

CHAPTER 19

FOOD CHAINS AND NETWORKS FOR DEVELOPMENT

Lessons and outlook

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Abstract. Agro-food chains and networks can become an important instrument for development, particularly if smallholder participation can be guaranteed and adequate support is provided for capacity development and upgrading. These conclusions can be derived from the presentations delivered at the international conference organized by Wageningen University, The Netherlands, on 6 and 7 September 2004. Keynotes from representatives of public agencies, nongovernmental and farmers' organizations, scientists and different chain partners (from farmers to retailers) – both from the South and the North – identified a number of strategic policy issues that deserve attention. Different business cases offered a rich range of experiences, empirical evidence and lessons learned for successful supply-chain integration. The conference's main aim was to build bridges between scientific research and development practice. In this final contribution, major challenges for research and feasible options for interventions are identified that can contribute to developing integrated agro-food chains and networks and to improving their added value as a pathway towards pro-poor and sustainable development.

Keywords: critical success factors; supply chain development strategic research; policy agenda.

INTRODUCTION

The food-chain and network approach focuses on jointly enhancing the performance of farmers and companies involved in the agricultural sector and in the agribusiness food and retail industries. Traditionally, smallholders amidst input suppliers and buyers are often perceived as the weakest link in the food chain, due to their small scale and limited negotiating power. Where there is an abundance of agricultural commodities in the global market, causing downward pressure on the prices paid to farmers, power has shifted downstream in the food chain. Moreover, where public policy is geared to lifting protectionism nationally or regionally, farmers are facing the cold wind of competition, urging them to set out survival strategies. However, it is a misunderstanding that due to the shifting of power, food-manufacturing

R. Ruben, M. Slingerland and H. Nijhoff (eds.), Agro-food chains and networks for development, 219-231.

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companies, traders and retailers are automatically benefiting and capturing all the rents. In many cases (see the presentations by Schmid of Royal Ahold and Van Deventer of Shoprite) these actors in the food chain also face severe competition. Chain reversal, shaping supply chains in response to consumer demands, leads to competition on price and product quality. Companies therefore have to earn their 'licence to sell'. In addition, civil-society organizations formulate additional demands aiming at environmental and social objectives linked to the organization of production processes and thus underpinning the 'licence to produce'. Focussing on agro-food supply-chain integration and upgrading can therefore be envisaged as a promising approach for reconciling both mandates and to assist chain partners in developing a sustainable competitive advantage (as discussed in the introduction by Ruben et al.).

Current tendencies of increasing concentration in the global food retail sector and in the food-manufacturing industry (Reardon and Timmer in press) ask for complementary strategies to assist all stakeholders involved in the supply chain in improving competitiveness and building-up balanced negotiating power. From these points of view, it is not remarkable that farmers, cooperatives and food companies are all looking for new opportunities to expand business domestically, within the region or in North-South directions in a way that fits consumer and citizen interests. The Wageningen conference identified several of these strategies and addressed key questions like:

- Can cross-border agro-food chains and networks make a difference?
- If yes, what are critical factors to enhance their success?
- How to organize international agro-food chains and networks?
- How to provide mechanisms for sustainable food chain integration?
- What are the challenges for research and development to support cross-border food chains and networks?

In the current development discourse, agro-food chains are sometimes forwarded as a pathway for alleviating poverty, to promote equity (i.e. gender, black power) and to contribute to environmental sustainability in the South. Citizens in the western world may acknowledge these dimensions of agro-food chain development if they express their concerns through nongovernmental organizations (NGOs). Industries and retailers also attempt to address some of these aspects within the framework of their Corporate Social Responsibility (CSR). Supply-chain integration for development, however, aims at mainstream criteria of equitable sharing of benefits and reducing externalities through the participatory development of production, processing, handling and delivery regimes that satisfy consumer demands regarding food quality, safety, health and the environment.

