ASARECA
Transforming Agriculture for Improved Livelihoods

Agricultural Innovation Systems and Value Chains Development: A Training Manual

Joseph Methu, Julius Nyangaga,
Amos Waweru and Doris Akishule

Correct citation:
Methu J, Nyangaga J, Waweru A, Akishule D. 2013. *Agricultural innovation systems and value chains development: a training manual.* ASARECA, Entebbe, Uganda.

Association for Strengthening Agricultural Research in
Eastern and Central Africa (ASARECA)
PO Box 765, Plot 5, Mpigi Rd
Entebbe, Uganda
Tel: +256 41 4320212 / 4320556 / 4321885
Tel: +256 41 4321126 / 4322593
asareca@asareca.org
www.asareca.org

ISBN (print): 978-92-95070-92-9
ISBN (pdf): 978-92-95070-93-6

Editing and design: Dali Mwagore

Contents

About the Modules

This is one of a series of training modules developed following several workshops on agricultural innovation systems (AIS) and value chains development (VCD) organized for principle investigators of ASARECA's programs in 2010 and 2011. The modules were compiled to assist in facilitating similar training that participant trainees may organize. The principle behind teaching and presenting the two concepts of innovation systems and VCD is based on the fact that they are strongly related, and there is opportunity for thinking and applying the two together in most agricultural programs.

These modules are best presented in 2-hour sessions using a suggested 3, 4 or 5-day program. In the 4 or 5-day program, 1 day should be dedicated to a field activity, such as a visit to a value chain network or innovation system so that participants get hands-on experience of various aspects such as roles, contribution and benefits of the relationships in the innovation system, and participate in monitoring and evaluation.

The 3–5-day training period is too short to cover essential details of understanding and operations of innovation and VCD. The most affected is VCD, which, on its own, should be taught in not less than 5 days. A well-developed VCD training program extends for at least 10 consecutive days (or stretches for a full 2 weeks). However, these sessions have been designed for program managers to expose them to basic information that can be used to design and manage programs. The training sessions therefore present introductory modules to various related concepts. It is expected that by the end of the 3–5-day course, trainees will have a basic understanding of the two concepts and how they can be presented in proposals, detailed strategies and action plans as well as what could go into performance tracking. In addition, at the end of each topic there is a Reference and Further Reading section that shows areas and topics that the trainees should make efforts to get for more information (knowledge).

The full list of modules and suggested training program is shown in the following schedule.

Suggested schedule

Workshop Activity	Session
Arrival, Registration	
Workshop Introduction, Objectives	1
Module 1: Background to AIS & VCD Training, Paradigm Shifts in Agricultural R&D programs	2
Module 2: Defining Innovation and Agricultural Innovation Systems (AIS)	3
Module 3: Essentials of an AIS and Case examples	4
Module 3: Group Work	5
Module 4: Value Chains as Innovation Systems	6
Module 5: Value Chain Analysis	7
Module 5: Group Work	8
Module 6: Value Chain Upgrading and Pro-poor Growth	9
Module 6: Group Work	10
Module 7: Leadership and Facilitation in AIS and VCD	11
Module 7: Group Work	12
Module 8: M&E of AIS and VCD	13
Module 8: Group Work	14
Module 9: Value Chains as a Research Tool	15
Module 10: Way forward – strategies and plans for implementing AIS and VCD	16
Workshop Evaluation and Closure	17

Modules format

Notes: This is a 1–2 page write-up with details. These notes can be given to workshop participants as print outs.

Presentation: These are slides that are used during the training. In these modules, they are presented as print outs to be distributed as hard copy. They are also available in PowerPoint presentation for use in training.

Group exercise:

- A group exercise is a group task that could be used to help participants better appreciate the module topic.
- In some sessions, the groups will take more time than the scheduled 1 or 2 hours to complete their exercise, and this is why a 3-day design could be adjusted to extend to a 4-day program.

Suggested 3-day timetable

(Plus ONE extra day to handle session spillovers and field day)

Time	Day One	Day Two	Day 3	Day 4
AM 1	Session 1: **Introduction, Objects** Session 2: Module 1	Session 7: Module 5 Session 8: Group Work	Session 11: Module 7 Session 12: Group Work	
Health break				
AM 2	Session 3: Module 2 Session 4: Module 3	Session 8: Group Work continued	Session 13: Module 8 Session 14: Group Work	Any session spillover
Lunch Break				
PM 1	Session 5: Module 3, Group Work	Session 9: Module 6 Session 10: Group Work	Session 15: Module 9 Session 16: Module 10	Field trip
Health brak				
PM 2	Session 6: Module 4	Session 10: Group Work continued	Session 17: **Evaluation and Closure**	

Module 1: Paradigm Shifts in the Design of Agricultural Research and Development Programs

Notes

Introduction

This manual is one in a series of training modules developed following a series of workshops on agricultural innovation systems and value chains development organized for principle investigators of ASARECA's programs in 2010 and 2011. The modules were compiled to assist in facilitating similar training that participant trainees may organize.

This module explains the emerging recognition and use of innovation systems thinking in designing and implementing agricultural programs. Participants are led through a discussion of why ASARECA is building the capacity of its program managers and partners in applying agricultural innovation system and value chain approaches in their work. The aim is for participants to understand how and why the two paradigms have evolved from other approaches used in implementing agricultural programs.

Why ASARECA organized training in AIS and VCS

Participants are reminded of ASARECA Result Area 4: 'Capacity for implementing agricultural research in the IAR4D approach in the ASARECA sub-region strengthened'. Based on a comprehensive needs assessment, ASARECA hired the Royal Tropical Institute (KIT) to design a regional IAR4D (Integrated Agricultural Research for Development) capacity-building program for ASARECA and its partners.

The ASARECA IAR4D Position paper (2010) describes IAR4D as a multi-stakeholder and participatory approach to rural innovation based on collective action, integrated learning and institutional change. The paper recommended enhancing knowledge in ASARECA and its national agricultural research systems (NARS) and project partners of the research and development (R&D) implementation paradigm.

Paradigm shift in the design of Agricultural R&D programs

Factors that drive the evolution of paradigms that influence the structure and operations of agricultural R&D programs include development policies and institutional contexts, structure and authority of governments, the global economy (demand, supply, markets), the entry and roles of third parties (civil society, farmer organizations and NGOs), and eased cross-sectoral linkages (between agriculture and other sectors). These factors have changed the way agricultural research and extension systems operate, especially the organizational and management structures, field operations and relationships with other sectors.

As a result of these changing paradigms, there has been an evolution in operational philosophies of agricultural systems. There is a distinct change from the initially technology-dominated, top–down, one-enterprise knowledge extension systems to the more socioeconomic-based farming systems approach, participatory research, action research, and conceptualizing national agricultural research and extension systems (NARES).

The NARES formed the framework for implementing Agricultural Knowledge and Innovation Systems (AKIS), agricultural innovation systems and, most recently, the recognition and application of food and agricultural value chains.

The AIS thinking emerged in the 1970s and 1980s and has its origins in evolutionary economics *(*Freeman 1987; Lundvall 1992*)*. The concept was combined with observations of knowledge interactions in AKIS. It was subsequently developed to make better use of new knowledge and design alternative interventions that go beyond research investments.

References and Further Reading

Africa Innovation Institute. 2010. *Application of the IAR4D principles in implementing ASARECA-supported subprojects and gasp in IAR4D capacity among subgranteed.* ASARECA, Entebbe.

Freeman C. 1987. *Technology, policy and economic performance: lessons from Japan*. Pinter, London.

KIT (Royal Tropical Institute), [ASARECA] Association for Strengthening Agricultural Research in Eastern and Central Africa. 2007. *Integrated Agricultural Research for Development capacity stengthening: IAR4D needs assessment, Strategy, Programme 2008–2012 and Opertional plan 2008–2010.* ASARECA, Entebbe, Uganda.

Lundvall BA. 1992. *National systems of innovation: towards a theory of innovation and interactive learning.* Pinter, London.

Suggested Group Work

Objective of group work

- To increase conversation around the evolution of the paradigms by having smaller teams to get everyone to participate in discussing the topic.
- To enhance appreciation of the factors supporting the evolution of the paradigms, and why AIS and VCD are currently the way to support agricultural development.

Seated in groups of 4–5 discuss the following:

1. What paradigm / operational philosophy are you most familiar with?

- Explain the paradigm used in ASARECA programs.

Share both personal and program experiences.

Or

- Share advantages and disadvantages of the paradigms you are familiar with.

2. Prepare to present from the group discussions highlights of experiences and approaches used in your programs and projects.

Module 2: Defining Innovation and Agricultural Innovation Systems

Notes

Introduction

This module defines innovation and innovations systems thinking, and shows how the concepts are applied in agricultural innovation systems (AIS). Agricultural innovation systems have gained prominence in interventions to support poor farmers in farm production, and participation in value addition, distribution and marketing. The AIS range from simple local production and supply systems of an area, a program or a sector to the larger national systems that link agriculture, extension services, trade, industry and the academics.

By the end of the session, participants will be familiar with the concepts of innovation and why innovation systems and especially agricultural innovation systems enhance creativity at the individual and system levels.

What is innovation?

Innovation has been defined in various ways by different authors. Mytelka (2000) defines it as the process of creating and putting into use combinations of knowledge from many different sources. According to Barnett (2004), innovation is the use of new ideas, technologies or ways of doing things in a place by people who have previously not used these new ideas, technologies or ways of doing things before. Anandajayesekeram et al. (2009) point out that innovations are new creations of economic significance, the production and application of new knowledge and new combination of existing knowledge. Edquist (1997) states it more succinctly: 'Knowledge cannot be regarded as innovation unless it is transformed into products and processes that have social and economic use'.

Why do we need to innovate? Investments in research and development (R&D), extension and education remain important, BUT they are not sufficient to meet today's challenges and rapidly changing contexts. A more flexible

approach is needed that easily fits into changing conditions and enables knowledge generation, use and application in evolving contexts.

Innovation systems

Effective innovation is when old and new knowledge is generated, shared and applied during interactions by different entities: individuals, organizations, institutions. This then defines an innovation system as a collection of related elements that must function in concert to achieve a desired result (Bean and Radford 2001). The innovation system consists of interlinked subsystems with the central feature being sustained integrity and synergy. An innovation system will contain feedback loops crucial to the system behaviour and which permit the system to function in a self-managed and self-sustaining way.

Horton (1990) points out three key elements of an innovation system: 1) individuals and organizations involved in generating, diffusing, adapting and using new knowledge; 2) interactive learning that occurs when the organization engages in these processes and the way this leads to new products and processes (innovation); and 3) the institutions—rules, norms and conventions, both formal and informal—that govern how these interactions and processes take place.

From this explanation one can examine knowledge generation and use and recognize an innovation system, that is, use of an innovation systems perspective (ISP) to develop or describe a program. ISP is the use of an 'innovation lens' to design, implement and evaluate actors involved in the innovation process. ISP not only looks at how individual institutions (firms, research institutes, universities, etc.) perform in isolation, but also how they interact with each other as elements of a collective system and how they interplay through social institutions such as values, norms and legal frameworks.

Based on this, one is able to recognize national innovation systems (NIS), which have variously been defined. Freeman (1987) defined NIS as the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies. Lundvall (1992) described NIS as 'the elements and relationships that interact in the production, diffusion and use of new, and economically useful, knowledge ... and are either located within or rooted inside the borders of a nation state'.

The agricultural innovation system

The agricultural innovation system is an understanding of how a country's agricultural sector can make better use of new knowledge and design interventions that go beyond research investments (Rajalahti 2009). It is a collaborative arrangement bringing together several organizations working towards technological, managerial, organizational and institutional objectives. Table 1 compares AIS with two related operational paradigms: the national agricultural research system and agricultural knowledge and innovation system.

