II Conference ~ 2010

Agricultural Value Chain Finance

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Rodolfo Quirós
Editor

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Acknowledgments

The second "Agricultural Value Chain Finance" conference took place at the initiative of the Regional Unit for Technical Assistance (RUTA) and was enthusiastically received by the Academia de Centroamérica, the Rural Infrastructure and Agro-industries Division of the Food and Agriculture Organization of the United Nations (FAO) and the Inter-American Development Bank (IDB). It was sponsored by RUTA, FAO, IDB, the Swiss Agency for Development and Cooperation (COSUDE), the Banco Crédito Agrícola de Cartago, the Banco Nacional de Costa Rica and Calmeadow. The weekly El Financiero donated publicity for the event.

The organizing committee was made up of:

RUTA
Miguel Gómez
Ronald Meza
María del Mar Martín

Academia de Centroamérica
María Castro
Rodolfo Quirós

Valuable ideas were contributed by Calvin Miller and Alan Bojanic of FAO, Mark D. Wenner and Fernando Quevedo of the IDB, Ligia Castro and Andrey Acuña of RUTA and Luis Mesalles and Adrián Pacheco of the Academia de Centroamérica. The Academia de Centroamérica was responsible for managing the event, and its staff and many external partners contributed their creativity and knowledge to ensure its success. Rodolfo Quirós was responsible for the summary and for editing transcriptions, and María Castro managed the publication process. Pilar Picado reviewed the summaries of the Spanish version.

Participants drew on the extensive knowledge and experience of nearly 40 specialists (see Annex 1), experts in different areas related to agricultural value chain finance. The event was greatly enriched by the presence of many people who came from Central America, as well as visitors from México, the United States, South America and Europe, as can be seen in Annex 2. It proved an interesting combination of people involved in agricultural value chains, regulated and non-regulated financial entities, non-financial entities, governments, technical assistance projects and representatives of international organizations. Speakers and participants alike shared generously during the two days of plenary sessions described in detail in Annex 3. A further added value of the seminar was the participation of speakers with broad experience in rural finance in Asia and Africa, who provided valuable information on novel approaches to financing agricultural value chains.

Three field trips took place on the third day of the seminar to visit leading companies in Central American agricultural value chains: a coffee processor and exporter (COOPEDOTA), a fruit processing company (APACOOP) and a processor and exporter of fruits and vegetables (GERBER). We are grateful to them for their informative explanations and warm hospitality to seminar participants.

Preface

This document is a collection of presentations and discussions that took place in the "Agricultural Value Chain Finance" international seminar organized by the Food and Agriculture Organization of the United Nations (FAO), RUTA and the Academia de Centroamérica and held in San José, Costa Rica from February 22 to 24, 2010.

The concept of "agricultural value chain" covers the full range of activities and participants involved in moving agricultural products from the farmer's field to the consumer's table. Participants in this chain need money to carry out their activities. Although they often turn to traditional financing institutions, rural producers, processors and retailers are receiving increasingly large injections of resources from other entities with which they maintain trade ties. These flows of credit and financing among the various links in the chain comprise what is known as "value chain financing." The objective of the seminar was to learn more about practical experiences with these models and approaches to value chain finance in many countries.

Businesses active in the agricultural sector (including producers, processors, marketers and exporters) met together with technical assistance providers and financial institutions to discuss this subject. The conference provided a unique opportunity for dialog, with participants sharing and obtaining information on best practices for linking chains together as a means to increase the supply and efficiency of financial services for rural producers, marketers and processors.

This document summarizes the main ideas discussed throughout the seminar and shares lessons learned by participants and organizers. It should serve as a source of inspiration for officers, leaders and practitioners in the area of agriculture and finance, extension agents, and in general, all the people in institutions that provide financing or other types of support to agricultural chains. It also targets businesses in both the agricultural and financial sectors, encouraging them to learn from financing models and ideas advanced by other businesses like theirs.

Miguel Gómez
December, 2010

1 Introduction

Calvin Miller

Agriculture and the food and other products derived from it, have always been a fundamental part of life and livelihood. Yet, the forms of food desired by its consumers and the way that it is produced and transformed have and continue to change rapidly. This is most pronounced in the countries and regions experiencing higher levels of urbanization and/or income growth. Both changes in lifestyle as well as the logistics of moving food products and ensuring they have a longer and save shelf life, dictate the direction of the food industry.

Agricultural transformation includes many more processes and more specialization and consequently more participating "partners" or actors along the path from farm to fork –the value chain. These partners, made up of the producers, traders, processors, marketing companies, etc., as well as the banks and service providers, have a common interest which is being competitive in what they do. For many, the closer they work together with that focus in mind, the more they can achieve overall efficiency. This is especially pronounced in the case of specialized foodstuffs such as fruits and vegetables, dairy and other perishables whose properties require timeliness, quality standards and logistical efficiency in the chain.

The concept of "**agricultural value chain**," includes the full range of these activities and participants involved in adding value through their inputs or services as it transforms to the needs and desires of the consumers. It is often defined as the sequence of value-adding activities, from production to consumption, through processing and commercialization. Each process and link in the chain has a participant "stakeholder" interest and has one or more backward and forward linkages with other stakeholder participants in the chain. This chain, for any product line, is only as strong as its weakest link and hence the stronger the links and capacity of each, the more secure the flow of products and services within the chain.

The shift toward value chain integration through strong and often formal linkages or through vertical integration has been noted as a threat to the livelihoods of small producers and often small and medium sized agro-enterprise traders, processors and retailers. The threat is real –only the most competitive will survive– and most often the most competitive are those which have the strongest linkages to not only competitive markets

but also to reliable inputs, efficient transport and support services including technical support and finance. For smallholders, the availability of these last two is very important for their inclusion or not into competitive value chains.

Technical support is a facilitator of inclusion through the capacity development of them in technical skills to meet industry standards and requirements, organizational skills to reach economies of scale through coordinated and often collective efforts and management capacity to most efficiently use their limited resources to produce what the market demands, while also understanding and mitigating their risks.

Access to timely and reasonably priced financial resources also plays an important role in facilitating inclusion of smallholders into competitive markets. Without these timely resources, it is difficult to meet the market demands. Typical loans from banks involve relatively high transaction costs on the part of both the lender and the borrower, and coupled with the climatic and market risks of the sector make such loans unattractive to the lenders and unavailable or unattractive to the smallholders. Likewise, the typical short-term, relatively high-cost financing of most microfinance loan products are not well adapted.

Value chain finance in agriculture offers a response to the above-mentioned dilemma in two dimensions. For bankers and financiers, value chain finance in agriculture is an approach to financing that uses an understanding of the production, value added and marketing processes to best determine financial needs how best to provide financing to those involved." (Miller, 2010) By understanding the agricultural chain, the lender can make more informed decisions of how to structure financing to reduce the costs and the short and longer-term risks such that financing becomes attractive. Funding may be done at many levels in the chain or could enter the chain at one point and then flow up and/or down through the chain to others.

For the smallholders, the value chain financing offers two added options to conventional financing. They can often receive financing from other stakeholders in the chain, such as from contract farming arrangements whereby the contracting buyer provides the funding in cash or kind. They can also use their relationships (formal contracts or established informal agreements) with strong partners in their chain or chains, in order to secure bank funding that may not have been available. Either way can increase their access to capital and growth.

In summary, the flows of funds and internal and external financial arrangements among the various links in the chain comprise what is known as **value chain finance**. Stated another way, it is any or all of the financial services, products and support services flowing **to** and/or **through** a value chain. This can be internal financing directly from one value chain participant to another or external from a financial institution or investor based upon the borrower's value chain relations and activities.[1]

1 Miller, C. & Jones, L. 2010. "Agricultural Value Chain Finance: Tools and Lessons," FAO, Rome, Italy and Practical Action Publishing, Rugby, UK http://practicalactionpublishing.org/publishing/agricultural-value-chain-finance

The increased integration of agricultural value chain has raised its potential for financing to the sector. Since Agricultural Value Chain Finance Conference in 2006,[2] two major phenomena have affected agriculture. First was the 2008 food crisis which turned attention to the need for increased investment in agriculture. Second was the 2008-09 financial crisis which lowered the availability of financing available to all sectors, both from the loss of financial assets of banks, an increase in required reserves and a reluctance to borrow or requirement of additional collateral in order to lend. Hence, the use of value chain products and processes as collateral becomes more important than ever.