This outlook provides a concise summary of the critical factors that contribute to the successful and equitable integration of developing countries' producers into sustainable (inter)national agro-food chains and networks. More precisely, we address in the remainder of this article the following issues:

- the conditions for successful integration of producers from the South into (inter)national agro-food chains and networks

- the role and contributions of agro-food chains and networks for developing market opportunities for smallholders in the South
- the institutional, governance and contractual requirements for meeting the growing number of grades and standards
- the roles and contributions of public–private partnerships and knowledge institutions to support sustainable agro-food chains and networks.

Following the more conceptual discussion presented at the introduction of this book, we will now refer to the contributions from the field and the business cases presented at the conference for practical illustration of the arguments.

Do cross-border food chains and networks matter?

Supply-chain integration can be an important vehicle for providing access to remote markets, enabling producers and processors to respond to (changes in) consumer demand and facilitating joint innovation and upgrading. The business cases presented at the conference provide evidence that such partnerships are indeed effective, in line with experiences documented elsewhere (see for example the Proceedings of the International Conferences on Chain and Network Management in Agribusiness and the Food Industry organized from 1994 to 2004 by Wageningen University; also Vellema and Boselie 2003; Van der Vorst 2000; Claro 2004; Camps et al. 2004). Most important functions of supply-chain integration are:

- food chains and networks can be helpful to reduce transaction costs (see the business cases on medicinal plants in India beef in Brazil and fruit from South Africa)
- food chains contribute to enhance quality (as documented in the business cases of fruit exports from South Africa and local vegetables sourcing for TOPS supermarkets in Thailand)
- food chains enhance the sustainability (see the experiences of banana exports from Peru, cocoa in Costa Rica and medicinal plants in India)
- food chains and networks could reduce uncertainties regarding market outlets (see medicinal plants in India and *Allanblackia* in Ghana)
- participation in the chain supply may create wealth (see the business cases of beef in Brazil and Fresh Partners in Thailand).

Supply-chain cooperation thus offers potentially many advantages compared to buying and selling at the open market. However, these advantages cannot be reaped without major costs and efforts (see business cases of fish in Kenya and vegetable sourcing by TOPS in Thailand). The main lesson derived from the business cases is that the high variability in size and quality of the produce poses serious limitations for integrating long-distance or cross-border food chains that are able to achieve development objectives such as the inclusion of smallholders (e.g. compare the performance of TOPS and Fresh Partners in Thailand). In addition, smallholder participation is particularly favoured by trade arrangements that guarantee permanent market access (like in the fair-trade banana exports from Peru and the cacao exports from Costa Rica). The international business environment tends to be highly competitive and therefore economic returns are sometimes rather poor and

not evenly distributed over all the actors in the food chain. Therefore, investments in supply-chain upgrading can only be expected when real partnerships are established (like the Freshmark sourcing in South Africa or the preferred-supplier arrangements of Hortfruta in Central America; see contributions by Van Deventer and Reardon in this volume). The main question derived from these experiences is, therefore, under which conditions successful integration of agro-food chains and networks is likely to take place and how supply chains can function as an instrument for development. We address this question by discussing both global and local issues that influence the emergence of inclusive agro-food chain development.

Global issues

From a theoretical point of view, several studies have revealed the mechanisms that could enhance partnerships in food chains and networks. The fundamental conditions for vertical cooperation in chains as forwarded by Williamson (1989) emphasize the need for reducing transaction costs. Companies may refrain from involving in open market transactions, even where actors are independent, have free choice to exchange and do not have authority over each other. This is explained by the fact that market exchange mechanisms are not costless, due to bounded rationality of agents, the occurrence of asymmetric information or the requirements to invest in specific assets that 'lock in' farmers or the company in specific relationships.