Table 1. Agricultural innovation system (AIS) compared with other agricultural R&D paradigms

Feature	National agricultural research system	Agricultural Knowledge and Innovation System	AIS
Actors	Research organizations and extension agencies	Farmer, research, extension and education	Wide spectrum of actors
Outcome	Technology invention and technology transfer	Technology adoption and innovation	Different types of innovation
Organizing principle	Using science to create new technologies	Accessing agricultural knowledge	New uses of knowledge for broad social and economic change
Mechanism for innovation	Technology transfer	Knowledge and information exchanges	Interaction and innovation among stakeholders
Role of policy	Resource allocation, priority setting	Linking research, extension and education	Enabling innovation
Nature of capacity strengthening	Strengthening infrastructure and human resources	Strengthening communication between actors in rural areas	Strengthening interactions between all actors; creating an enabling environment

Source: Rajalahti (2009)

Three key elements underpin the understanding and implementation of AIS:

1. Knowledge needs, needs generation and exchange
   - How is knowledge need expressed and captured?
   - Who generates what information?
   - How is the knowledge shared among relevant actors?
2. System actors: who and what capacities
   - Who is engaged in the system?
   - What is the representation capacity of attendant actors?
   - What factors support or impede their expressions of interest, generation and dissemination of their knowledge?

3. Institutions supporting knowledge generation, sharing and use. Rules of system innovation

– How do we establish and maintain the (AIS) system and actor interests?

– Who sustains the system?

– How do we develop, monitor and capture or experience innovation as lessons for the future?

References and Further Reading

Anandajayasekeram P. The role of agricultural R&D within the agricultural innovation systems framework. Conference Working Paper 6. Prepared for the ASTI/IFPRI–FARA Conference, 5–7 December 2011. IFPRI, Washington, DC, and FARA, Accra, Ghana. Available at http://www.ifpri.org/sites/default/files/publications/ananda.pdf

Anandajayasekeram P, Berhanu Gebremedhin. 2009. Integrating innovation systems perspective and value chain analysis into agricultural R&D: issues and challenges. A presentation made to the IPMS Program (www.ipms-ethiopia.org) in Addis Ababa, Ethiopia, 2009.

Anandajayasekeram P, Dijkman J, Workneh S. 2005. Innovation systems approach and its implication to Agricultural Research and Development. Presentation at the Southern and Eastern African Association for Farming Systems Research–Extension (SEAAFSTE), Lilongwe, Malawi, 19–21 September 2005.

Barnett A. 2004. From 'Research' to poverty-reducing 'Innovation'. A Policy Brief from SRA Ltd. Available http://www.thepolicypractice.com/papers/NSI_Policy_Brief.pdf

Bean R, Radford R. 2001. *The business of innovation: managing the corporate imagination for maximum results*. AMACOM, New York.

Edquist C. 1997. Systems of innovation approaches—their emergence and characteristics. In: Edquist C, editor, *Systems of innovation: technologies, organizations and institutions*. Pinter, London.

Hartwich F, González C, Vieira LF. 2004. Public–Private Partnerships for innovation-led growth in agrichains: a useful tool for development in Latin America? Paper contributed to the 14th Annual World Food and Agribusiness Symposium, 12–13 June 2004, Montreux, Switzerland.

Lundvall BA. 1992. *National systems of innovation: towards a theory of innovation and interactive learning*. Pinter, London.

Mytelka LK. 2000. Local systems of innovation in a globalized world economy. *Industry and Innovation* 7(1).

Rajalahti R. 2009. *Promoting agricultural innovation systems approach: the way forward*. Knowledge for Development. Observatory on Science and Technology CTA, The Netherlands, June 2009.

Richter P. 2006. Value chain promotion and business environment reforms: experiences from Sri Lanka. A paper prepared for the Asia Regional Consultative Conference Donor Committee for Enterprise Development, 29 November to 1 December 2006, Bangkok.

Spielman DJ. 2005. Innovation systems perspectives on developing-country agriculture: a critical review. ISNAR Discussion Paper 2.

Suggested Group Work

Objectives

- To enhance understanding of the innovation concept and how it is best supported by a system of information exchange by generators and users of that knowledge.
- To enhance understanding by having the discussions in smaller groups where everyone gets to share what they know.

Seated in groups of 4–5, discuss the following:

1. Think of an ASARECA program you have been extensively involved in.
   - What **(agricultural) needs** have existed or continue to exist?
   - **Who and how have various actors** addressed these needs?
   - What have been the **sources of information and knowledge**?
   - **What innovations** have come from this information exchange?
2. Prepare to present from the group discussions highlights of experiences and approaches used in your programs and projects

Module 3: Essentials of an AIS and Case Examples

Notes

Introduction

This module takes participants through the essentials of an innovation system by defining what it is and how it takes place in different situations. Innovation takes place at different levels: product, technology, process and system levels. There is also innovation related to positioning and strategy due to emerging trends.

The aim is for actors to recognize how their needs have been identified and systems established to support innovation and exploitation to achieve objectives more effectively and efficiently. By the end of the session, participants should be able to explore innovation processes in their own systems, explain how these innovation processes have been supported and what they can do as program managers to enhance this support and report on the effect of the innovation processes.

Innovation systems thinking, development and support

Innovation takes places almost all the time as long as actors—individually, as organizations or institutions—continue to address constraints they face or take advantage of emerging situations to achieve their objectives and further their interests. The starting point is the realization that an objective can be realized in a more effective and efficient way, that goals can be achieved in a different way to get better results—higher yields, lower costs, shorter times, etc.

Innovative individual actors are those with the ability and capacity to recognize these opportunities and relate with others in the system in ways that enable them to constantly achieve better results. In the examples that follow, we will highlight examples of such individual actors.

A program manager or coordinator of an innovation system contributes to establishing actor relationships, information, product and technology exchange that presents up-to-date options that ensure each individual actor as

well as system constantly achieves better results. Such program management activities and results are demonstrated in the examples that follow.

To demonstrate cases of innovation we use the hierarchical categorizations developed by Rotmans (2005) (Figure 1). The three examples given are projects in the agricultural and natural resources sectors, but innovation is widespread in any field where there are entrepreneurs always seeking ways of developing unique products and processes to their advantage, especially in the business sectors.

For this reason competitive business interests in value chains, as will be shown in subsequent modules, present the richest grounds for innovations to take place in the agricultural sector. Concerns over environmental effects, human health and agricultural production also create room for creativity as actors seek ways of minimizing the effects of adverse development.

The innovation hierarchy

Innovation ideally takes place at four hierarchies—**product, process, system** and **transition**—as shown in Figure 1.

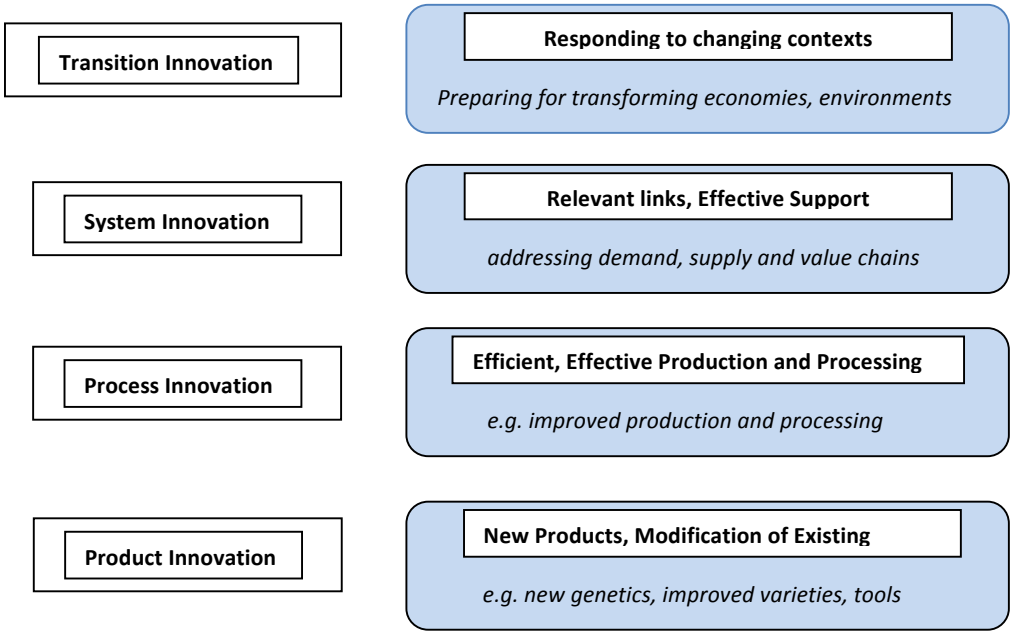


Figure 1. Hierarchies of innovation. (Source: Rotmans 2005)

Case example: A GSM-enabled information, communication and transaction system for smallholder sunflower farmers in Kenya

Background

The primary focus of the IDRC-funded project, Building a GSM-enabled information, communication and transaction system for smallholder farmers in Kenya, was to explore the impact of providing smallholder farmers with access to markets, financial and other support services using an ICT platform that enabled communication and transactions through interactive databases. The information system processed the data coming from financial and transactional exchanges among individual farmers, their representatives (transaction agents), self-help groups farmers belonged to, the main buyer (Bidco Oil Refineries Ltd. (Bidco)), the credit provider (Equity Bank Ltd), and inputs supplier (Bungoma Chemist).

The project's intervention

DrumNet developed an ICT platform: a GSM-enabled communication exchange system with a database containing production and marketing details. The DrumNet management team was expected to manage deposition of information about sunflower production, inputs required, inputs collected and paid for, stage and condition of growth of the crop, when the crop would be harvested, and quantities ready for collection.

The database was also used to monitor funds flow, that is, the amount of credit each farmer is entitled to, how much has been used to acquire inputs, the value of sunflower harvested and collected, payments made for credit

advance, and the net income that is due or has already been collected by each farmer group.

The ICT platform was obtained by DrumNet and adopted and constantly refined to suit the sunflower supply chain. The ultimate aim was to create a system where stakeholders in the chain related to each other directly exploiting the strong and effective links created over time, and DrumNet gradually steps out. The objective was to enhance communication among all actors and, in a way, ease input, product and financial transactions.

The actors

The following project partners shown in Table 1 were identified as members of the supply chain expected to use the ICT platform. In that first workshop, the project's boundary partners' outcome challenges were also developed as shown in Table 2.

Table 2. DrumNet's innovation system actors and their functions

Actor	Role and system function
Representatives of farmer groups: transaction agents (TAs), recruiters	The farmer representative was dedicated to the group's interactions with other members of the supply chain. She was the point of contact between DrumNet and the farmers, and was responsible for coordinating the group's harvesting, grading, packaging and arranging for delivery in accordance with the contract with the buyers. The TA was also supposed to communicate with the DrumNet ICT platform, mainly via mobile phone (SMS text messaging), reporting on the group production, harvesting and yield status, and coordinating group banking activities.
The sunflower buyer: Bidco Oil Refineries	As the single buyer, Bidco provided the vital demand force. The company presented a predictable market, was in charge of collecting, grading and transporting harvested sunflower from the farms to the refinery's factories, and paid a guaranteed price for an unlimited quantity of oilseed of set standards. After verifying the quantity and quality of the delivered sunflower, Bidco would immediately pay the farmer groups through accounts held in Equity Bank.
The area's farmer network and associations, e.g. Farmer Field Schools (FFS) Network	The FFS Network was expected to strongly support and strengthen the farmer group's negotiation powers with other actors in the chain, especially the buyer, but also with other supporting external systems. The network was expected to develop links among member groups that would support dissemination of the advantages of the project.
The credit supplier and banking services provider: Equity Bank	Equity Bank was the micro-credit financier of the supply chain supporting the smallholder farmers in acquiring the necessary inputs in kind and on credit. The bank also facilitated transactions involving cash transfers from the buyer and to all other stakeholders involved in the supply chain. It was expected that Equity Bank would accommodate the smallholder farmers into its client portfolio and agree to advance credit to be paid from sales of sunflower delivered to Bidco.
The inputs supplier: Bungoma Chemists and affiliates	Bungoma Chemist is a well-established agricultural stockist in western Kenya with extensive supply relationships with numerous smaller AgroVet shops throughout Western and parts of Nyanza and Rift Valley Provinces. The company has a good credit rating with major input suppliers and is AGMARK-certified, enabling the stockist to secure credit with suppliers through AGMARK guarantees. Bungoma Chemists was expected to have in stock high-quality inputs, mainly seed and fertilizer, for the sunflower farmers. The stockist was expected to ensure the inputs were available in time for use at the right time of the seasons by all registered groups in the entire geographic area where they were located. The stockist was also expected to accept the credit terms structured by DN while charging minimum input and service costs so that farmers could earn a favourable net profit from their investments.

