscious on value addition. It was taught that value addition is not all about have implements and machinery. post harvest handlingactivities which falls under Primary value addition which include such activities as grading, packaging, sorting and cleaning were felt to be easily implemented by resource poor farmers yet could help fetch high market value for their goods.. Further agro processing as a means of value addition was discussed. Business management discusssed in depth benchmarking, capital management, profit utilisation, business growth and credit management.

A cross section of the participants in one of the training sessions in Chibvala EPA

A facilitator demonstrating on packaging for value addition

10. Impact Based Farm Business Schools Management in Dedza

Work Plan Implementer: *Joanna Tsabola*

Marketing and farm management have rapidly gained predominance globally over the last two decades. Farm business management skills and knowledge are recognized as important for farmers to effectively respond to the current farming challenges. Farm management advice helps farmers to make right choices between crop as well as livestock enterprises within individual levels of resource endowments such as financial, labour and land, and risk adversity. Farmer Business School as an idea was hatched by FAO in order to try to meet the above challenges and enable farmers take advantage of the emerging opportunities.

Joanna Tsabola,from Dedza attended the programme on Agricultural Marketing at NIAM. From her learning experience, an action plan to suggest an impact based Farm Business School Management was formulated. This management management focuses on contribution of FBS on farmers' livelihood; and this includes increases in yield, farm income and improvements in food security at household level

Background (to FBS)

The concept of Farm Business School (FBS) was developed to build farmer's capacity in entrepreneurial and managerial skills through a "learning by doing" approach. Operating at village level on farmer's own farm, FBS enables farmers to learn and improve their knowledge, change attitudes and enhance skills toward improved farm commercialization. Extension officers and lead farmers are trained as facilitators. They organize seasonal training courses where farmers work in small groups at their own agreed time and duration. The materials for FBS are specially designed to work with limited resources. Participants need to be basically literate and numerate, but they do not have to have had any significant formal education. The manuals developed for training provided step-by-step guidelines that take the facilitator and the farmers through the basics of farm business management, following production patterns of particular farms in an agro-ecological zone or village.

Current Status of FBS in Dedza

Establishment and management of Farm Based Schools

After receiving training of trainers, frontline staffs (extension workers) work hand in hand with a group of farmers who are 10 to 20 in number, training them in Market Oriented Farm Business Planning and Management concept. The training runs for one growing season, after which the members graduate. The graduating farmers serve as lead farmers whereby they are advised and guided to form similar groups of

farmers to establish parallel FBSs in their respective locations while practicing what they learned on their own farms. This means that the first trained farmers help to increase the number of farmers trained in FBS concept in a particular locality.

Achievements

Implementation of FBS in Malawi has been based on achievement of two key indicators, namely (1) number of FBS established, and (2) number of frontline staffs and farmers trained. So far, in five of the ten Extension Planning Areas (EPA) of Dedza District Agriculture Office, 52 FBS have been established in 52 Sections since 2009. A total of 33 frontline staffs and 1030 farmers have so far been trained in the concept of Market Oriented Farm Business Management. Of the trained farmers there have been 165 lead farmers who have managed to establish 165 parallel FBS in their respective farming localities.

Impact Based FBS

Departure from the old school of thought,

Opposed to process based management style, the proposed approach, *Impact Based Farmer Business Schools* aims at ensuring that Farmer Business Schools are results oriented. The new approach recognizes the significance of establishing increased numbers of Farmer Business Schools and registering of more farmers as a precondition for improved farm enterprise management in the country. However, measuring achievement of the FBS through the aforementioned indicators only may not be sufficient. Assessing the effect of participation in FBS and its impact on farmers' livelihoods could be more meaningful to all stakeholders involved with implementation of Farmer Business Schools than otherwise. Thus, instead of measuring success based on number of established schools and the registered farmers, Impact Based FBS Management focuses on contribution of FBS on farmers' livelihood; and this includes increases in yield, farm income and improvements in food security at household level.

Impact indicators,

The short-run outcome of the Impact Based FBS Management is the positive change in farm yield attributable to participation in the FBS. Major impact indicators include changes in food security, income and asset acquisition which can be translated to improved wellbeing.

Activities

In order to find gaps in the existing management of FBS, a field level sample survey will be conducted. Two EPAs, Bembeke and Kanyama have been identified purposively for a comparative study. Institutionally, FBSs in Bembeke EPA are managed by government support through the Ministry of Agriculture while those in Kanyama EPA receive some

technical assistance from Rural Livelihoods and Economic Enhancement Programme (RLEEP) on top of government support.

Data will be collected from the two EPAs. Questionnaires will be administered orally through interviews on farmers participating in FBS on a number of key variables including household demographic and socioeconomic characteristics, farm level significance of FBS to farming and any challenges that farmers face with FBS concept. A randomly selected sample of 50 farm households will be interviewed in each EPA. A control sample of 60% of the FBS participants will also be interviewed in each EPA for comparison. Farmers will also be interviewed through a focus group discussion. Using a checklist, key informant interviews will be conducted with stakeholders involved with FBS and farming in general in the EPAs. The stakeholders will include field level agricultural officers such as Agricultural Extension Development Coordinators (AEDC) and Agricultural Extension Development Officers (AEDO) on the government side, and staff members from private organizations in agriculture sector. The data sets will mainly cover aspects of current status of the FBSs and management system on the ground as well as assessment of success of the FBSs.

After data entry and cleaning, analysis will be done. Interpretation and reporting of the findings will be done. Based on the findings, conclusions will be drawn and recommendations made for a way forward.

Implementation strategies

The above exercise (field survey) will feed into implementation mechanism of the proposed Impact Based FBS Management. As a key attribute of FBS, record keeping will be reemphasized to ensure that farmers have accurate records of all activities on the various farm enterprises.

Field level staff will be guided on impact evaluation of the farm households whose farmers participate in the FBS in relation to those non-FBS farmers. This will be done at the end of the farming cycle (season). Lessons will be drawn and fed into management of the next season.

Monitoring and evaluation

In the new approach, farmers registered with FBS will be assessed on their socioeconomic status, farm management and production levels. At the close of the farming season, they will be reassessed to evaluate the contribution of FBS on their farm yield, income and food security as well as impact on their livelihood.

9. IMPACT AT THE GROUND: OBSERVATIONS MADE DURING VISIT TO AFRICA

An integral part of the international training programme was the development of action plans for implementation in the concerned counties and conduct post training monitoring and evaluation for impact assessment. The section is based on the interactions with the participants, officers, corporate, academicians and other stakeholders. During the interaction, insights were gained into the agribusiness environment and policy framework of Kenya and Malawi. It also brought an understanding that building institutional linkages to deliver the programmes aimed at social welfare are of utmost importance. It also revealed that international trade policies affect the countries macro environment in which there is a play between government initiatives and income level, design of the scheme and food security issue particularly of maize. These countries are in immense need of capacity building in enable them to cope up with the volatility in the international market and at the same time building the capacities to mitigate the risk. The field visits also provided learning on the understanding of the relationship between food, nutrition, market and opportunities for optimizing the state of well being. The section delves on observations gained by interaction and suggestions received from various offices.

Field Visit to Kenya

Source: http:www.feedthefuture.gov

ABOUT KENYA

Kenya has the largest, most diversified economy in East Africa. Agriculture is the backbone of this economy and central to the Government of Kenya's development strategy. In fact, more than 75 percent of Kenyans make some part of their living in agriculture and the sector accounts for more than half of the country's gross domestic product (GDP). Yet agricultural productivity is stagnating while Kenya's population is rapidly growing. This poses critical challenges to food security in the country and two to four million people receive food aid annually. Only about 20 percent of Kenyan land is suitable for farming and maximum yields have not been reached in these areas, leaving considerable potential for increases in productivity. Most farmers work without basic agricultural inputs or updated technology and lack adequate financial or extension services. While the challenges are great, so are the opportunities. With the largest dairy herd in east and southern Africa, Kenya has the potential to meet local demand for dairy and target regional markets. As one of the largest African exporters of fresh produce to Europe, Kenya's horticulture industry can expand local and regional markets. Markets, in turn, can significantly grow through reforms that address policy constraints, irrigation, roads, agricultural inputs, extension, and market access promotion.

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MEETING AT MOA, KILIMO HOUSE, NAIROBI

A meeting was organised with the officials of Ministry of Agriculture on 11th May 2015 to inform about the various components of the programme including the objective of the visit to participating countries. The meeting was chaired by Ms Rebecca M Wahome, Deputy Director of Agriculture and attended by following officers:

1. Mr Harry Mwangi
2. Director Crops
3. Director Livestock
4. Ms Seraphine Atambo
5. Mr Festus Kani
6. Ms Kennedy Anahinga Ogora
7. Mr Francis
8. Ms Monika Muini Director Training
9. Ms Mwangi, Director

At the outset the Deputy Director Agriculture extended welcome to the team members visiting from NIAM and requested to make a presentation on what has so far been done under the programme and the expectations from the visit.