Consequently, dairy farmers are operating at the mercy of the processing factory once their cows start producing milk, and they will try to reduce their uncertainty by arranging delivery contracts for selling the milk. Similarly, agro-food companies may own plantations in order to assure the supply of commodities. The costs of these internal transactions may be relatively high compared to the open market where the company could buy from whomever and whenever. However, the certainty of supply and the possibilities to enforce specific product standards could lead them to prefer contractual exchange.

In theory, there are three types of governance structures: (1) open market delivery, (2) contracts (see the Shoprite case in South Africa in the contribution by Van Deventer; also the TOPS sourcing system in Thailand) and (3) hierarchy based on vertical chain control (as illustrated in the case of Brascan beef in Brasil). Pure market 'chains' consist of independent partners that decide at every occasion whether they will engage in the exchange of goods and services. This is only feasible for undifferentiated commodities. Contracts are agreements in which the buyer (trader or processor) co-invests in the production, for instance by providing seeds and credit and by describing desired agricultural practices. The buyer guarantees the purchase, which decreases market uncertainty for the producer.

Finally, in hierarchical types of supply-chain governance, the buyer secures supply by directly owning and operating production facilities. Chain control and steering at all levels is thus executed by the buyer, who incurs relatively high internal transaction costs.

In practice we observe an increasing number of agro-food supply chains where reciprocal relationships have been established. In many cases, informal norms are guiding the behaviour of buyers and sellers and even precede formal contracts. It is also shown that the bundle of governance mechanism may differ depending on the development stage of the agro-food supply chain (see Table 1). Food chains that are in an early stage of development rely on basic information exchange and look for attuning some logistic processes or establishing quality codes (like in the Nile-perch business case in Kenya). In some more advanced settings, actors start investing in joint marketing efforts, engage in some research and development, and invest in fixed assets such as processing facilities (e.g. Brascan beef in Brasil; vegetable stations in Thailand). In such circumstances, switching costs tend to increase since agents in the chain become more interdependent.

A second global issue refers to the chain environment, particularly the distribution of costs and benefits between public and private agents. This is especially important when externalities are involved. Fair trade and ecological labels (see business cases of banana in Peru and cacao in Costa Rica) aim to incorporate externalities in the price. New food chains (fish from Kenya, medicines from India, *Allanblackia* from Ghana) are able to generate income in the short term but also face the risk of unsustainable exploitation of the environment, which represents an implicit public cost. Most private partners involved in these chains can either continue until depletion and then move to another place or share this concern regarding the externalities when they want to guarantee a long-term resource base for their raw materials (see keynote presentation by Bordewijk). In the cases of medicine and *Allanblackia* production, the private partners assumed their co-responsibility by taking proactive measures to broaden and sustain the resource base through investments in technologies for cultivation of formerly wild products. Cooperation with knowledge institutions (i.e. KIT, SNV, Wageningen UR) in such partnerships proved to be of key importance for enhancing technology development and to guarantee brokerage between local knowledge and industry demands. In a similar vein, the risks of (over)fishing in Lake Victoria could be reduced by measures aiming at reducing the large waste in the food chain. Long-term investments of this kind can only be expected if reliable and sustainable partnerships are established and specific governance structures (public grades and standards; see contribution by Reardon) are put in place.

Conditions for sustainable supply-chain integration

Institutional and macroeconomic factors have been mentioned as being of critical importance for establishing food chains and networks that are capable of engaging in cross-border exchange. Rodriguez in his contribution referred particularly to the importance of cutting down price-distorting subsidies, while Van der Meer and Reardon emphasize the role of non-tariff barriers related to sanitary rules and quality standards. Import barriers, tariffs and non-tariff policies may impede the access to export markets, as illustrated most clearly by the EU import regimes for banana (see presentation by La Cruz). When import restrictions of whatever nature exist, then

chances for entering new markets decrease rapidly. Local policies can also lead to market distortions; Oyewole provides an example of discriminatory credit supply that inhibits the development of the cassava-processing industry in Nigeria.