Case example: Innovations in the DrumNet Sunflower Supply Chain

Product innovation

1. *Sunflower varieties*

– Bidco and the farmers made an appeal to Kenya Seed Company to develop sunflower seed varieties that would be suitable for the area's climate, enabling farmers to grow and harvest within short periods between major crops.

– That such a variety did not exist before makes it an innovation from the research laboratories.

– By comparing production between the new variety and previous or other existing ones, it is possible to demonstrate the effect of the innovation.

2. *The GSM information exchange system*

– For this project, the one product that stands out as an innovation was the ICT platform linking data from mobile phones to the bank's and input supplier databases, enabling instant communication.

– Although it was adopted from other similar set-ups elsewhere, its development for the sunflower supply chain in western Kenya makes it a product innovation for the area.

– The effect of the innovation is much faster availability of input production, harvesting, delivery and payment information compared with previous methods of information exchange.

Process innovation

1. *Efficient information exchange*

– Linking mobile phone usage with the database for instant data exchange point for the sunflower chain actors in ways that did not exist before makes this a process innovation.

– Process innovation takes place at individual level but all the actors can work in collaboration to support each other's process innovation.

2. *Efficient production and supply*

– Process innovations would also be observed in separate individual organization of production, availability of appropriate and timely credit products, adequate supply of production inputs, maximum production

of harvested sunflower; optimum supply and use of transport services; processing facilities; and timely payments. This would lead to maximum production and sales, and hence returns for any actor who innovated with related processes.

System innovation

- Linking farmers with an interested buyer (Bidco) to address the constraints of failing market and production when no such linkage existed before was a system innovation.
- Relating all actors—farmers, credit source and financial services supplier (Equity Bank), an input supplier (Bungoma Chemists)—was also a system innovation.
- Each individual actor had the space to organize themself innovatively to ensure they benefitted from timely coordination with the roles of other actors in the system. Or each actor exploited any weaknesses or inadequacies in others in the system to maximize returns—Bidco being the sole buyer dictated buying terms; Equity Bank being the preferred credit and financial services supplier with appropriate mission, network and facilities, dictated credit terms.

Transition innovation

- When sunflower production levels dropped due to an inadequate market, Bidco responded by offering a market to small-scale farmers willing to use their land and other resources for sunflower production. The failing sunflower market was a trend factor that could be exploited and required new thinking. Bidco's proposal for the project was a form of transition innovation.
- Towards the end of the project (after about two years) informal sunflower buyers emerged offering an alternative market besides Bidco. The informal buyers were exploiting the emerging desperation by farmers (harvested and uncollected sunflower, their urgent need for cash). The buyers and farmers were exploiting the trend of long delays in collection and payments emerging from the relationship with Bidco and Equity Bank. This was transition innovation when farmers discovered alternative emerging markets (of itinerant and informal buyers) and started side-selling their harvests.
- Even if it was affecting the relationship between farmers and Bidco and Equity Bank, it was development in the whole system (influenced by external factors) that would prompt other actors to consider ways of responding.

References and Further Reading

Anandajayasekeram P. The role of agricultural R&D within the agricultural innovation systems framework. Conference Working Paper 6. Prepared for the ASTI/IFPRI–FARA Conference, 5–7 December 2011. IFPRI, Washington, DC, and FARA, Accra, Ghana. Available at http://www.ifpri.org/sites/default/files/publications/ananda.pdf

Anandajayasekeram P, Berhanu Gebremedhin. 2009. Integrating innovation systems perspective and value chain analysis into agricultural R&D: issues and challenges. A presentation made to the IPMS Program (www.ipms-ethiopia.org) in Addis Ababa, Ethiopia, 2009.

Anandajayasekeram P, Dijkman J, Workneh S. 2005. Innovation systems approach and its implication to Agricultural Research and Development. Presentation at the Southern and Eastern African Association for Farming Systems Research–Extension (SEAAFSTE), Lilongwe, Malawi, 19–21 September 2005.

Barnett A. 2004. From 'Research' to poverty-reducing 'Innovation'. A Policy Brief from SRA Ltd. Available at http://www.thepolicypractice.com/papers/NSI_Policy_Brief.pdf

Bean R, Radford R. 2001. *The business of innovation: managing the corporate imagination for maximum results*. AMACOM, New York.

Freeman C. 1987. *Technology, policy and economic performance*: *lessons from Japan*. Pinter, London.

Klerkx L. 2011. Systems thinking in innovation. Presentation at the International Livestock Research Institute (ILRI), Nairobi, Kenya, May 2011.

Lundvall BA. 1992. *National systems of innovation: towards a theory of innovation and interactive learning*. Pinter, London.

Mytelka LK. 2000. Local systems of innovation in a globalised world economy. *Industry and Innovation* 7(1).

Rajalahti R. 2009. *Promoting agricultural innovation systems approach: the way forward*. Knowledge for Development, Observatory on Science and Technology, CTA, The Netherlands.

Spielman DJ. 2005. *Innovation systems perspectives on developing-country agriculture: a critical review*. ISNAR Discussion Paper 2.

Verstralen K. Facilitation of multi-stakeholder processes and social learning in support of agricultural market development: An overview of approaches and methodologies. A draft paper circulated in September, 2005.

Suggested Group Work

Objectives

- To further understand the where and how innovation takes place, especially the drivers, system characteristics necessary, and what one can do to support innovation.
- To enhance understanding by having the discussions in smaller groups where everyone gets to share what they know.

Seated in groups of 4–5, discuss the following:

1. Consider the project(s) you represent

- Describe any related instances of product, process and system or transition innovation.
- Describe the drivers (needs) and system necessary for sharing information, technology and resources that took place to support the innovation.
- Identify who gained and who lost or how the system gained or lost.
- If you were the system coordinator, what would you have done to support innovation that benefits as many actors as possible?

Prepare to present from the group discussions highlights of experiences and approaches used to support innovation in your programs and projects.

Module 4: Value Chains as Innovation Systems

Notes

Introduction

This module introduces the value chains development approach. It sets the rationale for implementing value chains as a development strategy, with emphasis on how to use innovation principles to support poor communities.

The aim is for actors to recognize how the needs of innovation actors are identified and a system established to support innovative ways of achieving objectives more effectively and efficiently. By the end of the session, participants should be able to understand that value chains present rich opportunities for innovation thinking and application.

Value chains

In agricultural development, value chains are increasingly being used as conceptual and operational frameworks to help identify entry points to support resource-poor actors in the production, processing and marketing of their agricultural products. Value chains are relationships where actors are linked in production, processing and distribution to make available a final product for consumption.

Value chain structures are important because they help system actors (including the poor) exploit markets through specialization, comparative and competitive advantage, economies of scale as well as dynamic technological, organizational and institutional changes. **The objective of innovation in value chains development is to make (agricultural) markets more efficient by exploring solutions** to overcome fragmented marketing relations; improve access to services, information and inputs; and balance asymmetric distribution of information and power.

What is a value chain?

In essence, value chains consist of business actors directly related. These include providers of raw materials (input suppliers) who serve producers (farmers in agricultural systems), who in turn deliver their products to processors, distributors, and wholesalers and retailers who finally sell to the ultimate consumers. Recent arguments point out that the value chain system should also consider the management of end products after consumption, because inadequate management can affect the system. Figure 2 presents the value chain functions.

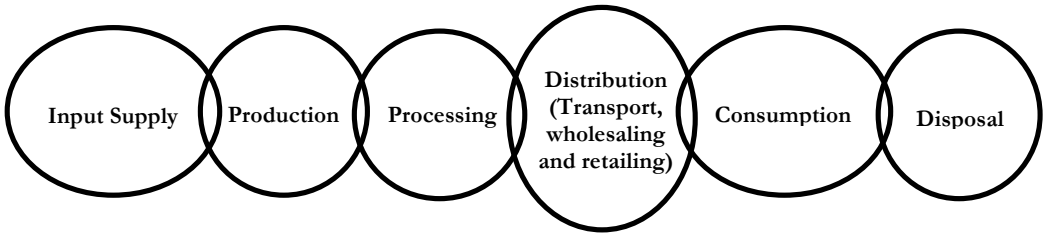


Figure 2. Linked value chain functions

Value chain functions are performed by business actors with each having objectives focusing on maximum returns or benefit, that is, to get the highest possible value for their function. This is sometimes referred to as earning the highest possible rent for their contribution to the chain.

These business actors operate in an environment established and maintained by actors whose role is to enhance operations of the business actors in the value chain and the chain as a whole. These environment enablers provide the following:

- Production and storage services: input supply, genetic and production hardware from research, farm machinery services and supply, extension services, weather forecast, storage infrastructure
- Marketing and business development services: market information, market intelligence, technical and business training, facilitating linkages of producers with buyers, organization and support for collective marketing
- Infrastructural services: market place development, roads and transportation, communication, energy supply, water supply
- Financial services: credit, savings, risk insurance
- Policy and regulatory services: property rights, market and trade regulations

The service providers will include both private and publicly funded entities with either a profit- or mission-oriented objective.

The success in generating value by each business actor in a value chain will depend on relations with the system and the roles of all the other actors. These roles relate to how they share information, products and technology that minimize their costs and generate maximum revenues. It also depends on how well each actor exercises their power over the system using any unique contribution, as well as how they communicate with all actors and relate with the environment enablers, and the way these service providers respond to needs expressed.

Figure 3 shows a generic value chain structure showing all functions and actors.

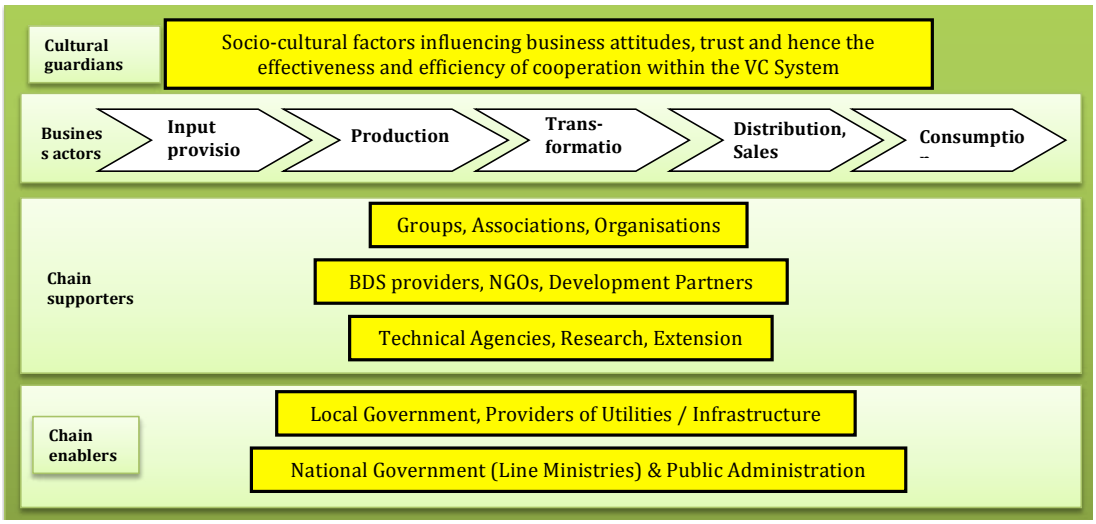


Figure 3. The generic structure of an agricultural value chain

Not all value chains follow the generic framework shown in Figure 3. Production, distribution and consumption in the manufacturing sectors involve so many products each with its own value chain, but each strongly influencing the final value generated and distribution of the primary good. Such systems are best presented as a **network of value chains**.