Accordingly, a presentation was made by us covering a brief on NIAM, objective of programme, coverage made during the programme in terms of module, various field visits made, action plan developed and expectation from the visit including way forward.

The chairperson of the meeting appreciated the efforts made by the Institute to enhance the capacity of the officers of the Ministry. The exposure visits given by NIAM to SEWA, AMUL, SAFEL, HOPCOM, NDDB, etc were well appreciated. During the presentation, the officers were also introduced to various marketing models prevailing in India. The HOPCOM model providing complete solutions to farming community from input to retail was appreciated and was found to have potential for replication in Kenya

Considering the potential of dairy sector in Kenya, aggregation model followed in AMUL was discussed and how India can help them in replicating the same in their country. Similarly KVK and KCC models had drawn great interest of the participating officers.

They also appraised on the availability of ICT infrastructure in the country and desired to have Models like Kissan Call Centres and MIS to fulfil the information need of farming community.

Director Training proposed that NIAM should organise a week long benchmarking study tour for senior officers from the Ministry. They would like to see successful models that were discussed during the meeting and to have interaction with key officers from organisations like FCI,NABARD, NDDB, Universities, ICAR, etc

The chairperson informed that the Ministry is undergoing some changes and devolution of counties has taken place due to which the action plans may find some challenges in getting the desired results in stipulated time frame. She also mentioned about the importance of integrating various action plans with the system prevailing in the country.

One of the participants of the programme (Mr David Ombalo) has taken initiative in drafting the warehouse negotiable bill of Kenya on the lines of WDRA-2007 Act. They has informed us that delegation from MOA, Nairobi will be visiting India to understand the Initiative. NIAM can extend an invitation by writing to Additional Secretary (MOA) for visiting NIAM and to showcase warehouse capacity building programmes.

A proposal to have a joint document on the outcome of this programme was also proposed to the Ministry of Agriculture, Nairobi.

It was also emphasised on the importance of such kind of more programme for fulfilling the overall policy objective of the country to make farmers self reliant and country food secure. She also emphasised on more association between the two countries as there is so much to learn from India.

MEETING WITH ADDITIONAL SECRETARY

A meeting was held with the Add. Secretary MoA. She was very appreciative of the efforts of the work that NIAM is doing for their Ministry. She appraised about the MOU between the Ministries of Agriculture of two countries under which exchange of research and development, collaborations on capacity building are envisaged.

An interaction meeting with the various participants was organised. The participants made presentation on the action plan and progress made so far. The progress on different deliverables defined under the action plans was discussed and observations/comments were provided by the team on each action plan. A brief is as provided below:

Action Plan	Team	Progress	Comments
Strengthening of National Livestock MIS	John Abuga, Henry Ngeno, Harry Mwangi and Mary Kitheka	Linked with RPLRP, a world bank project Identified 42 livestock markets (3 from each county) Consultation meeting held Stakeholders meeting from 26-28 May 2015	Profiling of the stakeholder Training module to be shared Initiative to be made comprehensive by providing market intelligence analysis Photographs and clippings of the progress (training/worshop/etc) be share with NIAM
Festus Kani	Women Participation in Indigenous Poultry	Group formation In the process of making more groups Training of 50 members of the SHG Focus on indigenous production Training helping in improving the management of poultry Indicator of high	Linking SHG to market SIRD model was shared Aggregation was suggested followed by branding For enhanced livelihood options are like learning from India's ware foot college to be incorporated in the plan Photographs and

		end market Egg: KS12 (normal) KS25 (indigenous) Birds: KS400 (normal) KS 800 (indigenous)	clippings of the progress (training/worshop/etc) be share with NIAM
Kabui Macharia	Organic Soybean	Identification of agents for certification Agreement with Vantage Organic Foods Ltd, India Meeting with the head of the Fibre Directorate Sensitisation of Sisal farmers on soybean intercropping	Profiling of the Sisal farmers Economic analysis of Sisal+Soybean intercropping with Sisal Export market identification for organic soybean Photographs and clippings of the progress (training/worshop/etc) be share with NIAM
Kitheka Mary Munee	Emerging Livestock Farmers Database	Briefing to CELD on the action plan Questionnaire developed for baseline survey Stakeholders identified Workshop being organised in the month of August 2015	Questionnaire to be shared with NIAM Profiling of the livestock owners need to be done Value chain of emerging livestock (Quail, etc) to be done Cost benefit ratio of cultivation of different emerging livestock vis-a-vis traditional livestock The proceeding of workshop with photographs and clippings to be share with NIAM

Seraphine Moraa Atombo	MIS	Joint venture between MOALF and World Food Programme WFP Development of concept model MOU with WFP Identification of consultant Capacity building of staff in July (start of new financial year i.e. July to June)	Presentation to be shared with NIAM Meeting with the consultant to be organised for the team MOU to be shared The concept paper to be shared The capacity building module to be shared The proceeding of workshop with photographs and clippings to be share with NIAM

MEETING WITH THE HIGH COMMISSIONER

A meeting with Shri Yogeshwar Verma, the High Commissioner of India to Kenya was held at his Office. He expressed his views on various aspects of Kenyan Agriculture and the system prevailing in the country. A brief is as presented below:

- He informed that institutional system is in place in Kenya like India but the interlinkages are missing and there is immediate need to connect these missing dots
- He laid emphasis on inculcating good ethical practices in the cooperative societies to make them sustainable
- He laid emphasis on the importance of sugarcane for Kenya and need for cooperative marketing structure as prevails in India
- Kenya may collaborate with India in exchange of technology, varieties, etc as there is potential to enhance the productivity by many fold
- The High Commission was informed about the proposal for organising benchmark training for the Directors and other senior officers working with MOA. He was also of the opinion that these Directors are the key decision makers and their sensitisation will help in enhancing the impact of these programmes many fold. He was very positive about the proposal and suggested various ways for arranging resources for this programme like Kenyan Government, USAID, High Commissioner Office, Kenya or MOA, GOI, New Delhi.

- A detailed proposal for the same is to be initiated by the MOALF, Nairobi to NIAM. NIAM is expected to prepare a detailed proposal covering, content and budget to be submitted to USAID/High Commissioner
- He informed about the importance of mechanisation for a country like Kenya to enhance productivity. Accordingly, India has sanctioned a soft loan of $100 million to Kenya through EXIM Bank.

FIELD VISIT TO TALA

Action Plan: Promoting women participation in indigenous poultry production for sustainable rural livelihoods and economic development

Participant: Mr Festus Kani

About the Action Plan: The main objective of the initiative is to enhance the participation in production of indigenous poultry production for improving sustainable rural livelihood and economic well being of the participants. The specific objectives of the action plan are:

a) To mobilize and sensitize rural women for participation in economic activities;
b) Capacity building on indigenous poultry production and entrepreneurship;
c) Improve the livelihoods of rural people through market oriented poultry production.

The action plan is being implemented on group approach and a common interest group (CIG/SHG) called TALA POULTRY FARMERS SELF HELF GROUP have already have been initiated and registered.

The group of 50 members registered under the group has been provided with three training programme under the action plan by the officers from the Ministry of Agriculture, Livestock and Fisheries.

The possibilities of aggregation of the production by the members and establishing linkages with the high end market for ensuring better price realisation are being explored under the action plan. The indigenous poultry production has the potential to reap better price.

Challenges

a) Inadequate financial support
b) Incubator for hatching eggs
c) Medical support
d) Training
e) Low incomes for rural families/members

Future Focus

a) Rope in more stakeholders and development partners
b) Facilitating more groups and recruit more members into the project
c) Establish market linkages through an effective value chain
d) Find means for arranging facilities like egg hatching, medicines, etc
e) More involvement of Government departments and institutions

FIELD VISIT TO KIRINYAGA

Action Plan: Rice By product value addition

Participant: Mr John Kabucwa Muriithi

About the Action Plan: The main objective of the initiative is to:

a) Increase awareness of opportunities in rice by-products value addition amongst MRGM Society Limited and Ministry of Cooperatives
b) Preparation of a funding proposal in rice by-product value addition

Observation from the field

a) Krinyaga is a rice growing belt
b) Basmati rice grown by small and marginal farmers
c) Marketing component is being taken care of by the cooperative
d) Policy limitations making it tough for the market facilitator to operate profitably
e) Value addition through utilization of by product Bran may help them in achieving the viability level
f) The exposure gained during the programme help them develop a proposal investment for cooperative for rice bran oil production

Role of Cooperative in Rive Value Chain

a) MWEA Rice Growers Multipurpose Cooperative Society Ltd

b) Agricultural Production Service

c) Crop handling, storage and processing

d) Marketing services like packaging branding, promotion and distribution

e) Credit in cash and kind

f) Retail stores

Support required

a) Export of rice

b) Identification of export market middle east Europe

c) Training to progressive farmers and officials of the cooperative

Achievement made so far

1. Implantation plan developed
2. Stakeholders meeting conducted
3. A financial proposal for seeking financial support prepared

FIELD VISIT TO LIVESTOCK MARKET

Location: KUTUS Sub-county

The observations made during the visit

a) Unavailability of infrastructure

b) Absence of mechanism for price discovery

c) No system of market management and operations

d) All kind of animals being traded at a common place

e) Collection of market charges reveals the presence of some kind of control

f) Transactions are taking place on the basis of one to one interaction

AHITI, Ndomba

- Training is relevant to the core activities performed by John Muriithi
  - Principal AHITI

FIELD VISIT TO RETAIL MARKET

Location: Embu County

The observations made during the visit

1. The market was found to be properly organized with proper shops, etc
2. Sufficient infrastructure available

Areas of improvement

1. Absence of standard weight - not all the shop keepers were using standard weights
2. Lack of grading - ungraded commodities like tomato was being sold. though, some value addition practices like semi-prepared food for cooking was being sold.