In Chapter Two, Ken Shwedel looks at the effects of these crises on agricultural value chain finance as well as the growth and changes that have taken place since 2006. He notes that both the demand for products and trade dropped significantly along the value chain and the availability of credit became restricted. Moreover, many of the basic premises of the free market were challenged with volatile exchanges, increased state intervention and loss of consumer confidence. In the four years, the market place had moved from one of relative stability toward one of volatility; from confidence in the free market to higher regulation and control. Also, as many businesses struggled to survive or slid into bankruptcy, those which were more competitive were able to consolidate their positions leading to an increase in concentration of ownership in the sector. The increased competitiveness to operate in a market with reduced demand and less available capital has increased the need for value chain finance making it more important than ever. The financing schemes are and will continue to become more complex and inter-twined. Its role is also made all the more important in the global challenge to increase overall food production to meet the food security needs projected in the next decade and beyond.

Shwedel observes that financial institutions have now begun to realize that a value chain vision is important. He notes that the role of the public sector is important to not only ensure the proper regulation is in place for the financial instruments but to ensure their compliance. Also it must help smallholders prepare for the changes in the marketplace so they can compete and contribute to meeting the food security challenge.

In the Third Chapter the authors give a global view of the lessons in agricultural value chain finance. Miller shares the value chain finance approach to financing agriculture and highlights the many financial instruments which are used in various ways to implement it, depending upon the various business models and the nature of each value chain. He illustrates the growing use around the world and the way that triangular or multi-party arrangements of finance, suppliers, buyers and others has been able to reduce the transaction costs and risks of finance. Finally, the importance of understanding the value chain and the use of that knowledge in evaluating and structuring financing is emphasized.

Campion illustrates eight lessons learned from value chain financing. Showing the roles of the various stakeholders value chain models and noting differences between value chains, she shows how technical assistance can lead to improved chain competitiveness and effective inclusion of smallholders, including women into those chains.

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2 Proceedings of the conference may be found in Quirós, R. 2007. "Agricultural Value Chain Finance," FAO, Rome, Italy and Academia de Centroamérica, San José, Costa Rica http://www.academiaca.or.cr/presentacion2/fscommand/cadenas-agricolas.pdf

In lessons from multilateral lenders, Wenner shares examples of the value chain financing instruments and the success factors for increased use of them to finance agriculture. He notes the challenges at the producer level, financial sector skeptics and judicial and political concerns but believes these can be overcome with sustainable technical assistance and taking advantage of innovation in the sector. Nair shares World Bank lessons from 17 banks in eight countries. Most banks evaluated continued to use standardized bank led approaches for producers basing the lending on relatively pre-determined policies of amount rather than a more comprehensive value chain approach. However, the use of alternative collateral sources such as products, supplier-guarantees and peer group guarantees was found to be used by almost all the banks.

Chapter Four illustrates the application of value chain finance models. Rutten, sharing from India, emphasizes the changes in the industry of commodity finance. He lays out the rubric of structuring finance to fit the value chain. The importance of warehouse receipts with reliable warehouse management companies and functioning commodity exchanges is highlighted as mechanisms to allow for reduced price risk through hedging by futures and forward contracts and through reduced losses and costs through effective commodity management. Cost and risk can also be reduced by structuring the financing toward self-liquidating modalities of repayment. He also notes the challenges faced by lack of proper regulation, governmental intervention and lack of adequate infrastructure such as warehouses.

From the other side of the globe, Galindo shares a model for financing quinoa using a technical assistance facilitation model which not only strengthen the chain but through piloting was able to adapt the financing to fit the overall value chain. Vargas shows how it was possible to use value chain finance to meet the financing needs of small rice producers using a model of warehouse receipts applied at the micro level in alliance with the rice mills. This reduced both intermediation costs as well as financing costs and was able to be implemented in a setting where the formal warehouse receipt requirements of the Superintendence of Banks were prohibitive. In Brazil, CRESOL Baser is able to apply a cooperative model to not only offer multiple agricultural value chain finance products, including insurance, but also technical services and non-agricultural financing.

In Colombia, Osorio shares an integrated value chain finance model used in the cattle sector. The Fondo Ganadero de Santander is involved throughout the value chain from production to marketing. For financing they created their own institution and offer various credit lines and insurance designed to fit the sector. A lesser known value chain of the stevia plant is the sole focus of Pure Circle. Chilavert shares how in the absence of financing available from conventional sources, the company had to negotiate financing on behalf of the producers that would fit their needs, recognizing that it needs to fit the production cycle of the value chain, and in addition it needed to offer the technical and organizational support needed to secure the product as well as the financing.

In Africa, Obara shares how factoring is being applied to finance agriculture. Whereas other sources of financing agriculture are often not available, factoring offers an alternative. Processors, working with farmer groups, are able to discount their accounts receivables through the factoring agency to secure the funding they need to operate their businesses and pay the farmers to secure their produce.

Chapter Five describes innovative approaches of agricultural value chain finance that financial institutions have found successful. Clark shows how credit unions have innovated to fund agricultural producer groups. He notes the need for them to have strong value chain links and that technical assistance and market assessment are important ingredients to make this possible. Rivarola de Velilla emphasizes this also is the case in the soybean sector in Paraguay. Strategic partnerships are not only needed for the product and financial flows and to achieve economies of scale but they also are important knowledge links for financiers to understand the sector.

In Bolivia, Urquidi demonstrates various innovative products that an MFI uses to offer financial services and market linkages through the use of micro-warrants offered through strategic alliances with the rice millers. It can be noted that each of these innovations work to reduce operating costs and risks, first at the producer and enterprise level and consequently resulting in less risk for the lender.

Pacheco, representing a governmental bank, presents an honest and accurate assessment of many bankers reluctance to finance agriculture. He notes the expectation that the clients should adapt to the banks rather than the bank adapting to the clients' needs. Realizing this led his bank to begin to design its products together with the VC actors.

Financing with and to the value chain is only as strong as the value chains and their stakeholders. Chapter 6 portrays the methodologies and experiences of six organizations on strengthening the value chains as well as their financing. Mario Miranda describes the fundamentals of applying indexes insurance to deal with systemic production risks. Contracts and contract farming are important in value chains to secure product, secure markets and prices and to help ensure repayment of loans. Grace shows how an ACDI/VOCA capacity development program was able to implement four different value chain finance models –negotiated value chain linkages with the banks, triangulation, warehouse receipts and shared risk.

The international technical agency GTZ uses a value chain approach to achieve sustainable development. Weiskopf shares how through the value chain assessment process the financing needs are identified and potential solutions are noted. It then works to facilitate the structuring of the financing according to the value chain and the requirements and nature of the financiers. Junkin shares the experience of CATIE in using a participatory approach to analyze value chains and their financial flows and needs. Many non-financial barriers also limit value chain integration and must be taken into consideration when designing the financial mechanisms.

The importance of information and communication technology (ICT) was noted by many speakers. Chalmers analyzes the role and appropriateness of ICT in value chain financing in relation to information and transparency, access and cost. When appropriate, it is shown to increase access, lower costs and provide an opportunity for increasing the scope of operations.

Manuel Miranda provides a case of public sector intervention to strengthen agricultural value chains through extension support and services of credit and grant incentives, plus insurance for small producers. The governmental support is inclusive of all small producers but differentiated according to the specific

requirements, including management, quality, marketing and organization. He also notes the specific programs for women, indigenous producers, small farmer organization and agro-industries.