Innovation in value chains

Innovation has been defined in various ways (See Module 2) but it mainly refers to exploration and use of more effective ways of progressing towards a target goal. The value chain system is composed of business actors working to maximize benefits (or share of value) due to their function's contribution.

Using maximization of returns as the major reason for engaging in the system, value chain actors constantly seek new ways of achieving this, presenting a rich opportunity for innovative thinking. It is therefore easy to observe innovation activities and results in such systems.

The system itself and the decision to engage or not is a system innovation. Once involved and relating with the other actors, the search for supportive products (technology) could be product innovation. Any arrangements to reduce costs while maximizing production and revenues is process innovation. Transition innovation is observed when an actor in a group of actors upgrades the whole chain in line with emergent trends, for example, increasing or decreasing economies, climate change, etc.

The actors easily find and use other actors as sources of information, products and technology, thus operating as members of an innovation system.

Value chains for pro-poor development

One fundamental goal of agricultural value chains is pro-poor growth, defined as raising the incomes of the poor to grow faster than those of the non-poor (so that the inequality between the poor and non-poor narrows), or enabling poor people raise their incomes above the poverty line, even if their share in the national income does not improve (i.e. a positive growth rate for the poor). Value chains development is promoted for economic growth because value chains have potential for making positive impacts and improving the livelihoods of the poor. Value chains development can be designed to focus on improving and strengthening market forces for such actors to achieve development.

Several factors affect the participation of the poor in common commercial markets. They include:

Productive assets and property rights

Low education and health problems put the poor at a disadvantage in labor markets. Lack of assets and inadequate property rights on land and water critically limit farmers' investments.

Business environment and policy

The business environment implies higher risks and relatively higher costs of doing business for small enterprises compared with large ones.

Access to cross-cutting service markets

Small farmers and micro enterprises are negatively affected by the conditions for accessing formal financial markets that require securities and guarantees. Because of the size of their operations, small producers regularly face problems of access to inputs and business service markets.

Conditions of the location

Poverty is often concentrated in marginal locations where market access is critically limited, raising marketing costs and preventing investment. The success of translating value chain growth into poverty reduction depends on careful selection of the product markets.

There are two approaches to this issue:

- Selecting value chains that present the least problems in achieving self-employment for the poor.
- Making the best of the adverse conditions, that is, although a given region may have adverse conditions, it may have a typical local specialty, for example, it can attract tourists and the constraint can be turned to an opportunity.

Value chains and innovation

All private and public stakeholders in a value chain have to rethink and adjust their relations in ways that support the flow of information, products and technology and create conditions for innovative initiatives. An understanding of why industries and their constituent firms as well as other public and private sector stakeholders operate as they do enables the development of strategies to support innovation. In dynamic markets, behaviour change rather than one-time technical fixes leads to sustained competitiveness.

VCs are used to introduce and help sustain the participation of poor actors in the production, transportation, processing and marketing systems so that their absolute and relative incomes increase (when compared with other actors). Such programs aim at increasing poor actors volumes and sales, while minimizing their operational costs. This requires innovation in various ways. Some of the innovation possibilities identified, initiated and supported in VCs for such actors are listed below:

- Input supply: quality of inputs, acquisition at favourable prices
- Production and post-harvest management: increasing their productivity and marketable surpluses

- Marketing options: introducing and expanding marketing options, alternative outlets
- Technical assistance and training: building and providing capacity
- Organization and coordination of marketing functions: linking with relevant trade partners, supporting appropriate trade agreements
- Market information and intelligence: ensuring access to latest market updates and trends to support decision-making
- Market institutions: supporting recognition and accommodation by big players
- Market infrastructure: establishing infrastructure that provides storage and transport, and minimizes loss
- Financial services: supporting access to credit and other financial services (banking, accounting, etc.)
- Policy and regulatory issues: ensuring the environment institutes rules and regulations that are supportive of poor actors.

References and Further Reading

Anandajayasekeram P. The role of agricultural R&D within the agricultural innovation systems framework. Conference Working Paper 6. Prepared for the ASTI/IFPRI–FARA Conference, 5–7 December 2011. IFPRI, Washington, DC, and FARA, Accra, Ghana. Available at http://www.ifpri.org/sites/default/files/publications/ananda.pdf

Anandajayasekeram P, Berhanu Gebremedhin. 2009. Integrating innovation systems perspective and value chain analysis into agricultural R&D: issues and challenges. A presentation made to the IPMS Program (www.ipms-ethiopia.org) in Addis Ababa, Ethiopia, 2009.

Anandajayasekeram P, Dijkman J, Workneh S. 2005. Innovation systems approach and its implication to Agricultural Research and Development. Presentation at the Southern and Eastern African Association for Farming Systems Research–Extension (SEAAFSTE), Lilongwe, Malawi, 19–21 September 2005.

Barnett A. 2004. From 'Research' to poverty-reducing 'Innovation'. A Policy Brief from SRA Ltd. Available at http://www.thepolicypractice.com/papers/NSI_Policy_Brief.pdf.

Hartwich F, González F, Vieira LF. Public–private partnerships for innovation-led growth in agrichains: a useful tool for development in Latin America? Paper contributed at the 14th Annual World Food and Agribusiness Symposium, 12–13 June 2004, Montreux, Switzerland.

Horton D. 2008. *Facilitating pro-poor market chain innovation: an assessment of the participatory market chain approach in Uganda*. CIP Social Sciences, Working Paper No. 2008–1. ISSN 0256-8748.

Kaplinsky R, Morris M. 2004. *A handbook for value chain research*. *A handbook for value chain research*. Prepared for the IDRC, Institute of Development Studies, Sussex.

Lundvall BA. 1992. *National systems of innovation: towards a theory of innovation and interactive learning.* Pinter, London.

Mytelka LK. 2000. Local systems of innovation in a globalized world economy. *Industry and Innovation* 7(1).

Rajalahti R. 2009. *Promoting agricultural innovation systems approach: the way forward*. Knowledge for Development, Observatory on Science and Technology, CTA, the Netherlands.

Spielman DJ. 2005. *Innovation systems perspectives on developing-country agriculture: a critical review.* ISNAR Discussion Paper 2.

Verstralen K. 2005. Facilitation of multi-stakeholder processes and social learning in support of agricultural market development: an overview of approaches and methodologies. A draft paper circulated in September, 2005.

Suggested Group Work

Objective

Participants to explore and discuss why and how value chains require innovation to thrive, and what innovation systems provide such innovative support.

Seated in groups of 4–5, discuss the following:

1. Consider a value or supply chain you have been involved with and describe instances where actors have innovated to advance their business objectives.

– The difference between this group work and the previous one (Module 3) is that this one focuses on value and supply chains as innovation systems.

2. Describe the system actor(s) and especially the system relationships that supported or impeded innovation, and how that innovation has helped the chain grow or constrained targeted growth.

Prepare to present from the group discussions highlights of experiences and approaches used to support innovation in your programs and projects.

Module 5: Value Chain Analysis

Notes

Introduction

This module is about value chain analysis, which is, broadly, a description of the value chain of interest to identify entry points for upgrading and promoting in order to raise and strengthen the system by addressing all actors' objectives, and especially raise the benefits going to business actors. Value chain analysis provides an overview and a good understanding of the specific economic reality. It provides an understanding of how the system functions and learns from its operations.

The analysis is used to make decisions on objectives and strategies. It helps identify and plan supportive actions as well as monitor the impact of interventions. The process can also be used to help individual enterprises make business decisions.

Importance of value chain analysis

Value chain analysis is used to set out a vision and upgrade strategies. Chain analyses can also be used to formulate impact indicators and to monitor projects promoting value chains.

Tasks in value chain analysis

Value chain analysis activities are grouped into three basic areas:

- Deciding on the scope of markets to be promoted
- Conducting and supporting market research
- Setting priorities across products and value chains

Determining the scope of value chain(s) to be promoted

Value chain are the enterprises and supporting organizations that constitute the system. In analysing, the first step is to decide on the sector, products and markets that constitute the chain. This can be done at different levels; it will be useful to break the system market into specific segments because it makes sense to consider the full set of options. Some markets or market segments are more relevant than others from a pro-poor growth perspective. However, there are limits below which further disaggregation loses meaning, either because the business community becomes too small and value chain promotion inefficient or because product variants are made by the same operators.

Conducting and supporting market research

The possibility of achieving *any* development impact with value chain promotion depends on the growth potential and the prospects for market expansion. Market intelligence plays an important part and is carried out to assess the growth potential, identify opportunities and formulate an upgrading vision and objectives.

Setting priorities across alternative value chains

With limited public resources, only a few subsectors or value chains can be promoted. The economic development policy must focus on those markets that offer the greatest potential for achieving development impact. From a list of alternatives, a choice must be made based on criteria describing the pro-poor growth objective. Three criteria can be distinguished:

- growth potential
- poverty alleviation (pro-poor) potential
- pragmatism of the proposed vision and strategy.

Value chain mapping

Value chain mapping refers to describing value chains in detail and carrying out an economic analysis as well as benchmarking. The mapping follows market research and includes presenting in visual format the chain functions, operators and linkages. Quantifying adds numbers to the basic map—numbers of actors, volume of produce or the market share of particular segments in the chain. Specific aspects maybe included, for example, characteristics of actors, governance, etc.

The economic analysis of value chains includes determining the value added along the stages of the value chain, costs of production and incomes of operators, and hence net benefits as a result of the value-addition functions. Important parameters can be compared with other competing value chains.

Value chain mapping serves both analytical and communication purposes. A chain map reduces the complexity of the value descriptions as a result of the many functions, actors and other aspects involved in the value chain. The map should strive to deliver as much information as possible but still remain simple for interpretation.

Any chain map should fit on one page depending on scale, and present the major links (segments) of the value chain. The ValueLinks format proposes that value chain elements are presented as follows:

- Production and marketing functions performed (usually represented in hollow white arrows)

- Value chain operators taking these functions (represented in yellow boxes)

- Vertical business links between the operators (represented by arrows)

The basic functions and chain operators constitute the **micro level** of the value chain. Chain operators are the business entities in the respective market including the operational service providers. The value chain usually also has agencies and business organizations representing the collective interest of the business entities and providing support services. These present the **meso level** of the value chain. These actors are also referred to as 'chain supporters' in *agri-value chains*.

Actors in the micro and meso levels operate in an environment established and strongly influenced by community culture and local and national governing policies. The custodians and dictators of this environment operate at **macro level** and the environment they establish can constrain or catalyse chain development and growth.

Actors in the micro, meso and macro levels are presented in a value chain, a generic structure of which is shown in Figure 4.

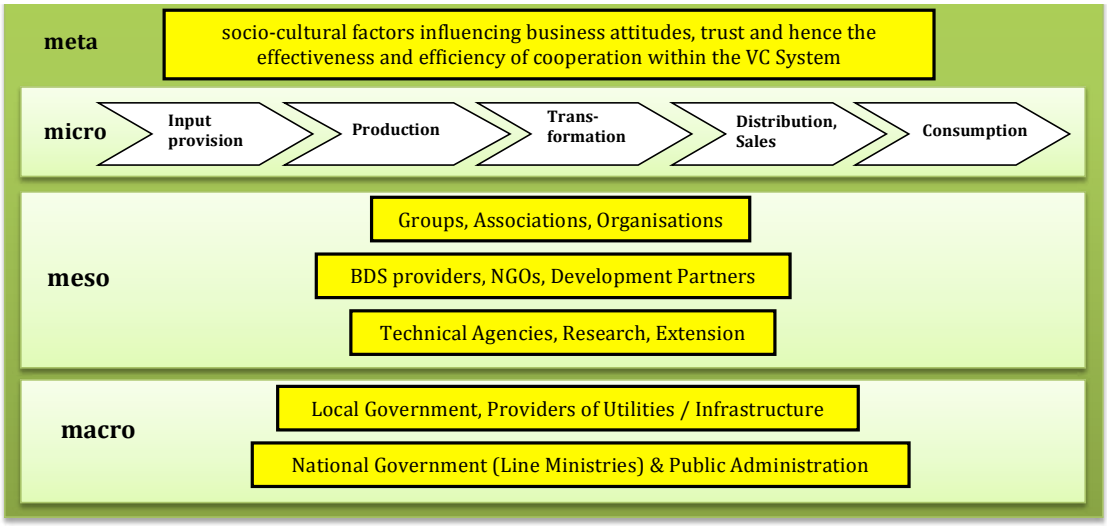


Figure 4. The generic structure of an agricultural value chain.