Market organization also plays a major role in the establishment of integrated supply chains. If the market structure tend towards oligopoly conditions – typical for the retail industry in some countries – the access to these market outlets becomes difficult. Also, if competition in a particular market is cutting-edge, the chances for successful entry of newcomers are relatively limited, unless some particular attributes are offered, such as lower prices or unique qualities (e.g. fair-trade banana from Peru and ecological cacao from Costa Rica).

An additional factor influencing market access refers to the governance regimes maintained on both sides of the supply chain. Good governance may appear as a non-tariff barrier when the buyer puts forward specifications regarding child labour, good labour relationships, sustainable production practices in the form of good agricultural practices (GAP), respect for human rights, just to mention a few. If sellers cannot comply with these specifications, or do not fully comply with these demands, they may jeopardize their position in the food chain. Institutional codes based on public policies, such as the *Codex Alimentarius* (FAO) or derived from private arrangements (like ISO, Eurepgap, BCR and many others) may impede newcomers to deliver successfully to foreign market outlets (see contributions by Fresco and Reardon). Therefore, to participate in these more demanding markets, investments in product and process upgrading are a prerequisite. These barriers may partly be overcome if the chain partners invest in training programmes of smallholder farmers that enable them to comply with the standards in order to remain included in the supply chain (see examples of quality training provided by Fresh Partners in Thailand and GAP trainings offered to farmers by Unilever).

Beyond the macroeconomic and institutional factors, a wide range of microeconomic and management factors can be identified that influence the prospects for chain and network cooperation. Such cooperation will only arise if the expected and achieved economic and social return for engaging in supply chains and networks are larger than the costs. Farmers are not likely to become involved in contractual deliveries if the costs and/or the risks exceed the potential benefits. Similarly, food-processing companies will not engage into upstream relationships with farmers if the costs of doing so are not in balance with expected returns in terms of volumes, quality and price. The trade-offs between costs and benefits are directly related to the capabilities of actors within the food chain or network, since the weakest link may jeopardize the investments of others. Therefore, supply-chain development is inherently related to capacity building in several directions: technical skills, economic capacities and social and managerial experience related to production, processing, marketing, logistics etc. Without these capabilities in place, the agro-food chain as a whole will easily suffer from disintegration. Building capacity and capabilities within the supply chain are investments to create successful agro-food networks. Several examples of successful capacity building are provided in the business cases included in this volume.

A prerequisite for joint investment by supply-chain agents is the existence of certain coherence in values and objectives amongst the stakeholders. If the actors

involved in the food chain are not focused on the same objectives, investments are in vain. A key factor that has been identified in many cases was the creation of trust. Trust can be considered the cornerstone for building relationships; the establishment of integrated food chains depends essentially on building trust and reciprocity (Ostrom and Walker 2003; Migchels 2001). As explained by Lewis (1999), building up trust depends on the conditions for establishing trust, the practices that earn trust and the safeguards encouraging trust. In many cross-border food chains, the proximity factor is crucial as a condition for trust: proximity refers not only to physical factors, but particularly to cross-cultural communication. However, trust and control are two related processes: the more efforts chain actors put on control mechanisms, the higher the chances for shirking behaviour. However, absence of control mechanisms may invite to free-rider behaviour. Balancing both aspects asks for particular management arrangements and organizational regimes. The business cases provide conclusive evidence of the positive contribution of involving third parties for facilitating the design, establishment and maintenance of agreed business practices in the food chain. Third parties may be helpful to overcome or modify imbalances in bargaining power and could create the necessary conditions for enhancing trust. In addition, due attention needs to be given to entrepreneurship as the driving force for developing food chains and networks: supply-chain integration needs to be based on business strategies that nurture entrepreneurship: it is not for free!

How to organize successful integrated supply chain?

