AGRICULTURAL INNOVATION SYSTEMS AND VALUE CHAIN DEVELOPMENT APPROACH

Training Report
15th – 19thSeptember 2014
ILRI Campus, Nairobi, Kenya

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1.0 BACKGROUND AND WORKSHOP OBJECTIVES

The approaches to agricultural research for development (AR4D) have evolved over time on the basis of changing implementation paradigms; with the most recent being the Agricultural Innovations System (AIS) and Value Chain Development (VCD) approach. The 2 approaches hinge on interactions among the different R&D actors, which enhance innovation, technology adoption and better markets. A major challenge confronting the AR4D community is the understanding of the two concepts and how to integrate them in the design, implementation and evaluation of AR4D.

ASARECA aims to enhance regional collective action in agricultural research for development, extension, training and education to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in the ECA. As ASARECA embarks on implementation of its second operation plan (2014- 2018), there are increasing demands for ASARECA and its NARs partners to adopt systems and practices of agricultural research that are responsive to farmers needs and sustainably impact on the lives of the poor. The ILRI BecA Hub is an initiative developed within the frameworks of centers of excellence for science and technology in Africa and aims to provide a common biosciences research platform, research related services and capacity building opportunities for the region.

Recognizing the synergy in their functions, the BecA-ILRI Hub and ASARECA have agreed on collaborative mechanisms for capacity building for the ASARECA less competitive NARS. The focus will be on selected areas such as AIS and Value Chain Development (VCD), proposal writing for resource mobilization, leadership and management and institutional mentoring.

This report is on the 2nd AIS and VCD workshops conducted from 15th – 19th Sept 2014 at ILRI Campus Nairobi Kenya. The workshop drew participation from a total of 23 participants. The participants comprised of 13senior research scientists representing5ASARECA countries namely Burundi (3); DRC (3); Madagascar (3); Rwanda (1); S. Sudan (3) and10ABCF fellows from various Asareca countries

1.1 Objectives of the Training

The 5 days training programme had two objectives:

- To equip researchers with knowledge and skills in application and integration of AIS and VCD approaches in proposal development and in implementation and monitoring of agricultural research programmes and projects.
- To enhance learning and sharing of experiences among research teams in application of AIS and VCD.

1.2 Expected Outcomes

The learning outcomes of the training workshop were:

- A shared understanding of AIS and value chain approaches by research scientists and other stakeholders.
- Enhanced understanding of AIS and VCD approaches and how to integrate them in proposal writing and implementation phases of ASARECA's second operational plan (OP2).

2.0 TRAINING METHODOLOGY

The facilitators used participatory learning process which appreciates and builds on participants' existing knowledge. At the beginning, participants were asked to state their expectations and these were leveled with the course content. Facilitation was highly interactive with the facilitators aiming to link the contents to the researchers' personal experiences and expertise. ."Learning by doing" and "Learning from each other" were the principles underlying the training and learning processes. The basic content of the training was derived from ASARECA'S training manual on AIS and VCD

Overall the workshop employed various participatory approaches were used to promote maximum participation:

- Brief & interactive presentations by the facilitator to introduce various concepts, principles and approaches in AIS and VCD (questions and discussions encouraged during the presentation)
- Plenary exercises
- Brainstorms
- Group work, followed by presentations and plenary discussions
- 1 day of field visit to NALRO Horticulture Research Centre in Thika to provide participants with deeper insights on how innovation systems perspective and value chain analysis can be integrated in agricultural research

A Participant Presenting Group Work to the Plenary

3.0 WORKSHOP OPENING & BACKGROUND

3.1 Welcoming and Opening

The ASARECA Head of Partnerships & Capacity Development Dr. Joseph Methu welcomed the participants and facilitators. He led the participants to introduce themselves by stating their names, country, institution and work area. In his openings remarks, Dr. Methu underscored the significance of the AIS and VCD capacity building training, re-iterating why scientific research should translate to development.

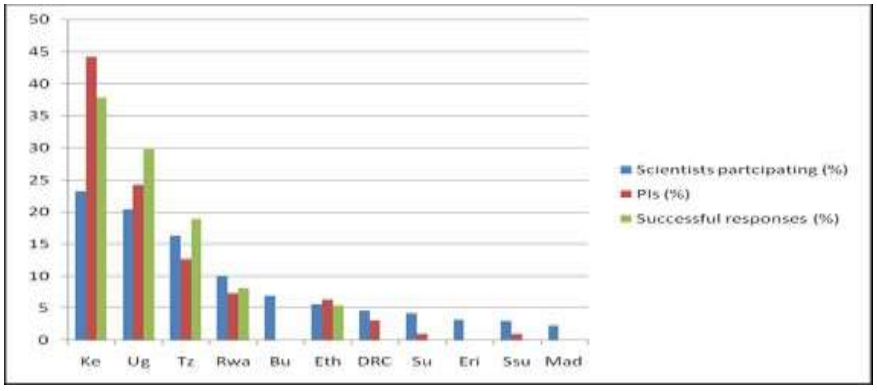
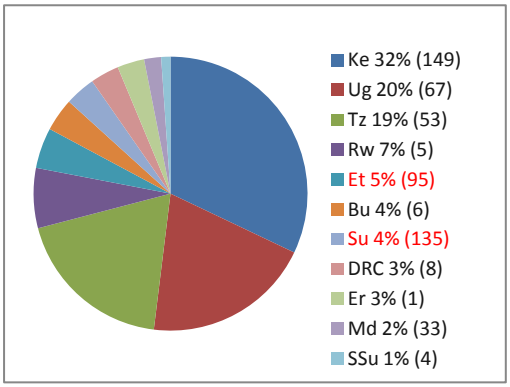
3.2 An Overview of ASARECA and PCD programme

The session started with a brief presentation of ASARECA background by Ms Doris Akishule of ASARECA. Dr. Methu subsequently took the participants through ASARECA'S capacity building for NARS. He discussed the PCD objectives, challenges identified in PCD strategy; PCD areas of capacity building; background to less competitive NARs, Asareca grant absorption-2009-2012; Response to Asareca calls & award of grants, Human Resource assessment of the 6 NARs and the intervention Areas which include AIS and VC capacity building.

Summary of Key Messages

Capacity Building For NARs

- ASARECA NARS can be categorized as:
  - 3 strong - Kenya, Uganda and Tanzania)
  - 6 less resourced or less competitive- Eritrea, Burundi, Rwanda, DRC, Madagascar and South Sudan
  - 2 that require further assessment to understand the reasons for low participation in CGS - Sudan &Ethiopia
- Areas of intervention in current initiative
  - Graduate training MSc, PhD
  - Short courses for enhancement of skills – e.g. understanding AIS & VCD
  - Institutional mentoring for NARS
  - Support to research infrastructure
- Less represented NARS Background issues;
  - Low participation of some NARS in ASARECA research activities especially projects under Competitive Grants System (CGS)
  - Non-English speaking countries seem disadvantaged in competition for grants

Response to ASARECA calls and award of grants: 2009 – 2012 37 calls, 95 responses, 564 Scientists participating	ASARECA Grants absorption 2009 – 2012* *Number of PhD on staff in parenthesis
	

3.3 AIS Historical Background

In this session, Dr. Methu discussed the historical background to Agricultural Innovation Systems (AIS). He underscored the significance of the AIS and VCD capacity building workshop and wished the participants a fruitful and interactive learning. Dr. Methu subsequently opened the floor for questions from the participants.

- Historical background points out that the investment in research and volumes of research products are available, yet Africa is still straddled with poverty and hunger. There is need for multi-stakeholder participatory approaches to rural innovation based on collective action, integrative learning and institutional change.

- The evolution of program designs has been driven by the increasing recognition and acknowledgement of the role of famers and related institutional arrangements that support better problem identification and solution development where the farmers are involved.

Evolution of ARD approaches

Era	1960 & 70s	1970s and '80s	1990s	Current
ARD Approach	Ministry's research department (Pipeline approach)	Farming Systems Research	Farmer First / Farmer Participatory Research	Interactive Learning for Change/ Innovation Systems/IAR4D
Model of activities	Supply through pipeline	Learn through survey	Collaborate in research	Interact and learn for innovation
Farmers role	Progressive adopters, laggards	'Objects' of study	Colleagues	Key actors among many others

- In the beginning of this century, agricultural innovation system referred in various terminologies but meaning the same thing. Value chain development emerged at the same time with a focus on how the commodity being addressed will contribute to economic development. Emphasis is on increasing demand for multi-stakeholder relationships. In these multi-stakeholder relationships farmers are recognized as crucial actors, part of the complex systems that will deliver innovation. They are now acknowledged as experimenters as well as business oriented entities. To support their innovations, farmers must be involved in related research, extension and production systems.

<u>Principles of AIS</u>

- Integration of technological, organizational, institutional and policy options.
- Inclusive, participatory multi-stakeholder partnerships
- Interdisciplinary functioning teams.
- Knowledge generated by all stakeholders

- Learning-by-doing
- A survey conducted between 2008 and 2010showed that few ASARECA projects applied all IAR4D1 principles fully. This led to decision by ASARECA to develop capacity related to AIS and VCD. Hence the purpose of this workshop is to arrive at a common and enhanced understanding of AIS and VCD concepts amongst partners working on ASARECA and BeCA-ILRI projects

Reaction from Participants

Question: You say there are stronger countries like Kenya. But within Kenya we have upcoming scientists. How do you help them also participate in competitive proposal development?

Response: We are not saying we are not going to build capacity for Kenya. We are still building capacity for Kenya and there is a lot of need for it. Once the grants come, there will be Msc and PhD programmes for Kenya and countries that participate in grants application. However, for Kenya, the scholarships will be given to those already working on the projects – you ought to have won projects to participate. This is because we have to leave within available resources. The move right now is to direct as much of resources to the 6 less participating countries, whether they are winning grants or not. Lastly, you note that although this training is designed for less participating countries, Kenyans and Zambians have also been invited. Whenever we get opportunities we invite them

Question: It is very important to learn about AIS as our background is basic science. How do you relate this basic science training with agricultural innovation system? It is important to us particularly when we are writing grant

Response: This course is about relating the AIS & VCD to science.

Question

1. You have talked about partnership in Asareca, We have fewer scientists, and they have collaboration from different countries like TZ, Rwanda, Kenya and Ethiopia. That's why they write grants they don't get funds because the grants are competitive. Why can't Asareca support and encourage young scientist in Asareca region to get grants so that they can transfer knowledge to others scientist in the region
2. There are young people graduating in all Asareca countries and they go back home after such training they don't have facilities. Do you have programmes to mentor and empower them for example by providing them a small package in terms of basic equipment to use at home in addition to the training?

Response: We have no specific programme in Asareca to support young scientist due to lack of resources. However, we do our best and try to link them up with other organizations for example AWARD that encourage young women. We keep our ears open for any opportunities for young scientist. Demand is so huge in the 11 countries. Our work may not be felt widely.

[1] IAR4D = Integrated Agricultural Research for Development

Question: How have you dealt with language challenges ie French speakers in the capacity building programme?
Response: When we started this cap building program, we never used to have translators 5 years ago and we realized they did not pick as much as we wanted. We now make sure that in all our trainings we have translation. We are more bilingual than we were. Besides Asareca documents are bilinguals e.g. websites provides for French

Question: Kenyans can do PHD and Msc in their own countries. For us we have to compete for ASARECA scholarships. What are your plans for the less represented countries to get PHDs Scholarships?
Response: We are looking for resources. For example we are developing a concept to work with Chinese Academia Agricultural Sciences who have said they will offer scholarships. Asareca will direct most of the scholarships to your countries, but we expect they will be many enough to spread to other countries. We will give priority to countries needing them most.