Not all value chains follow the generic framework shown in Figure 4. Production distribution and consumption in the manufacturing sectors involves many products each with its own value chain but each strongly influencing the final value generated and distribution of the primary good. Such systems are best presented as a **network of value chains**.

Value chain mapping in services and tourism follows an entirely different model because tourism is categorized in the service sector just like advertising and information technology services. The difference between services and other products is that services are delivered directly to the consumer (they are intangible and cannot be transported or stored).

Quantifying the basic chain map

There are three aspects to quantifying a basic value chain map. Once the conceptual framework of business functions and actual operators has been identified, the first step in quantifying is attaching numbers to the elements of the chain map. This generally means such values as:

- the number of operators
- volumes of product and sales turnover in each chain stage
- costs of production and prices paid at each chain link between stages
- market share of the value chain (or sub-value chain) defined as percentage of the sales.

The next step is to treat these elements as variables that change over time. The changes are caused by various factors. Preparing a list of constraints

and visualizing them in the chain map helps to indicate the direction for improving the chain, providing the basis for an upgrading strategy.

The descriptive analysis can be elaborated in more detail by specifying particular parts of the basic chain map creating detailed 'thematic' maps.

Economic analysis of value chains

This is an important input into the decision on development objectives and the upgrading strategy. This is so because production costs are an important factor that determines competitiveness. Assessing the cost structure in a value chain enables one to identify critical points that need to be addressed.

Economic data also provide the foundation both for operators and facilitators for monitoring progress made in upgrading.

Economic analyses include assessing overall value generated by the chain and how this value is distributed along the different operational stages. This value is in turn influenced by the production and marketing costs at these stages, and the performance of operators (use of productive capacity, productivity, and profitability).

Carrying out an economic analysis can be challenging due to inadequate collection and revelation of relevant data, especially among poor operators. Empirical research is costly and does not guarantee sufficiently accurate data. In most cases, economic analysts have to be content with rough estimates.

By analysing in detail important cost components, cost drivers such as high wastage rates, under-utilized economies of scale or underexploited opportunities of using co-products can be identified. This then becomes the focus of the value chain upgrading and promotion step, the subject of the next session.

References and Further Reading

Anandajayasekeram P. The role of agricultural R&D within the agricultural innovation systems framework. Conference Working Paper 6. Prepared for the ASTI/IFPRI–FARA Conference, 5–7 December 2011. IFPRI, Washington, DC, and FARA, Accra, Ghana. Available at http://www.ifpri.org/sites/default/files/publications/ananda.pdf

Anandajayasekeram P, Berhanu Gebremedhin. 2009. Integrating innovation systems perspective and value chain analysis into agricultural R&D: issues and challenges. A presentation made to the IPMS Program (www.ipms-ethiopia.org) in Addis Ababa, Ethiopia, 2009.

Anandajayasekeram P, Dijkman J, Workneh S. 2005. Innovation systems approach and its implication to Agricultural Research and Development. Presentation at the Southern and Eastern African Association for Farming Systems Research–Extension (SEAAFSTE), Lilongwe, Malawi, 19–21 September 2005.

GTZ. 2006. *ValueLinks manual: the methodology of value chain promotion*. 1st edition. GTZ, Germany. Available at http://www.valuelinks.org/index.php/material.

Hartwich F, González F, Vieira LF. Public–Private Partnerships for innovation-led growth in agrichains: a useful tool for development in Latin America? Paper contributed at the 14th Annual World Food and Agribusiness Symposium, 12–13 June 2004, Montreux, Switzerland. Focus area: Contribution of Technology to Food Chains

Kaplinsky R, Morris M. 2004. *A handbook for value chain research*. *A handbook for value chain research*. Prepared for the IDRC, Institute of Development Studies, Sussex.

[KIT] Royal Tropical Institute, Faida Mali, [IIRR] International Institute for Rural Reconstruction. 2006. Chain empowerment: supporting African farmers to develop markets. KIT, Amsterdam; Faida MaLi, Arusha; and IIRR, Nairobi.

Moti Jaleta. Value chain analysis as a pro-poor development research tool: what is it and what is its potential use? Presentation at the International Livestock Research Institute (ILRI), 11 November 2010, Nairobi, Kenya.

Verstralen K. Facilitation of multi-stakeholder processes and social learning in support of agricultural market development: An overview of approaches and methodologies. A draft paper circulated in September 2005.

Suggested Group Work

Objective

Participants will learn how to develop chain maps and how their value chain programs or projects operate.

Seated in groups of 4–5, especially belonging to THE SAME value/supply chain, carry out the following:

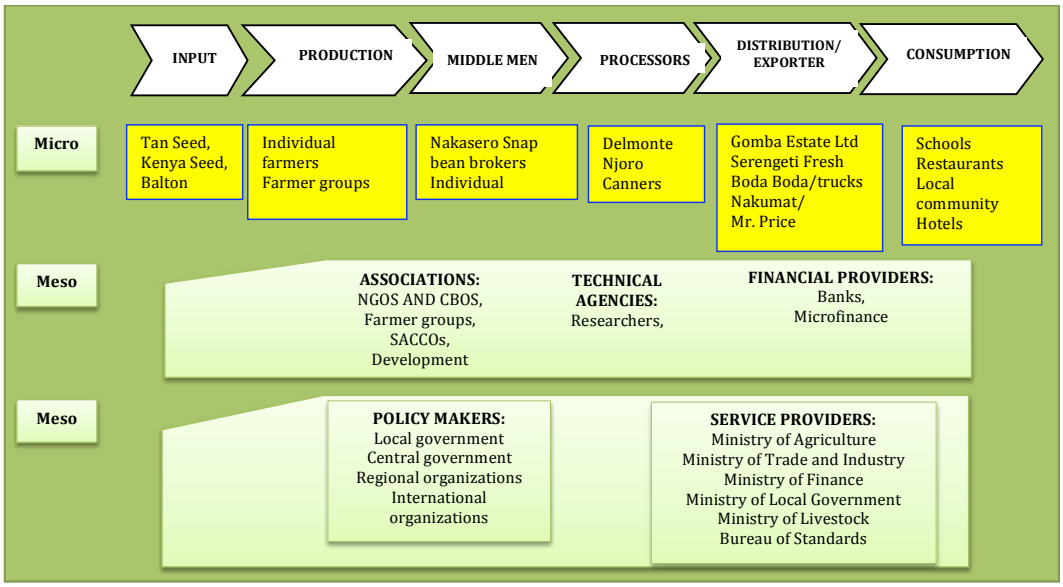
1. Using cards, describe the scheme shown in Figure 1 and the symbols on page 34, describe the chain on a surface. You could use a table or wall surface to show the micro, meso and macro actors. Where possible, use exact names of the actors involved in the chain you describe.

– The result should be similar to what is shown in Figure 5.

2. Given the chain's AND each actor's growth objective, develop and describe SWOTS at each point OR for each actor.

– The result should be similar to what is shown in Figure 6.

Prepare to present from the group discussions the chain you have developed.



CBO = community-based organization, SACCOs = credit and savings cooperatives

Figure 5. Example of a value chain system.

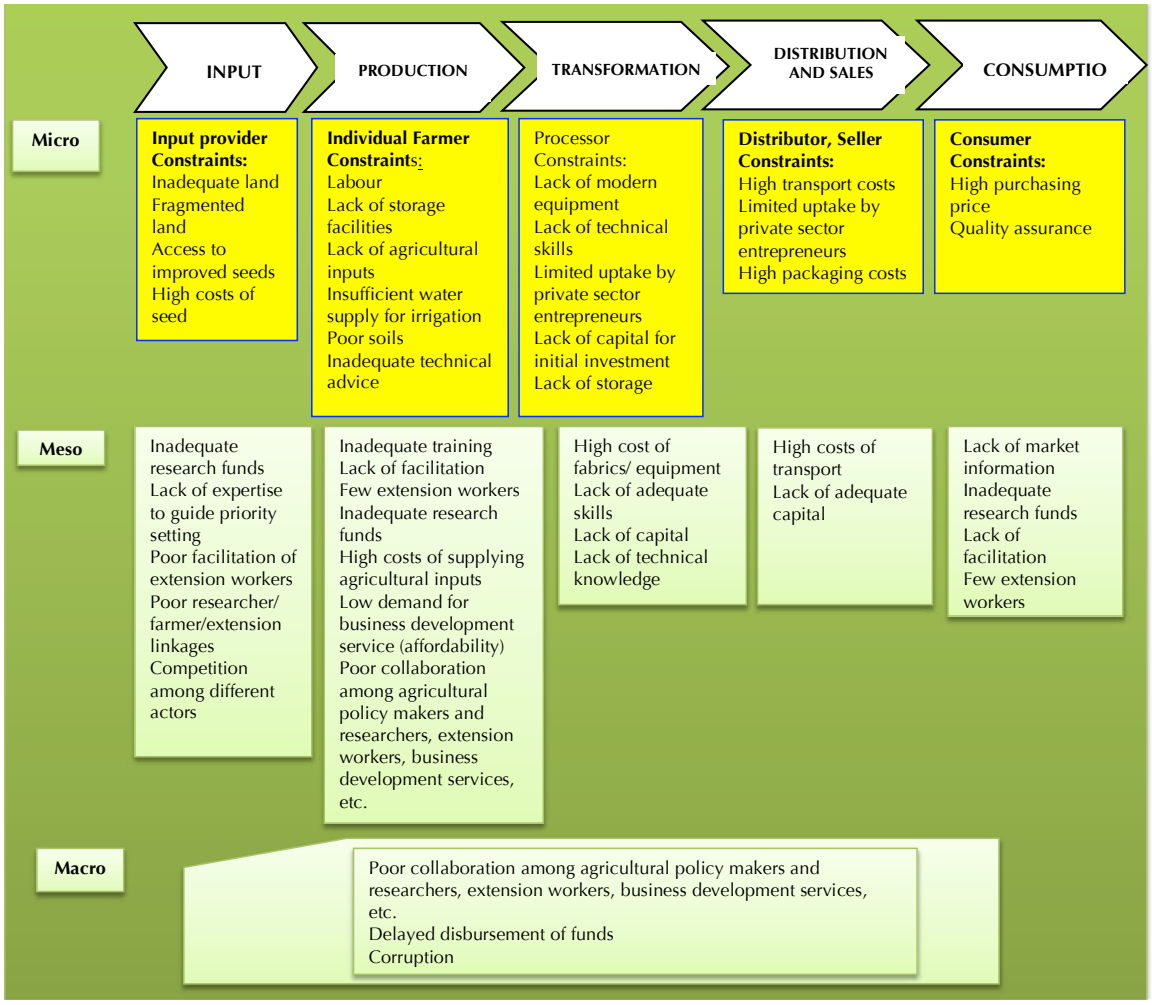


Figure 6. Example of a value chain system constraints and limitations (from a SWOT analysis)

Module 6: Value Chain Upgrading and Pro-poor Growth

Notes

Introduction

The main dimension in formulating a strategy to develop a value chain is concerned with what the actors must do to become more competitive and generate greater value added in the future. The other dimension is related to the role of external facilitators supporting economic development programs. Strategy entails taking the perspective of the actors on the value chain—enterprises, service providers and specialized public agencies.

This module shows how to intervene and promote value chains, especially for pro-poor benefits and growth. Given the features constraining poor communities—lack of resources, poor production scales, low skill levels and lack of bargaining power—interventions require innovative thinking to explore ways of developing, refining and supporting initiatives that offer greater performance and resulting value to the chain and its actors.