Basket being used for weighing

Ungraded tomato being sold in the market

FIELD VISIT TO KITUI

Action Plan: Cotton Market Information

Participant: Mr Fenual Lubanga

About the Action Plan: The proposed cotton marketing information system is intended to bring together separate items of data into a coherent body of information. The main objective of the initiative is to

a) Development of an platform for interaction

b) Collection and dissemination of pertinent, timely and accurate information to facilitate decision making of different stakeholders

Observation from the field

a) Cooperative society is working an agent for ginneries to facilitate them in procurement. though, the cooperative societies are not very developed as was the case of rice cooperative. Cooperatives operating in cotton were also observed to very poor financially.

b) Marketing – procurement agent for ginneries

c) Directorate of Fibre Crops - The seeds are provided by the Directorate which is being distributed with the help of ginneries as the seeds are being produced by them

d) Market led extension - The directorate in addition to input is also playing vital role in ensuring remunerative prices to the farmers

e) Market Information System - A buying calendar has been prepared to help different stakeholders in aggregation and procurement. The information on prices is being disseminated through print media and radio.

f) Cotton handbook has been prepared as a part of the activities envisaged under the proposed action plan. It speaks about the best practices about the production, harvesting, grading, etc. They are using two grades, prices for top grade (AR) are fixed while the procurement of the lower grade (BR) is made on mutual understanding of the buyer and seller.

g) Training has also been provided to the members of the cooperative

h) The scope of the cooperative has been found very limited due to lack of sufficient funds

KABAA IRRIGATION SCHEME

Location: Mwala Sub-County

About the Scheme - The Kabaa irrigation scheme is situated in Mbiuni location of Mwala district along River Athi where it abstracts water. The irrigation system is gravity/surface along a canal of 7 kilometers. Due to the successful completion of the rehabilitation works, water is flowing along the total length of 7 kilometers and all farmers have access to sufficient water for irrigation

Observations made during the field visit

a) All the farmers along the 7Km canal have access to irrigation water. Before rehabilitation water flow was limited to only about 1.5km. The availability of water has helped in improvement in production planning by farmers and ensuring the market.

b) A group of 4776 (M 2496, F 2280) farmers have so far been trained through 42 trainings sessions organised

c) Formation and operationalising the Produce Marketing Committee (PMC). This has resulted to enhanced market access. The linkages established through PMC has helped in ensuring good working trading relations between farmers and the buyers/exporters

d) Various area covered under the training programmes conducted under the scheme

- ❖ Horticultural production- GAP
- ❖ Group dynamics and conflict resolutions
- ❖ Farming as a business
- ❖ Integrated pest management
- ❖ Scheme organization and management

- Soil fertility and irrigation water management
- Quality control and food safety
- Nursery operators course
- Diagnosis and management of pests in hort.
- Sorting and grading
- Marketing
- Environmental management
- Pack House management
- Financial management

Outcomes and Impacts

- Improved crop production practices
- Increased yields
- Reduced post harvest losses
- Better utilization of irrigation water
- Enhanced access to markets
- Increased incomes
- Enhanced production planning and scheduling
- Improved market access
- Farmers have been linked to exporters
- Farmers has able to get assured market and better price
- Farmers have been linked to financial institutions.
- The exporters also access bank credit facilities to pay farmers advances
- Access to markets has led to increased production and income generation in the scheme
- Farmers have so far (since the project launch of the scheme) earned at least a net income of 287,000,000 which averages at 26,000 per month per farmer/household (considering 284 households).

MEETING WITH EGERTON UNIVERSITY

Location: Egerton University, Nakururu

About the University - Egerton University is the oldest institution of higher learning in Kenya and is having three Campuses and one Campus College. The University has made tremendous progress towards increasing access to higher education in Kenya.

An interaction with the faculty members from college of Agricultural Economics and Agri-business was organised on 18th May 2015. A presentation was made by the NIAM team about the Institute, USAID funded capacity building programme and the possibility of collaboration between two Institutes. The proposed MOU was discussed in detail with the faculty of Agricultural Economics and Agri-business. The interact on the following areas was expressed by the faculty members.

a) Student and faculty exchange
b) Distance learning programme
c) Incubation centre
d) Policy issues
e) Development of curriculum
f) Development of value chain
g) Warehouse development
h) Research and Development

The draft MOU was shared with the office of Deputy Vice Chancellor and Faculty of Agribusiness Management. A zero draft will be prepared by the faculty of Agribusiness Management and will be shared by NIAM for finalisation of MOU.

MEETING WITH USAID, KENYA

A meeting with Mr Andrew Read, Coordinator-Feed the Future programme was held on 22/5/15 at USAID office. He was appraised about the programme of visit of NIAM to various counties and a feedback was given to him on the progress of the action plans. He was of the view that the participants who were trained by NIAM should be aligned with the Feed the future programme of USAID. It was also discussed that there is a need to have a synergy between different programmes under USAID. The key discussion points are as follows:

- The participants who are trained are envisaged to play a role on Feed the Future programme

- ❖ USIAD is looking for integration of such programmes and their alignment with Officers
- ❖ USAID may look in to funding proposal for organizing a Benchmarking training of the Directors.

WRAP UP MEETING AT KILIMO HOUSE , DATE 20TH MAY 2015

Wrap up meeting was attended by Directors, Deputy Directors and officers trained in NIAM Programmes. There was also a presentation on Automated Market Information System by Value Edge Ltd.

The MIS has been automated by mapping 21 market nodes and establishing the coordinates of this market by using GIS. The market area has also been established in the form of radius of market. Which enables them to upload the information of that particular node. The system is capturing information on retail prices, wholesale and farm gate prices.

Mr John M Mwaniki- Deputy Director, expressed his views on the importance of Marketing and the issue of linking the farmers of Kenya to market. Kenya had a co-operative structure before liberalization, the structure got diffused due to competition from unorganized structure and emergence of private sector. Mr Mwaniki also discussed that farmers should be formed in business group and they should be provided with a leadership training. The need of the time is to organize famers and build their capacity to negotiate and under market trends. We shared the concept of Farmer Producer company with Mr Mwaniki.

He also suggested that NIAM should take a pilot study of forming the business groups and link them to market. The training provided by NIAM to the officers and the work plan will be helpful in bringing the focus on marketing and value addition.

Ms Anastasia, Deputy Director, Agribusiness and MIS, expressed that the training provided by the NIAM was very relevant and the officers trained were able to connect with the ongoing projects on automated market information system and agribusiness development. She also expressed that the work plan developed during the programme are important tool to develop the synergy between the knowledge acquired and the contextual programme of the government. She also expressed his satisfaction on the choice of the action plan formulated as these are in align with the vision 2030 of the Ministry.

Deputy Director, Livestock, informed that the livestock sector provides livelihood to the small holders specially in arid and semi arid areas. However, orientation to market driven production is lacking. India has good institutional linkages and well networked extension system, where

as in Kenya organisations exist but there are missing links. It is expected that these participants will reach out these participants owners and provide market led extension.

Ms Rebacca Wahomi, Director, she again emphasise that agriculture should be treated as business. She expressed that farmers need to be oriented that they have to produce for the market and not to the market. In order to bring business orientation low cost machineries for value addition, processing, and technology for packing, information, etc is the pre-requisite. It is expected that the officers who have been trained will help in bringing the expected reorientation among the farming community by working as trainers of trainers (TOT).

She concluded the meeting with following observations:

(i) The Negotiable Warehouse Receipt system is a very forward looking policy of GOI and the delegation from Kenya would like to contact NIAM during the coming visit

(ii) Issue of capacity building is important, however, there are challenges in the wake of devolved government.

(iii) Benchmarking training is important so that the senior officers can see and appreciate the various models of agricultural marketing prevailing in India.

(iv) The meeting ended with the vote of thanks and presentation of the memento to the Chairperson the meeting.