We are looking for scholarship opportunities from many other donors. However, we don't have any scholarship at the moment as we have just implemented an Operational Plan1 (2008-2013) and are just starting OP2 (2014 -2018). We are currently looking for resources including scholarships for OP2 and will get back to you. We have written to Director Generals of Research to give as a listing of areas that are most critical and to indicate whether they have staff who can train in those areas. This is to ensure we have proper data base and also as we must ensure that whatever we ask for is available in universities we want to take people to. The Chinese organisation has asked for the database. Looking for scholarship and opportunities is an on-going process in Asareca.

Question: Capacity Building – In S. Sudan and Ethiopia, our research is within the Ministries. We thank Asareca for the capacity building for our countries. The Scholarships we get mainly target breeding while we have other units besides this one. Will Asareca look into the other options and will it be possible to apply?
Response: The countries have had their own internal problem especially Ethiopia because research institutions are public/government owned. Institutions in the two countries have a lot of bureaucratic issues hampering their participation. We have sensitized and discussed with them about innovative ways to get through these handicaps. We are now getting improvement in both Ethiopia and Sudan following Asareca interventions

Question: The East and Central Africa regional grouping has 350 million people and those participating in ongoing training are very few. Why can't Asareca have a programme to go in-country and develop capacities rather than have regional grouping where there are very few people? I mean short course like this one and not Msc and PHDs. This will help to develop capacities so that they can be competitive.
Response: This kind of training cannot reach 350 million people in ECA. What prioritize to work with people who can make impact in their institutions and reach others. We mainly work through Director Generals of Research who are sitting in our board of governors to help us target what we deliver. So you are lucky to have been nominated to attend this training.

Question: Is Asareca engaging private sector and policy makers in its work? It's not clearly coming out. For example attracting better remuneration for scientists require engaging policy makers.
Response: in brief, we do a lot of work involving the private sector. For example this week on Thursday we have forum bringing key private sector players from the region and Asareca managers. The meeting is convened by Asareca and the East Africa Grain Council – a civil society organization in the grain industry. The meeting will discuss the role of private sector in research and how they can support research. Besides this forum, we are involved in a project called Universities Business & Research in agric Innovation (UNIBRAIN), a continental programme to help develop agribusiness/private sector in Africa. This is basically about developing private sector. On Policy we have Policy Analysis and Advocacy programme of Asareca and there is a lot in engaging policy makers to deliver development. One of the major focuses is to develop regional trade

Question: Can Asareca develop relation with higher institutions and develop centres in the institutions instead of moving scientists from less represented countries to Kenya?
Response: We look at capacity Building in 4 angles and one of them is building capacity to build capacity – we have projects and programmes e.g with RUFORUM- a regional universities forum. We avoid working directly with universities but work with networks that can help us reach the universities

3.4 An Overview of BeCA-ILRI Hub

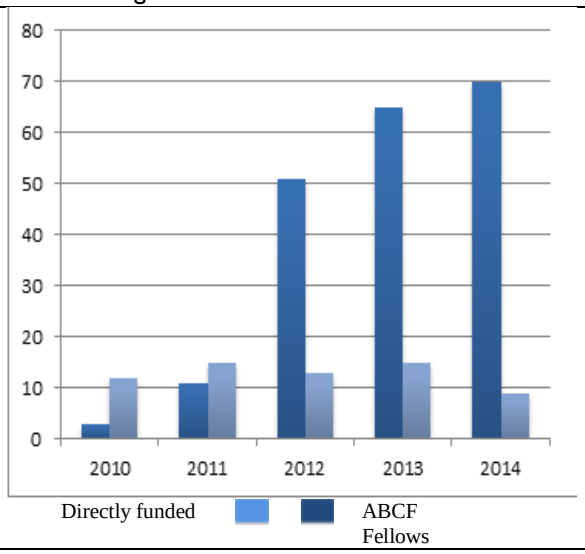
In his opening remarks, the Team Leader of Capacity Building at BeCA IRLI Hub, Dr. Wellington Ekaya welcomed the participants to BeCa and thanked them for attending the AIS and VCD training. He then proceeded to give an overview of BeCA, focusing on BeCA objectives, core activities, research themes, ABCF programme and the BeCA-ASARECA partnership;

Summary of Key Messages

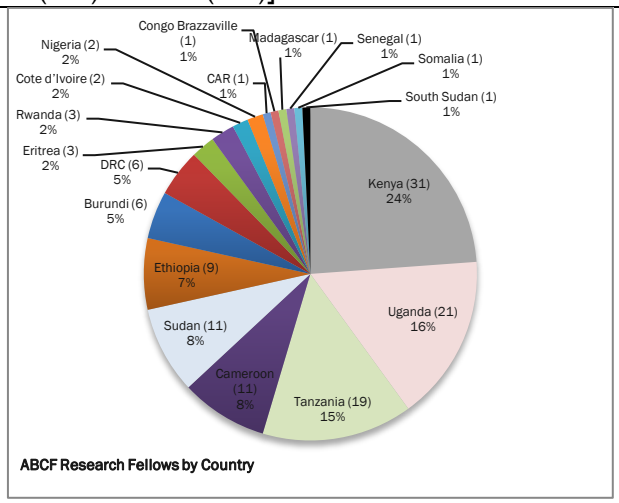
- BeCA core activities: Research, Capacity building - ABCF, Technology platforms & research services; Focal point for the agricultural research community in Africa; Product development and delivery
- Research Themes: Livestock; Crops; Nutrition & food safety; Climate change; Underutilized crops & animal species
- ABCF: Funded by Syngenta. An increasing number of capacity building partners
- ABCF Research Fellowships - Building capacity through research, training, collaboration and mentorship:
  - Competitive
  - Provide research placements at Hub for up to 12 months
  - Capacity building through research and mentorship
  - Research on country/regional agricultural priorities

- Open to researchers from African NARS (greater focus on BecA Countries)
- CALL FOR 2015 – likely to open during the last quarter of 2014

ABCF Research Fellows 2010-2013
NB: Growing number of ABCF fellows at the Hub



ABCF Research Fellows 2010-2013 by Country [Female 43 (33%): Male 87 (67%)]



- ASARECA-BecA Partnership: Capacity building for the less competitive NARS
  - ASARECA capacity building initiative
  - BecA (ABCF) - ASARECA co-funded research placements at BecA
  - To date: Over 15 ASARECA-ABCF Fellows (Burundi, DRC, Eritrea, Madagascar, Rwanda, Sudan)
  - ASARECA-BecA - proposal writing support for applicants

4.0 SUMMARY OF WORKSHOP SESSIONS & DISCUSSIONS

4.1 Participants' Expectations

Each participant was asked to write on manila cards, their expectations for the training which were leveled with the course content. In addition, a pre training test was administered for each participant to determine their confidence levels in various topics. The same test would be administered at the end of the workshop and both results analyzed to establish whether participants' confidence in the topics have improved with the training (see section 5.2: Evaluation of the Workshop)

Participants' Expectations

- To learn how to Identify research theme priority according to AIS and VCD approach
- To understand AIS and value chains and fully know how to apply it in a real practical

situation

- To have a knowledge of how to bridge science and value chain, and to know the exact point when this should apply
- To know how the scientist can involve in the AIS and VC activities and if it is possible to do both at the same time
- To Know how this training will have impact in my area of study-research
- To Learn how to link my training in basic science research with agricultural innovations that are pro-poor
- To understand better the impact of science from the laboratory to the field
- To Know the approaches used to encounter challenges facing agricultural development
- To learn how AIS solves problems in agriculture so that farmers and marketers improve their lives
- To understand the relationship between agriculture and markets
- To learn how to write a research proposal for fund/grant
- To learn how I will incorporate AIS and VCD in future proposal development
- To acquire capacity to analyze market potentials as well as impacts/outcomes of a project
- To learn how to determine what VC is good for particular context
- To initiate collaboration and partnership with the participants
- To understand the role of ASARECA is

4.2 Ground Rules

Ground rules were set by the participants to guide the rest of the training process. They included the following: time keeping, closing computers, switching phones off/ silence mode, active participation, and avoiding disruption. These basic rules formed the learning contract between the facilitators and the participants for the training period.

4.3 Defining Innovation and Agricultural Innovation Systems

In this session, the facilitator took participants through the concepts of innovation, innovation systems, Innovation Systems Perspective (ISP) and Agricultural Innovation System (AIS). He outlined the essentials of AIS and led the participants in sharing their own experiences of innovation and related systems

Summary of Key Messages

- The simplest definition of innovation is 'anything new introduced into an economic or social process' (OECD 1997). The most useful definition of innovation in the context of R&D is 'the economically successful use of invention '(Bacon and Butler 1998). Here invention is defined 'as a solution to a problem'. The transformation of knowledge into products and processes does not follow a linear path, but rather is characterized by complicated feedback mechanisms and interactive relations involving science,

technology, learning, production, policy, and demand. Taking a brilliant idea through, on an often painful journey to become something which is widely used, involves many more steps and use of resources and problem solving on the way.

- Innovations are not limited to technological (both product and process) innovations only but also include institutional, organizational, managerial and service delivery innovations. This emphasizes the notion that the responsibility of agricultural research organizations does not end with the production of new technology or knowledge only. They can claim success when their inventions are being disseminated, adopted and used.

- The four basic requirements for innovation are that it (1) is something new to the user, (2) is better than what currently exists, (3) is economically viable (and socially desirable), and (4) has a widespread appeal.

Innovation System

- An innovation system is the group of organizations and individuals involved in the generation, diffusion, adaptation and use of new knowledge and the context that governs the way these interactions and processes take place. In its simplest, an innovation system has three elements: the organization and individuals involved in generating, diffusing, adapting and using new knowledge; the interactive learning that occurs when organizations engage in these processes and the way this leads to new products and processes (innovation); and the institutions (rules, norms and conventions, both formal and informal) that govern how these interactions and processes takes place. An innovation system can be defined at different levels: national, sect oral, commodity and intervention based.

Agricultural Innovation System (AIS)

- A collaborative arrangement bringing together several organizations working towards technological, managerial, organizational and institutional change in agriculture can be called 'Agricultural Innovation System'. Such a system may include the traditional sources of innovations (indigenous technical knowledge); modern actors (NARIs, IARCs, advanced research institutions); private sectors including agro-industrial firms and entrepreneurs (local, national and multinationals); civil society organizations (NGOs, farmers and consumer organizations, pressure groups); and those institutions (laws, regulations, beliefs, customs and norms) that affect the process by which innovations are developed and delivered.

Innovation Systems Perspective (ISP)

- An innovation systems perspective (ISP) implies the use of an innovation lens in the design, implementation, and evaluation of the activities of the various actors involved in the innovation process.

Reaction from Participants

Comment: I appreciate the figure(Value chain framework) but sometimes even policies matter, especially regarding the products you are producing, for instance in Uganda; we are still struggling to get biotechnology policy to go through. So sometimes that flow can exist but there are underlying factors that predetermine the flow of that chart.