The organization of stakeholders into (inter)national agro-food chains and networks is likely to follow particular pathways. Building effective partnerships requires initially strong efforts for streamlining production processes and handling practices, while at later stages efforts could be made towards chain upgrading or new product development. Based on a cross-section comparison of the business cases presented at the conference, we can identify a number of common issues and organizational challenges that are typical for different stages of supply-chain and network integration (see Table 1).

Even while in practice the development of supply chains involves a multitude of dynamic issues that may coincide in time, we may consider a simple description of the life cycle of typical food chains and networks. In each stage, particular demands and challenges regarding internal relationships and external positioning become apparent (see Table 1). Examples of supply chains in an initial phase are provided in the business cases of medicines in India and *Allanblackia* in Ghana. The Nile-perch business from Lake Victoria and the cocoa cooperatives in Central America are currently in the organization phase. Fruit from South Africa and the Freshmark case (in the presentation by Van Deventer) are good examples of business at the implementation stage. Finally, Brascan beef in Brasil and TOPS vegetables sourcing in Thailand are in the optimizing stage; the latter firm has recently been sold to another agent¹.

Table 1. Typical challenges at different stages of supply-chain cooperation

Stage	Critical issues	Organizational challenges
Initial initiative	Looking beyond business to market transactions. Strategic objective setting. Partner assessment and selection.	Trust building, building informal rules for behaviour (with involvement of third party for strengthening organization).
Organization stage	Defining the competitive position of the food chain and the associated competitive strategy. Distribution of margins and implementation of control functions. Allocating of risks.	Establishment of internal governance structures (organizing procedures, division of tasks and responsibilities) Building of trust. Involvement of third party for business management training.
Implementation stage	Focus on 'making it work'. Monitoring of activities and results. Procedures for conflict resolution.	Maintaining trust; building loyalty. Increase of information exchange and knowledge sharing. Specification of procedures.
Optimizing stage	Improving quality of products, the required processes for upgrading and the organization of the partnership.	Maintain and reinforce trust. Research and development (R&D). Labelling and branding.
Decline stage	Exit strategies (merger or take-over).	Step-by-step or abrupt dissolution of partnerships.

One of the common issues at all stages refers to the distribution of information, risks and returns. Although so-called open-book calculations may be shared amongst the stakeholders in the chain, in many cases information sharing is postponed to later stages in the life cycle when more confidence is available. In some settings, third parties may be involved to assist this process, assuming a role as initiator or facilitator of supply-chain cooperation. Their activities are initially concerned with fostering cooperation, but may be devoted to capacity development, training and even product development in subsequent stages. The business cases of medicinal plants in India and *Allanblackia* in Ghana provide examples of the involvement of intermediate partners that assist to design the chain and address some of the problems related to trust, support farmers' organization and assist in the development of new technologies.

During the initial and organization stages, the main attention is devoted to activities that permit chain agents to strengthen the internal procedures and practices

and to reinforce governance regimes. In addition, partners will engage in a process of strategic assessment to identify their strong and weak points, thus enabling them to define their potential market position. At the subsequent implementing stage, many new and unforeseen problems may be met that put pressure on the participants and lead to a continuous demand for information (see Nile-perch business case of Kenya²). Due to information asymmetries, conflicts may arise easily and induce a need for conflict resolution procedures and control mechanisms (as illustrated in the Fruitful case). When entering the optimizing stage, the responsiveness of the food chain to demands from buyers and vis-à-vis competitors is at stake. Improvements in logistical systems become important, while in some other cases product improvements are necessary. An example is found in the Brascan beef case from Brazil, where stakeholders aim at higher profits through horizontal expansion (larger volumes) and through vertical integration by incorporating chain partners such as slaughterhouses and feed-producing companies into the business. Another example are the improved vegetable-sourcing regimes in Thailand that aim at higher quality and food safety criteria for supermarket procurement and export market deliveries.