In Chapter Seven, the international development agencies of FAO, GTZ, CATIE, BID and COSUDE share highlights of their development programs and services as they relate to the topic of the conference. It is noted that all are active in supporting agricultural value chains development and financing. A Summary is given by Wenner in the final chapter. He notes ten main points of consensus from the experiences, lessons and discussion in the Conference. Challenges ahead include, the payment for technical assistance, the formulation of effective policies, and the training and demonstration required for convincing the banking sector that through approaches such as value chain finance, financing to the sector is a good business.

2 Agricultural value chain finance. Four years on

Ken Shwedel

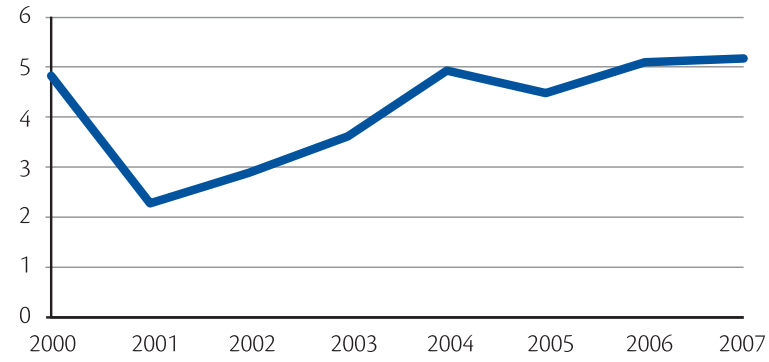
I would like to thank you for the invitation to be here. It is a real challenge to return after several years to discuss the same subject and be confronted with what I said the last time.[1] First I would like to look at how we saw ourselves four years ago, and then I will touch on the crisis. You will probably ask me why I am spending so much time on the economic aspect; my answer is because the context has changed. Four years ago we were living in another environment, so the question is whether or not the value chain model is still valid. That is what I will try to answer, along with the questions: What have we done to prepare for the future? What are the challenges? Then I am going to describe what I would like to see, not as a new paradigm, but perhaps as a new definition of value chain finance. We should also ask ourselves: what have we learned from the role of the public sector? And then, in the conclusions, I will make some final observations.

A. The context four years ago

What kind of situation faced us four years ago? What were we seeing in 2006 when the first Seminar on agricultural value chain finance took place? We were looking at a promising economic future, with global GDP growing at more than 5 per cent annually (Diagram 2.1), an economy that had recovered from the contraction of 2001 and constant growth, upward growth; everything looked pretty good. Four years ago we were also seeing an expanding global business, growing trade at global level; the world was a developing world, it was a globalized world.

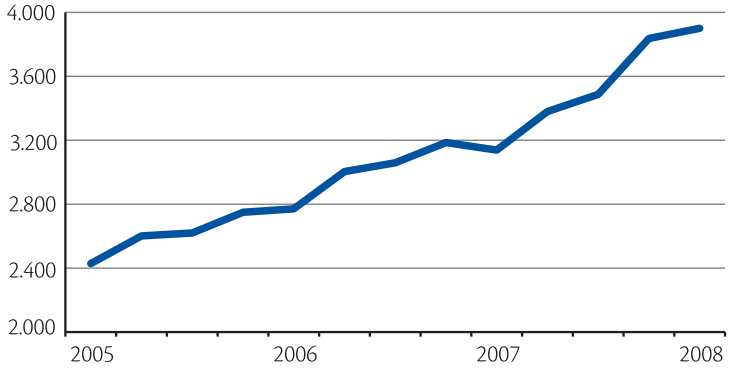
1 This chapter is a literal transcription and reflects the spontaneous style in which the presentation was given.

Graph 2.1
Growth of global GDP, 2000-2007
(percentages)



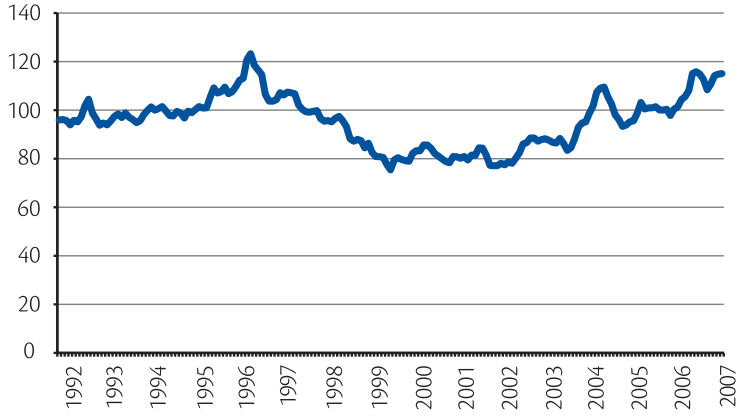
SOURSE: Rabobank with IMF figures

Graph 2.2
Quarterly value of global exports, 2005-2008
(millions of US $)



SOURCE: RABOBANK WITH WTO DATA.

Graph 2.3
Food price index, 1992-2007
(2005=100)

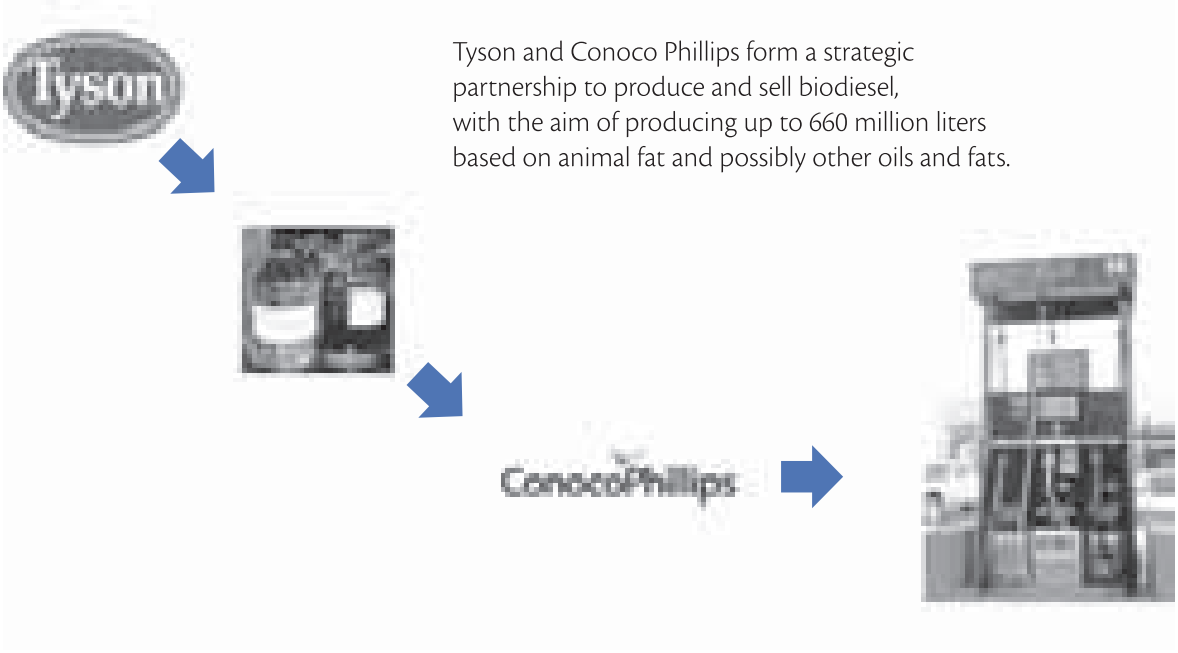


SOURCE: RABOBANK WITH IMF DATA.