Response: I agree, this affects how innovation processes take place. One of the most important aspect in Value chains and agricultural innovation systems is the importance of policy and regulatory environment that governs a given value chain or a given sector. It is critically important that we have the right framework conditions; policy, legal and regulatory environment, which puts in the rules of engagement. And it is these rules of engagement that will then guide the efforts of research that will contribute to innovations that will happen. So I agree with you that impact of policy, laws and regulations has a significant effect on how innovations processes take place and the example that you have given us (biotechnology act) unless that is put in place it will not be clear to what extent you as researchers in your breeding work can be able to introduce products and if government of Uganda allow and what implications does modified organisms have in agricultural (for example In seed market or in the safety of food products coming to the markets.

Question: Do we have a system in Africa which protects the innovations in Agriculture? Do we patent like intellectual property rights?

Response: If I understand your question, you are basically asking whether in Kenya there are systems or a policy (legal and regulatory environment) that protects innovations (like plant extracts). The situation is different in various countries but a lot of countries have not put in place policies that guide the work in the use of plant extracts for production processes, for example in medicine and so on. In Kenya I know there are such policies that have been developed particularly on pharmacy but depending on the country the initiative is usually taken up by the private sector.

Question: In south Sudan there is a tradition of using milk as oil (traditionally changing milk into oil). Is this an innovation? And how do we recommend this in research?

Response: Ok. You say there has been a traditional process in South Sudan where milk has been converted into oil for consumption purposes. The point here to understand is that we all know that indigenous knowledge exists in our different countries and it plays an important role but we as researchers have the duty of validating if indeed the products that are coming from this indigenous knowledge and processes have got a commercial value and meet the needs that they purport to meet. On whether that is an innovation, yes it is a product innovation because milk is being converted into oil.

Question: Does innovation has to add value to each actor along the value chain?

Response (Participant): In my view the innovation can add value to one actor along the value chain but it depends on the type of innovation, if it's a very important innovation it can impact all the actors along the value chain at different levels

Response (facilitator): Let us take your example of boiling cassava in oil. Please give us the benefits that have resulted from that innovation and which actors have benefited?

Response (Participant): The benefits are that it improves the taste if you compare with previous methods. And when you look at it, it is actually the final person (consumer) who benefits the most.
Response (facilitator): So we have the consumer getting a quality product, traders who benefits from increased sales. Increased sales to the traders are also benefiting the producers because they are selling more. So we can see here as he said, benefits will accrue to different actors. A lot of times innovations do not just benefit one actor, they benefit multiple actors. The level of benefit of course is different depending on the actor but here we are interested in the aspect that; (1) accrue to more than one actor and (2) the level of benefits is different (actors benefit differently). The benefits would not necessarily be of financial nature but the final consumers also benefits from improved dietary choice, as well as nutritional security.

Question: After listening to your talk am wondering; do all the innovations qualify or warrant to be patented and how does patenting come in? How does it affect innovation? In my opinion, I think Innovation has an aspect of IPR (intellectual Property Rights)
Response: Remember that we have three categories of innovations; products, operational or system innovations. These innovations are investments by organizations in terms of money, time and other resources. These organizations could be public or private. Let us begin with private organizations which have invested their money, time and other resources because they want a return on investments. So patenting is one of the ways that private organizations are going to protect the investments. This means they have exclusive rights and hence they would be able to commercialize the products or the process they have developed, meaning they will be able to recoup profits from their investments. Public organizations e.g. a research organization is investing tax payers' money into developing products or process innovations. They are existing in order to create a public good which is in form of new products or services for them, they would be patenting as they want to protect this idea, product as a national property, or an organizational property. Not necessarily for commercialization, but for recognition of the work and protecting their investments in form of tax payers' funds. While it is true not all innovations are going to be patented, it is important especially for private enterprises because it is the only way they are going to make revenue.

Observation/comment: When you talk about innovations in agriculture, all the time, you talk about national level; I think because we come from different countries they should have a one platform like in Kenya and other countries.
Response: I understand your question to mean that the participants here come from different countries and what we should have is one innovation platform. I will disagree with you because for innovation system to be effective it must problem/demand led. In other words a challenge in a given enterprise (value chain) informs the development of an innovation system (Innovation platform). The challenges in any given value chain are very specific to a country or to a region. Therefore in response to your comment, the formation of innovation platform is driven from the grass root where we have local innovation platforms but then developing to national and then to regional platforms. This ensures participation and representation of all the stakeholders for ownership and sustainability.

Question: Some of terminologies that are being used are interesting. Is innovation platform synonymous with cooperatives?
Response: I agree with you that some of these terminologies can be challenging. No, they are not the same; they are totally different because an innovation platform is simply an umbrella organization that brings together the stakeholders who are interested in addressing certain issues. They come together to enhance communication, identifying and prioritizing the needs, and developing strategies that are going to address those needs. An example of an innovation platform is the National Potato Council of Kenya. A cooperative society would be for instance, the lead firm which has initiated the process of formation of innovation platform, it could be the one providing the meeting venue, or the one that have taken the role of secretariat, calling for meetings, communicating to the rest of stakeholders etc.

Emphasis': Just to add to what my colleague has said, in short what you are saying is that before this came into effect like innovation platform, we have been having this but in different names for example, you have mentioned about the Potato Council of Kenya as one of innovation platform and the people who formed it did not know that was an innovation platform.
Response: That's what I am saying exactly! These platforms could already be in existence, because in mature value chains it is in the interest of stakeholders particularly the private sector who feels the threat to their businesses. For example the fruits and vegetable sub-sector in Kenya has been facing sanctions from European Union because of exceeding the MRLs (Maximum Residue Levels). The sanctions threaten to wipe out billions invested by different private companies. The export companies have not been waiting for development organizations to come in and help them to organize themselves, they have over the years held various stakeholder meetings which brings in manufacturers of pesticides, or plant protection products, the export companies, the regulatory bodies such as the horticultural development authority, the ministry of agriculture, licensing organizations plant health inspectorate services etc. they have been meeting regularly over the years. That of course is a platform that has been active and a number of innovations to address the problem have arisen.

Question: I would like to have some clarifications. You did mention that in market modeling there should also be some contracts between various actors. I wonder whether the market is the exchange platform between the actors because the contracts would probably focus or rather pertains to clauses that bind the actors within the market.
Response: Well I did not say that there must be contracts, what I said is that, it is your responsibility to examine the landscape within that value chain and understand the current market models or conditions that exists and propose ideal market conditions. A lot of under developed value chains do not have formal documented contracts between a buyer and the seller, they have what we call arm-string relationships or on spot markets, where as a producer i avail the products, the buyer buys my product based on quality and quantity that i have put forth on the market. These relationships are not stable and do not auger well with long term development of that value chain. The buyer in most cases does not invest in capacity building of the producer to avail products that meet his requirements as a buyer in terms of quality and quantity specifications. So what we would propose, is once you carry out that examination of

landscape and find out that is the situation, it is possible that you would propose that for long term investments and to spur investments in the value chain, contracting is the way forward, where formal documented contracts that specifies quality/quantity, time of payments, prices during times of gluts and times of scarcity, and obligations of seller and that of buyers etc. This brings confidence, and once buyers have confidence, they are willing to invest in terms of training, infrastructure or physical hardware or soft hardware that will help the producers meet the requirements of the market.

Group work Outputs

1. Describe the stakeholders/actors in the enterprise
2. Identify and list down the innovations that have taken place within the enterprise. Justify why they are innovations

GROUP	STAKEHOLDERS	INNOVATIONS
1. Maize	Donors; KARO/NARO(KARI,NIBS; Seed companies Farmers; Extension staffs; Millers; Middle men Supermarkets; Consumers	
3. Rice	Input providers; Farmers; Traders; Processors; Consumers; Policy makers; Research Institutions; Certification agencies; NGos	Improved Varieties - High yielding; Disease and drought tolerant Improved -Iron and zinc- micro nutrient deficiencies; Colour-yellow ,red, white Quality
4. Improved Local Chicken	Seed producers; Meat producers; Eggs producers; Builders; Feed sellers; Middleman; Hotels/Rests; Extension; Processors	
5. Sorghum/Groundnut	Ministry of Agriculture, Ministry of Science; Researchers/scientists; Extension workers; Farmers; Traders; Consumers	Varieties which are resistant Agronomic improvement Processing improvement

4.4 Integrating Value Chain Approach and ISP into AR4D

In this session, the facilitator gave a brief introduction on the value chain concept and outlined the similarities between Value chains and Agriculture Innovation Systems. He explained why value chains, AIS and AR4D concepts are reinforcing and complementary and discussed the challenges involved in embracing these concepts in research institutions. The procedure for integrating and applying these concepts in the real world research processes was discussed and shared with participants. (See annex6.3 ... Guidelines for Integrating Innovation System and Value Chain Analysis in AR4D)

Summary of Key Messages

- The objectives and levels of operation of an agricultural innovation system and value chains can be similar. Value chains and an agricultural innovation system can operate at multiple levels and can pursue various objectives. Common developmental objectives of value chains and agricultural innovation system include poverty alleviation, employment generation, food security, agricultural and rural development and economic growth.

- Agricultural innovation systems can operate at the individual, farm, community, regional, national, or international levels. Value chain analysis could also identify leverage interventions at similar levels.

- Innovations in a value chain should not be limited to improving the performance of existing chain actors, but also to expand opportunities for the poor smallholders who may otherwise be left out from benefiting as actors in the value chain. In this regard, an ideal innovation or set of innovations in a value chain is one that improves the competitiveness of the chain and ensures fair distribution of returns among chain actors.

- Innovation systems help create knowledge, facilitate access to knowledge and its application to achieve economic, social and environmental gains. Information flow up and down the chain can trigger innovation in a particular stage of the chain, or on the way chain stages are organized and coordinated. In other words, innovations in a value chain can focus at a particular stage of the chain, or span across several or all of the value chain stages in terms of how they coordinate their activities. Innovation capacity of the value chain, the ability of chain actors as a group to innovate and respond to changing consumer demands, is, therefore, a sum total of the individual innovation capacity of the actors in the different stages of the value chain.

- The constellation of value chain actors and the business development services supporting a value chain constitute the innovation system of that particular value chain

- Innovation possibilities in value chains are diverse and can relate to input supply, production technology, production organization, post harvest technology and management, processing, marketing and market functions, the supply of business development services, and policy and regulatory issues. In this regard, the links in the value chain stages provide new possibilities for innovation aimed at improving the performance of the chain. It offers opportunities to select research from several options, with stakeholders input and implementation, and the generation of products and services with immediate value. In practice innovation systems are constructed to solve "local" real world problems using a value chain approach. The diagnostic process allows priority problems to be addressed anywhere along the value chain, and an innovation system can be constructed around these problems.

- Successful dynamic improvement in value chain performance critically depends on the ability of the chain actors to acquire, absorb, disseminate and apply new technological,

organizational and institutional inventions in a continuous manner. Hence, the innovation process in value chains should embrace continuous improvements in product design and quality, changes in organization and management of operations, institutional development in input supply and procurement, marketing, and associated business development services, and modifications in the production and post-harvest processes.

- Both value chain analysis and innovation systems perspectives in agricultural R4D are complementary and share a number of key features. These include: value addition (social, economic, and environmental) focus on creation of new knowledge and the novel combination of existing knowledge; emphasize on institutions (both formal and informal), emphasis on partnership, networking and interactive learning; and a need for cultivating wide range of attitude and practices among the R4D practitioners.

