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5th International Conference of AAAE

23 - 26 September 2016, United Nations Conference Centre,
Addis Ababa - Ethiopia

Transforming Smallholder Agriculture in Africa:
The Role of Policy and Governance



Contributing to a better understanding of the value chain framework in developing countries

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*Invited poster presented at the 5th International Conference of the African Association
of Agricultural Economists, September 23-26, 2016, Addis Ababa, Ethiopia*

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Contributing to a better understanding of the value chain framework in developing countries

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Abstract:

Agriculture dominates the economy of the Sub-Saharan African countries. Main producers of agricultural commodities are smallholders who depend strongly on the sector for incomes, food security and employment. These goods reach consumers via multilevel marketing systems, not directly from production. Thus, the fights to achieve food and nutrition security as well as prosperity for these countries will be won or lost by the way agricultural value chains are coordinated. However, value chains in developing countries face series of impediments in many of the cases smallholder farmers are disadvantaged. In recent years activities and actors to be coordinated along the value chain have increased significantly. These include a change in consumer demands, climate change, water scarcity, stringent market standards, including food safety, production and processing technologies to minimize post-harvest losses, information and communication technologies and new or emerging markets. Such dynamics will lead to a changing business environment and change relationships between actors in the chain. Thus, it is essential to realize the dynamic change, problems, risks and necessary changes combined with it. Lack of comprehensive strategies along the entire value chain affect the potential benefits that smallholder farmers might obtain from it. The strategies could range from improving productivity through increasing access to inputs to increasing access to markets through strengthening value chain relationships and improving an enabling environment. The strategies should also incorporate activities and actors out of the value-chain like universities and research centres to support the poor smallholder farmers in sub-Saharan Africa.

1. Introduction

Agriculture dominates the economy of most developing countries, particularly in Sub-Saharan African (SSA) countries. In Kenya, the agricultural sector contributes to 27% and in Ethiopia even 50% of the Gross Domestic Product (GDP). About 80% of the jobs are in agriculture. Ethiopia earns approximately 90% of the revenues from the export of agricultural goods. Main producers of agricultural commodities are smallholders (mainly agro-pastoralists with mixed rain-fed farming systems) who depend strongly on those products for incomes, food security and employment.

It is, therefore, apparent that the fights for achieving food and nutrition security as well as prosperity for these countries will be won or lost by the way agricultural value chains are managed. Agricultural value chains experience numerous challenges including the scale of operations, poor coordination as well as institutional failure, technical constraints, and severe climate change impacts.

The curricula of higher national educational institutes have not yet been well designed and adapted to address the specific value chain challenges. Thus it is not responding to the needs of the industry. In particular issues like climate change and environment, which are highly affecting the majority of producers in developing countries, are not included in those concepts.

2. Why value chains

Today the largest part of agricultural production in developed as well as developing countries does not reach consumers directly from the production but is marketed via multilevel marketing systems. Therefore, most farmers are increasingly integrated into value chains with forward (marketing) and backward (input supply) linkages (FAO, 2007). Small agricultural producers in developing countries are typically linked to agro-processors and buyers through market transactions (UNIDO, 2011). Such transactions tend to reduce rewards and/or increase risks of producers who have low negotiations skills and capacities.

Thus, value chain development works on improving the forms of coordination between actors and activities along the chain. Even within the production sector, there is a division of labour, e.g., between seed companies and production entities. Conceptually, one can imagine actors connected along a chain producing, transforming and bringing goods and services to end-consumers through a sequenced set of activities.

To function properly, value chains require some coordination and depend on transport infrastructure, electricity and water supplies, finance, management support and accounting services, knowledge providers, research laboratories and information services.

A segment is a vertical part of a value chain that relates to a certain function, e.g., primary production, first-level processing, second-level processing (UNIDO, 2011). Since finally the consumers decide whether and at what price products are purchased, today it is more and more the question whether the parties of the value chain manage to organize the entire process from raw material to finished product due to the expectations of consumers.