Four years ago we were also seeing an overall growth in international trade (Graph 2.2). Indeed, many of our discussions focused on the question of how we were going to –or not going to– incorporate value chains, how we would incorporate agriculture in the globalization process. Four years ago we were also seeing stable prices, but with an upward trend at that time (Graph 2.3). I think that none of us realized, quite honestly, that we were on the verge of a historic rise in agricultural commodity prices. In general terms, four years ago nobody was talking about a fall in agricultural prices. Another important point is that the exchange markets were relatively stable during those years; at global level we did observe a revaluation of some currencies against the US dollar, but we also saw a relatively stable economy in terms of the exchange rate. What I am describing is the economy four years ago: attractive, stable, with growth prospects. Even the banks were relatively open to financing –because we are never totally open, we are either relatively open or very closed. But in those days we were more willing to consider new models, new financing options and had even reduced some of our lending requirements. In fact, nowadays we are criticized for having been too lax during those years, and we are told that this was the beginning –or one of the reasons– for the crisis.

Four years ago we were also seeing new agribusiness systems and models. Diagram 2.1 shows the example of Tyson, a poultry firm that formed a partnership with an oil company, and you might say what is going on here? What are they doing? How come these two are working together? It is an extremely interesting and innovative scheme for biodiesel production.

Diagram 2.1 **New agricultural models and structures**



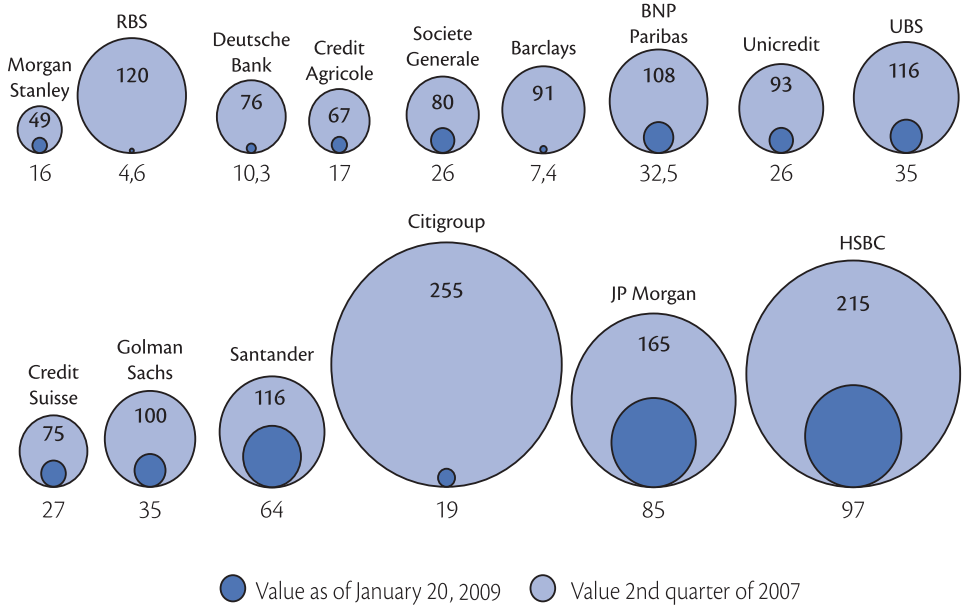
Source: Ken Shwedel. Seminar presentation..

Again, what I was describing four years ago was a stable, exciting, vigorous economy. That was the framework for the Seminar on agricultural value chain finance four years ago; everything looked good, everything looked promising –and then along came the crisis, the economic crisis.

B. The Crisis

The interesting thing about the crisis is that it was global. I will briefly refer to Mexico: when we had problems back in 1995, the Mexican solution at that time was to export. When other countries have had problems the solution has been to export. But now, where are they going to export to? That was partly what the crisis was about, a global crisis, a crisis that none of us here in the audience had ever seen before. It is what we had been told by our parents –or maybe by our grandparents or great-grandparents– had happened during the 1930s but we had never seen anything like this. And, the point that concerns us most –it was a financial crisis. Graph 2.4 shows the market value of various financial institutions during the second quarter of 2007, the light blue circles, while the pinkish circles show their value in January 2009; if you are saying that the colors must be wrong, that you can't see the pinkish circles, it is because you really can't see them. At one point, a cup of coffee cost more than a Citibank share. So that is what we saw: a financial crisis. This issue is very important for us. The banks' lending contracted. We were always reluctant to lend, but became even more reluctant to lend, and we will continue to be so.

Graph 2.4
Financial sector losses due to the global crisis (millions of US $)



SOURCE: Bloomberg, January 20th 2009.

But this was not only a financial crisis. The impact was felt throughout the value chains. Diagram 2.2 shows an example of a very simple value chain, from primary production to the consumer, including international

trade, manufacturing and retail sales, and the crisis was felt throughout those four phases: falling prices, credit restrictions, erratic or at least very volatile currency markets, a contraction in international trade, loss of consumer confidence and changing consumption patterns. So, we saw the crisis everywhere we looked.

Diagram 2.2 **The impact of the financial crisis is felt throughout the value chain**

Source: Ken Shwedel. Seminar presentation.

Earlier I mentioned exchange rate stability, but in 2008 the exchange rate indices –those of Mexico, Chile and Australia, for example– showed a major increase. You are going to export to the first country that offers to buy, but at what price? What was the value of the currency? I work in banking, but I would ask, in which currencies should I lend? Against which currencies? Against which product? These were some of the uncertainties we faced. If we consider the price of fertilizers, shortly before the crisis we were suddenly seeing an unusual increase the price of inputs, which was unprecedented. Then, in the Commodity Price Index, we also saw a shift from relative stability to instability: prices increased significantly and then suddenly, in 2008, they fell. So, as a bank employee I asked myself: What should I lend against? What is my guarantee? What is the value of what I am lending? How do I do this? It was even worse for the livestock sector because grain prices were rising at a faster pace than livestock products and then suddenly all the prices tumbled. Finally, we should mention the Baltic Dry Index, which essentially refers to the cost of shipping, because we're talking about a globalized economy. At one point, between 2006 and 2007, shipping rates increased six-fold, but then fell again six times. But why did they fall? Not because there were suddenly a lot of ships available, but because there was no finance for international commercial transactions. Again, the financial impact!

These movements led to a fall in profits for different groups of producers (for example, beef, pork and chicken producers), while at the other end of the chain, consumers began modifying their spending, reducing their consumption of some things and buying others, trying to save money, radically changing consumer patterns.

International trade, which had appeared stable, declined in 2009 for the first time since the Second World War. More than seventy years had passed without the world facing this type of collapse! And what has been the reaction? Increased protectionism, farmers demanding more support and calling for the closing of borders, trying to get more money from the State and protests, essentially in Europe.

Another aspect of this situation is the consolidation of markets, which we discussed four years ago. The crisis did not stop this process but, rather, accelerated it. For example, if we look at milk production in the United States, by herd size, between 2004 and 2009, we see a concentration of the dairy industry in that country. This consolidation is also evident among global livestock producers, as we can see in Table 2.1, which lists their names and shows how they have been expanding. One company shown in this table, the Brazilian firm JBS Swift, has now become the largest animal protein producer in the world through its acquisitions, and it also purchased another company a few months ago. This consolidation has not stopped –rather it has accelerated. So, we are seeing a world that I would say is not completely different, but fairly different, from what we were seeing four years ago.

Table 2.1
Meat processing firms by country, products and production levels

Companies	Country	Sectors	Sales 2008 (millions EUR)
Tyson Foods	USA	Pork/beef/poultry	18.358
Cargill	USA	Pork/beef/poultry	16.402
JBS Swift	Brazil	Beef/pork	11.439
Vion	The Netherlands	Pork/beef/poultry	8.644
Smithfield	USA	Pork	7.757
Nippon Meat Packers	Japan	Pork/beef/poultry	6.390
Danish Crown	Denmark	Pork	6.304
Pilgrim's Pride	USA	Poultry	5.451
Maruha Nichiro	Japan	Fish	5.229
Hormel Foods	USA	Pork/beef/poultry	4.615

Source: Ken Shwedel. Seminar presentation.