- The three key paradigms, integrated agricultural research for development (IAR4D), ISP, and VCA, are impact-oriented and complementary. IAR4D stresses that research is a means to an end, and the end goal is development. VCA on the other hand broadens the scope of research beyond the farm level, indicating that innovation can occur anywhere along the value chain, making the entire process much more effective and competitive. An ISP stresses that, unless knowledge and information are transformed into products and processes and used in socially and economically meaningful ways, it will not become innovation

4.5 Introducing the Value Chain

In this module, the facilitator gave an introduction to the value chain approach. He defined the concept of a value chain, pro-poor development and gender in relation to pro-poor value chain development. He outlined how the value chain approach can contribute to poverty reduction and sustainable development.

Summary of Key Messages

- Value chain refers to all the activities and services that bring a product (or a service) from conception to end use in a particular industry—from input supply to production, processing, wholesale and finally, retail. It is referred to as a VC Because value is being added to the product or service at each step.
- Some of the ways in which value can be added to the products include processing (e.g. grading, washing, preparing for the table), certification of organic produce (which sell at premium prices) use of niche market products (exotic fruits, herbs, biomedicines, etc) or the development of a premium and recognizable brand name.
- Enterprises in value chains seek sustainability, lower costs, higher quality, more social responsibility and new ways of coordinating their activities at local, national and international levels.
- The value chain is private sector-driven. It is not a project, but built on private interests and initiatives.
- The chain is demand-driven, and focuses on satisfaction of consumer needs through a

process of value-adding.

- Value chains provide profitability to all chain actors (but not equality!).
- Value chains are between preferred business partners (to the exclusion of others!).
- Chain actors perform specialized functions in recognition of mutual interdependence (synergy from specialization). They (the actors) cooperate to achieve the shared interest – consumer satisfaction at the lowest cost possible). Chain actors may undertake joint activities (innovation, policy dialogue) and maintain a chain governance system

Reaction from Participants

Question: This issue of trust in value chains is very important. You want the private sector to come in but they understand the language of profits. The people who are in charge of firms never come out clearly on the table, so this lack of trust to me poses a challenge when it comes to upgrading the value chain, how do you tackle it?

Comment: Do we have any experiences from other participants that they can share on the same point?

Response from a Participant: I think the issue of private sector is one of the most difficult challenges that we would face - to bring on board especially those that are very strong and powerful. But from my experience again, i think it depends on who calls the shot, if you are very influential you can have private sector coming in. I remember in one of the projects that I am handling the issue was; how do we bring the private sector on the table so that the product can be marketed. Our institution did not manage, but when we had other influential partners such as the World Bank, it was easy to bring the private sector to the table, that's my experience.

Comment (another Participant): Yes to bring trust, between development organizations and private sector it is also possible to organise agricultural exhibitions, bringing together farmers, resource institutions and the private sectors so that the private sector understand what is happening at production level.

Comment (facilitator): From my experience, the private sector largely believes that "the business of business is business". The investors (private sector) will not come on board for the sake of it; they will only come if there is a business case. One strategy that I have seen is to have a very strong business case, that clearly demonstrate that there is business and there is money. Another reason why private investors will not be willing to come in is because of risks that are involved in investing. One of the strategies that have been used is facilitating strategic funding to buy off some of the risks. You invest together with the private sector to feel comfortable to come on board.

Comment (a participant): At times also it is good for such initiatives to be taken over by the private sector for example if you called a meeting like you said, let it be the private sector taking that initiative and you take the role of backstopping in such engagements rather than we especially government public institutions taking the lead. That is one of way of gaining confidence in both parties.

Comment (facilitator): Well, the question of trust and bringing the private sector has always been an issue that has always arisen in these meetings. Building trust is a process, it is not an event, it is a key fundamental for you as researches and most importantly as representatives of facilitating organizations. It is a long process that may involve mentoring, couching, discussing

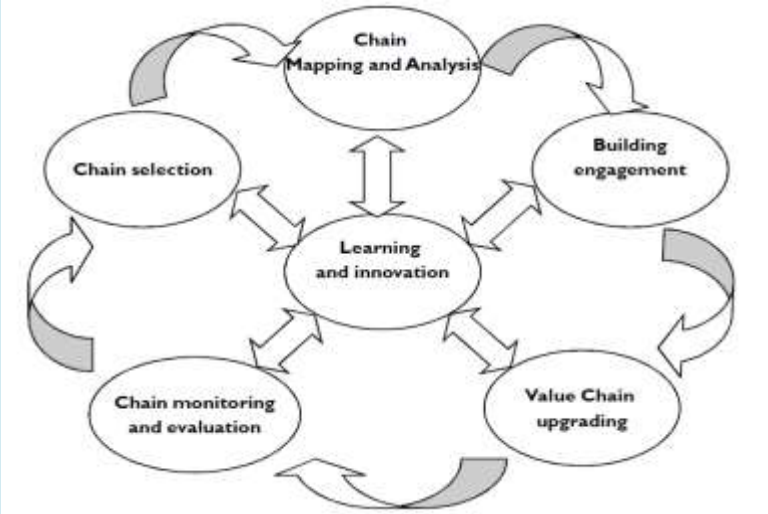
and meeting many times with these private sector organizations. It is because of these regular stakeholder/actors meetings, mentoring, discussions etc. that will begin developing the trust.

Question: It seems like some of the value chains in your presentations have other value chains inside them. Why?
Response: The question is based on distinguishing between the value chain and the market channels. Value chain is defined as a set of interrelated activities that are aimed at converting raw material into a final product that can be consumed by the end customer. Marketing channels are ways and routes of how products get to the final consumer. A good example is from farmer to final consumer or from farmers through traders to final consumer. A value chain is more encompassing; it not only shows the channels but also shows set of activities and the linkages between those activities as well as host of other dynamics and includes relationships among actors in the value chain.

4.6 Value Chain Selection

In this session, the facilitator provided a snapshot of the steps involved in value chain development as shown in the diagram below. He then zoomed into step 1: Selecting the product or market from among the various development options in a community or target area, that is likely to contribute significantly to its development. The step covered how one can identify several potential value chains in their work context, how to develop a criteria and sub-criteria for evaluation of commodity value chains, how to use criteria and sub-criteria in prioritizing between a variety of value chains and how to rank and select value chains for promotion. The session ended with group work on value chain selection using the attractiveness matrix (See group outputs below)

Value Chain Development Process



Summary of Key Messages

- Value chain selection is done to prioritize chains with high potential to meet project objectives. It's a participatory process involving farmers, local policy and decision makers, private sector actors, service providers, development organizations and community representatives (M4P, 2008).
- All value chain selection tools are subjective. An attempt is made to add rigor and structure to reduce bias. In pro-poor VC development, market potential /competitiveness and pro-poor impact potential are major criteria that should be used in chain selection.
- In determining how many value chains need to be analysed for promotion, it's important to consider the time and resources available for comprehensive analysis as well as subsequent implementation.
- While value chain selection must be done at the onset of a new project, it is important to note that selection and analysis may be reviewed at later stages in the project due to a variety of factors such as:
    - incomplete information
    - incorrect assumptions during the initial selection,
    - lack of stakeholder commitment,
    - new end market opportunities and threats,
    - Unanticipated enabling environment constraints

Reaction from Participants

Question: How do you protect farmers from unscrupulous people – like some suppliers and buyers who cheat farmers for example in the recent quail craze in Kenya in which farmers produced quail en-masse but there was no market?

Comment: One intervention is to provide farmers with the right market information for their products – For example using fliers, radio, TV and community gatherings

Question: Let's say for example you identify demand say export market for horticulture and you secure order. Then later the export company cancels the order explaining they have many other orders. So even after doing everything including value chain selection along the way things fail to work out.

Response 1: Value chain selection can be revisited. There could unexpected changes in the end market- for example Khart in Kenya and Vanilla in Uganda, so one way to address this is to change chain.

Response 2: The scenario you have described does occur a lot of times. Say French beans. Export Company delivers to European importer but the consignment may be rejected. This could be an isolated case – it's one of the market dynamics that happens in business. The producers contracted by this specific company are affected. But this may not be happening in all companies.

Response 3: It is important to involve private sector who understands the end market. It is important you facilitate farmers to get binding contracts.

Question: In chain selection, you said that it should be participatory to get proper guidance

Response: Yes you involve stakeholders for ownership of the process and to provide information

Group outputs on chain selection

Group 1: Madagascar						
Criteria	Sub-criteria	Weight	VC 1	VC 2	VC 3	Rice
Competitiveness - 30	growth potential	6	4	3	3	5
	high market demand	8	7	7	8	8
	proximity to markets	5	3	4	4	4
	potential for value adding	4	2	3	3	4
	unique products	4	0	0	0	0
	lower cost of production	3	1	2	1	2
subtotal		30	17	19	19	23
Propoor impact Potential - 30	# of rural households benefiting	5	4	5	4	4
	Potential for Labour Intensive tech	4	1	1	1	1
	Low risk	5	1	2	3	4
	Promotion of equity	4	4	4	4	4
	Low barriers to entry for the poor	5	2	2	2	2
	Employment creation	7	3	3	3	3
subtotal		30	15	17	17	18
Food Security - 25	Availability and access to food	10	9	7	9	9
	Lower food prices	7	5	4	5	6
	Improved nutrition and health	8	5	7	6	4
Subtotal		25	19	18	20	19
Cross- cutting Issues - 15 points	HIV/AIDs mitigation	4	2	4	3	1
	Women's income opportunities	5	2	3	4	4
	Environmental compatibility	6	2	6	4	5
Subtotal		15	6	13	11	10
TOTAL SCORE		100	57	67	67	70
RANK			3rd	2nd	2nd	1st

Group 2:Kenya, Uganda and Zambia						
Criteria	Sub-criteria	Weight	Fish	Sweet Potato	Tomato	Dairy
Competitiveness - 30	growth potential	6	4	6	6	6
	high market demand	8	8	4	8	8
	proximity to markets	5	4	2	5	2
	potential for value adding	4	4	4	3	4
	unique products	4	3	3	1	4
	lower cost of production	3	1	3	1	1
subtotal		30	24	22	24	25
Propoor impact Potential - 30	# of rural households benefiting	5	2	5	4	3
	Potential for Labour Intensive tech	4	4	2	3	3
	Low risk	5	1	4	1	2
	Promotion of equity	4	2	4	2	3
	Low barriers to entry for the poor	5	2	5	3	2
	Employment creation	7	6	2	5	5
subtotal		30	17	22	18	18
Food Security - 25	Availability and access to food	10	5	8	8	6
	Lower food prices	7	3	6	6	4
	Improved nutrition and health	8	8	5	5	8
Subtotal		25	16	19	19	18
Cross- cutting Issues - 15 points	HIV/AIDs mitigation	4	4	3	3	4
	Women's income opportunities	5	5	5	5	2
	Environmental compatibility	6	4	6	2	5
Subtotal		15	13	14	10	11
TOTAL SCORE		100	70	77	71	72
RANK			4	1	3	2