Upgrading strategy for value chains

Building a value chain upgrading strategy involves a sequence of steps:

- Agreeing on a vision and strategy for value chain upgrading
- Analysing opportunities and constraints to chain upgrading
- Setting operational objectives and preparing upgrading action
- Identifying actors to implement the value chain upgrading strategy
- Anticipating the impact of value chain upgrading.

Setting up the vision and strategy

The vision of an upgraded value chain describes the targeted change of the value chain; the desired future of the chain. The vision describes desired change and hence provides strategic direction. It is the basis for consensus among stakeholders on the way forward.

The vision refers to the overall goal of chain development and always refers to improving chain revenue (value creation) and the income of chain operators (value capturing). From the perspective of development agencies, the vision should present a future that proposes greater value earned by poor actors through their participation in various functions and employment generated as a result of the upgrade.

Building on the vision, the upgrading strategy then describes how the vision can be reached.

Analysing opportunities and constraints

When exploring ways of getting to the vision, an essential step is analysing constraints and opportunities. Strategic objectives consider both the present situation and the targeted vision in a SWOT framework and try to show how the scenarios can be linked and the vision achieved.

Ideally, the vision and and the SWOT analysis should be conducted collectively by the chain business actors, chain supporters and enablers. Together they should develop strategies and action plans that will show how they progress to the vision by strengthening and generating greater value for the chain in the face of competition with other chains.

An example of a chain analysis for opportunities and constraints:

- The vision is greater value earned collectively (by the entire chain) and individually (by the actors) through increased sales of products as a result of new consumer markets.
- The new markets are an opportunity that the chain and actors can exploit.
- A strength in the SWOT may be more producers and processors related to the chain who are interested in increasing investment in their activities. Another strong feature may be the presence of technical advisory services available to the chain actors.
- Weaknesses may be inadequate production practices and levels, poor quality in relation to the emerging demand from the new markets, inadequate financial support in credit supply.
- Threats could be the presence or emergence of alternative suppliers to the same market, stringent international trading standards, etc.

Such analysis of opportunities and constraints helps formulate broad strategies on how a chain will grow, increase value generation and incomes earned.

The strategic objectives have to be broken down to arrive at a detailed model of how the vision will actually be achieved—the operational objectives and

fields of action.

Setting operational objectives and upgrading actions

The analysis carried out (see above) will guide chain actors and developers to appropriate upgrading options, strategies and action points. This should result in activities aimed at managing constraints and exploiting opportunities.

The vision shows direction; the opportunities and constraints analysis shows what needs to be addressed. This makes it possible to develop objectives for chain upgrading that will in turn be turned into manageable actions. In developing solutions and intervention points, innovation and innovation systems thinking become useful principles of approach.

Note the following:

- Innovation = chain vision + what new ways help the chain get there in the most effective and efficient way
- The innovation hierarchy suggests innovation in products (technology), processes (technology + production), systems (relationships) and exploiting transition (the world is never still!!)
  Given program progress + internal and external changes, the vision can be revised to inspire greater achievements.

Suggested interventions and innovation should make the case for upgrading objectives, which then form the basis of upgrading activities.

Generic fields of action in improving value chains can be classified into:

- Improving business linkages, associations, and partnerships
- Strengthening service supply and demand
- Introducing standards and improving policies and the business environment of the chain.

Identifying actors to implement the upgrading strategy

For the strategy to be complete the implementers have to be identified. As general rule the people it will benefit (operators and meso-level organizations) have to take this action.

Chain actors responsible for the upgrading action should:

- Fully subscribe to the upgrading strategy including the expected public benefit, and
- Be able to contribute to upgrading the value chain.

The success of the chain upgrade will depend on the capacity of the suggested chain operators to implement the strategy once the vision and strategy have been formulated. After enterprises collaborate for common goal, a firm can take the lead role. However, there are relevant cases that will need the support of the public because the enterprises may neither have the know-how nor the resources.

For each field of upgrading action, value chain actors and facilitators should determine—

- Who among the chain actors (enterprises, associations or business organizations) takes the lead in the respective upgrading action?
- Whether this enterprise or association is capable of completing the task with own resources
- Whether the intended action requires external support of a value chain promotion project.

Chain actors' lack of capacity to move ahead with the upgrading project is the reason why public development agencies (operating at the meso and macro levels) may be called to support.

Operational action planning

Once the upgrading strategy is clear, a combination of actions has to be developed and implemented so that the objectives (if adequately considered) can contribute towards realizing the vision. Operational planning follows; the actions have to be described by specifying responsibility and providing implementation details.

Generally, operational action planning should specify:

- objectives (expected results)
- segments and levels of the value chain that are going to be addressed
- who is going to be responsible for the action
- corresponding resource requirements, timeline, and milestones.

Some value chain relationship interventions

1. Strengthening private business linkages and associations

- Linkages exist between operators at the various stages of the value chain (vertical business linkages) and between operators working at the same stage (horizontal collaboration).
- Establishing collaboration and cooperation of actors at the same level

can help increase production, reduce production costs and enhance the bargaining power. Small- and medium-scale farmers and enterprises have to organize themselves effectively. The organization becoming a producer association is often a precondition for obtaining access and strengthening the organization's position in the market.

– Small and medium enterprises achieve economies of scale through bulk purchasing, bulking of produce and joint sorting, grading and marketing. Economic advantages are also gained through sharing resources (e.g. phone/fax, storage capacity or equipment). Business partners prefer to negotiate with few suppliers and expect reliable supply and quality.

2. Brokering vertical collaboration: Supplier–buyer contracting

– Strengthening vertical business linkages serves several purposes. It includes linking small enterprises to high-value markets, brokering contracts with domestic or international buyers, strengthening the contractual position of the poor. As value chains upgrade from traditional to high-value products, the types of contractual relationships between suppliers and buyers evolve. Table 3 shows how contract relationships intensity, depending on agreements between buyer and seller.

Table 3. Forms of supplier-buyer contractual relationships

	Contractual agreement	Description
Intensity of relationship grows ↓	Spotmarket (arms-length transaction or 'wet market')	Transactions are completely market-based. Contracts are verbal and often anonymous
	Forward contracting	A cash transaction in which a commercial buyer and seller agree upon delivery of a specified quality and quantity of goods at a specified future date. The price is agreed upon in advance.
	Regular subcontracting of suppliers/preferred supplier arrangements	Buyer has a list of preferred suppliers with whom forward contracts are made regularly. This provides security and reduces search costs on both sides.
	Out-grower schemes	A big farm contracts with neighbouring farmers tom complement their own production volumes. The out-growers receive technical services but may sell to other buyers as well.
	Contract production / Contract farming	The supplier works for one buyer exclusively. Product and technology are clearly specified and suppliers receive the necessary inputs

3. Facilitating collaboration at the meso and macro levels

– Facilitating innovation and value chain systems also involves linking micro-level actors with services and capacity provided by meso and macro level actors. This facilitation also enables scaling out so that the value chain reaches out to a wider range of actors. An external facilitator can facilitate a working arrangement for micro actors at the meso and macro levels in the following ways:

– national export promotion. The facilitator assumes a coordinating and facilitating role for the entire value chain

– organizing operators into business associations that can develop economies of scale for better cost and trade terms.

– providing an advocacy, service or coordination role on behalf of chain members and the value chain system.

References and Further Reading

GTZ. 2006. *ValueLinks manual: the methodology of value chain promotion*. 1st edition. GTZ, Germany. Available at http://www.valuelinks.org/index.php/material.

Kaplinsky R, Morris M. 2004. *A handbook for value chain research*. Prepared for the IDRC, Institute of Development Studies, Sussex.

[KIT] Royal Tropical Institute, Faida Mali and [IIRR] International Institute for Rural Reconstruction. 2006. Chain empowerment: supporting African farmers to develop markets. KIT, Amsterdam; Faida MaLi, Arusha; and IIRR, Nairobi.

[KIT] Royal Tropical Institute, [IIRR] International Institute for Rural Reconstruction. 2008. *Trading up: building cooperation between farmers and traders in Africa*. KIT, Amsterdam and IIRR, Nairobi.

[KIT] Royal Tropical Institute, [IIRR] International Institute for Rural Reconstruction. 2010. Value chain finance: beyond microfinance for rural entrepreneurs. KIT, Amsterdam and IIRR, Nairobi.

Richter P. 2006. Value chain promotion and business environment reforms: experiences from Sri Lanka. A paper prepared for the Asia Regional Consultative Conference Donor Committee for Enterprise Development, 29 November to 1 December 2006, Bangkok.

Schmitz H. 2005. *Value chain analysis for policy makers and practitioners*. International Labour Organization, Geneva. ISBN 92-2-117738-6.

Suggested Group Work

Objective

Participants use SWOTs to explore innovative ways in which a system can upgrade itself.

Seated in groups of 4–5, in THE SAME value/supply chain from the previous group assignment, carry out the following:

1. Given the SWOT results from the previous exercise and using cards describe innovative ways in which the system can upgrade itself. Consider the following:

– In product innovation, at what point of the chain (actor-related) could an innovation in product or technology further support the chain or actor's business objectives. What product or technology?

– In system innovation, consider how innovation in business and support services (with meso and macro actors) relationships (or linkages) can further support the chain or actor's business objectives.

2. Show the innovative suggestions on the same space you have the chain layout.

Prepare to present from the group discussions the chain you have developed.

Module 7: Facilitation and Leadership in AIS and VCD

Notes

Introduction

Value chains development and management entail interacting with people and the organizations they represent. Chain development requires appropriate management of these relationships to a point where the behavior and social relationships develop to realize the upgrading objectives and actions.

Value chain promotion builds on cooperation and therefore requires a division of tasks among chain actors. The different roles should be clear. The chain operators are responsible for upgrading the chain. They have to invest into productive capacity, product improvement and business linkages. To establish, support or strengthen the functioning of VCs, the innovation and value chain system facilitators should demonstrate leadership in coordination, supporting or engaging relevant actors in new business relations, and promoting and organizing VC evolution.

This module presents aspects of chain management and leadership essential to succeeding with upgrading objectives.

Managing the development of value chains

Much is involved in value chain upgrading in terms of markets, behavior, social relations and absorbing and applying new information. Value chain upgrading is a process of coordination and collective action that relies a lot on synergies among the actors, their common objectives, coordinated decision-making and action.

To collectively realize the upgrading objectives, the chain actors have to talk to each other to identify common interests and address those that differ. Value chain actors are business entities and their interests as suppliers and buyers often are constantly competing for maximum benefit. So are the interests of private operators and the public administration. Harmonization requires

expert facilitation and leadership to maintain BOTH the individual and overall chain growth objectives.

The main functions of the leadership of such systems:

System definition and promotion

System definition and promotion is the regular definition and description of the system that the leadership is in charge of. System definition is a critical component for promoting engagement and support in the following ways:

- Creating **awareness**, enhancing **understanding** and **trust**: Internally, members get to see how they relate and why collaboration and team work will be useful to grow the whole system and benefit each actor.
- Externally, the leadership uses the system definition to recruit more members, attract missing capacity and seek support from a well-defined structure that has objectives and a goal that others can see what their assistance will serve.
- Help building a **joint vision** of the future, and **upgrading strategy**
- In general, system definition helps encourage participation, commitment and support
- In system definition, quantification is vital because it enables one to see the extent of stakeholder engagement and impacts of system or VC management on production, distribution and net returns.

Communication

Communication is a leadership function that cuts across many other roles because it is the basis of information exchange, not just on system definition but a process used in vision development and sharing, coordinating supply and demand points, facilitating their timely relationships, mediating and sharing monitoring and evaluation results and lessons. Communication entails adequate data collection and analysis for presentation. This means packaging the innovation process and results in diverse forms and formats that appeal to different stakeholders to promote the system internally and externally. Case examples to demonstrate success with innovation processes should be used.