Once partners find that the value creation in a particular food chain decreases relative to other modes of entrepreneurial opportunities, these partners may abruptly or step-by-step work towards dissolving the partnership. In cases where switching costs are high, barriers to exit can be prohibitive and exit strategies will be deployed even by force, law or through acquisition by partners in the food chain. Typical examples of supply-chain breakdown are given in the business case on cacao from Costa Rica, where the processing company went bankrupt while leaving the other partners in the chain without a market. In a similar vein, the market deregulation of the fruit in South Africa allowed market access of some lower-quality producers that rapidly spoiled the market (trust) that existed before. The international fruit network, consisting of several interlinked supply chains, had to be fully restructured. In this case, the breakdown was followed by a stage of redesign of the supply chain.

Mechanisms for sustainable food chains and network integration

Cooperation of producers, processors, traders and retailers within a setting of supply-chain integration is by no means an easy task. It is therefore highly important to identify some simple mechanisms that proved to be helpful in practice to enhance sustainable agro-food chain and network integration:

- **Reduce complexity:** supply chains that involve a large number of very heterogeneous participants are likely to face many coordination problems. Involving a larger number of smallholder producers puts high demands on the facilities for sharing information, for reaching agreements of mutual consent, for monitoring processes and for managing the chain. Complexity also increases in cases where some partners have to make larger investments than others; such investment asymmetry puts pressure on the distribution of rents and risks, adding up to the already existing complexities in decision making. Another source of complexity refers to multiple objectives (particularly in emerging new food

chains) that can lead to diverting efforts and energy. To avoid this situation calls for restrictive behaviour and controlled ambitions by each of the chain partners.

- Starting at home. It may be challenging to start up a cross-border food chain, but it tends to be better to start operations in nearby markets. If one is not able to develop a food chain for the domestic market, it is highly unlikely that engagement in cross-border chains will be successful. This may be true in general; however, some particular conditions may prevail that enable cross-border food-chain development. Typical examples are the East-African flower industry and labelled food products for particular market segments. Most certified products need to be exported as they aim at consumers with a high purchasing power that are willing to pay additionally for environmental or social aspects (e.g. ecologically produced cacao can hardly be sold in Costa Rica ; neither is there a large market for fair-trade bananas in Peru).
- Farmers' organization. An important aspect for reaching scale concerns the way of organizing primary producers, farmers or growers. Some proponents of rural cooperatives have achieved good results (as illustrated by the cases of cocoa farmers in Costa Rica and banana farmers in Peru), but in some other occasions, farmers show strong resistance against cooperation (see case study of Kenya) basically due to limited real participation and prevailing risks of corruption. Supply-chain integration increasingly relies on preferred-supplier arrangements (see contribution by Reardon) with a selected number of farmers that are recognized as major suppliers. There is a variety in organizational arrangements that may inhibit or encourage the position of farmers in food chains. Some kind of coordination is required to facilitate effective training, provision of inputs and quality control.
- Incentive structure. A major point of debate is always the distribution of incentives in food chains. This refers to the question how much each agent receives from the total value-added. In practice, most discussions are centred around prices and margins, but this is a rather narrow perception of rewards. The incentive structures deal with price, bonuses, cost-sharing, risk mitigation, short-term and long-term benefits that are part of the value captured by partnerships. Food chain development should consider all the different components of the incentive structure. If price motives dominate the behaviour of individual actors, short-term objectives tend to prevail and cooperation may easily break down³.
- Information transparency. Since we cannot expect actors in the food chain to inform all other stakeholders about their operations, information asymmetries are inherent part of the food chain. However, this does not provide an excuse for hiding critical information in the chain. Building up trust amongst supply-chain participants requires sharing and disclosing information. For some processes, such as tracking and tracing systems, information transparency is a prerequisite. In the cocoa chain an insurance fund has been created to compensate farmers for product denial (contaminated cacao with pesticide residues), asking full openness regarding the causes of such underperformance. Similarly, it is necessary to protect farmers who deliver certified (fair-trade or organic) products

against free-rider behaviour of conventional farmers and against individuals that want to hide their behaviour for others.