3. Impediments to Value Chain Development

Value chain management has the potential to contribute to poverty reduction and food security in developing countries. However, often farmers do not get the benefits of increased production and marketing of agricultural products. In particular, small-scale producers are at a disadvantage because they have little capital to invest, use traditional techniques, depend on the family labour and lacking contacts with the main market players (Trienekens, 2011). Despite its high potential for pro-poor development, value chain development has many constraints. Among others, the following are the major ones:

- The yields and quality of crops, especially from smallholder farmers, are far below their potential (African Development Fund 2007, Weinberger and Pichop, 2009). Reasons are

- ✓ High prices and/or poor distribution of farm inputs, poor quality of seeds, the high incidence of pests and diseases, and an inadequate technical knowledge regarding pests and disease management, etc.
 - ✓ Climate change leading to a shortage of water - seasonality and unreliability of rainfall, high temperature, and environmental degradation. The problem is even more exacerbated for smallholder farmers where the production depends on rainfall.
- Overall, processing and other value-addition activities are found to be poorly developed in the chains (Weinberger and Pichop, 2009).
 - Food losses are estimated to reach up to 50 % (Parfitt et al., 2010; Gustavsson et al., 2011) caused by a lack of cold-storage facilities and poor post-harvest handling techniques.
 - Inadequate infrastructure (Ranganathan and Foster, 2011) and poorly organized markets (Singh, 2011) which leads to high transaction costs.
 - Lack of market access is one of the other impediments to value chain development for farmers in developing countries. Market access depends on farmer's access to and utilization of technologies, availability of infrastructure, bargaining power and the market knowledge and orientation (Trienekens, 2011). However in developing countries such infrastructures are poorly organized, and the knowledge and skills of the producers are low.

4. Characterizing value chains in developing countries

Value chains are defined as the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), to the final customers, and disposal after use (Hellin and Meijer, 2006).

In this respect coordination is very important along the value chain and also a factor of competition between networks. Involvement in value chains could provide a myriad of benefits to those able to gain and participate in the market successfully. However, smallholder producers in developing countries have numerous barriers which prevent the poor from more actively participating in markets.

To make markets more inclusive for the poor, one avenue of response can focus on removing some of these barriers by changing the environment itself. This line of action may involve, for example, institution-building and extending legal empowerment for the poor, and perhaps even a significant part of the non-poor but still low-income population (Mendoza and Thelen, 2008.)

UNIDO (2011; 1) defines Value Chain development as: *`a positive or desirable change in a value chain to extend or improve productive operations and generate social benefits: poverty*

reduction, income, and employment generation, economic growth, environmental performance, gender equity and other development goals'. In developing countries, value chain analysis and management could be a powerful tool to realize and achieve the goal of poverty reduction and food security. The failure of markets and governance could be a barrier for poor smallholders. McKague and Siddiquee (2014) identify and characterize the major points to include farmers in developing countries in the market:

Working along the entire value chain - not just with farmers. Sometimes an intervention that helps farmers most is not sufficient, and it needs to support actors at other points along the chain. Thus to get to the heart of improving a value chain for the poor, it is relevant to understand and work along the entire chain from one end to the other. Usually, there is not enough information on the interests, resources and obstacles of everyone along the chain.

Experiment and learn. Rigidly following plans does not work: due to the very nature of dynamic markets; it needs some flexibility.

Skilfully empower women. The majority of agricultural labor in South Asia and Sub-Saharan Africa is provided by women. However yet they consistently have less access to the resources and opportunities to be more productive. Increasing women's access to land, livestock, education, extension services and technology boosts agricultural production, food security, and economic growth.

Design for scale from the start - or risk not making a significant difference: Designing interventions from the beginning to harness market forces and leverage the existing interests of value chain participants helps achieve scale for new technologies and practices.

Making markets and value chains work for poor producers: Markets work more effectively when power relationships are re-balanced for poor producers. This includes

- (1) Enhancements (such as forming producer groups) that give farmers more bargaining power, freedom, and choice.
- (2) Markets work more effectively for poor producers when those producers have the information they need both knowledge about production practices and information about market prices and opportunities.
- (3) Markets work for poor producers when they have access to the productivity-enhancing inputs and technologies (such as artificial insemination) that they need to produce more with less.
- (4) Markets work for poor producers when those markets contain lower risk and less uncertainty.