Visioning and strategy development

In visioning the chain upgrading goals, the leadership structure—in addition to defining and describing the system—shows the direction in which the system is going, especially as a away of overcoming any inherent constraints as well as growing from the current status.

In strategy development the leadership function is how the vision is being achieved by showing where and how resources are being spent and defining specific roles for each actor.

Visioning and strategy development can be for the whole innovation or value chain system or for specific parts.

Facilitating interactions—mediation

Facilitation helps stakeholders know each other and **exchange** information, products and technology. Facilitation is also carried out to support the implementation of strategy plans and ensure the system functions effectively. Chain leadership should organize for actors to interact and exchange necessary information. Facilitation may include provision of venue and logistical requirements to ensure effective participation.

Facilitation enhances business linkages and supports new business transactions and investment. In another light, facilitation involves capacity development and institution building. It is also the process through which mediation among actors is done when brokering negotiations and agreements, and in conflict resolution.

Coordination

Coordination is an important leadership function in innovation systems. Chain leadership must coordinate actor actions to ensure supply and demand points are adequately served in ways that are mutually satisfying. Each actor requires the right information, product, quantity, quality, payments at the right time.

The process entails knowledge of and effectively serving demand and supply points. For example, effective coordination ensures seed and fertilizer are supplied when they are most needed, harvesting and delivering the right quantity and quality of produce from one actor to another.

M&E to report progress, inform next moves

Chain leadership also includes reporting on innovations taking place, resulting impacts and lessons. Using progress information, leaders can facilitate joint learning of VC stakeholders and process innovation.

Principles of facilitating a value chain upgrade

- Make transparent the role of an external facilitator
- Act on demands of the value chain operators or their representatives
- Serve the clients and manage with impartiality the process of developing content and sharing results
- Build on the initiatives taken by value chain actors and existing organizations and institutions
- Stick to a clear division of tasks among chain actors
- Enhance an environment of respect and safety where all participants trust that they can speak freely and where individual boundaries are honored. Respect the culture, rights and autonomy of all participating groups
- Build on market and development potential working toward viable and sustainable market structures
- Focus on practical implementation and rapid and visible results and impacts.
- Build on the own initiatives of chain leaders, private enterprises or business associations
- Cooperate with partners who behave as change agents and leaders
- Openly acknowledge any potential conflict of interest
- Create a balance between participation and results
- Coordinate efforts of different donors along the chain.

Facilitation requires good communication skills, personal strength and empathy for weaknesses, strengths and aspirations – including those of the facilitator himself.

In summary, leadership in an innovation system or platform covers the following functions:

- Communicating the system's vision and strategy
- Identifying missing capacities and gaps followed by establishing, maintaining and managing stakeholder links and mutually beneficial relationships
- Sharing innovation cases internally to entice more committed participation, and externally to entice and invite support
- Resolving conflict
- Developing succession strategies and plans beyond any external support.

Some leadership and governance structures

- Who takes a leadership and coordination role?
- From the business chain actors, leadership can be undertaken by any of the private enterprises if they have a central role as 'chain leaders'. The (service and input) market can provide leadership—to the extent that market forces drive change.
- From the meso-level operators (enabling service providers): Collective entities and support service providers—to the extent that they provide a platform for exchange.
- From the macro-level agents: Government—in case it comes up with a policy promoting value chains.
- External agencies facilitate upgrading by collaborating with appropriate partners within the value chain. They should NOT directly work on upgrading the value chain.

Leadership principles (from the ValueLinks Manual)

- Build on **own initiatives of private enterprises** and work with chain leaders as partners (champions).
- Stick to **clear division of work** between private and public actors contributing to chain development.
- Cultivate development as a **learning process.**
- Go for **quick visible results** to gain momentum while preparing for long-term support.
- Move **from simple** improvements **to more complex** structural change.
- Make sure this is a **win–win game.**
- Ensure **coordinated efforts of different donors** along the chain.

Leadership interactive forums

Various forums can be used to support the leadership function. These include:

Objectives in process facilitation	Possible workshop format
Create awareness and understanding	Stakeholder forum
Exchange between actors	Stakeholder forum
Joint VC mapping and analysis	Meeting with change agents, VC workshop
Help build a vision	VC workshop
Forge consensus on vision and strategy	VC workshop
Joint decision-making and operationalizing action	VC working groups
Joint learning of VC stakeholders	VC workshop
Coordinate different support agencies	VC committee leadership depends on scale and political dimension of VC development

References and Further Reading

Bean R, Radford R. 2001. The business of innovation: managing the corporate imagination for maximum results. AMACOM, New York.

GTZ. 2006. *ValueLinks manual: the methodology of value chain promotion*. 1st edition. GTZ, Germany. Available at http://www.valuelinks.org/index.php/material

Horton D. 2008. Facilitating pro-poor market chain innovation: An assessment of the participatory market chain approach in Uganda. CIP Social Sciences, Working Paper No. 2008 – 1. ISSN 0256-8748.

[KIT] Royal Tropical Institute, Faida Mali and [IIRR] International Institute for Rural Reconstruction. 2006. Chain empowerment: supporting African farmers to develop markets. KIT, Amsterdam; Faida MaLi, Arusha; and IIRR, Nairobi.

[KIT] Royal Tropical Institute, [IIRR] International Institute for Rural Reconstruction. 2008. *Trading up: building cooperation between farmers and traders in Africa*. KIT, Amsterdam and IIRR, Nairobi.

[KIT] Royal Tropical Institute, [IIRR] International Institute for Rural Reconstruction. 2010. Value chain finance: beyond microfinance for rural entrepreneurs. KIT, Amsterdam and IIRR, Nairobi.

Klerkx L. 2011. Systems thinking in innovation. Presentation at the International Livestock Research Institute (ILRI), Nairobi, Kenya, May 2011.

Lundvall BA. 1992. *National systems of innovation: towards a theory of innovation and interactive learning*. Pinter, London.

Mytelka LK. 2000. Local systems of innovation in a globalized world economy. *Industry and Innovation* 7(1).

Rajalahti R. 2009. *Promoting agricultural innovation systems approach: the way forward*. Knowledge for Development, Observatory on Science and Technology, CTA, the Netherlands.

Spielman DJ. 2005. *Innovation systems perspectives on developing-country agriculture: a critical review*. ISNAR Discussion Paper 2.

Richter P. 2006. Value chain promotion and business environment reforms: experiences from Sri Lanka. A paper prepared for the Asia Regional Consultative Conference Donor Committee for Enterprise Development, 29 November to 1 December 2006. Bangkok.

Schmitz H. 2005. *Value chain analysis for policy makers and practitioners*. Geneva: International Labour Organization. ISBN 92-2-117738-6.

Verstralen K. 2005. Facilitation of multi-stakeholder processes and social learning in support of agricultural market development: an overview of approaches and methodologies. A draft paper circulated in September 2005.

Suggested Group Work

Objective

Participants will explore and suggest leadership and management activities that would support value chain innovation.

Seated in groups of 4–5, in THE SAME value/supply chain from the previous group assignment, carry out the following:

1. In the chain systems described what leadership and management structures have been used in the past?

2. Given the suggested initiates to improve system relationships and achievement of actors' objectives, what fresh leadership and management structures, processes can be initiated to support innovation?

3. List and describe the suggestions.

Prepare to present from the group discussions the chain you have developed.

Module 8: Monitoring and Evaluating AIS and VCD

Notes

Introduction

Public chain promotion is intended to increase the income of chain actors, especially poor communities, and stimulate further economic growth. Value chain projects need to analyse progression towards targeted results. Impact monitoring is the management tool that ensures a project stays on course.

Analysing the progression and impact of innovation and value chain systems provides information on what is being achieved given the interventions and upgrading strategies. This module concentrates on impact and outcome monitoring and the use of ´results-based management´, where results focus on the outputs and outcomes of upgrading activities rather than project inputs and activities.

Innovation and the value chain system's theory of change

Monitoring progress of innovation systems (including value chains) is challenged by the systems' inherent dynamism and unpredictability. The uncertainty is an expected part of the process because business entities thrive by exploiting emerging opportunities for benefits. Like any other development project, targeted progression is also easily beset by factors beyond the control of chain managers and the actors themselves.

To develop an impact monitoring strategy, it is useful to consider factors targeted and those likely to affect progression. The recommended approach will be a rolling impact monitoring with less consideration to a starting baseline. The model will analyse change in targeted key results (from the vision), and how these are changing over time as a result of project activities and other factors.

The impact monitoring system from the GTZ ValueLinks manual includes six steps:

1. Defining system boundaries and impact model / results framework
2. Clarifying interests and expectations concerning the monitoring system
3. Formulating indicators and related data and data analysis
4. Determining important fields of observation
5. Data collection and analysis
6. Interpretation, presentation of results; reporting.

Defining system boundaries and impact model / results framework

Innovation and value systems tend to be open with actors engaging and disengaging depending on how their interests are served by the relationship. The initial step in impact monitoring will be to define the system in terms of the vision (Module 4) and the targeted upgrading goals. A useful starting point is mapping actors and their relationships (see Module 5).

Clarifying interests and expectations concerning the monitoring system

In developing the monitoring strategy and system it will be useful to involve actors, who will not only play a role in clarifying the system's target results but contribute to the information that will be used to analyse progress. Even if actors engage and disengage, key representatives can be consulted over time as information sources.

Chain managers should agree on how proposed upgrading strategies will impact on particular aspects of the innovation or value chain system, i.e., the intervention's theory of change, and what will then be monitored and analysed to demonstrate the extent of progression towards the agreed vision.

Formulating indicators and related data collection and data analysis

Together with the system actors and using the system or chain vision, the chain developers should identify result areas that will be used to inform progress being made. Key result areas targeted can be categorized into outcomes, impacts, activities and outputs.

Outcomes and impacts are changes in the ways stakeholders act (cultural practices, organizational and institutional polices) and the related resulting effects (or impacts) on their chain engagement objectives, that is, higher yields or production levels, better returns as indicated by changes in revenues, incomes and reduced costs of transactions. In general, outcomes will be reflected in a transformed chain system demonstrating higher values earned

collectively and individually. An even more useful indicator of a result in an innovation system would be sustained viability and growth of these outcomes beyond the support of the project (or donor-funded support).

Activities and outputs are the tangible demonstration of project upgrading activities. They are usually indicators of such activities before or without the effects (outcomes and impacts). For example, they will include capacity building and brokered actor interactions (numbers of training sessions or meetings, participants involved), signed agreements, etc. Or physical outputs from the projects, such as the presence of installed infrastructure.

Once result areas are agreed on, the chain developers and key stakeholders will then have to agree on what data will be collected and how it will be analysed to show progression in those key results. Data can be quantitative or qualitative; data collection and analyses are different activities but reports should integrate and show how the data complement each other. An example of a qualitative outcome is a bank's institutional policy change to accommodate poor borrowers. A related quantitative outcome would be the numbers of such clients exploiting such offers and the volume of credit accessed as a result.

Data collection and interpretation

Outcome and impact data can be collected in various ways. Quantitative data can be collected through Knowledge–Attitude–Practice and adoption–adaptation surveys. Qualitative information is collected in participatory appraisals, key informant interviews, focus group discussions, institutional and organisational analyses, and selected case studies. Results from analyses of the AIS and VCD approaches should be integrated to give a more comprehensive picture of progress.

Interpretation, presentation of results and reporting

Impact information is not only supposed to show stakeholders the level of achievement but should support learning and decision-making for ways forward. In line with the vision and strategy, progress results are supposed to support innovation decisions and should be shared as regularly as possible.

References and further reading

Bean R, Radford R. 2001. *The business of innovation: managing the corporate imagination for maximum results*. AMACOM, New York.

Freeman C. 1987. *Technology policy and economic performance: lessons from Japan*. Pinter, London.

GTZ. 2006. *ValueLinks manual: the methodology of value chain promotion*. 1st edition. GTZ, Germany. Available at http://www.valuelinks.org/index.php/material.