To summarize (Table 2.2), the crisis has brought, and will continue to bring, increased regulation of what banks and financial institutions in general can do in the future, because we have been blamed for financial mismanagement, which is seen as the root cause of the crisis. The crisis has also brought volatility in key variables, such as the exchange rate, the price of fertilizers and commodity prices. My prediction is that we are going to feel this volatility in the future. We have seen that the crisis has forced many businesses into bankruptcy and, as I mentioned earlier, has also led to increased concentration. There have also been market changes, changes in consumption patterns and here I mention two that are particularly important: one is the growth of own brands. Before the start of the Seminar, I was talking about supermarkets and how they operate, strengthening the retail supermarkets in the channels, and we are now seeing a deceleration in the growth of certain segments, certain market niches, such as organics. Why do I mention the organic segment? Because four years ago we were saying that an option for small farmers was to produce for niche markets –but niches such as organics are slowing down.

Table 2.2
Consequences of the crisis

- Increased regulation
- Volatility of key variables
- Bankruptcy of businesses - increased consolidation
- Market changes
  - Changes in consumption patterns
  - Growth of own brands
  - Deceleration of growth in organic production
- Restriction of spending on the agricultural sector

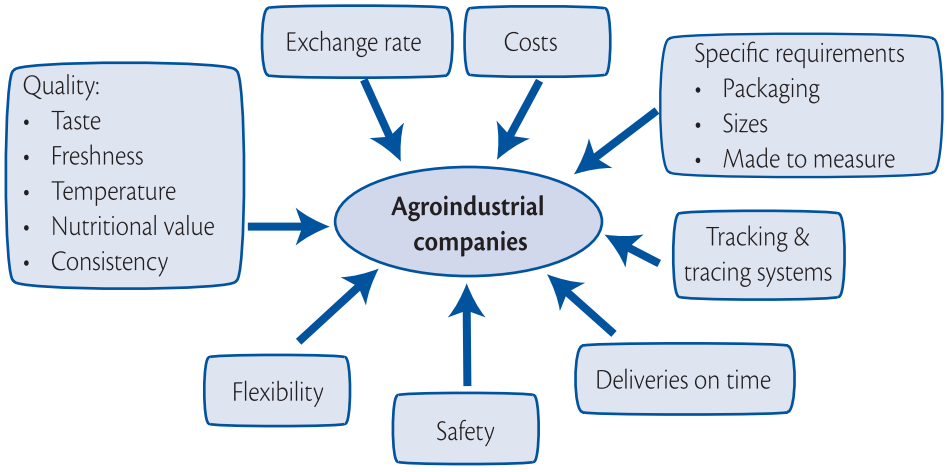
Source: Ken Shwedel. Seminar presentation.

I am not saying that we should not grow organic products, but that is the situation now. There are two reasons for the deceleration in organic production: one, obviously, the crisis. Organic products tend to be more expensive and people are rationalizing their spending. Second, organics are not only more expensive in terms of the final shelf price, but they also tend to cost more in terms of production per unit. There has been greater interest among many farmers in producing organics, which has pressured producers to lower prices, precisely at a time when there is consumer resistance. For the moment, then, these two factors have limited the growth of the organic market. I believe that in future it will be of great interest; it is a very attractive market. In relation to public policies, I would add another point: the definition of organic. What is organic? The lack of clear definitions or standards is confusing to consumers. I could produce virtually anything and say that it is organic, that it is natural because it came out of the ground. So, what is natural? There's a problem here.

Another fairly important point is the restriction of public spending in the agricultural sector; I am referring to the global level, not to X or Y country. What has happened in many countries because of the crisis? Well, first of all, their spending has contracted, or if it has not contracted, there is deficit spending aimed at reactivating their economies but not necessarily the agricultural economy. Therefore, we are seeing a contraction, a restriction of spending in the agricultural sector. Obviously I am not painting a very pretty picture and I hope you were not expecting me to describe an attractive situation. We are seeing the reality, but we are also seeing light at the end of the tunnel.

So, the question is: **Is value chain finance still a relevant concept?** Faced with all these changes, small businesses, along with large ones, must deal with many variables in a context of greater variability in the different markets (see Diagram 2.3). Is the concept of value chain finance still relevant? Well, I don't want to leave you in suspense and now that you are here –and so that you don't leave– I'll say **yes**. And I would also say that now, with all the more reason, the concept of agricultural value chain finance is relevant, even more so than four years ago.

Diagram 2.3 **Variables to be addressed by companies in a global context**



Source: Ken Shwedel. Seminar presentation.

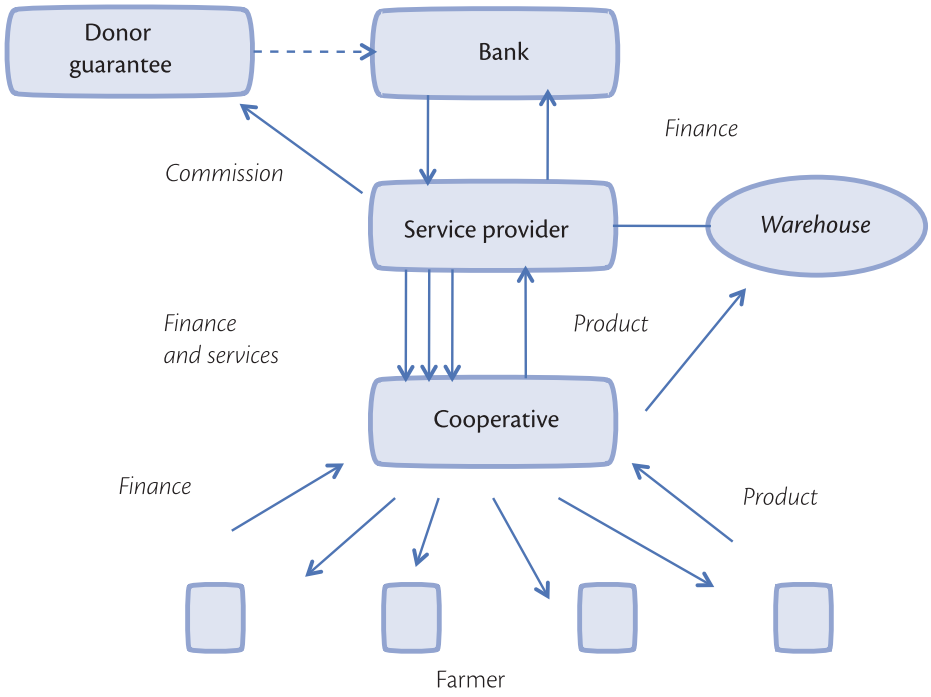
Four years ago, when we were experiencing a fairly stable situation, I would have said it was important to opt for agricultural value chains. But it is even more appropriate nowadays, in the face of the changes, the uncertainty and the volatility. But even more important is the question: **Are we prepared?** And here the answer is: maybe. I think that is the purpose of this Seminar: to look at new models, new opportunities. That is the reason why you are here, to convert this "maybe" into a "yes".

C. What have we done to prepare for the future?

What has happened during these four years since we were last here? I think there has been an increased implementation of value chain finance models, increased use of these, a greater sophistication in the structures, increased application of more tools. Who would have imagined four years ago that the Minister of Agriculture of Costa Rica would be speaking of 'factoring'; these are new things, different things. However, I criticize the slow pace of development of new mechanisms or instruments. And I am not talking about Costa Rica, because it has been one of the most dynamic countries in this regard, but in general terms, public policies have lagged behind. So, I repeat, I am increasingly using the concept of value chain finance as a model for business operations and as a tool for promoting rural development. I think you have already realized that it is a tool for promoting rural development. We have also seen progress in developing more sophisticated arrangements, moving on from a relatively traditional system, where the donor ended up financing a cooperative, which in turn financed the farmers, who handed their products over to the cooperative, which in turn sold it to a buyer, who in turn paid the donor, thereby closing the circle. That was a fairly typical model four years ago, but in recent years we have moved on to more sophisticated models.

I think the system shown in Diagram 2.4 is quite interesting, not just because the Rabobank Foundation uses it, but because it implies a greater sophistication in what is being done. What is interesting about this system is what we see in the top left-hand corner: the donor provides the guarantee, not the money *per se*, and for the money, the bank is involved. So the donor provides the guarantee, the bank in turn finances a provider of specialized services, which finances a cooperative, which in turn finances the producers.