5. A dynamic environment: Drivers of Value Chain Transformation

The efforts to coordinate the activities in the value chain have increased significantly in recent years. Likewise, coordination of actors is important because actors are connected along a

chain. Here, the question is what drives the increasing efforts. Globally, agribusiness has experienced major transformation following changes in consumer demands, stringent market standards, including food safety, production and processing technologies to minimize post-harvest losses, information and communication technologies and new or emerging national, regional or international markets. Figure 1 shows some factors causing this adaptation need regarding coordination of national and international value chains (for review Bourlakis and Weightman, 2004; Chen and Stamoulis, 2008; Mccullough et al., 2008):

- Increasingly sophisticated consumer demands and growing income spread in society lead to retail assortment strategies for meeting the particular needs of consumers: Branding (producer and own brands), specific standards beyond product specifications, packaging and portioning, greater price differentiation, etc. Besides this consumers are also increasingly concerned about the sustainability of food production and its impact on the environment.
- Growing internationalization of food retailers (Neven and Reardon, 2008) leads to an increasing price competition and higher requirements on quality. On the other hand, local retailers are also increasing the number of convenience stores in strategic locations. To Supply these small shops, the underlying distribution network must be able to match supply and demand with the rapid replenishment of stock.
- Changes in legal requirements - for example, for product liability - trigger the changing demands of actors in the value chain, for instance, additional documentation requirements for the traceability of the products and the need for certification asked for by the retail industry.
- Information and communication technologies (ICT) over a growing number of ways to exploit opportunities and overcome constraints to value chain growth and competitiveness. Thus, the use of ICT provides opportunities to reduce transaction costs and creates conditions for improving the efficiency (e.g. Radio frequency identification [RFID]).
- Concern over food safety may influence input use and post-harvest management. Changing patterns of consumption in local and global markets and shifting legislation need a continuous improvement and upgrading of products and processes.
- High population growth, the growing middle class, as well as urbanization, are changing the dietary habits (Deloitte, 2013). All these factors could put production and the supply chain under pressure and make production and distribution a critical issue.
- Finally, agriculture is more vulnerable to the increasing effects of climate change than any other economic sector (Beddington et al., 2012; FAO, 2008; Ericksen 2009). A change in climate, water scarcity, and environmental degradation are not only affecting producing communities but also companies who rely on those producers for their supplies. Climate change leads to a shortage and erratic nature of rainfall, high

temperature, and climate variability will have a multiplier effect on supply chain risk. It urges for coordination of efforts between different actors in the chain in particular between companies and communities (producers) and gives special focus to the role of local communities and the natural environment because of their essential roles in business value chains.

All these factors make it essential for value chain actors to coordinate and adapt collectively. Such changes could complicate the relationships between actors in the value chain. These dynamic environments will lead to a changing business environment and relationships between actors in the chain. Thus, it is essential to realize the dynamic change and the problems, risks and necessary changes combined with it. Such coordination is needed because of the mutual dependencies (or inter-dependencies) between different activities, actors and transactions in the value chain (Bijman et al., 2011).