Group3: Rwanda, Burudi						
Criteria	Sub-criteria	Weight	Bean	Irish Potato	Milk	Coffee
Competitiveness - 30	growth potential	6	3	5	4	5
	high market demand	8	6	7	7	7
	proximity to markets	5	5	5	4	1
	potential for value adding	4	2	3	3	4
	unique products	4	1	1	1	3
	lower cost of production	3	1	1	1	1
subtotal		30	18	22	20	21
Propoor impact Potential - 30	# of rural households benefiting	7	6	4	5	4
	Potential for Labour Intensive tech	NA	NA	NA	NA	NA
	Low risk	5	3	3	3	4
	Promotion of equity	4	3	3	2	3
	Low barriers to entry for the poor	5	4	4	4	4
	Employment creation	9	5	6	7	6
subtotal		30	21	20	21	21
Food Security - 25	Availability and access to food	10	7	6	6	1
	Lower food prices	7	5	4	4	2
	Improved nutrition and health	8	7	5	7	2
Subtotal		25	19	15	17	5
Cross- cutting Issues - 15 points	HIV/AIDs mitigation	4	3	2	3	1
	Women's income opportunities	5	4	3	3	2
	Environmental compatibility	6	5	4	3	4
Subtotal		15	12	9	9	7
TOTAL SCORE		100	70	66	67	54
RANK			1	3	2	4

Group 4: South Sudan & Sudan						
Criteria	Sub-criteria	Weight	Sorghum	G/nuts	Maize	Sweet Potato
Competitiveness - 30	growth potential	6	5	5	3	2
	high market demand	8	8	7	6	4
	proximity to markets	5	4	3	2	2
	potential for value adding	4	3	2	2	1
	unique products	4	3	2	1	1
	lower cost of production	3	1	2	1	1
subtotal		30	24	21	15	11
Propoor impact Potential - 30	# of rural households benefiting	5	4	3	2	2
	Potential for Labour Intensive tech	4	3	3	2	1
	Low risk	5	1	1	1	2
	Promotion of equity	4	3	3	2	1
	Low barriers to entry for the poor	5	4	4	4	2
	Employment creation	7	4	4	4	2
subtotal		30	19	18	15	10
Food Security - 25	Availability and access to food	10	9	8	7	7
	Lower food prices	7	6	3	3	6
	Improved nutrition and health	8	7	4	3	3
Subtotal		25	22	15	13	16
Cross- cutting Issues - 15 points	HIV/AIDs mitigation	4	1	1	1	1
	Women's income opportunities	5	4	3	2	3
	Environmental compatibility	6	5	4	2	2
Subtotal		15	10	8	5	6
TOTAL SCORE		100	75	62	48	43
RANK			1	2	3	4

4.7 Value Chain Analysis

The facilitator highlighted the importance of value chain analysis and basic considerations on the methodology of chain analysis. He discussed the main tasks in value chain analysis i.e. mapping the value chain, quantifying and describing value chains in detail; analyzing economic sustainability of value chains, support services, chain relationships & governance, markets and chain context

In order to deepen participants understanding of the concepts, methodologies and application of the tools learned, group works one economic analysis, mapping of the value chains selected in the previous session and Market analysis were organized.

Summary of Key Messages

Value Chain Analysis

- Every enterprise or public agency working towards making value chains more competitive has to understand how it functions and learn from its failures.
- Chain analysis provides an overview and a good understanding of the specific economic realities. The results of these analyses are used to prepare decisions on objectives and strategies.
- Based on a shared value chain analysis, enterprises can develop a joint vision of change and determine collaborative upgrading strategies.
- Governments and public agencies use value chain analyses to identify and plan supportive actions as well as to monitor impact.
- Apart from its use in a development context, value chain analyses also help individual enterprises to take business decisions.

Value Chain Mapping

- A value chain map is a visual impression or representation of the structure and organization of a given value chain. It depicts in a visual way the following key features
    - The main functions of a value chain system: Production, processing, marketing and consumption indicating how the product flows.
    - The key value chain actors or operators indicating what they do and how they are related with each other.
    - The various services and service providers to support the chain actors (the meso level)
    - The various Non-chain actors who influence the chain (the macro environment)
- Chain maps are the core of any value chain analysis and are therefore indispensable. They provide a basic overview of the value chain structure to guide any analysis that is going to be undertaken. They help to trace the flow process of a product from the point of production to the end user or market (consumption) to assist in identifying constraints, opportunities and propose possible interventions.
- Maps help establish the interrelations between the system actors and the functions they undertake along the value chain. They help in the determination of business development services required to support the chain and areas where there is higher concentration.
- Value chain maps help in identifying the position and location of the poor in the system and hence how to target them for development.
- If conducted in a participatory fashion, chain mapping is not only an analytical but a communication instrument as well. It demonstrates the interdependency between actors and functions in the value chain, enabling actors to look beyond their own interest and collaborate.
- Collaborative chain mapping helps to build trust between groups of actors, facilitating

client-oriented services and improving the understanding of policy makers or private sector needs.

Economic analysis of Value Chain

- Economic analysis of a value chain enables the value chain facilitator to determine the extent to which the value chains are accessible by the poor (e.g. low income farmers). Studying actual costs and margins should be considered when establishing whether a given function of a value chain is accessible to potential chain actors. The analysis also determines if the value chain is a good source of income for them.
- Knowledge on costs and margins of actors functions in a chain help in identifying how operational and investment costs are distributed amongst the various enterprises. They also help in determining the extent to which operational or investment costs create barriers to participating in the value chains and, hence whether the 'weakest' actors can increase their margins. It helps determine if their position in the chain can be upgraded by making the chain more efficient (decrease costs) and effective (increase value).
- Historic trends of costs and margins, also present what the financial directions have been and whether the chain has potential to grow in the future. Some input costs are highly volatile (e.g. petrol costs); a sector that might seem to be profitable now may not necessarily be profitable later

Market Analysis

- Market demand and the interest of buyers are ´killer criteria´ in selecting a value chain.
- Identifying the market potential and specific market opportunities critical in market-oriented development approach.
- Market intelligence plays an important part at different stages of chain upgrading and promotion. It is needed for three main purposes, i.e.
    - to assess the growth potential when selecting a value chain for promotion
    - to identify market opportunities and formulate an upgrading vision and objectives
    - to design support action in line with demand conditions
- Lead questions in Market Research
    - Is there a market and how can it be characterized?:
    - Who are the competitors and how do they perform?
    - What are the conditions of market access?
- Market research is a private responsibility in the first place. Nevertheless, the value chain as a whole depends on the same end consumers - and a profound understanding of end markets is in the interest of all chain actors involved.
- External development agencies and facilitators may take it over to conduct, facilitate or commission market research as an essential contribution to chain upgrading.
- Methods of market research- Selecting an appropriate procedure among the many approaches to market intelligence follows pragmatic considerations in the first place.

Reaction from Participants

Question: Can one be an actor and at the same time supporter.

Response: Some supporters like NGOs and Research intuitions take role of actors i.e. embed themselves in value chain e.g. an NGO marketing or selling inputs. This is not sustainable as it clouds out private sector. You may also find an actor giving services to other actors e.g a cooperative providing transport inputs, credits and training- these services are called embedded services. Although the cooperative it's providing these services, its core function is that of an actor not providing the services

Question: Is there any criteria to judge a good map?
Response: Yes there is and we will use the criteria to assess the group works on mapping. The criteria for a good map are:

1. It must be understandable by a person who was not there when it was being drawn
2. Should not have more than 2-3 channels-otherwise it will be clumsy. Any chain map should fit a single page. Consequently, a small-scale map of an entire sub sector can only show a rough overview.
3. It must have a title and be context/area specific
4. The direction the map is oriented, either vertically or horizontally, depends on pragmatic considerations of space available. In presentations projected by a beamer or in participatory workshops it is more convenient to use the horizontal direction

Question: So if the Map has to be that simple, how do you show other information without making it clouded?
Response: It is important we begin the value chain analysis drawing the basic map, because at this early stage you don't even have adequate data. You populate the map as you proceed with the study. To achieve a more detailed resolution, the analyst has to pick out and enlarge a part of the first map. That part is mapped in greater detail and presented on a separate, second page. For example if you want to quantify the map in terms of volumes, prices, costs or number of enterprises - you draw separate maps or sections of the maps to illustrate the point . You end up with kind of an 'ATLAS' of value chain maps.

Question: When you talk of 'function' in a Map- are you referring to supporters' or actors' function?
Response: the term function when drawing a value chain map is applied with reference to the role of chain actors. Functions include production, trading, processing, wholesaling etc. For supporters we use the term support services for example training, market information, financial services, transport etc

Question: How do get the information for costing. Many actors of value chain, especially small holder farmers, some traders and small processors don't keep records

Response: Indeed economic analysis is a challenging task. You are correct, few farmers know their production costs, and this applies to other actors at different stages of the value chain. Empirical research is costly and does not guarantee sufficiently accurate data. In most cases, analysts will have to be content with rough estimates from triangulation of data.

Question: Is it really possible for one scientist to know and apply all these multiple skills in value chain analysis and even do all the work in value chain development.
Response: Not really. Value chain development is multi-disciplinary. You need social scientist and pure scientist. You work as a multi-disciplinary team. However it is important to understand the AIS and VCD approaches to be effective team member.

Group outputs on chain Mapping

Participants Presenting their Group's Value Chain Maps to the Plenary

Group Outputs on Market Analyzes

Question: To Discuss:

1. **Key Parameters on markets that you would be interested in finding out from a market study**
2. **For each parameter identified what would be your source of information, Literature or field**

Group /Country	Value Chain	Parameters	Source of information
Madagascar-DRC	Rice	Est-ce que la demande du riz est-elle importante? Quelle est la variété la plus demandée ou la plus préférée? Est-ce que la quantité offerte rencontre la demande Y a-t-il fluctuation du prix? Le marché local est-il suppléé par les importations?	Littérature: Service de statistique agricole et affaire économique Enquête au près des consommateurs et des producteurs (Questionnaire d'enquête). Littérature: Service de statistique agricole et affaire économique voir même au près des consommateurs à partir des enquêtes. Service National des statistiques agricoles et affaires économiques La douane, statistique de la banque centrale et L'office National de contrôle
Kenya, Uganda, Tanzania	Orange Sweet Potato	Production- land size, # of farmers, volume, sweet potato types, source of vines, price Processing- quantities, quality consistence, production area accessibility; transportation services, infrastructure, Banking services, competitors, price; Wholesalers/Retailers- #s, competitors, price, volumes traded Consumers-preferences, volumes, price	Ministry of agriculture- crop forecast Bureau of statistics NGOS's Raw data collection-consultancy Literature search-reading
Rwanda-Burudi	Sorghum	Variety, Consumers, Buyers, Volume sold, Price	Field, literature, media
Sudan & South Sudan	Sorghum	Demand Biotic (birds, Locust, Striga, and diseases) Abiotic factors (drought, flood) Lack of inputs (tractors, fertilizers, packaging bags, Lack of proper Infrastructures (road, stores, transportation)	Field work// consumer survey County, NGOs, Cooperatives (Literature) County, NGOs, Cooperatives (Literature) Field & literature from counties, NGO and farmers Field & literature from counties, NGO and farmers

4.8 Responsible Conduct of Research

This presentation which forms a part of ABCF Fellows Seminar Series was done by Dr. Julius Ecuru of UNCST/BecA-ILRI Hub. The facilitator discussed the definition of research & research misconduct; how to determine research misconduct; Research misconduct allegations in history; consequences of research misconduct; how to become a responsible researcher; managing research misconduct and concluded with a case study on research misconduct

Summary of Key messages:

- Understand our obligation as responsible researchers/scientists;
  - To society
  - To the environment
- Continuously improve the practice of science & research in our organizations by preserving the integrity of the research process

Reaction from Participants

Question: I have noted some researchers seek grants so that they buy a car or house. Is this not research misconduct?
Response: It's not wrong to make savings and buy house or car. But if the objective of writing the grant is to get a car, you might misappropriate the money. Good financial management, transparency is very important. Some grants allow you to include salary supplements or some benefit. You can include this to avoid temptation of fraud – faking trips etc. You need institutional wide approach to avoid misappropriation of research funds. Part of being a responsible researcher is also about responsible financial management

Question: Do we have laws in existence in Africa countries that deal with research misconduct? We have students complain about lecturers using their work but they fear if they report they may never graduate. . Students should be first authors. Need to discuss with professor publication plan and authorship
Response: Very few countries have specific laws on research misconduct. You might find it scattered in different pieces of legislation. In a few case like United States you have clear laws about this. In absence of laws we can have Institutional policies in place to handle these issues. But in Africa, very few and we need to do more

Question: Some supervisors go and present their students' work without reference to or consultation with the student. Is this not research or professional misconduct?
Response: If a student has done most of the work then s/he need to be acknowledged. It's very wrong to take students work and go and publish without acknowledging them

Comment: I work in research institution. There is a tendency of leaving out technicians work. They do upto 80% of the work. In US technicians are given a chance but I rarely we see this in Africa.