Report of Malawi Visit

ABOUT THE COUNTRY

The Government of Malawi has elevated agriculture and nutrition as key national policy priorities. The country has demonstrated leadership through stable governance and economic growth. However, high population density and growth, along with a single rainy season per year, pose distinct challenges that make Malawi's agricultural growth precarious and make the country chronically susceptible to food insecurity. The agriculture sector represents over 38 percent of gross domestic product (GDP) and employs 80 percent of Malawi's population. However, only 10-15 percent of smallholders are marketing grain each year. A litany of challenges, including small land holdings, a poorly developed seed sector, weak agricultural extension services, limited access to finance, uncertainty due to climate change and significant policy constraints, hampers the transformation of Malawi's agriculture sector. Partly as a result of these challenges, over half the population of Malawi lives below the poverty line. While overall poverty rates and caloric intake have improved in recent years, high rates of under nutrition, HIV/AIDS and malaria, as well as underdeveloped markets and low agricultural productivity, inhibit food security and economic development. To address these challenges and leverage opportunities, Malawi has developed an Agriculture Sector-Wide Approach through a consultative process with stakeholders and has made targeted commitments under the Comprehensive Africa Agriculture Development Program.

The main economic products of Malawi are tobacco, tea, cotton, groundnuts, sugar and coffee. These have been among the main cash crops for the last century, but tobacco has become increasingly predominant in the last quarter-century, with a production in 2011 of 175,000 tonnes.

VISIT TO THE HIGH COMMISSION OF INDIA

A meeting with Shri D V N Rao, Head of the Chancery Malawi was held at the Office of High Commissioner of India to Malawi. He was appraised about the programme and the various action plan developed under the USAID-NIAM capacity building programme. He informed about the various initiative of the Indian government in Malawi in various development sectors of the Country such as agriculture, health, education, energy, information technology, etc. Through the discussion we learned that the Indian government is supporting farm mechanisation by providing 35 tractors and is helping Malawian farmers in technology adoption.

He also informed about the concept introduced by former president Dr A P J Kalam Azad namely the Pan Africa E-network. The initiative is having three components through which e-learning courses are provided by 12 education institutes in India such as Amity, IGNOU, etc. This network is also helping in providing tele-medicine consultancy and interconnectivity of all the 53 nations of Africa for VVIP Network.

From the discussion, it also emerged that the tobacco is a major cash crop of Malawi and is traded by Tobacco Control Commission (TCC). The recent global drive towards restriction on tobacco consumption is a cause of concern for Malawi. It is expected that area under tobacco be gradually replaced by other crops. It brought home the point that countries like to be vulnerable to be marginalised in the wake of emerging trends of consumption, health issues, etc.

One of the biggest challenge for growth in Malawi is the country being deficit in power generation. This is one of the biggest hindrance in processing and adopting various other development strategies. with the help of Indian government investment in solar power generation is planned. We informed that the participants have been provided with the information and an exposure visit to show solar pump, solar lamps and maintenance by NGO and other sectors of India.

Office of high commission expressed appreciation for NIAM work and extended the support during the visit.

VISIT TO USAID, MALAWI OFFICE

A visit was also made to USAID office Malawi. Mr Martin Banda was appraised about the programme, action plan developed, organisation covered during the field visit performed during the last programme and the objective of the visit. His feedback on the programme is as follows:

1) It is important to bring all the participants trained so far under the programme together to exchange and share experience about the learning and how they are applying the knowledge.
2) The convergence of skill, knowledge and information at different level would be required to leverage the trilateral efforts of USAID
3) Besides the action plan, post training impact should be reflected in the way participants are taking initiative, developing proposal and executing plan, etc. Participants are expected to be the agents of change.

VISIT TO MINISTRY OF AGRICULTURE

An interaction with the Agribusiness section, Ministry of Agriculture was held and various issues related to the agriculture, agricultural marketing, agri-business, etc were discussed. The team from NIAM was informed about the absence of any organised agricultural marketing system in general except for crops like tobacco. Maize and tobacco are the major crops of the country. Tobacco is the cash crop which is exported to other nations of Africa. Marketing and distribution of Tobacco is managed by Tobacco Control Commission. Agricultural Development Marketing Corporation (ADMRC) is the organisation operating under Government and is responsible for supplying inputs, procurement cereals and maintains the depots. It was interacting to note that corporation could not sustain the competition after liberalisation.

Auction Holding and Commodity Exchange (AHCX) is the only commodity exchange which is providing marketing channel to the farmers. Farmers are registered with the commodity exchange and to certain extent it is helping farmers in obtaining better prices for their produce. We were also informed that farmers need immediate cash and instead of using a proper marketing channel they resort to sale to traders to give them immediate money for taking care of their cash need for medical expenses, school fee, etc.

Due to profile of farmers with small holding, immediate need for cash and unavailability of volume, contract farming has not been very successful in the environment. There are small scale processing units operating in the country for products like fruit juice, grains and legumes , making biscuit, maize flour, etc.

The interaction revealed that initiating marketing interventions has been challenge. The Government initiated displaying or providing farming community with the information on average minimum price based on the cost of production. The idea was to inform farmers that this is the minimum price that a farmer should realise. However, Fair Trade Competition Commission perceived it as the market distorting mechanism though it was not a binding on any of the stakeholder to abide by this as it was only suggestive.

Malawi government has introduced subsidy input scheme through which 1.5 million farmer producing maize were targeted. Through this mechanism substantial surplus of maize was produced. And Malawi was also able to export to some of the nearby African nations. However, subsidy scheme is under the scanner as it entail on government budget and also become a political issue. The irrigation programme in the country is not operating at the desired level. There is need to prioritise the sectors under the subsidy scheme to get the best possible impact of the subsidy programme.

BUNDA COLLEGE OF AGRICULTURE, LILONGWE-LUANAR

Seed Processing Unit

Ensuring the availability of quality seeds is one of biggest challenge faced by the farmers in Malawi. In order to address the issues, an arrangement under PPP has been started by the Bonda college where the seeds are produced at the field of the selected farmers, the college provides the technical knowledge while the private player is in agreement to buy back the seed produced. The college has also developed a seed processing unit in the college with the support of USAID. The processing plant is having facilities for grading based on gravity, size, weight, dryer to control moisture, hydraulic packing machine, etc. The plant has a capacity to process 2 MT seeds per day which may be enhanced to 4 MT per day using the unit in two shifts.

Seed Processing Plant developed with the support of USAID

Media Lab.

A media lab has also been developed by the college with the support of USAID. The college has adopted OLAT platform, under which e-learning has been initiated. The platform has provisions for electronic lectures, reading material, linkage to library, conducting exams, discussion forum, classes, assignments, etc. The lab basically provide services for digitalisation of the lectures being organised in the college for making them available at the OLAT Platform. The lab consists of a small media room, cameras, technical staff, servers, etc.

Demonstration of Media Lab

Meeting with the Vice-Chancellor

The group also had a meeting with the Vice-Chancellor of the University. He provided an overview of the various activities of the University. A presentation about the NIAM, USAID Programme and scope of MOU with the college was made by the team. The VC appreciated the efforts of the Institute in developing the agriculture in the country. The VC showed interests in area like student exchange, faculty exchange and introduction of education programme using OLAT platform for collaboration between the two institutes. It was proposed to introduce the PGDAMB course of NIAM through OLAT.

FIRST MEETING WITH THE PARTICIPANTS AT LILONGWE

It was planned to have two interaction meeting with the participants from Malawi at Lilongwe and Blantyre. The first interaction meeting was organised at at Ministry of Agriculture, Lilongwe on 25th May 2015. The progress on different deliverables defined under the action plans was discussed and observations/comments were provided by the team to each participants. A brief is as provided below

Value addition, entrepreneurship and business development training series

Owing to relevance and lessons from India, Dowa was compelled to initiate an action plan on Value addition, entrepreneurship and business development. The project envisages bringing awareness and awakening conscious on value addition. Value addition is an area that if well harnessed may help farmers beat most of the problems they face at the market. Value added products fetch premier prices and would help farmers realize higher profits. This feat is very important especially at this time that the Malawian government dreams of being predominantly exporting country. As long as our farmers continue to sale raw products much will not be achieved and the assertion that farming is a business will be far from being realized.

This action plan thus set out to offer trainings in value addition to willing Farmer Based Organization (FBOs) and lead farmers who will help champion the same course. The trainings are believed to raise awareness and awaken value addition consciousness. The lead farmers are particularly targeted to do away with the problem of high frontline staff vacancy rates in agriculture. The project also envisages to partner with departments or sections with similar interest such as nutrition, horticulture and crop protection. Realizing that government departments and sections are fraught riddled with issues of little or no funding the project also envisaged to partner with organization which have interest in Value addition and agribusiness in general.

Conceptualizing a distance learning course

Another Action plan assigned to Dowa was to conceptualize a distance learning course. This was successfully done and a concept on distance learning is handy for review. This involved revision of distance learning literature and adapting it to agriculture and rural development owing to the fact that distance learning in Malawi has been mainly in the field of academics.