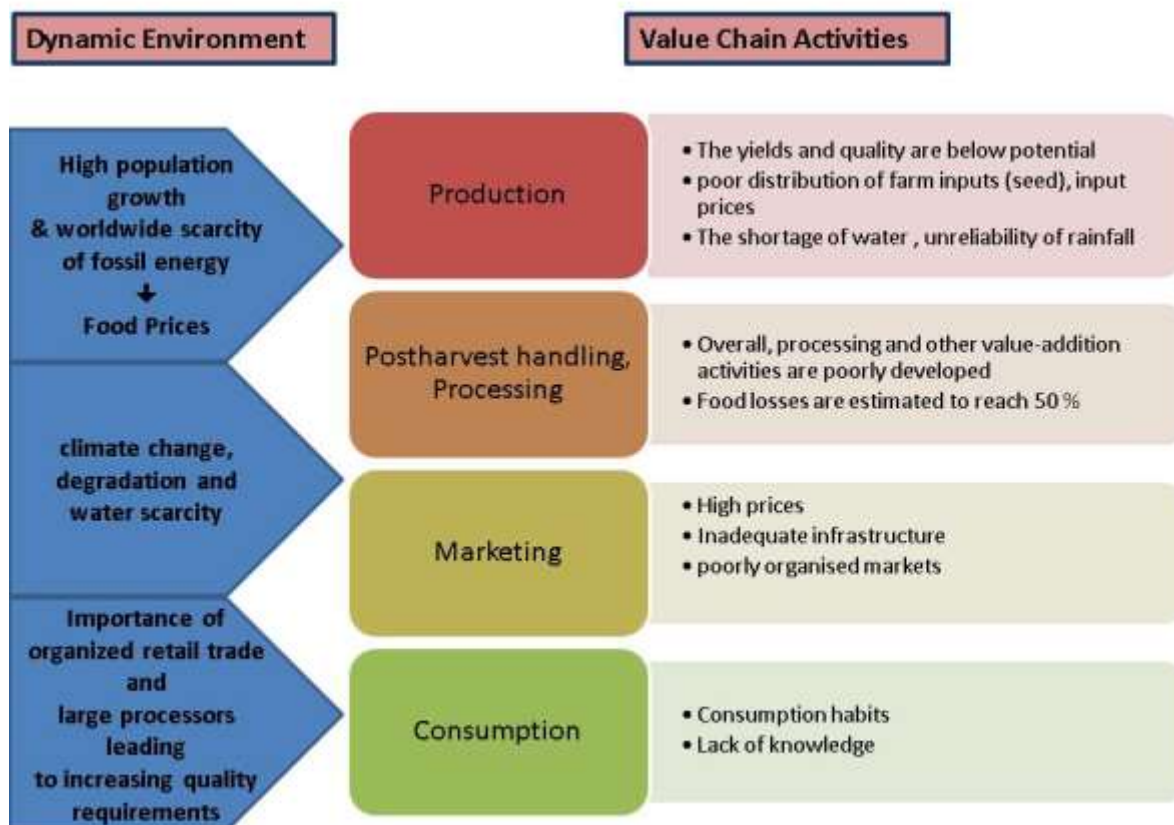


Figure 1: Need for Coordination: Value Chain Activities in a Dynamic Environment

6. Need for Coordination

The Question is what makes the coordination of such value chains so difficult that it needs specially developed management tools for this purpose? An increasing division of labour leads to mutual dependencies in such chains. The organizational theory explains those needs by inter-dependencies caused by the division of labour (Kieser and Walgenbach, 2007). This argument can also be used to explain coordination needs of value chains (Lazzarini et al., 2001). In contrast to hierarchically organized enterprises, however, other mechanisms of goal-oriented control are necessary. This statement is because strict enforcement power - typical for companies - does not exist in the value chain although lead firms are building up supplier networks, helping small holder farmers gaining access to knowledge and production technologies. From the viewpoint of control, particularly uncertainty is an essential aspect for the actors involved.

Decision-makers focus increasingly on the development of agro-industries with emphasis on promoting effective agro-value chains as means for economic growth and poverty reduction. Such chains uniquely integrate natural sources of supply with the dynamics of food and fibre demand. Their development is expected to have a positive impact on employment in both rural and urban areas (on-farm processing and income diversification). Furthermore, it should offer market access to smallholders, and create business linkages to small and medium enterprises (SMEs). The question of how network-shaped, inter-organizational structures, can

be coordinated and controlled efficiently, arouses both theoretical and practical interest (FAO, 2007). In organizational theory and strategic management, the limits of the control of complex organizations are a long-discussed phenomenon. Kirsch and Guggemos (1999) used the term 'moderate voluntarism' in this context, to express that there are limits to control options in such a complex system and that one should be aware of these limitations.