Diagram 2.4 **New model for value chain finance**



SOURCE: Ken Shwedel. Seminar presentation.

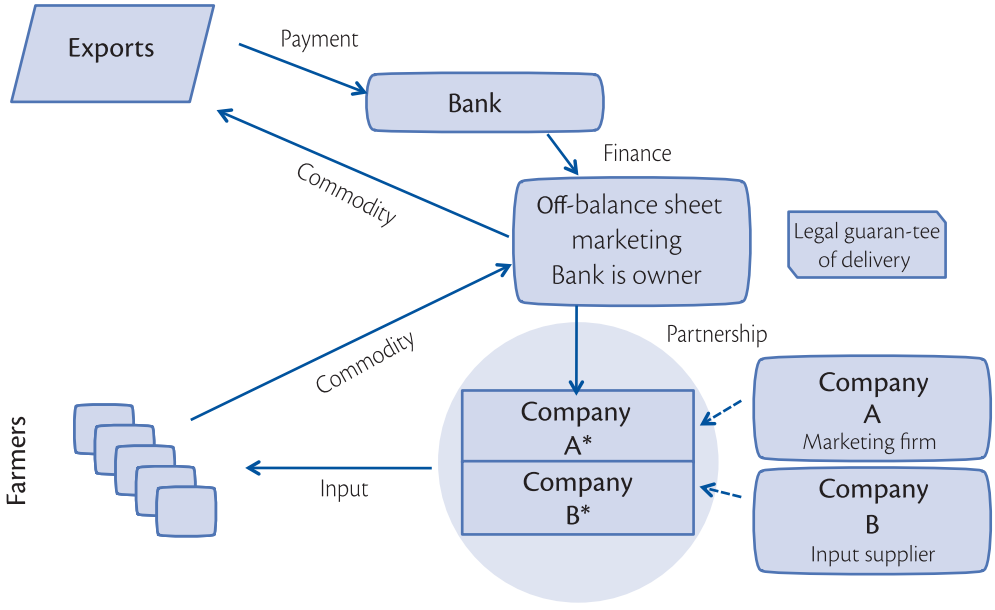
In this system, farmers in the chain return the product through what you see on the right-hand side: a bonded warehouse, which is a cash guarantee concept, and then the cycle is completed by paying the bank. This model has been used to provide short and long term credit. What is also interesting here is the donor's role, which is crucial, because the donor is not directly involved in financing but allows his funds to be used for leverage. Then other common features can be added, such as the concept of insurance. In a book that Calvin Miller and FAO are about to publish, there are many more examples of such models, of the sophistication and implementation of a number of alternative instruments or mechanisms.

I believe the commercial banks have also made progress. The typical model is one where the bank finances a member of the chain and hopes that this member will finance another member of the chain. This is the traditional vision and, in a certain way, the bank has somewhat lagged behind and has been quite happy with this type of financing because we were financing a member of the chain that we felt was less of a risk. The negative and problematic aspect of this system is that it is a traditional way to finance value chains. Bank A finances a

member of the chain, bank B finances another member, and since A and B are competitors they don't talk to each other, so sometimes there is a lack of coordination.

That was the traditional way and now we are moving toward a model like the one shown in Diagram 2.5, which I would say is considerably more sophisticated, where the bank is involved through off-balance sheet financing. This is a real example of a type of financing where there are two firms, A, a marketing firm and B, a firm that supplies fertilizers. A and B join together to form a partnership, which is the new business shown inside the circle and, through an arrangement with the bank, the two partners form a *special purpose vehicle*, SPV, which is the instrument, the vehicle that will actually receive the finance. The company that is off the balance sheet finances this partnership. The producers "sell" their product to this special vehicle and this special vehicle "sells" the product to the marketing firm which, in turn, exports it. The buyer abroad deposits money in the account of the financial institution.

Diagram 2.5 **New structures in commercial banks**



SOURCE: Ken Shwedel. Seminar presentation.

I believe this is an example of a much more sophisticated model that supports the companies' balance sheets and this, in turn, facilitates access to credit. Now, an important element in this example is a type of program that legally guarantees deliveries (Diagram 2.5, to the right of the marketing firm). So there is a system, a legal framework to ensure delivery, and in this case the bank is not the trigger, but rather the two companies that form the partnership are the triggers, along with the other instruments.

While all this was happening, I feel that public policies were lagging behind. This is the case in Mexico, where the bureaucratic structure has led to compartmentalization. You have a value chain with inputs, production, processing, product distribution and consumers and a number of secretariats responsible for different parts of

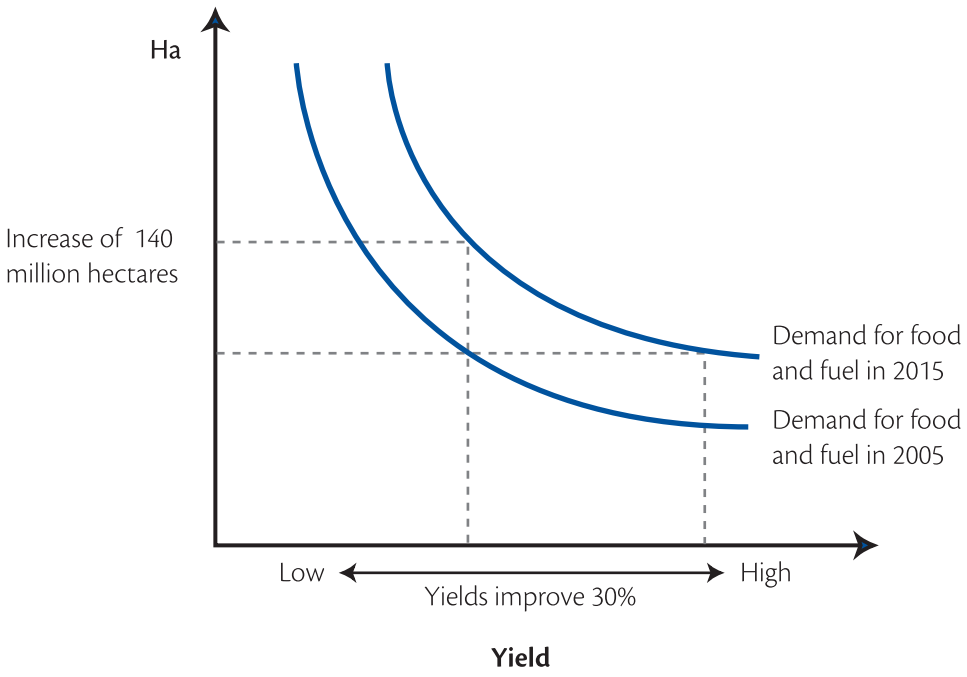
the chain. The name SAGARPA (Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food) implies a Secretariat that is present throughout the chain, but the reality is quite different –and that is not my criticism, it is a criticism made by the Secretary himself. So you see, that is the situation in Mexico and we have seen it in other countries with value chains, but where public policies lag behind, causing a compartmentalization of efforts. In many cases, what we are seeing is a response to the interests of the clients of the secretariats and not to the interests of the chain.

D. Challenges

The question is where are we headed now? What are we seeing? I began by discussing the economic crisis –what are the future challenges facing those of us involved in the agri-food sector?

1. The food crisis

Graph 2.5
The challenge of food shortages



Source: Ken Shwedel. Seminar presentation.