Response: But there is an example right here, please Julius share your experience.
Julius: I started my career here in IRLI as technician long ago and acquired a lot of skills in molecular biology etc. I became sort of an expert, and the PIs (Principal Investigators) started relying on me on certain aspects of their work. The Capacity Building officer at the time proposed that i put in a contribution (e.g in materials and methods section) in a new programme. The resulting and other publication recognized me as a contributor/author.

Comment: In Uganda we have an issue with some researchers when they collaborate with their colleagues outside. They only go to field, collect data and send. They don't participate in writing so at the end of the day is a PI but his name does not appear anywhere in the publication. So we are encouraging them please also have some intellectual contribution, don't just cooperate as a data collector. Cooperate as intellectual partners. In Africa, let's collaborate as intellectual equals

Comment: I want to follow up on a question raised earlier i.e. whether there are laws to protect research misconduct such as students' work been used by supervisors and failure to recognize technician' contributions into research work. I suggest that these issues be the focus of key capacity building intervention, especially for scientific professional bodies, because peer pressure can help and can also develop tangible mechanisms of fighting it, rather than everybody hearing it and keeping quiet. Professional bodies can set rules and conditions that punish those involved in such malpractices so that they don't repeat it. This should go a long with capacity building on intellectual property rights which is critical in research conduct

Comment: I work at JKUAT in Kenya. In JKUA we have a policy and the custodian and enforcer is the Research, Production and Extension Division. They minimize misappropriation of funds through a very strict accountability system. All research funds are normally managed by the University. Researches don't receive money directly. The University only releases a limited amount of money for 1 or 2months- about 300,000Kshs. Until you have exhausted that you can't get another tranche
Another way the division handles this is through M & E. Once in a year your research is investigated- you have to account what you have done with the money. In addition, through an open forum, the University educate lecturers, postgraduate and undergraduate students on issues of plagiarism and IPR (Intellectual Property Rights). So I believe Kenyan Universities are doing something, although we still have some ground to cover.

4.9 Field Visit to KALRO, Murang'a

The objective of the field practicum to Kenya Agricultural and Livestock Research Organization - Horticulture Research Institute – Thika was to provide the researchers an opportunity to experience the different aspects of a functional value chain, the challenges being addressed through research and how the research findings are deployed and their impact to the value chain participants.

During the visit, the Institute Director Dr. Waturu welcomed the participants, noting that they were the first group of visitors since the upgrading of the facility from a research Centre to a research institute. The head of Partnerships & Capacity Development at ASARECA Dr. Joseph Methu explained the purpose of the visit and facilitated introduction of the guests. He also gave a brief overview of ASARECA. Subsequent sessions were facilitated by Dr. Margaret Muchui who gave an overview of research activities at HRI – Murang'a while Dr. Gatambia, Agnes Ndegwa and Lina Muhonja made presentations on the fruits, vegetables and flower value chains respectively. The Participants later visited the HRI nursery and Laboratories.

Reactions to KARI Presentations

Question: I have heard of a biotech programme trying to introduce BT cotton. Is this initiative taking place here?
Response: Yes, but at Mwea Centre, Our Director Dr. Waturu is the principal investigator. The research is aimed at improving Cotton resistance to boll worm

Question: How do you dry mangoes, without losing its nutritional value?
Response: We dry improved non fibrous variety of mango. They are sliced and solar dried fro 2-3 days. This process retains 70% of minerals

Question: How do measure impacts of your value chain work?
Response: Our socio economists analyze the situation before and after the technology are introduced. This has been documented.

Question: In your presentation of flowers value chain map, you did not show economic values at each stage of the chain.
Response: That was just a brief summary. We did profitability/economic analysis of the value chains and this is well documented.

Question: Do you have research manuals for flowers?
Response: Yes we have pamphlets which are commercially available in the institute.

Question: Is it possible to get an opportunity here for training on vegetable production?
Response: Yes it is possible. We conduct practical training on non academic aspects of horticulture i.e. vegetables, fruits and flowers. The trainings are financed by sponsoring or client organizations.

Question: In your work do you take into consideration of climate change issues?
Response: Yes we do. A real challenge to horticulture industry say vegetable production is unreliability of rainwater and therefore need to supplement. At KALRO, we have Natural Resource Management and Climate Change unit which deal with these issues. Technologies are validated with respect to water conservation – for example early maturing draught tolerant Crops and Varieties to align towards climate change such as guavas and draught tolerant mango varieties.

Question: You mentioned lack of stakeholder commitment and mistrust as key challenged in the value chains. How do you deal with this problem?
Response: We address the challenge by having regular stakeholder meetings to discuss common issues

Question: In your work do you take into consideration climate change issues?
Response: Yes we do. A real challenge to horticulture industry say vegetable production is unreliability of rainwater and therefore need to supplement. At KALRO, we have Natural Resource Management and Climate Change unit which deal with these issues. Technologies are validated with respect to water conservation – for example early maturing draught tolerant Crops and Varieties to align towards climate change such as guavas and draught tolerant mango varieties.

Participants at the Tissue Culture Banana Nursery – Horticulture Research Institute, Thika Centre

4.10 Reporting on Field Visit

The group reports were based on the following assignment:

Group 1

a) What marketing models were set up by KALRO for each of the value chains (Vegetables, Fruit & Flowers)?
b) What sorts of linkages were pursued by KALRO and how would these have been further improved?
c) What lessons did you learn from the visit?

Group2

a) Identify innovations (product, operational & system) for the 3 value chains
b) Propose other potential innovations
c) Identify stakeholders involved
d) Identify challenges and opportunities for upgrading the value chains
e) What lessons did you learn from the visit?

Group 1 Output

Les models de marche identifie dans les chaines de valeurs

- **Model de Marché:**

Institutionnel: niveau macro

- **Les actions :**
  a. **les reunions de sensibilisation,**
  b. **des formations,**
  c. **es orientations sur les marches et les informations**
- **Les moyens qui ameliorent d'avantage les relations entre les petits exploitants et les marche:**
  a. **Organiser les petits exploitants en cooperatives**
  b. **Integrer les fermiers dans les platforme d' innovation**
  c. **Faciliter l'obtention de credit**

Lecons a prises

a. **Clean materials produced and delivered to farmers**
b. **Projects at KALRO are markets oriented, involve scientits, producers,processors, marketers,**
c. **Leaders are ready to share knowledge with stakeholders**
d. **Generate revenue by various services**

Group 2 Output

The Innovations in the three value chain (Vegetables, Fruit & Flowers) are:

- **Production**
- **Processing**
- **Research Institutions; NARIs, Universities**
- **Marketing agents (Wholesalers, Retailers, Consumers, mobile cooler)**
- **Nutrition**
- **Creation of Employment**
- **Government (MOA)**

- **Competitiveness potential**

We identify the above as innovation due to;

- **Research Institution through scientists make the production better by improving quality and quantity produce.**
- **The policies created by Government help to increase production.**
- **These days the issue of nutrition has made the population to have maximum consumption.**
- **Market agents help to facilitate flowing of products.**
- **It has act as a source of employment.**

Other potential innovations

- **Media**
- **Improvement on packaging (trade marks)**
- **Marketing on a large scale (supermarkets, Regional market)**
- **Storage facilities (supplying throughout the year)**
- **Explore other use especially amaranth flour for healthy purpose e.g HIV/AIDs patients**

Lesson learned from the visit

- **Skills and knowledge in the value chain**
- **Sharing of experience with KARI-Staffs**
- **Initiation of collaboration with KARI-Staffs**
- **Multi-stakeholders system used value chain in agriculture**
- **Adoption of the value chain in other countries**
- **Various products can be improved upon and innovated.**
- **The value chain can be used for advocacy**
- **Value chain are demand-driven (Scientists)**

5.0 WORKSHOP CLOSING SESSIONS

5.1 Action Planning and Follow-up activities

The session was facilitated by Eric Mwaura with support from Dr. Joseph Methu of Asareca. Eric introduced the Participants Action Planning Approach (PAPA)) tool to assist the participants in planning how they would integrate the knowledge and skills learned in their respective work situations.

Key messages on PAPA and next steps:

- BeCA and Asareca are interested in following up Capacity building beneficiaries to ensure that the skills gained from the different trainings including this one are applied. The PAPA tool is the basis for follow-up of trainees
- The PAPA actions constitute an agreement between BeCA-ILRI hub and the participant and their home institution, of any course and/or fellowship
- Activity # 1 in the PAPA (i.e. Presentation to participants institution about BeCA-ILRI Hub, the ABCF Programme, your research work and experience while at BeCA-ILRI Hub) is fixed for all training workshop participants and ABCF fellows
- Participants to consult with their institutions and return completed forms by 30thSeptember 2014 to BeCA and ASARECA. In the meantime:
- Participants to have completed all actions and reported to BeCA-ILRI Hub and ASARECA in a time period of 3-4 months

Reaction from Participants

Observation/concern: I have a few concerns.

1. It appears like no one speaks French at the Asareca Secretariat. When we submit our reports, I am unsure how you will actually proceed because we will drafting all these documents in French.
2. Regarding the ABC fellows, we will be here at IRLI for about 3 months and the deadline for submitting PAPA report is 3 months, so it will not be possible to implement the PAPA when we are here.
3. Participating in such as workshop has been very good. To implement the PAPA, we would like to bring together our colleagues in kind of a workshop to pass on the knowledge and skills learned here which might be challenging in relation to per diems for the participants. Can ASSARECA help in this regards?

Response from Dr. Methu (Asareca):

1. The French is still a challenge but please send the reports in French and we shall look for ways to respond to them.
2. We understand about the ABC fellows who will be here for the next 3 months. We don't expect your reports within 3 months, but when you go back to your institutions we trust that you will find time to undertake the activities under PAPA.
3. Regarding funding and budget to implement those activities, our assumption is that these are very simple activities; they are really office level activities. They are about you telling your colleagues what you learnt here and saying what you can do to improve your institutions. So we don't expect much in terms of budget. So I assume in your institution, you should be able to convene a staff meeting at which you talk about the course you have undertaken and agree on some activities because we are assuming you have improved yourself. We are assuming you are leaving this place different from the way you came, you now understand innovations, value chain developments and what it is, and of course whatever projects going on in your institutions have issues about these concepts and you can now craft activities about those two and report to us about them, so we don't expect any extra budget for that.