Improving Market Access among the Smallholder Honey Producers In Rumphi District, Malawi: Lusayo Msiska

The review of literature revealed that the honey produced by small farmers in Malawi do not penetrate the market due to various factors like lack of market information among these farmers, difficulties in enforcing contracts and meeting stringent food safety norms and other high transaction costs. Therefore this action plan was designed to assist honey farmers in Rumphi district to penetrate the market. Objective of the action plan was to improve market access and value addition of honey among farmers in Rumphi District and Specifically through:

- Conducting trainings with farmers on various topics

- ❖ Assist farmers in processing of honey
- ❖ Organising workshops with prospecting buyers (This could be through participation in Trade Fairs)
- ❖ Conduct farmer tour to honey processing companies and successful bee keeping cooperatives.

Farmers from Thazima Beekeeping Enterprise were selected for the execution of the action plan. It is a group of 153 members of which 85 are males and 68 females from 16 active clubs. They produce 18,000 kgs annually and they do processing.

Progress of Work

The training was conducted on cooperative member education from 12th to 17th January, with the aim that they should register as a cooperative for easy marketing of their products. The training was supported by the remaining resources of the now phased out IRLADp. During the trainings the extra topics on value addition and marketing and the role of marketing subcommittee was emphasized.

Improving farmer livelihoods through canal irrigation, Nyanja District-Babra Kuntenjera and Elubby Kanyenda

Objective: To increase the productivity of irrigated crops and produce markets and linkages for the farmers through the expansion of irrigated land.

Outcome: Improve the livelihoods of smallholder farmers in the area by increasing their irrigated crops and income base and minimizing climatic impacts.

Brief description of activities taken

Sr No	Objective	Activity defined to accomplish the objective	Key deliverables	Status of the deliverables	Remark
1	Informing stakeholders of our intended plan	Meeting with the head office staff and Agriculture Extension Development officer	The head office and AEDIC aware of our intended plan	The plan well received and both parties are eager to assist	stakeholder meeting on 15 May 2015
2	Conduct sensitization meetings and mobilization at community	Meeting with member farmers in the community informing them of the plan to	70 Member farmers in the community aware of the plan	The farmers have received it and are willing to provide labor and digging	There are now 70 members (7 clubs) that have registered

	level	drill the canal through self help approach		materials for drilling the canal.	and we expect even more farmers to join
3	Drilling of the canal	Identification of water source, where to tap water The old route canal was physically measured and its about 350 meters long. A video and some pictures were captured	Tapping water source identified that depends on gravitational force.	Head office is willing to assist us by providing an irrigation intern to take GPS readings and design the route of the canal to ensure that more land is covered.	The people in the area are fully willing to take part in the irrigation project The estimation is more than what was expected(5 hectares)

Plan of Action for future

- Formulating a subcommittee for the canal for supervision to ensure its sustainability
- Lobbying for the farmers in the area to grow one crop so as to find a better market as they will produce more of that particular crop.

Images of the canal

The Canal, AEDIC, Member Farmer and NASFAM AFO at the Irrigation Site

***New market for Small holder farmers**: A policy Suggestion- Kondwani Gonde*

Name of Participant	Office address	Title of the Work plan	District/ Country	Key activities	Expected Outcomes	Date of Comple-tion
Sangwani Makoko	Lilongwe District Agriculture Office	Developm ent of a Marketing Gover-nance Model for Malawi	Lilongwe, Malawi	Desk study, Key Informant Interviews	A Policy Paper	In progress

Formation of Limphasa Rice Irrigation Scheme Marketing Committee (Functional) for collective marketing (Knowledge Mtambo)

Limphasa Irrigation Scheme is one of the large irrigation schemes in Malawi. The scheme has cultivable land of 510 hectares out of which 476 hectares is being utilized. There are 900+ farmers in the scheme, all cultivating rice. The scheme is owned by the farmers and is run as Limphasa water Users Association (WUA).

Target	**Objective**	**Proposed Action**	**Impact**
Formation of Limphasa Rice irrigation scheme marketing Committee for collective marketing (borrowed from APMCs in India but this will not be regulated)	To achieve (assembling) collective marketing of rice from the scheme for increased farmers' incomes	Conduct awareness meetings to the water users Association (all farmers growing in the scheme) on importance of collective marketing	Increased farmers' incomes due to increased bargaining power resulting from collective marketing
		Facilitate the elections of the marketing committee	
		Conduct the training on duties and responsibilities for the elected marketing committee members	
		Conduct Buyers-farmers meetings (buyers to be identified through adverts in the newspapers and TV) and selling of produce	

Strengthening market access and entrepreneurial skills among small-holder farmers in Malawi.-Kumbkani Rashid and Rejoice Milozi

The action plan proposes to use capacity building techniques and entrepreneurship development interventions to help rural communities in Dowa district to identify and utilize market opportunities.

The activities proposed aimed at improving income availability to households through the following objective outputs:

- ❖ Strengthened and well organized commercial-oriented farmer groups
- ❖ Increased volumes of both agro-processed and non-processed products
- ❖ Improved agribusiness practices adopted
- ❖ Improved market access to rural communities

Increased market access and entrepreneurial skills among farmers

- Facilitated the formation of 180 livestock producer/marketing groups. –Jan 2015
- Trained 90 Livestock Lead Farmers in financial management. – March 2015
- Trained 90 Village Agents in Village Savings and Loans methodology. –Jan 2015
- Supervised and supported the training 540 livestock producer/marketing group members in group dynamics. –Feb 2015.
- Facilitated and supported the training of 360 office bearers for VSL activities in Record Keeping. -Feb 2015

MEETING WITH PARTICIPANTS AT BLANTYRE:

Improving product quality in fruit and honey processing cooperatives to increase their market competitiveness*: Kondwani Nyengo & Alfred Tsitsi,*

The overall objective of the project is improving product quality of processed products to increase their market competiveness. The project aims to:

- Train cooperative members in skills development so as to improve quality of their products
- Conduct capacity building trainings in Business Management & entrepreneurship
- To consolidate a data base for all the products produced and possible outlet markets
- Engage the Malawi Bureau of Standards (MBS) to facilitate the certification of the products produced.

The project is being implemented in the districts of Balaka and Mangochi which falls under Machinga Agriculture Development Division (MADD).In order to achieve the set objectives sensitization meetings were held at district level, farmer awareness campaigns as well as interface meetings with key stake holders.

The key stake holders will include the Malawi Bureau of Standards (MBS) who are the key players in ensuring that certification is done. There will also be need to improve marketing aspect though production of IEC materials and extensively use of media and also facilitating buyer seller meetings with potential buyers

In the international trade fair organized at Blantyre on 27th May, NIAM team visited the co-operative on honey and rice which are the beneficiary of this work plan. Interaction with Alfred Tistis and Kondwani Nyego did reflect that trade fairs are an effective way of creating market linkages for small holders.

Establishment of District Market Committee: Charles Nyendra

- The aim to of the action plan is to help small-holders farmers improve their access to information on agricultural marketing and other agribusiness related aspects. The work plan consists of following deliverables:
- Sensitization of District Executive Committee Members

- Identification of District Marketing Committee Members (DMC) including leaders
- Briefing of DMC members on roles and responsibilities, deciding on meeting intervals
- Conducting meeting of DMC members

Strengthening Permaculture Programmes With Value Chain Management Through Training And Facilitation: Prepared By Matthews Shaba Mpofu,

Objectives of the trainings

- To share the skills and knowledge gained with individual, organisations, institution, private companies, communities and farmers interested in the programs through trainings and presentations.
- To promote and encourage the added value activities to our agricultural produce especially in horticulture so that stakeholders are able to make more income with long shelve life
- To strengthening the existing agriculture marketing systems for sustainable food nutrition security.
- To establish links and networking with different stakeholders for the public, private and community partnership for efficiency and effective service deliveries in sustainable agriculture.
- To provide the relevant information to the farmers and other stake holders how they can minimize the post- harvest losses, which currently is at 40 percent
- To inspire and empower the communities with values, integrated aspects, resilient, for the available resources to attain the sovereignty in economic, social and environmental management.

Training front line officers on marketing: Grace Kotawa

Grace Kotawa who is a participant of the first programme works as a frontline officer for extension at Blantyre.She has been training farmers on marketing, value addition. In one of the marketing initiative, farmers have been linked to the contract farming arrangment for paparika, beans and other vegetables. As informed by Grace, the famer groups have been trained on grading the produce for the buyer. As a support to livelihood, farmers have been oriented to go for dairy production.

Visit to Limbe EPA to see the progress of the work plan – Lucky Mfungwe

Blantyre district comprises of five extension planning areas (EPA). The major crops for cash and food in the district or the small holder sub sector are maize, sorghum, rice, groundnut, pigeon peas, sweet potatoes, cassava, cotton and tobacco.

There is prevalence of poverty which can be attributed to low productivity and low income realized from their produce for sale. Based on the problem identified, number of interventions has been implemented by Lucky Mfungwe. As reported, activities like training in co-operative member education, training in record keeping and gross margin analysis have been imparted to the onion producers.