Hartwich F, González F, Vieira LF. Public–private partnerships for innovation-led growth in agrichains: a useful tool for development in Latin America? Paper contributed at the 14th Annual World Food and Agribusiness Symposium, 12–13 June 2004, Montreux, Switzerland. Focus area: Contribution of Technology to Food Chains

Hartwich F, González F, Vieira LF. Public–private partnerships for innovation-led growth in agrichains: a useful tool for development in Latin America? Paper contributed at the 14th Annual World Food and Agribusiness Symposium, 12–13 June 2004, Montreux, Switzerland. Focus area: Contribution of Technology to Food Chains

Horton D. 2008. Facilitating pro-poor market chain i nnovation: An assessment of the participatory market chain approach in Uganda. CIP Social Sciences, Working Paper No. 2008 – 1. ISSN 0256-8748.

Kaplinsky R, Morris M. 2004. *A handbook for value chain research*. *A handbook for value chain research*. Prepared for the IDRC. Institute of Development Studies, Sussex.

[KIT] Royal Tropical Institute, Faida Market Link Company Ltd, [IIRR] International Institute for Rural Reconstruction. 2006. *Chain empowerment: supporting African farmers to develop markets*. KIT, Amsterdam, FaidaMali, Arusha, Tanzania, and IIRR, Nairobi, Kenya.

[KIT] Royal Tropical Institute, [IIRR] International Institute for Rural Reconstruction. 2008. *Trading up: building cooperation between farmers and traders in Africa*. KIT, Amsterdam and IIRR, Nairobi. Available at http://www.kit.nl/net/KIT_Publicaties_output/ShowFile2.aspx?e=1441

[KIT] Royal Tropical Institute, [IIRR] International Institute for Rural Reconstruction. 2010. *Value chain finance: beyond microfinance for rural entrepreneurs*. CTA, Amsterdam, IIRR, Nairobi, KIT, Amsterdam. Available at http://www.kit.nl/net/KIT_Publicaties_output/ShowFile2.aspx?e=1610

Mytelka LK. 2000. Local systems of innovation in a globalized world economy. *Industry and Innovation* 7(1).

Schmitz H. 2005. *Value chain analysis for policy makers and practitioners*. International Labour Organization, Geneva. ISBN 92-2-117738-6.

Suggested Group Work

Objective

Participants to explore and suggest monitoring and evaluation systems to track progress and develop lessons for implementation to continually improve performance.

Seated in groups of 4–5, in THE SAME value/supply chain from the previous group assignment, carry out the following:

1. Develop aspects of the chain that you would like to monitor to track progress

– Develop key result areas

– For each key result area, develop indicators, data, data collection and analysis processes

2. Suggest how the monitoring and evaluation reports will be developed and disseminated for individual and collective usage. What knowledge management system will the project establish?

Prepare to present from the group discussions the chain you have developed.

Module 9: Value Chains as a Research Tool

Notes

Introduction

A large number of R&D managers attending this course request to see how value chain analysis can be used in research programs or how research can be organized around value chains development. In this module we present aspects of both approaches to address those interests.

First, the definition

Value chain analysis is a method for '... Accounting and presenting value created and distributed among actors as products are transformed from raw inputs to intermediate and final products … for consumption and disposal by end users.'

Use of value chain analysis as a research tool

Value chain analysis as it is used now:

- defines and describes systems, and provides framework in economic activities to systematically map actors, their revenues, cost structures, flow of goods and volume, employment characteristics, and product destination (domestic/export markets).
- identifies governance structures in trade relationships, and to investigate forms of relationships and coordination mechanisms between actors in the value chain.
- helps in identifying and prioritizing trade gaps and constraints affecting efficiencies and distribution of value among chain actors.
- examines the impact of interventions to address the gaps and constraints: upgrading within the chain: improvement in quality, product design, access to new market, diversification, innovation capability, profits and constraints.

- identifies leverage points of intervention to accommodate the poor in a commodity value chain.
- VCA information is used for designing development programs and policies to support smallholder access to markets.
- The information is also used to identify where and how collaborative structures could enhance smallholders' bargaining power (reduce costs or increase their benefits, e.g. through horizontal linkages or vertical contracts).

The main drawbacks to this current usage for research is that the analysis only presents a static nature of the value chain structure and is short in showing the dynamic effects of policy or investment interventions through potential feedback.

Potential use as a research tool

Value chain analysis has potential for use in research in the following ways:

1. In ex-ante analysis:

Use value chain data to model trends and effects. This enables teams to:

- Evaluate the impacts of policy interventions and investments on value distribution.
- Investigate how policy interventions could change the governance structures (power asymmetry) and effect on overall value chain performance and value distribution to actors.
- Identify and analyse internal any external drivers, trends and forecast possible effects on the VC system.

2. In ex-poste analysis:

The data can be used to model trends and effects. Value chain constructs provide a conceptual framework for a MORE comprehensive impact assessment tool for development programs. A classic example is shown in Figure 7.

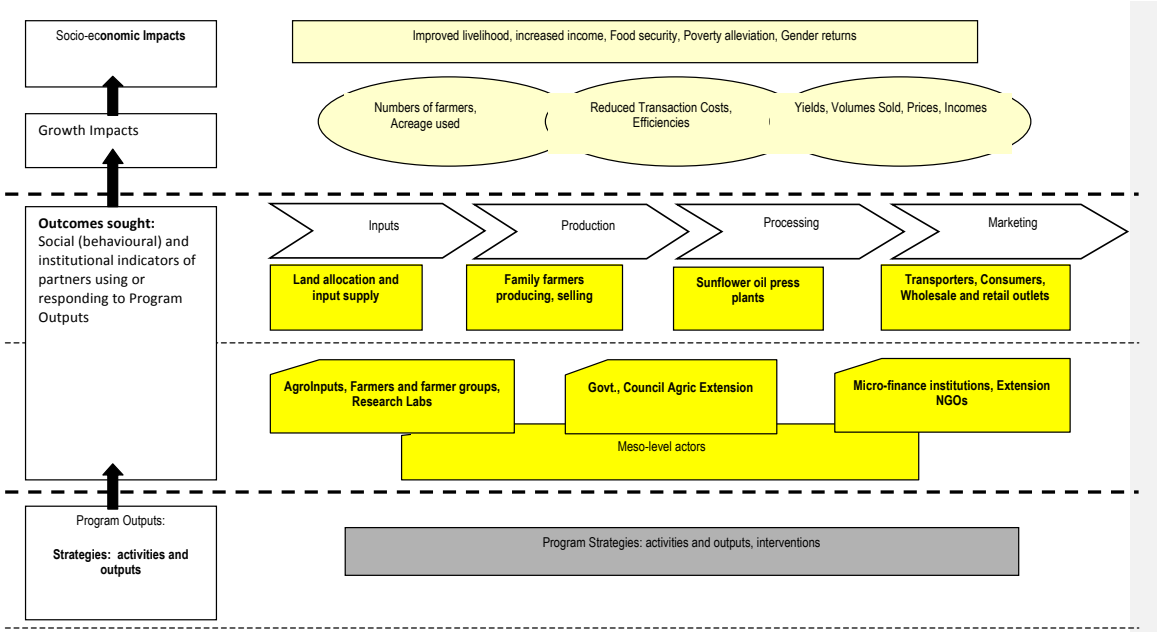


Figure 7. An agricultural value chain construct showing data collected and used at various points.

Emerging methodological interests

There is interest to transform value chain analysis from applying static situations to applying dynamic analysis to capture the effects of internal changes (actor's behavior and strategies) and external developments (policy, institution, infrastructure) and relate these to on-going actor and chain performance. Methods that have been proposed to support this transformation:

- Game theory
- Institutional economics
- Organization theory
- Principal–agent theory
- Contract theory

Methodological challenges

The use of the value chain approach in research presents challenges in data collection. This is especially related to sampling, representativeness and accuracy given the possible spatial (geographical) spread of the actors. Analysing the dynamic interactions in value chains and related systems is a new research area, and the research world continues to look for innovative working approaches and models.

References and Further Reading

Anandajayasekeram P. The role of agricultural R&D within the agricultural innovation systems framework. Conference Working Paper 6. Prepared for the ASTI/IFPRI–FARA Conference, 5–7 December 2011. IFPRI, Washington, DC, and FARA, Accra, Ghana.

Anandajayasekeram P, Berhanu Gebremedhin. 2009. Integrating innovation systems perspective and value chain analysis into agricultural R&D: issues and challenges. A presentation made to the IPMS Program (www.ipms-ethiopia.org) in Addis Ababa, Ethiopia, 2009.

Anandajayasekeram P, Dijkman J, Workneh S. 2005. Innovation systems approach and its implication to Agricultural Research and Development. Presentation at the Southern and Eastern African Association for Farming Systems Research–Extension (SEAAFSTE), Lilongwe, Malawi, 19–21 September 2005.

Barnett A. 2004. From 'Research' to poverty-reducing 'Innovation'. A Policy Brief from SRA Ltd. Available at http://www.thepolicypractice.com/papers/NSI_Policy_Brief.pdf

Horton D. 2008. *Facilitating pro-poor market chain innovation: an assessment of the participatory market chain approach in Uganda*. CIP Social Sciences, Working Paper No. 2008 – 1. ISSN 0256-8748.

Kaplinsky R, Morris M. 2004. *A handbook for value chain research*. Prepared for the IDRC. Institute of Development Studies, Sussex.

Klerkx L. 2011. Systems thinking in innovation. Presented at the International Livestock Research Institute (ILRI), Nairobi, Kenya. May 2011.

Moti Jaleta. 2010. Value chain analysis as a pro-poor development research tool: what is it and what is its potential use? Presented at the International Livestock Research Institute (ILRI), 11 November 2010, Nairobi, Kenya.

Schmitz H. 2005. *Value chain analysis for policy makers and practitioners*. International Labour Organization, Geneva. ISBN 92-2-117738-6

Rajalahti R. 2009. *Promoting agricultural innovation systems approach: the way forward*. Knowledge for Development, Observatory on Science and Technology, CTA, the Netherlands.

Spielman DJ. 2005. *Innovation systems perspectives on developing-country agriculture: a critical review*. ISNAR Discussion Paper 2.

Verstralen K. 2005. Facilitation of multi-stakeholder processes and social learning in support of agricultural market development: An overview of approaches and methodologies. A draft paper circulated in September, 2005.

Suggested Group Work

Objective

Participants to explore ways in which value chain analysis can support research interests.

Seated in groups of 4–5, in a mixed group and not necessarily from the same supply or value chain:

1. Consider and suggest ways in which value chain analysis (VCA) will support their research interests:

– How VCA will help refine their research objectives or target results

– How VCA will be used as a conceptual framework to describe the areas of investigation

– How VCA will be used to improve data collection and analysis

2. Discuss and consider limitation of VCA to proposed research initiatives.

Prepare to present from the group discussions.

Module 10: Way forward, beyond the training workshop

Notes

Introduction

This is not a training module but an opportunity for the trainer, trainees and the course organizers to reflect on what has been learned and how new or refreshed knowledge and skills will be applied beyond the course.

As a guide, participants will be asked to explore and present ways they will further the training by:

1. Extending the knowledge to others

2. Specific action planning in the following ways:

- Support the development or refining of any new or existing innovation and value chain frameworks
- Support the development or refining of system visions, strategies, and monitoring and evaluation frameworks

The course organizers may set up follow-up plans to support the application as presented.

Suggested Group Work

Objective

The objective is for the trainer, trainees and the course organizers to reflect on what has been learned and how new or refreshed knowledge and skills will be applied beyond the course.

Seated in groups of 4–5, discuss the following:

1. Explore and present ways they will further the training:

2. Extending the knowledge to others

3. Specific action planning in the following ways:

- Support the development or refining of existing innovation and value chain frameworks
- Support the development and/or refining of system visions, strategies, and monitoring and evaluation frameworks

Prepare to present from the group discussions highlights of experiences and approaches used to support innovation in your programs and projects.

Group presentations may be followed by plenary discussion on follow-up plans to support the application of innovation and value chain systems as presented.