5.2 Evaluation of the Workshop

The workshop was evaluated using two methodologies

1. Open ended evaluation questions given to the participants to evaluate 4 workshop variables i.e. course content, training methodology, facilitators and logistics

2. A pre training and post training test to provide an objective measure of changes in knowledge and/or skills resulting from the training, and thus to provide valuable information about the effectiveness of the curriculum.

In general, the participants judged the course as very relevant to their work. There were significant increases in scores between the pre-test and the post-test indicating that the workshop objectives were largely achieved. Specific results of the evaluation are as follows:

Fig 1: Rating the course content

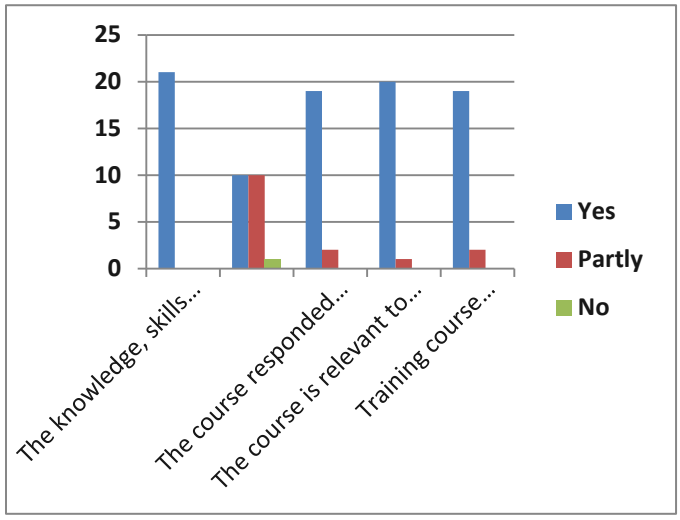


Figure 1 Methodology used in learning

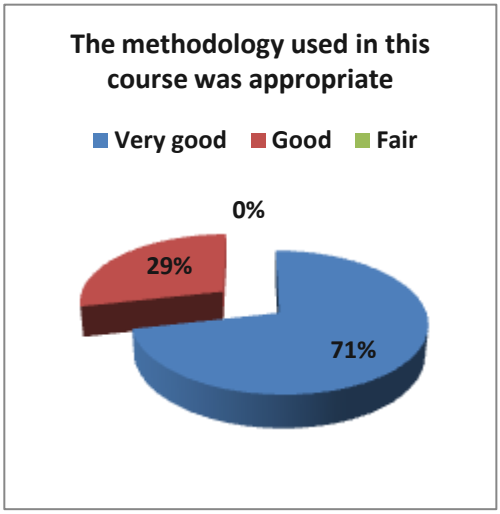


Figure 2 Evaluating facilitators

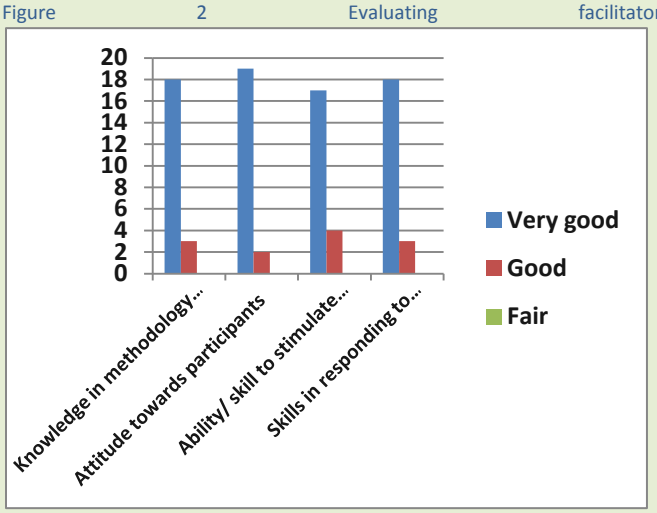


Figure 3: Rating the logistics and venue

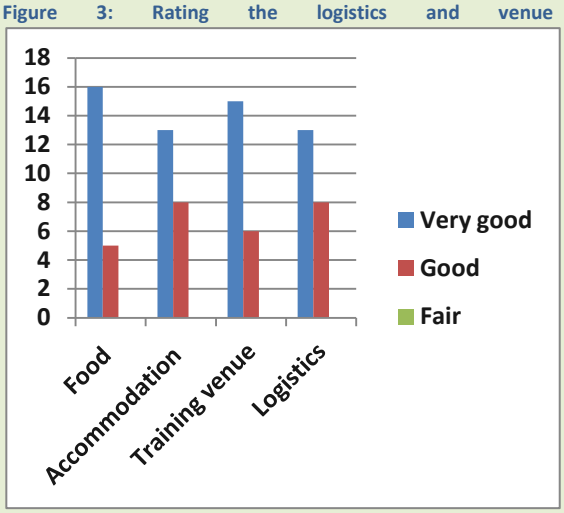


Figure 5: Confidence Level Before Training

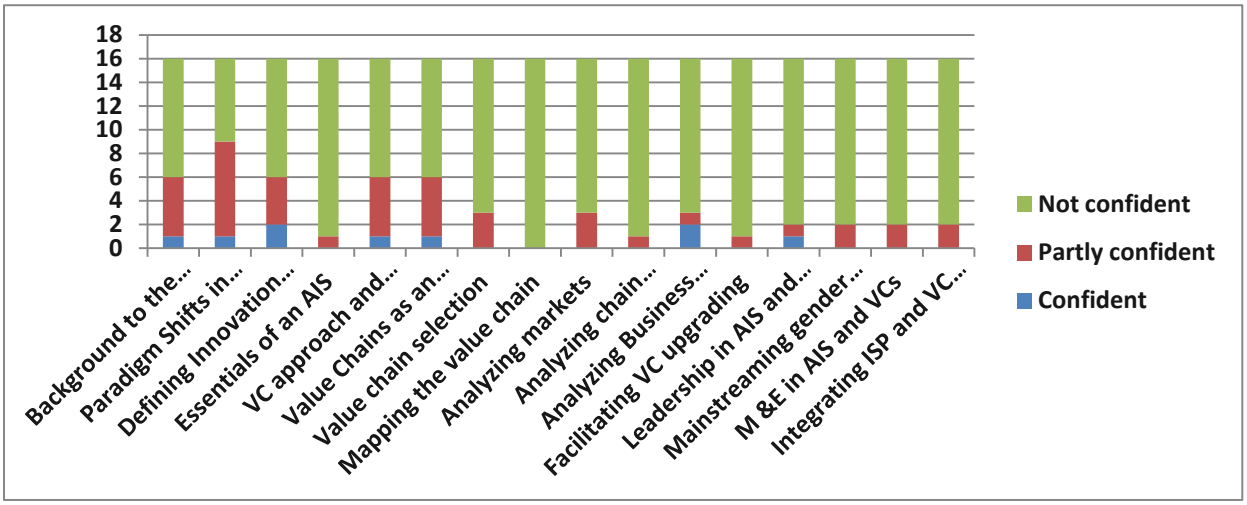
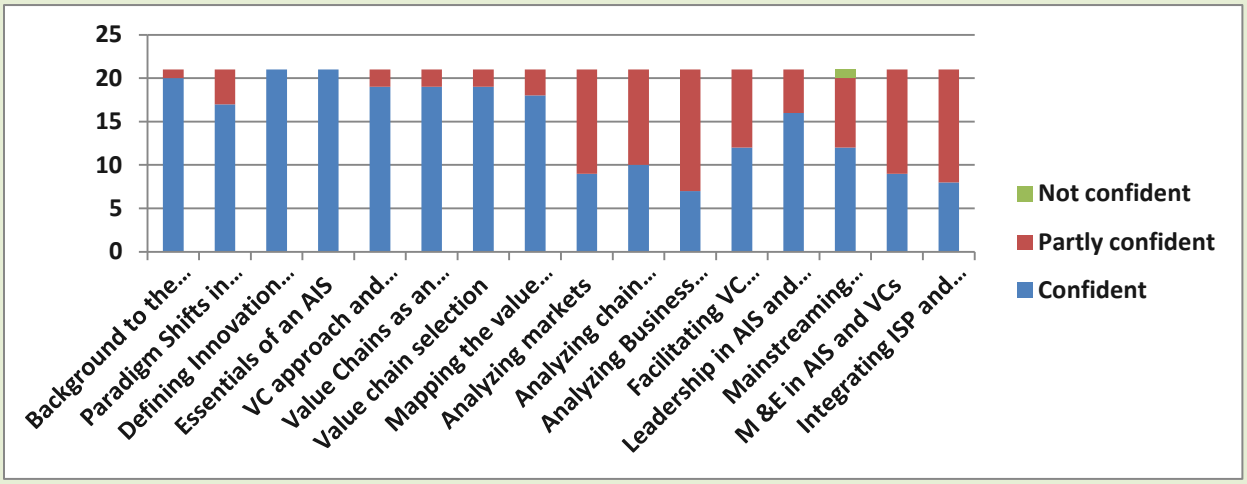


Figure 6: Confidence Level After the Training



Comments from participants

The most useful session/topics were:

- **Background to AIS and VCD x2**
- **Facilitationx1**
- **Selecting the VC to be promotedx4**
- **Facilitating the upgrading of value chainx3**
- **Defining innovation and agricultural AISx3**
- **Agriculture innovation system and value chain development approachx2**
- **Value chain development x 3**
- **Visit to KARLO x4**
- **Mapping value chain x 4**
- **Essentials of AIS x3**

- **Analyzing markets x2**
- **Value chain as an innovation systemx2**
- **Analyzing the economic sustainability x2**

Least Useful Sessions – The response was either left blank or N/A or said all topics were useful. 1 person mentioned session economic analysis of value chains

Additional Comments

- **Useful tool to improve under-utilized chains still in informal sector i.e under-utilized crops cultivated by propoor but utilized in traditional way and have market potential**
- **Facilitating the participants of the training to put all skilled knowledge in practice**
- **The main streaming gender in AIS was not talked about in detail**
- **The course has improved my knowledge on AIS and VCD**
- **The course is good and very interesting. Only problem is that the time is insufficient to conduct practices in class and in the field**
- **Everything about the course was good however ASARECA should include French speakers in the staff also**
- **Appreciated if the course would be in two weeks rather than one**
- **ASARECA if possible to provide funding for short trainings as in the HRI**
- **More practicals**
- **One week is too short**
- **The training has provided me with a lot of knowledge but timeframe was too short**
- **Training is very useful and encourages impact oriented research that benefit people on the ground**

5.3 Closing Remarks

The closing remarks from BeCA were given by Ms. Val Aloo (The Capacity building Officer; BecA ILRI Hub). She was thankful to the participants for successfully completing the 5days course. She thanked ASARECA for organizing the workshop and the trainers for sharing their knowledge and skills with the participants. She expressed the hope that participants will share the acquired knowledge with their colleagues and underscored the need for the participants to also implement their action plans. Lastly she wished everyone everyone journey mercies

In his closing remarks, the ASARECA Head of PCD Dr. Joseph Methu thanked the participants for the active participation, the trainers for facilitating the learning and IRLI BeCA- Hub for financial and logistical support to the workshop. He wished everyone a safe journey and expressed hope that the participants will integrate the lessons learned into their research work.