A field visit was undertaken to Limba EPA to meet the farmers who are members of the c-operative. The Limba EPA has a irrigation scheme this has resulted in diversification of production from maize to onion. Farmers are now growing onions as there is availability of water. Onion is sown in the month of April, transplanted in May. Onion is harvested after 3 months. There are five clubs of farmers who work as marker association. Traders procure onions at farmgate. They also have an access to Lunzu market of District.

The farmers gets better returns from the onion and has been able get better price. However there are challenges in marketing of Onion. There are no facility of drying and storage of Onion. we have shared the low cost methods of drying onions which are practiced in India with the co-operatives.

Interaction with Agriculture Commodity exchange (ACE)

The Agricultural Commodity Exchange for Africa (ACE) was established in July 2004, with a grant from USAID through NASFAM who identified a need to bring more order to the market place. ACE has operated a live exchange trading platform since late October 2006 and has since then facilitated trade of nearly 40,000MT of commodities worth USD 14,000,000 million across the exchange. ACE is promoting three main concepts of trade integrated into the ACE trading.

Warehouse Receipt System

Depositors can deposit commodity in an ACE certified storage facility and receive a warehouse receipt. The receipt is the essential document in the system. The storage operator will guarantee that the quantity and quality stated on the receipt, is what the holder of that receipt will be able to collect at any given time. This guarantee enables the banks to finance the warehouse receipt with the underlying commodity as collateral; and gives the buyer of the warehouse receipt confidence that the commodity is in safe storage and that delivery is without the traditional risks.

A warehouse receipt is traded on ACE; a buyer deposits the contract value into the ACE Settlement Account and ACE will settle all outstanding liens, such as storage fees, finance and finance costs, before transferring the balance to the seller.

ACE Bid Volume Only (BVO) and Offer Volume Only (OVO) systems

The BVO system works like a real time reversed auction. It is designed for buyers of large quantities to retrieve a price discovery from the market before contracting suppliers. A buyer request ACE to place a BVO to buy with a certain quantity including all terms and conditions, but with no specified price. ACE notifies all registered suppliers and invites them to offer prices at a real time trade session. At the end of the session the buyer can select competitive offers and ACE will generate the contracts and settle the trade.

The OVO is the exactly opposite where a seller request ACE to place an OVO to sell with a certain quantity including all terms and conditions, but with no specified price. ACE notifies all registered buyers and invites them to bid at a real time trade session. At the end of the session the seller can select competitive bids to buy and ACE will generate the contracts and settle the trade.

Bid and Offer Matching

Anyone who wants to sell or buy Agricultural commodities can contact ACE or an ACE certified broker to place an offer to sell or a bid to buy. All bids and offers can be seen on the live market information screen. Select a bid or an offer and all details and terms and conditions will be stated. All bids and offers are live and active and can be accepted online by ACE or an ACE certified broker to generate a binding contract.

ACE is generating real time market information from these bids/offers and contracts generated. This information is public and available to all. ACE disseminates the information.

Source: aceafrica.org and interaction with Ms Abe chilloch, ACE Trust

Export trading Group (ETG): Interaction with Paresh Kiri

Export Trading Group owns and manages the most vertically integrated agriculture supply chain on the African subcontinent with operations spanning in procurement, processing, warehousing, distribution and merchandising. In addition to ETG's presence in more than 30 African countries, it is actively present in North America, India, China and South East Asia.

By owning and managing the supply chain from start to finish, ETG is able to move agricultural commodities between regions, strategically matching one area's market origination capabilities with market consumption patterns in another. Combined with the capacity to store commodities close to their point of origin for extended periods of time along with control over transport and logistics, the Group maximizes synergies and efficiencies at every stage of the value chain continuum.

ETG hasset up a network of more than 300 year-round and numerous seasonal procurement centres, warehouses and silos, which store the raw commodities close to their point of origin until sufficient mass has been reached to make transport economically viable. Sales at an ETG procurement point are guaranteed and the farmer is paid cash on delivery. Furthermore, the farmer is able to fetch a higher price for their crop because value has not been artificially deflated by supply outstripping demand

10. OUTREACH

The publication of different kind of material has been used as an integral tool of the programme to facilitate the learning process. The tool helped India in providing better solutions to the issues in African agriculture and facilitated the participants come prepared for the training programme.

A book on Food Security in Africa Agriculture: Ensuring Food and Income was published. The aim of the publication was to extend the outreach of the learning from the programme. In order to better understand the situation in Africa of agriculture and allied sectors and suggest solutions to the problems faced by the farming community, each participant was assigned to come prepared on a topic decided by the Institute taking into consideration his area of work and interest before his arrival to India. This publication is a compilation and deliberation on the write-ups on key topics submitted by the participants. It is envisaged that the document will bring changes at the grass-root level by providing solutions to various issues associated with agriculture and allied sectors and impact of their performance on the status of food security in the region. The documents deals with issues like agriculture in Africa, agricultural marketing system, rural development and agriculture, agricultural extension system, importance of horticulture, livestock sector, processing sector, agricultural marketing infrastructure, PPP and many more. Attempt has been made to make the document comprehensive in its coverage of issues.

A programme completion report was also prepared consisting of information on the participants, module covered, action plan prepared, field visit made, learning from the programme, etc.

The experiences from the programme were also shared through various newspapers (Annexure 5).

Mr John Beed, Mission Beed, USAID at Graduation Ceremony

11. WAY FORWARD

The programme has helped reorienting the officers in incorporating agricultural marketing as an integral component in their area of work. This will help in integrating farmers with the market and enhance their income from agricultural and allied activities. In order to extend the reach of the programme and to make the impact permanent, there is need for conducting more such programme in cost effective manner which are suitable to the stakeholders also in terms of time duration and understanding of the local condition. Taking this into consideration, the Institute may collaborate with Bunda College of Agriculture for an online programme which may provide a platform to the knowledge seekers utilising the lab facilities developed at Bunda College with the support of USAID.

The exposure of the officers working at the policy level and decision making level may help in faster implementation of the action plan formulated during the programme. A benchmarking training programme of the senior officers of Ministry of Agriculture may help in achieving many fold result at the ground. USAID may extend support for such programmes.

The visible changes may be observed at the ground as a result of the officers trained and the action plan developed through these capacity building programmes. The proper documentation of these initiatives will help in proper sharing of knowledge and implementation of these in other part of Africa.

The irrigation availability made possible through the canal schemes in Malawi has helped farmers in shifting from traditional crops like maize to onion. The farmers are not aware about the proper post harvest management practices mainly the maintenance of moisture level in the bulb and storage. There is great potential for implementation of low cost storage technology developed by India for storage specifically. The knowledge and information on the same provided to Malawian farmers will help them position better in the market.

Malawi is mainly an agricultural state. Availability of water will help bringing noticeable changes in the Malawian agriculture. There is scope for research studies on water harvesting, making lake water available with the help of wind mill, etc. The development of proper model may help immensely in addressing the irrigation issues in the country.

Small size of land holding asks for optimum use of resources. Reorienting farmers from traditional agricultural to take it as business may help them realise better income from same land. There is immense scope for educating farmers on agribusiness and Entrepreneurship.

There is also need to develop model that enhance the optimum utilisation of resources like integrating poultry with fisheries. The waste of poultry may be used as input for fisheries.

Most of the farmers are still practicing traditional farming. The introduction of farm machinery, value addition and processing may help not only in improving the productivity but also enhance income of farmers. But, considering the size of farm-holding and difficult terrain, there is need to devise the technology suitable to the local conditions

CCS NIAM proposes to have collaborations with the Institutions and Universities and other relevant organizations of African nations in following areas:

1. **Linking farmers with market:** The programme done by CCS NIAM has helped reorienting the officers of Kenya, Malawi and Liberia in incorporating agricultural marketing as an integral component in their area of work. In order to extend the reach of the programme and to make the impact permanent, there is need for conducting more such programme in cost effective manner which are suitable to the stakeholders also in terms of time duration and understanding of the local condition. CCS NIAM Proposes to dop such programmes with other countries of Africa.
2. **Collaborations with Universities and colleges**: There is scope for the may collaborate with College of Agriculture for an online programme which may provide a platform to share knowledge and co-operate in project formulation. Egerton University, Kenya and Bunda College, Malawi have shown interest in having collaboration with NIAM.
3. **Capacity Building of Personnel:** The exposure of the officers working at the policy level and decision making level may help in faster implementation of the action plan formulated during the programme. A benchmarking training programme of the senior officers of Ministry of Agriculture may help in achieving many fold result at the ground. USAID may extend support for such programmes. The visible changes are observed at the ground as a result of the officers trained and the action plan developed through these capacity building programmes. The proper documentation of these initiatives will help in proper sharing of knowledge and implementation of these in other part of Africa.
4. **Efficient use of Water and Irrigation:** The irrigation availability made possible through the canal schemes in Malawi has helped farmers in shifting from traditional crops like maize to onion. The farmers are not aware about the proper post harvest management practices mainly the maintenance of moisture level in the bulb and storage. There is great potential for implementation of low cost

storage technology developed by India for storage specifically. The knowledge and information on the same provided to Malawian farmers will help them position better in the market. Malawi is mainly an agricultural state. Availability of water will help bringing noticeable changes in the Malawian agriculture. There is scope for research studies on water harvesting, making lake water available with the help of wind mill, etc. The development of proper model may help immensely in addressing the irrigation issues in the country.