Value chain and governance research assume that the different actors are willing to participate in such chains by voluntary decisions. However, there is also the possibility for each actor to withdraw from the chain. Farmers make use of this alternative if the perceived situation is no longer acceptable and other courses of action are available. Hirschman (1970) has used the term 'Exit and Voice' to indicate that there are the options whether to raise one's voice to improve the own position in negotiations or the alternative to withdrawing from the value chain. Small agricultural producers in developing countries are typically linked to agro-processors and buyers by market transactions. These transactions can lead to reduced rewards and/or increased risks for producers. Value chain development can work towards improved forms of co-ordination. Vertical and horizontal contracting are examples of such opportunities (Birchall and Simmons 2009). It moves away from informal transactions to the use of contracts (oral or written). The expected benefits of such contracts are a reduction of price risks, access to price premiums, improved access to market information, inputs and finance or reduced marketing costs.

In the last decade, many public and private standards for food safety and quality have been developed as a result of food scandals and consumer concerns. At present, there is a proliferation of standards worldwide (Eaton et al., 2008). Such standards and requirements of agricultural value chains have implications and affect small-scale producers in developing countries, who must now adapt their production methods to fulfil the new requirements of both local and international customers. Another significant impact is increasing costs of certification and accreditation, which also puts pressure on value chain actors (Asfaw, 2011).

7. The Value Chain Approach in Developing Countries

Governments and development agencies increasingly use value chain development as a key element in their development strategies aiming at improving the income of poor groups of society by value addition (Kenya Agricultural Research Institute, 2010). Pro-poor value chain initiatives often try to overcome entry barriers for poor agricultural producers and providers of inputs and services (Poulton et al., 2006; Bolwig et al., 2011). The inputs might include pesticides, seeds, fertilizer and pest management (see Figure 2). However, the inputs are not limited to production technologies but also to knowledge so that poor and marginalized farmers can implement the available information to their benefits. Linking smallholders with well-functioning local or global markets ranging from local 'street markets' to formal global value chains plays a critical part in long-term strategies to reduce rural poverty and hunger. Understanding how to link poor producers successfully to markets, and identifying which markets can benefit what kinds of producers, are critical steps for the development of a community.