- Exchanging experiences. A last mechanism that may induce food chain partnerships, is based on sharing experiences from others agents, like organizing assistance from supporting agencies, market brokers or knowledgeable institutes. Worldwide there is a wealth of experience regarding supply-chain integration and cooperation that has to be documented and can be provided to interested partners engaged in supply-chain programmes for development.

Challenges for research and policy

The papers and business cases presented at the Wageningen conference and workshop on agro-food chains and networks for development permit to draw a number of more general conclusions regarding the challenges for research, the private sector and policy makers.

Researchers showed that their research efforts can contribute to a better understanding of the structure and dynamics of agro-food chains and their potential contribution to enhancing development and poverty alleviation. In many of the presented business cases, it became clear that researchers do not just analyse food chains but also can play an intermediate and facilitating role for chain upgrading through their close interactions with all food chain partners. Research can therefore contribute to addressing the challenge of supporting the development of effective agro-food chains. Another major task for research institutes is to assist in the design of improved supply-chain processes, by fostering technologies that fit customers' demands and serve the interests of chain participants. Finally, at more aggregate macroeconomic and policy level, research can contribute to identify policy devices that reduce trade restrictions and favour sustainable market access to producers from the South.

For professionals in the public sector, development of agro-food chains and networks offers a new challenge to policy making. In the past, most attention has been given to strategies for finding market outlets without direct involvement of the private sector. Nowadays, national policies are increasingly designed while considering incentives for the development of food chains. Due attention needs to be given to improve the effective and impartial operation of public-service agencies (customs, inspection agencies, port authorities etc.) to reinforce the network in which food supply chains are embedded. Another major challenge for policy makers is how to tailor generic policies to the specific demands forwarded by internal and international food chains and network agents. Development policies aiming at enhancing trade to provide livelihood to rural poor should be brought in line with public-health policies imposing barriers to trade for products considering food safety requirements.

For professionals from the business sector, the challenge is to share their expertise in building up food chains, learning how these processes work in the particular context of developing countries, and assess the promising approaches that give the best result. Professional staff facilitating the development of food chains

may benefit much from the exchange of experience with representatives of farmers' organizations and NGOs working in the South, and each of them might derive clear benefits from participation in such platforms.

In summary, the exchange of ideas between experts from food chain partners, including representatives from producer organizations in the South, non-governmental organizations, policy makers, private-sector parties and research institutions proved to be highly valuable for increasing our understanding of the common and differentiated interests in agro-food supply-chain integration. The participants created value by sharing their experiences in the debate, and, in the discussions on various business cases, they were confronted with advice and comment from the audience that challenged them to reconsider or further improve their approach. Meetings between practitioners and professionals from such different backgrounds can serve as a market place that facilitates new partnerships and will hopefully lead to new initiatives.

NOTES

¹ The Thai Fresh project passed essentially all four stages and explicitly acknowledged legal access to markets as a key factor in the initial formation stage, institutional access to markets in the organization stage, trust as key issue during the implementing stage, and risk sharing and return during the optimizing stage.

² In the case of the fish supply chain from Lake Victoria, Kenya, all aspects of the chain work and profit is made, but a lot of fish is lost during handling operations, occasioning low efficiencies and an unnecessary high pressure on the remaining fisheries stock. Optimization of handling to reduce losses can decrease the number of fish to be caught and support a more sustainable use of the fish reserves, and at the same time increase profit of the fish factory as most of the fish entering can be fully transformed to valuable end products.

³ In the fair-trade banana chain from Peru and the ecological-cacao chain from Costa Rica, the certification and related premiums are distributed through cooperatives and part of the revenues are kept at collective level, for instance as an insurance fund to cover costs related to product denial, unexpected natural disasters or to provide scholarships to the associated farmers.

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