The first challenge is to be able to feed people; the first challenge is how to channel the energy of around eight hundred and sixty million small farmers in order to overcome a food shortage –or the threat of a food shortage. Diagram 2.5 shows the analysis we prepared, which suggests that in the next five years, with the expected growth in livestock production and, if there are no changes in technology, we are going to need around one hundred

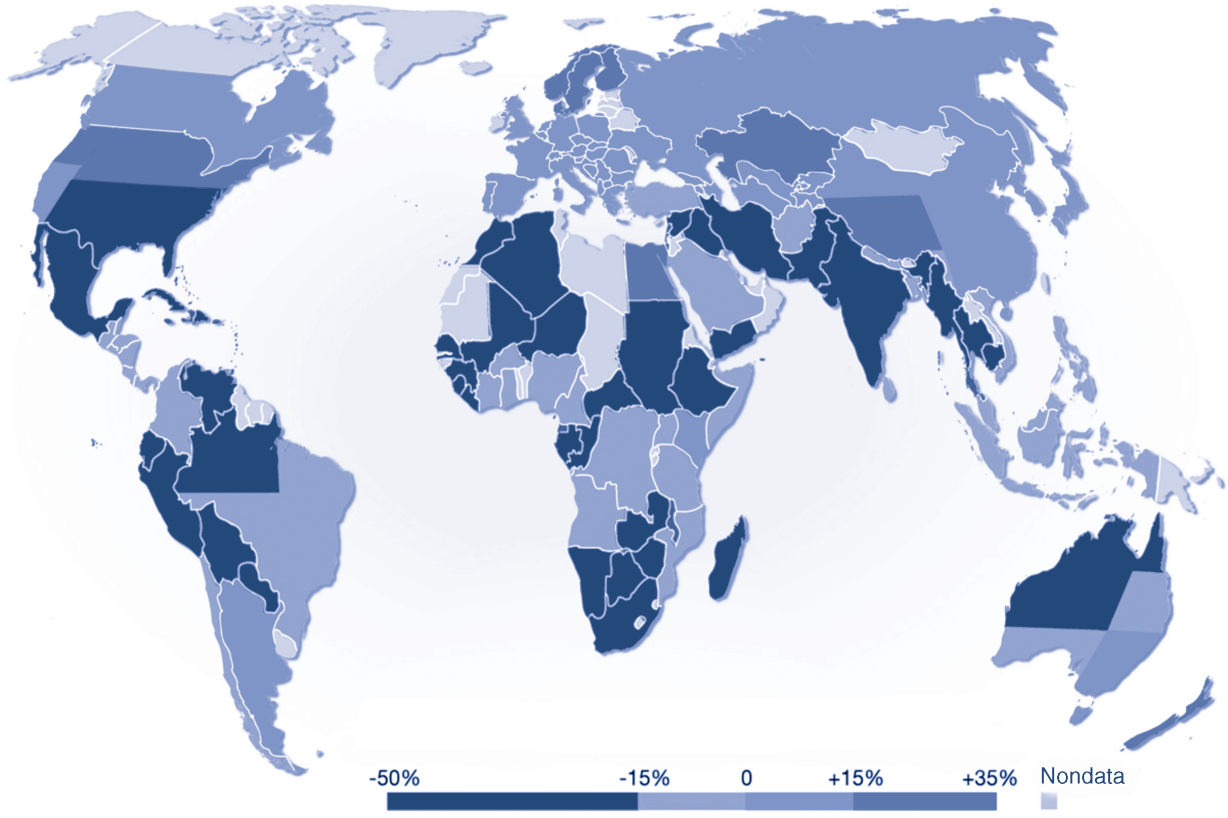
and forty million additional hectares to satisfy the demand for food. I don't know if there is another planet we could rent, but at the moment we don't have one. In future we face the possibility of food shortages, of another food crisis. How will we deal with it?

2. Sustainability

This is something I hardly hear about in relation to value chain finance but it is an important concept and we will need to adapt the models to address the issue of sustainability. If you are not talking about sustainability in the next day and a half that remains of this Seminar, you are lost. Why am I telling you this? Because people are not only talking about the ethical aspect but also the business aspect, they are increasingly demanding that the products we sell take care of the environment. For example, when we analyze a credit application at the institution where I work, we consider the aspect of sustainability. For us, a business that is not sustainable, that is not operating in a sustainable way, increases the credit risk and, in some cases, we either do not finance it or we finance it at the macro level only.

The importance of sustainability is illustrated in the climate change graphs for Australia, where we clearly see an increase in temperature between 1910 and 2007. At the same time, these suggest that climate change could reduce productivity by between 10 and 25% in future, as shown in Graph 2.6. Water is another essential element and demand from other sectors could limit its availability for the agricultural sector. I have the feeling that in a couple of years time those of us involved with agriculture will not be speaking about yields in tons per hectare, but of tons or kilos per liter. Where are we in that sense? Are you talking about this? And carbon pollution, are you also talking about that? Around 40 per cent of total global greenhouse gas emissions from agriculture come from land use and nearly 25 per cent come from methane produced by livestock. In Latin America the main countries emitting carbon dioxide from the burning of fossil fuels are Mexico and Brazil and from deforestation, Brazil and Peru. If you are not talking about this, I would say that you are "out of touch." I hope there will be another event like this and that you will invite me to speak again and that by then we will be talking about sustainability.

Graph 2.6
Projected changes in agricultural productivity by 2080



Source: Ken Shwedel. Seminar presentation.

E. New definition of value chains

For all the reasons mentioned previously, I believe it is worth reviewing the definition of a value chain. The traditional definition and analysis of value chains was limited to a single company and focused on strategic activities that created value and improved its competitive position, allowing us to analyze costs and identify points of differentiation; in other words, the sum of the activities and agents or actors that add value throughout the chain. These concepts can be applied to the agri-food sector, which may be seen as a collection of sequential and parallel activities or functions **interrelated** with the production, manufacturing and marketing of **food**.

But to arrive at a definition of value chain finance, or what I would call a new definition of value chains, particularly in terms of public policy, we would have a concept that I define as follows:

> The flow of funds to the different links of the value chain, or among these links, in order to improve efficiency and competitiveness, reduce risk within the chain and also to promote and develop the chain.

I wish to emphasize here that the concept must be to "*efficientize,*" improve competitiveness and reduce risk. There may be other finance models; I am not saying that there shouldn't be –there may be models that try to change the power structure within the chain, but from the public policy perspective, finance systems must aim to *efficientize,* improve competitiveness and reduce risk.

If this is so, then what do we understand by efficiency? As shown in Table 2.2, one definition is to reduce costs in order to improve competitiveness –operating costs, production costs– and thereby reduce the operational risks in the chain.

Table 2.3
What do we understand by efficiency?

- Reduce costs to improve the competitiveness of the chain
- Reduce risks in the operation of the chain
  - Manage interest and exchange rate derivatives
- Facilitate movement of products and information
- Improve the chain's speed of response
- Align interests
- Must be win-win

Source: Ken Shwedel. Seminar presentation.

One thing I would like to touch upon, which has just begun to be used, is derivatives management. I know that the word *derivative* is not well regarded at the moment, because the use of derivatives has been criticized as one of the reasons for the financial crisis. But now we need to operate with other instruments or mechanisms, such as derivatives. We have seen instability in interest rates, instability in the exchange markets; so this is a major risk management tool for the future. In the past we have talked a lot about risk management, how to manage the futures market for commodities. In future, we will need to apply other concepts; we must be more aggressive in the use of these tools.

By efficiency I also understand the movement of products, and I would add information. Information, because in the business concept we have just discussed –which I had discussed four years ago and which we continue to discuss here– information is a way of competing. The other important point is to improve the chain's speed of response. Why do I say the speed of response? Because, as we have seen over the last four years, the world of agribusiness has changed and I can assure you that in another five years we will be seeing a different context, another world and we will need to respond quickly. This is very, very important for small farmers, for *campesinos*. Because we have seen that, in many cases, the buyer is the trigger of the chain. So, if there isn't a fast response, particularly by small producers, the ones who trigger the chain will change their suppliers and all the efforts made with "X" group of producers will have been for nothing.