6.0 APPENDICES

6.1 Workshop Programme

DATE/ TIME	15 SEPT 2014	16 SEPT2014	17 SEPT2014	18 SEPT2014	19 SEPT2014
AM 1	Official Opening: Session 1: Workshop Introduction, Objectives Session 2:. Background to AIS & VC Training; Paradigm Shifts in Agric. R & D.	Session 6: Introduction Value Chain approach and propoor development	Session 11: Value chain analysis • VC Mapping • Analyzing markets, economic sustainability, business services & finance	Session 15: Field visit to KALRO Thika	Session 16: Field visit report Session 17: Facilitating the upgrading of a VCD. Leadership in AIS and VCS. Examples of Innovation Platforms Session 18: Measuring the impacts of VC interventions
Tea/coffee break					
AM 2	Session 3: Defining Innovation and Agricultural Innovation Systems (AIS).	Session 8: Value chain selection	Session 12: Value chain analysis cont'd • Analyzing Relations and governance, Analyzing Chain context	Session 15: Field visit to KALRO Thika	Session 19: Way forward – strategies and plans for implementing AI and VCS cases
Lunch break					
PM 1	Session 4: Essentials of an AIS and an analysis of a case example. Grp Work: Experiences of innovation and related systems	Session 9: Group work on value chain selection	Session 13 Group work and presentation on 'mapping the value chain'	Field visit to KALRO Thika	Session 20: Workshop evaluation Workshop Closure
Tea/coffee break					
PM 2	Session 5: value Chains as Innovation Systems/ integrating Value chain approach and AIS	Session 10: Group Reporting on VC selection	Session 14: Designing a value chain upgrading strategy	Group work : Field visit report writing	

6.2 List of Workshop Participants

MADAGASCAR			
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31.	Paul Jjombwe Project Accountant; ASARECA; P. O. Box 765; Entebbe, UGANDA; Phone: ++256 414323314; Email: p.jjombwe@asareca.org		

6.3 Guidelines for Integrating Innovation System and Value Chain Analysis in AR4D

- Use the value chain of an enterprise as the unit of analysis and focus on innovation of the entire value chain as shown in Figure 5. Please remember in terms of diagnosis the entry point is still the household livelihood system of the target group.
- Identify the most binding constraint in the value chain which inhibits the exploitation of the full potential of the value chain. Rank key component of the value chain in terms of where the greater efficiency and impact could be achieved.
- Within the high priority component (which offers the greatest opportunity) identify the various problems (options) and rank them. Please note the two stage ranking process.
- For the priority problem identified brainstorm on the potential options. Screen and identify feasible interventions.
- Depending on the availability of technologies and the level of confidence of replicability, the intervention may involve technology/knowledge generation; technology/knowledge adaptation and/or scaling out and up.
- Construct an 'innovation system' that is relevant to the priority intervention(s) identified. Please use the innovation lens to identify the various stakeholders who need to participate to make this intervention to become an innovation.
- Involve all the relevant key stakeholders in the planning process. Clearly identify the roles, responsibilities, resource commitment, reward sharing, rules of engagement etc.
- Implement the intervention collectively. Please remember the roles of the individual stakeholder may change as the implementation proceeds. Make sure that the various stakeholders participate in the monitoring and on-going evaluation process.
    - Evaluate the performance and impact collectively.
    - Document and disseminate results and plan for 'scaling up' and 'scaling out'.
- To facilitate the effective integration, the capacity of all stakeholders along the value chain need to be enhanced, and the necessary policy, and institutional environments need to be created.

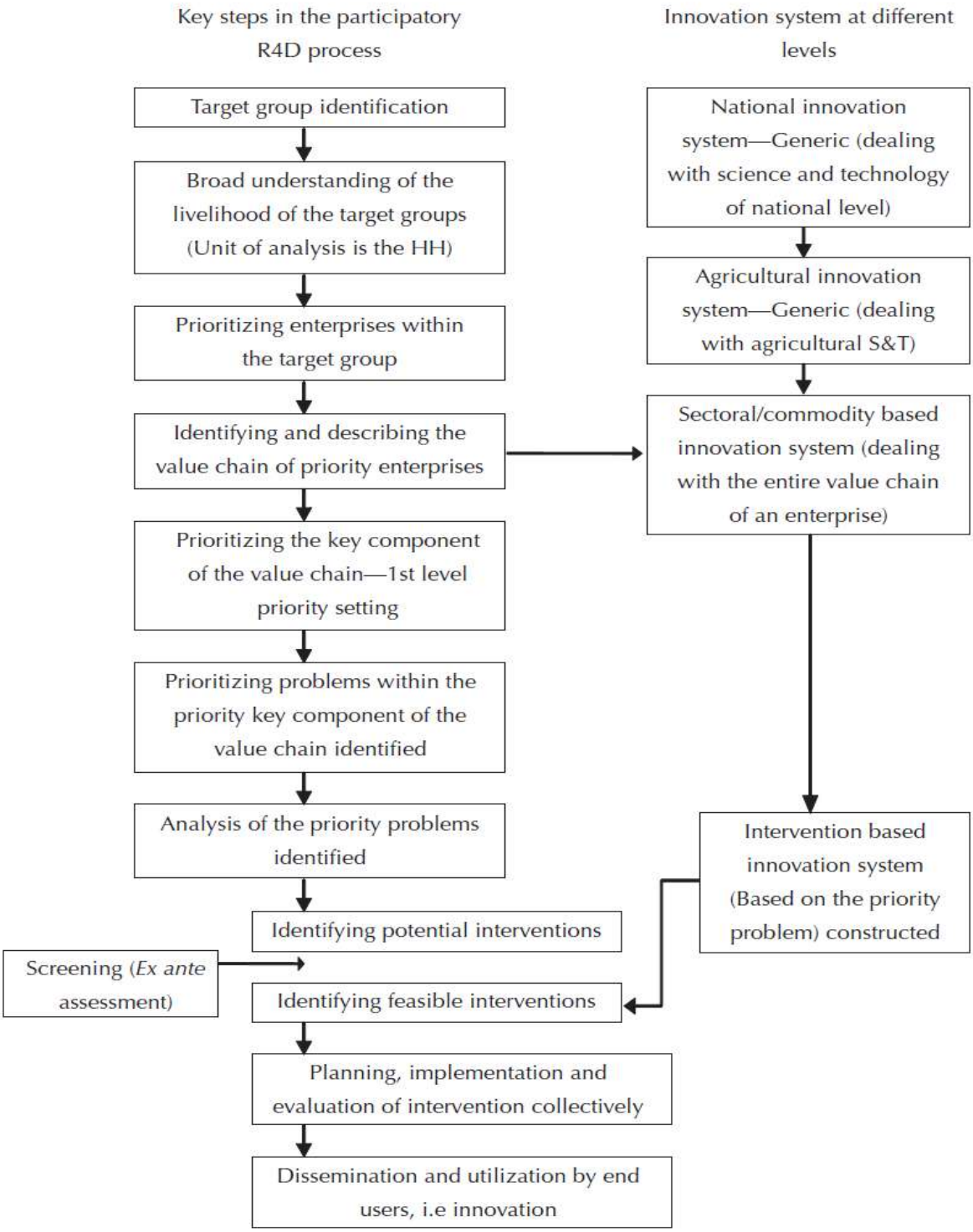

Figure 6. *Integration of research and development, value chain and innovation systems perspective.*

6.4 Participant's Confidence Level Test

Name _____Country_____

Instructions: Tick Appropriately

#	SUBJECT MATTER	CONFIDENCE LEVEL		
		Confident	Partly confident	Not confident
	Background to AI & VC Training			
	Paradigm Shifts in Agric. R & D			
	Defining Innovation and Agricultural Innovation Systems (AIS)			
	Essentials of an AIS			
	Understanding the Value Chain – VC approach and related concepts			
	Value Chains as an Innovation System			
	Selecting the Value chain to be promoted			
	Mapping the value chain			
	Analyzing markets			
	Analyzing Economic sustainability			
	Analyzing Business services and finance			
	Facilitating the upgrading of a value chain.			
	Leadership in AIS and Value Chains			
	Mainstreaming gender in AIS			
	Measuring impacts of AIS and value chains			
	Integrating ISP and VC concepts in AR4D			

6.5 Workshop Evaluation Form

Please take time and answer the following questions. Your feedback is useful to us. You do not have to write your name.

Content	Yes	Partly	No
The knowledge, skills shared in this course was adequately to your needs			
The time spent for the topics is sufficient (appropriate pace)			
The course responded to your expectations			
The course is relevant to your work			
Training course materials are adequate			
Methodology	Very good	Good	Fair
The methodology used in this course was appropriate			
Facilitators	Very good	Good	Fair
Knowledge in methodology and content			
Attitude towards participants			
Ability/ skill to stimulate dialogue			
Skills in responding to participants questions			
Administrative issues	Very good	Good	F air
Food			
Accommodation			
Training venue			
Logistics			

The most useful session/topics were

_____

The least useful session/topics were (give reasons)

_____

_____

Additional comments…

Thanks!!! Let's hope we meet again!

6.6 The Trainers' Profiles

NAME: ERIC NJOROGE MWAURA

PERSONAL DETAILS

MSc, BSc, Agriculture.

Nationality: Kenyan

Languages: Fluent in English and Kiswahili

Contacts

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Tel: +254-722 -900-567

Email: ericmwaura2003@yahoo.com; Skype: eric.mwaura

SUMMARY OF PROFESSIONAL EXPERIENCE

Over 15 years hands-on post qualification experience in implementation and management of community development projects focused, mainly on food and livelihoods security in Eastern Africa region. Also have practical experience and expertise in pro poor value chain development including development of partnerships, nurturing entrepreneurship amongst small-holder farmers, market linkages, credit linkages and farmer capacity strengthening in various aspects such as value addition and group management for sustainability.

Work experience include working as the Regional Value Chain Manager with (i) the International Institute for Rural Reconstruction (Current Position) (ii) the SEEP network/Ampaths and (iii) Africa Now. Has worked in related capacity with the Kenya Flower Council (KFC); Kenya Institute of Organic Farming (KIOF) and the Green Belt Movement.

NAME: AMOS JOHNSON WAWERU

Personal Data
Family Name: Waweru
First Names: Amos Johnson
Nationality: Kenyan
Date of birth: 25-02-1974
Place of birth Kenya

Education and Academic Titles

Date (from/to)	Kind of training	Certificates
2008, June	Value Chain Development	ValueLinks
2007, May	GlobalGap	GlobalGap Auditor
2004	Food Safety Management Systems	Food Safety Trainer
1994-1997	Bsc. Food Science & Postharvest Technology	Degree

Expertise

Agricultural Value Chains Development expert over 8 years experience as the managing consultant of Standards & Solutions Consulting Ltd which is involved in designing, advising and training government, development organizations, private companies and their partners towards in upgrading strategies aimed at improving Micro and small scale enterprises increase incomes earned and creating employment.

Highlights of Assignments Undertaken

Has carried over 10 value chain analysis in Fruits and vegetables, cereals and pulses, dairy, livestock and livestock products, coffee and maize subsectors on behalf of various organizations such as Ministry of Agriculture, Ministry of Trade, Food & Agriculture Organization of the UN and the European Union with a view to advising them on designing value chain upgrading programmes in Kenya, Uganda and Ethiopia. In addition, more than 10 development organizations such Micro Enterprise Support Programme, Lutheran World Relief, Business Market Services Programme among others have also hired me to facilitate Value Chain based projects aimed at increasing producer access to market by linking them to business services and financial services markets.

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