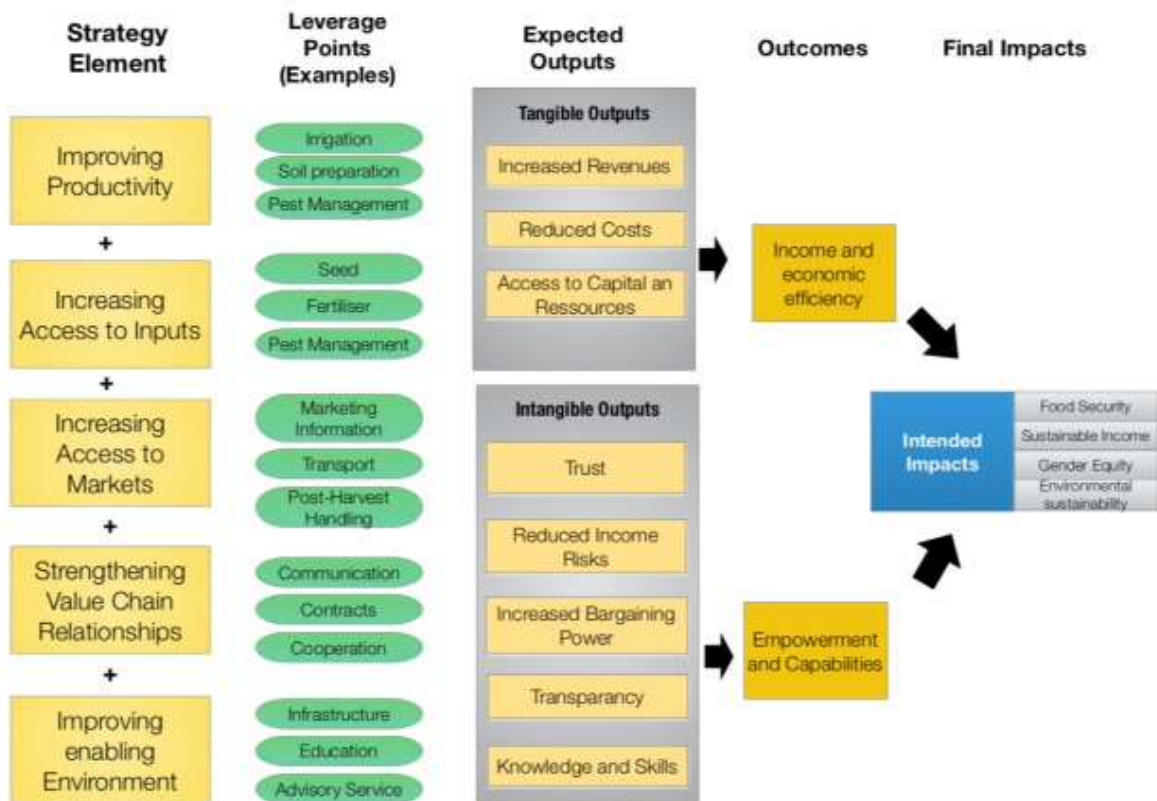


Figure 2: Value Chain Strategy: The Intervention Logic (changed according to McKague and Siddiquee, 2014)

To this end, it is important to gather and analyze information concerning the benefits (rewards) and costs (risks) for the smallholder producers engaged in the value chain. Although coordinated value chains offer an economic engine that has the potential to reach and benefit the poor, experience (Seville et al., 2011; Mitchell 2011) has shown that

- The full benefits whether provided via a third-party certified chain or based on private company standards and relationships require not only investments in the commercial chain but also investments in enabling conditions.
- ‘Success’ in pro-poor value chains is based on both commercial and development success. Goods must be produced, processed, and transported to the market with the quality and consistency required and at a cost that the product value proposition can bear.
- Development success requires returning benefits to producer communities that improve livelihoods.
- Strategies for increasing benefits to the poor are:
 - ✓ investing in upgrading the value chain to meet production and processing requirements;

- ✓ adapting trading relationships and value chain structure for smallholder sourcing;
- ✓ adapting the product proposition and buying practices of the lead firm, and
- ✓ investing in broader sustainable livelihood strategies.

Despite the efforts to integrate value chain development in the poverty reduction strategy of developing countries, the interventions are often not very effective (UNIDO, 2011). One of the reasons for this is the lack of coordination efforts along the entire value chain (McKague and Siddiquee, 2014; UNIDO, 2011). In other words missing comprehensive and coherent strategies for value chain development hinders to get the potential benefits that smallholder farmers could obtain from it. Figure 2 shows the intervention logic for a value chain strategy. These strategies include: Improving productivity, increasing access to inputs, increasing access to markets, strengthening value chain relationships, and improving an enabling environment.

Improving and increasing the productivity of poor farmers are possible through increasing their access to productive resources which include land, irrigation, agricultural inputs, and pest management and other extension services. Besides supporting the farmers to increase their productivity, it is quite significant when they have access to the market through market information, and infrastructural development which includes transport and post harvesting management. Likewise, it is equally important to develop their relationship with other actors in the chain. Thus strengthening value chain relationships between farmers and other actors in the chain via communication, contracts and cooperation are equally important like the other strategy elements. Finally, an enabling environment through education and advisory services needs to be created and improved. These strategies would have both tangible (increased revenues, reduced costs and access to capital) and intangible outputs (trust, reduced income risks and increased bargaining powers, transparency and knowledge and skills). The final impacts for smallholder farmers would be to have food security, as well as a sustainable income and environment.

8. Knowledge and capability

The strategy and coordination of the value chain development in developing countries are not limited to activities and actors in the value chain only. Rather other activities and actors outside the chain should be considered and involved to raise smallholder farmers' benefits from their involvement in the value chain. Actors like universities, research centers, government bodies and other civil society organizations have to make their inputs. Universities need to revise their curricula in the field of the food value chain management, climate change, food security and poverty reduction adding these topics to existing programs or creating new programs. These activities are necessary to enhance the capacity of graduate students to have technical, social and didactical competencies. Likewise, researchers from the universities and research centers should include the problems and needs of smallholder farmers into account. Above all, networks among the different actors in the community are significantly important out of which a need for a competence network arises.

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