5. **Market Led extension for Small farmers**: Small size of land holding asks for optimum use of resources. Reorienting farmers from traditional agricultural to take it as business may help them realize better income from same land. There is immense scope for educating farmers on agribusiness and Entrepreneurship through farmer business school. There is also need to develop model that enhance the optimum utilization of resources like integrating poultry with fisheries. The waste of poultry may be used as input for fisheries. Most of the farmers are still practicing traditional farming. The introduction of farm machinery, value addition and processing may help not only in improving the productivity but also enhance income of farmers. But, considering the size of farm-holding and difficult terrain, there is need to devise the technology suitable to the local conditions.

Conclusion

1. **The key areas where CCS NIAM can provide capacity building within the ambit of national initiative are:**
   - ❖ Capacity building in Market Information System and Information and communication Technology
   - ❖ Markets infrastructure development and market organization
   - ❖ Warehouse Development and pledge loans
   - ❖ Aggregation models–(Role of Co-operatives, Farmer producer organizations etc)
   - ❖ Linking farmers to market through value chain
   - ❖ Certification of Organic Produce
   - ❖ Capacity building of farmer producer organization
   - ❖ Capacity Building for food security
   - ❖ Agricultural input/output marketing.
   - ❖ Market Led Extension

2. **Student and Faculty Exchange Programmes:** There is a scope for organizing exchange programme for students of agriculture and Management of India and Africa to learn from each other. The exchange programmes for developing learning centres, organizing joint programmes for internship and projects, sharing best practices in pedagogy will be beneficial for both the countries. CCS NIAM has agribusiness management course and such exchange programmes will be very beneficial for the students and faculty of CCS NIAM. CCS NIAM is in dialogue with Egerton University, Kenya and LUNAR, Bunda College, Malawi for exchange programmes

3. **The other area co-operation through research and project formulations are:**
   - ❖ Transparency through auctions for farmer remuneration
   - ❖ Emphasize on produce quality assurance and standards and grading,
   - ❖ Access to affordable credit inputs and insurance
   - ❖ Collective marketing,
   - ❖ Information management and data analysis report writing and publications
   - ❖ Food safety and standards, certifications
   - ❖ PPP arrangements,
   - ❖ Supply chain management,
   - ❖ Lighting rural villages through green energy,
   - ❖ Customization of farmer innovation centers
   - ❖ Skill development and livelihood.
   - ❖ Developing Regional Co-operation for trade and facilitation;
   - ❖ Imparting Specialized training at global level

CCS NIAM has the capacity to serve the nation by forging Institutional relationship with Ministry of Agriculture of African Nations and Agricultural Universities, training institutes for collaborations in education and student exchange programmes, project formulation, evaluation and monitoring etc.

NIAM has the right mix of faculty members with diverse experience in training, research and project formulation. The Institute has a flexibility to offer training programmes, training of trainers, skill development, preparation of business plans, preparation of Detail Project Reports on wide ranging issues of agricultural marketing for individual, organizations, corporate and academia.

12. Annexure

Annexure 1

The details of expert used for interaction with the participants

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M L Arora	Fresh and Healthy Enterprises Ltd (FHEL) arora9961@gmail.com 91-8295733114	Supply Chain Management of Fresh Fruits, Vegetables and Frozen Foods Linking Modern Cold Store to the Farm and the Market
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H. R. Saharan	State Manager IKSL-Rajasthan hrsaharan.iksl@iffco.in 91-9950302544	Kisan Call Centre (KCC) - Making Information Available to Farmers
Uma Rani	Director, MANAGE Hyderabad umarani.kodali@gmail.com 91-9848306589	Women in Agriculture - for Ensuring Household Food Security Agri-Clinics and Agri-business Centres (ACABC) Scheme
Prashant Kumar Satapathy	Deputy General Manager, Institute of Food Security, FCI, New Delhi ifs.fci@gov.in 91-9711760371	Impact of Storage & Preservation of Food Grains on Food Security
George Cheriyan	Consumer Unity Trust Society International (CUTS) gc@cuts.org 91-9829285930	Promoting Food Safety and Quality in Fruits and Vegetables
S C Khurana	Retires as Deputy AMA, DMI, Ministry of Agriculture, GoI, New Delhi khurana183@gmail.com 91-9899314228	Food Safety and Quality and International Standards CODEX &NTB
Vishnu Sharma	Professor, Post Graduate Institute of Veterinary Education& Research (PGIVER), Jaipur Rajasthan drvishnus@yahoo.com 91-9460387949	Livestock Development, Food Security and Marketing
Gani Ismal	Allana group	Intergraded food processing and exports
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Ram Singh	Associate Professor, Indian Institute of Foreign Trade, New Delhi ramsingh@iift.ac.in	Introduction to International Trade and Export Import Documentation

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Sumana Sarkar	Chief Manager, Export- Export Import Bank of India (Exim) sumana@eximbankindia.in +91-8879690876	Emerging International Markets, Policies and Strategies to Tap International Potential for Developing Countries
Davendra Prasad	Deputy General Manager, Agricultural Processed Food Products Export Development Authority, New Delhi dprasad@apeda.gov.in 91-9873354788	Improving Agri-export
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Varsha Singh	Faculty Institute of Development Studies Jaipur varsha@idsj.org	Food Security Concepts and programme Food Security , Livelihood and Gender
Madhur P. Verma	Directorate of Marketing and Inspection, DMI Qr.No.16, Type-V, CPWD, Sector-2, Vidyadhar Nagar, Jaipur, Rajasthan madhur524@gmail.com	Agmarknet: Market Information System
Alakh Niranjan	DGM, Central Bank of India Anand Bhawan, S.C. Road Jaipur-302001	Financing of Agri Loan and schemes for Farmers

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P C Sharma	Head Horticulture Crop Processing Division, Central Instititute of Post Harvest Rngg & Technology (CIPHET) Abhar, MH Bypass Abohar, Punjab 152116 pcsharma2@yahoo.co.in	Post harvest management
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Amit Kalkal	RVJ Foods Private Limited (India) RVJ Eurasia Food & Agro Services B. V. (The Netherlands) amit@rvjservices.nl	Project management
Yatesh Yadav	Centre for Microfinance (CFM) 30 Jaijawan Colony, Durgapura Tonk Road, Jaipur yatesh@cmfraj.org	Micro finance for agribusiness
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Chirag Badala	NCDC, 405, 4th Floor Geetanjali Tower Madrampura, Ajmer Road Jaipur - 302006	Cooperation
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S K Tucker	Chief Director National Cooperative Development Corporation (NCDC), TOPIC Institute, Gurgaon	Cooperative Development in India

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Annexure 2

The details of the experts available at the Institute

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Shalendra	CCS NIAM Jaipur shalendra_cpsingh@rediffmail.com	Project Management

Annexure 3

The details of summer projects discussed during the programme

Student	Batch	Topic Delivered
Ms. Nazhat Kittur	2013-15	Preparation of Business Plans
Mr. Amir Hashmi	2014-16	Mechanism, Advantage and Disadvantage of Drip Irrigation
Mr. Sagar Kansal	2014-16	Bhopal Gas Tragedy

Annexure 4

Details of participants of the third programme (15.09.2014 – 16.12.2014)

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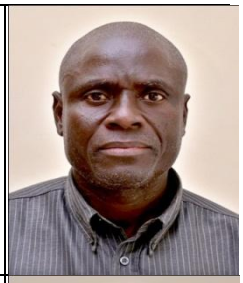
Emmanuel Munthali	Senior Agriculture Officer MAFS	emmanuelmunthali@yahoo.com	
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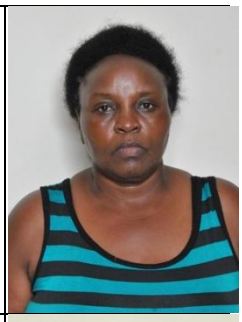
Ms. Anne Jackylnne Wanjiku Kungu	Asstt Director Livestock Production, MALF	ajwkungu@yahoo.com / cdcpkiambu2013@yahoo.com	
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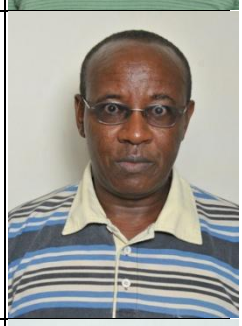
Mr. Ephraim Maina Wairangu	Principal Fisheries Officer, Department of Fisheries MALF	emwairangu@yahoo.com	
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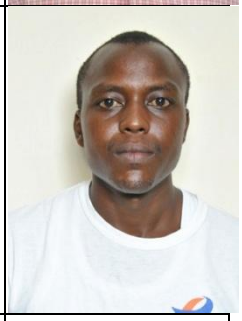
Mr. Amos Mwaniki Rukwaro	Agribusiness Development Officer, MALF	rukwaroa@yahoo.com	
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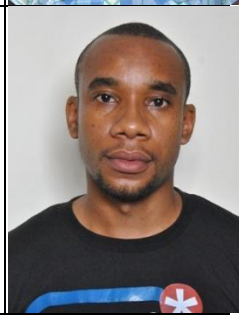
Mr. Roosevelt Carlos Reeves	Information Technology Officer MOA	rcreeves01@gmail.com 0880845324	

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Annexure 5

Fuelling common-sense to light remote villages: case of the Solar Mamas

Ranjan K Panda and Hema Yadav

Popularly called the 'Water Man of Odisha', a known water and climate change expert in India and Hema Yadav, Deputy Director, National Institute of Agricultural Marketing, Jaipur, respectively

To understand the power of solar lanterns and other solar powered utilities, especially when the locals are empowered to produce them, can be seen none better than in another remote village in Rajasthan. Tilonia, compared to Satabhaya, is remote if judged by the number of kilometres one has to travel from the respective district headquarters. However, in real terms, it is one of the most modern villages of the country when one discovers, in this desert state, a hub of power of a different kind. It is producing barefoot engineers who are dedicated to take solar power to hundreds and thousands of families in remote rural areas of India and across the world.

Barefoot solar engineers

The Barefoot College in Tilonia, established for about thirty years by Bunker Roy, is busy training Solar Mothers and Grandmothers. Some popularly call them the Solar Mamas. To be a barefoot solar engineer a woman does not have to have formal education but the dedication to work for her village. The college picks up, with help of its network members and other contacts, women who are middle-aged and elder because it believes that these are the people who would stay in the village. When you train a young woman, who is not married yet, you are training a person who leaves the village after marriage. And when you train the men, there is every possibility they will go outside fetching a job with this enhanced skill. This is what Bunker Roy believes in.

In fact, the very basic concept of Barefoot College is to bring common sense to work. "Common sense is in short supply and people are accustomed to believe that only a paper degree means education, development and empowerment," says Roy, informing "The Barefoot College has proved on ground by setting an example that paper qualified, urban trained experts and professionals can easily be replaced by paraprofessionals from the villages who have never been to college or do not have technical training of any kind. They have learnt their skills on the job itself and upgraded their knowledge through sheer practical experience which includes trial and error."

The Barefoot College works on a very wide range of issues – from solar energy to health, from rural water supply to education – but one common feature of all its programmes is the importance placed on realising the

potential of local villagers themselves for solving the various problems of these villages. No matter if they have much lesser formal qualifications, what really matters is that they have a better understanding of local problems, they are able to help their own people and they are accountable to their own village community, they are a part of it.

Tremendous faith posed in Solar Mamas

The Solar Mamas, who come here and get trained for six months, are basically developed for tasks that the society thought they would never be able to accomplish. In traditional societies, women were not meant for such works and thus a trained Solar Mama returns with something wonderful at her hands. She gets to know, through colour and symbolic codes, how to assemble solar lights – all components of them – and maintain the same. They return with hands-on practical knowledge that they have earned by trial and error methods.

The half year long training involves fabrication of charge controllers and inverters, core winding, printed circuit boards, testing, wiring, installation of solar panels and repair and maintenance etc. By the time they reach their villages, they are seasoned barefoot solar engineers. The follow up and support continues from the centre and they help light their villages. "It is these barefoot engineers trained at the Barefoot College who have lighted up villages using solar energy not only in the remote villages of Ladakh, Barmer and Sikkim in India but also in Bhutan, Afghanistan and about 20 countries in Africa", informs Roy.

Solar Mamas who come for training are women who are of the age above 40 years. Training grandmothers on solar energy has been a successful initiative. The grandmothers are profuse learners who have come to Tionia from Ghana, Malawi, Kenya, Sierra Leone, Liberia, Philippines, Papua Guinea. They want to go back to the countries and train other people to bring solar electrification.

The outreach is huge as nearly two lakh people were provided with clean energy and light in 16 states of India and 17 other developing countries.

The Campus at Tilonia itself is having 45 kilowatt of solar modules with 5 battery banks that provide power for 500 lights, several fans, a photocopying machine, more than 30 computer and printers, a pump set, a small telephone exchange and a milk booth with freezers. The installation of all these modules and applications were carried out by 'barefoot solar engineers' with a maximum school education of class ten.

The movement is spreading and products are diversifying. The parabolic solar cooker is another new product that is now catching up. A 'Women Barefoot Solar Cooker Engineers' Society has been registered by rural women f rural women who complete the full fabrication and production of parabolic solar cookers. This cooker can do the most environmental-friendly, cost effective, day time cooking on sunny days. The in-built

spring and clock system is accurately set to the complete one rotation in fixed time, and this in turn rotates the cooker to track the sun automatically, making the sunlight fall on all the 300 (9 cm x 12 cm) reflectors throughout the day. So once the cooker has been adjusted in the morning, uninterrupted cooking can be carried out the rest of the day.

Remoteness is tackled with off grid energy solutions.

Article in the Hindu

Taking agro machines from India to Liberia

Hema Yadav, Deputy Director, National Institute of Agricultural Marketing, Jaipur (Rajasthan)

Indo-US – Africa triangular programme on Agriculture has opened up new vistas in sharing knowledge and capacity building of the Officers of Agriculture from Africa to play an effective role in meeting the challenges of Food security and globalization. National Institute of Agricultural Marketing (NIAM) being an apex Institute for training in Agriculture marketing is imparting training to the officers of Agriculture from Ministry of Agriculture of Kenya, Liberia and Malawi under trilateral agreement

Liberia is richly endowed with water, mineral resources, forests, and a climate favorable to agriculture. A civil war that started in the early 1980's and lasted from 1980's-1996 destroyed much of Liberia's economy, especially the infrastructure in and around Monrovia, the capital. Liberia had been a producer and exporter of basic products, while local manufacturing, mainly foreign owned, had been small in scope.

Most of Liberia people live by subsistence farming. The staple food crops are rice, cassava, bananas, sugar cane and tropical fruits. Farmer households also rear sheep and goats for the purpose of meat.

While discussing the status of mechanization, Henry Roberts, CEO, Brandco Buchana Resource & Development Corp, Liberia who is attending the programme said "We do not have assets to machine, most of our fields work is done manually with tools such as cutlasses, regular hoes, diggers, axes, shovels etc. The cost of production is very high and there is low price for agricultural products in Liberia." The biggest challenge for Liberia is that it depends on food imports leading to serious issues related to food safety. Edwin Nimley, Professor, University of Liberia, Moravia is concerned about high cost of production compared to imported food resulting in absence of sustainable value chains. He is learning how technology, agglomeration and partnerships like in India will help in reconstructing agro economy his home country.

Nora Bendu Kemokai, Rivercess County Agriculture Coordinator (CAC), Liberia feels that India has a well organized institutional set up for extension and training of the farmers. The level of mechanization on farm and post harvest operations is extensive in India. The various field visits to markets, farms, small scale industries, corporates, NGO and Institutes like Central Food technological Research Institute, she realized that the biggest requirement of Liberia is to have machines to help operations and save marketing costs. Ben Karzoyah Saye, District Agriculture officer, Liberia informed that even the simple machines to seal the poly bags are not available. The bags carrying rice are closed by tying them with thread and needle. The unscientific packing leads to enormous losses and adds to the marketing cost. Nora Bendu Kemokai says "We have bought two machines for the paddy bags and plan to purchase additional two corn grinding machines for making feed and flour. The purchase of these four machines is to demonstrate them in Liberia and to have partnership with India for supplying these machines to the farmers of Liberia." Liberia imports poultry feed at a high cost, the corn grinding machines for making poultry feed will help in developing low cost feeds domestically.

The information and communication technology (ICT) has been supporting Agriculture marketing and management in India. While showcasing successful examples of ICT application such as e-Governance, Agmarknet, E-choupal, Tata Kisan, IFFCO, the participants from African nations learnt that ICT is going to be the biggest driver of change by delivering the customized market led extension to the local farmers.

Roosevelt Carlos Reeves, IT officer, Liberia feels encouraged and adequately informed to be able to develop an ICT system for delivering market information to the farmers of Liberia. Nora Bendu Kemokai and Ben Karzoyah Saye have been inspired by the interactions with Tata chemical during training. They are taking two small portable printers to be carried to the field. They want to take pictures of soil sample, crop

infestation on the spot and offer solution for crop protection just the way Tata Chemical is doing for the farmers in India.

Nora Bendu Kamokai and Ben Karzoyah Saye says ” We thank the USAID and the Government of India for organizing such an important Agricultural Training programmed to build the capacities of African Countries, Liberia, Malawi and Kenya. This is our first time that we have attend such an important Agricultural Marketing Management Training in the world”

The participants from Liberia consider this training provided by NIAM in collaboration with USAID as a long awaited dream for the rapid agriculture development for African countries.

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