It is also necessary to align the interests of all the stakeholders involved in the chain. How? Partly through information, by understanding what they are doing. You often find that producers do not understand consumers, they do not understand the role they play and why. So one essential thing, and one of the factors that I had mentioned in relation to public policy, must be to guarantee, support and promote the flow of information. I know an extremely successful farmer and when he travels he visits the markets where his produce is sold. At meetings with farmers I always ask how many of them buy the food they eat at home? And hardly any men raise their hands. However, they are usually the ones responsible for deciding which crop to grow and how to grow it. So, how do they align their interests? Through information, through what they know, through what they produce.

And finally, one thing that I believe is extremely important: it must be a win-win situation. Aligned interests and win-win. We cannot have financing that is not win-win. In other words, within this concept of a public policy for value chain finance, there cannot be a system that is not win-win.

F. What have we learned?

So, what have we learned in the **financial institutions** if we already know that a value chain approach is crucial for financing the rural sector? During the last four years or so, we have realized that is not a theoretical concept, not an academic concept, but the reality of the structure and strategy of business; if you're not in it, you're out! The context of agribusiness is changing and this is reflected in the actions by economic agents or actors to find new forms of organization for structuring businesses and competing. We have also seen that effective risk management requires a thorough knowledge of the chain; the finance business is the business of information and knowledge. We have learned that the structure and terms must be the reflection of the chain. I have argued and acknowledged that there are complex systems, but there must also be tailor-made solutions for the chains.

What have we learned about the **public sector**? That public policies cannot lag behind, they must go hand in hand with changes in the market structure, with changes in market conditions and in businesses. One objective of development policies should be to integrate or insert farmers into value chains and not inhibit the chains. This is not the case here; on the contrary here it is quite different; they have done a good job but in other parts there have been problems. We must train producers to operate and survive in an information economy and strengthen and redirect support toward business management.

The legal environment must also be conducive to business. It must be a legal framework that protects the interests of small farmers, but one that does not inhibit investment in these sectors. This also means creating awareness at both ends of the value chain, in relations between producers and consumers. On the one hand, we are increasingly seeing that producers' responsibilities are partly determined by the consumers themselves in the sense that they are demanding sustainable products in a broader sense than I am using here. Part of that sustainability is the fair treatment of producers. Nowadays there is a lot of talk about *fair trade* and this is making consumers aware of what they are paying for. We must pay a fair price so that the farmers also receive a fair price and are treated fairly within the chain.

Among the actions that should be considered are quality/safety standards and controls, infrastructure, and support to the weaker links of the chain. I had also mentioned efficiency in the public sector. I understand that achieving efficiency, in addition to the other requirements, implies developing legal instruments to support transactions within and between the chains. I think we need to find taxation schemes to redirect the flow of funds and investment toward the chains. We have already discussed traditional finance, in which a donor or the bank facilitates or provides the money, but I think there are other schemes that should be encouraged in the search for flexibility, movement, and the use of tax rates to help the flow of funds toward the chains. Earlier I had mentioned the concept of derivatives to manage and reduce the risk of fluctuations in the exchange rate and risks and movements in interest rates. I recognize that this is an expensive instrument, but I also wish to emphasize that public policies should include risk management instruments to make those types of instruments more accessible to agri-food SMEs and primary producers. One of the things they are doing in Mexico is subsidizing some derivatives. I am not too keen on the idea of subsidies but I do like the idea that they are looking for this type of sophistication, and that is very important.

Another point that we have not discussed much, and which I would like you to comment on a little, is the creation of a legal framework to ensure fair governance of the chains. Earlier I mentioned the need for a win-win situation, but it must also be a fair situation and we have not properly analyzed the question of chain governance. Who sets the rules of the game? Who decides what? Up to what point is the "decision" fair in terms of the market and to what extent is it used to manipulate the power relations within the chain? It is important to consider what governance means.

G. Final remarks

In conclusion, I would like to repeat that the value chains approach is crucial for rural development and finance is an essential tool to achieve it. Why do I insist on this? Because it is the trigger; it is the tool that compels, that draws the small producer into the chains, that ensures security. Hopefully, it will be the tool that will ensure sustainability in the future, the instrument that will guarantee that farmers produce what people want to buy. The business environment is changing a lot. This means that stakeholders must find new forms of organization and those forms are the chains and the key within those chains is the concept of risk management. Finance models that strengthen the integrity of the chains by reducing risk and improving business activity, also encourage the financing of micro-enterprises.

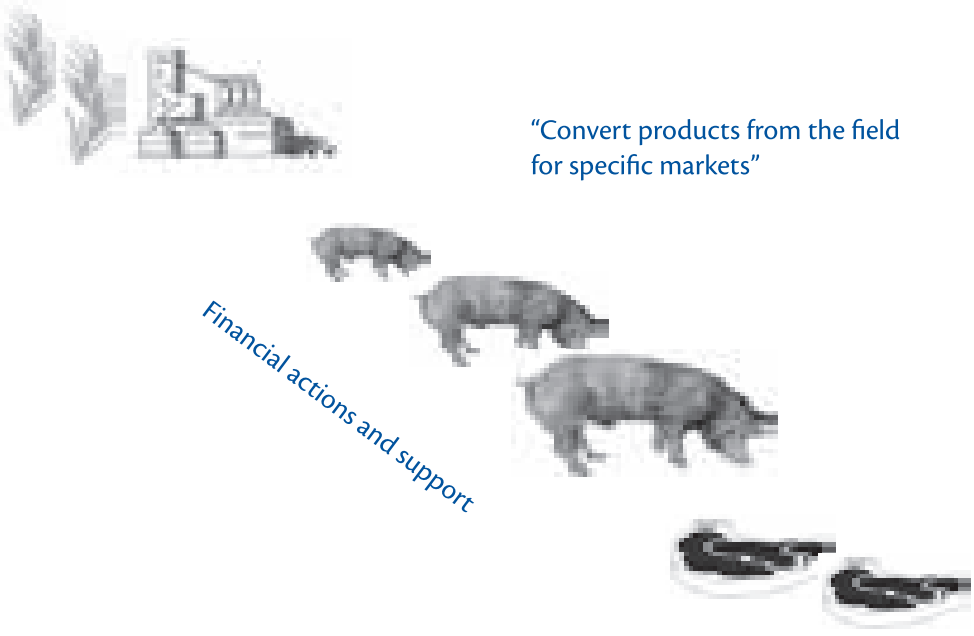
I have mentioned that public policies cannot lag behind; they must go hand in hand with changes in the market structure, in market conditions and in businesses. One thing I was thinking about this morning is that a value chain model makes the agricultural sector more bankable: it makes small producers and micro-enterprises more bankable. I had also mentioned the restrictions on funding for the agricultural sector. The crisis is over but, speaking in general terms, I do not think we will see a return to robust financing for the agricultural sector in the short term. Even if there is a certain return, a certain interest in financing the sector again, the concept of subsidies will be obsolete. So, which model will be used? How will we encourage it? How can we activate the agricultural sector? Finance is key and the problem is that, as a bank, I will probably finance a fairly large company, but I am

probably not going to finance the small farmer because I do not understand his business, I don't want to take the risk. How do we make small farmers bankable? How do we make micro-enterprises bankable? By incorporating them into a value chain, where they become creditworthy, bankable, a risk that is manageable, with marketing that is stable and, hopefully, a sector that is sustainable. I think that is what is crucial for value chains.

Can the use of new technology be financed? I would argue that financing a new technology *does* fit in with the concept of a value chain, provided that it is a known and tested technology –but not to develop a new technology. Why do I say this? Because I work in a bank and I am not going to take a risk with a new and unknown technology. I am going to let others take the risk of financing an untested technology. Developing technology can be part of the public sector's obligations. However, I too could finance company X, whose activities also include technology development; but as a bank intending to finance a chain, I do not want to assume the risk of a new, unknown and untested technology.

I would like to conclude with the same illustration that I ended with four years ago, which I loved, one given to me by a friend who is a pork producer (see Diagram 2.6). I would say that the success of agribusiness lies in articulated and coordinated strategies, based on a perspective of chains. Therefore, the banks' activities must be geared to the chain and we are much more willing to get involved when an agent operates within a chain than when he operates as an individual.

Diagram 2.6 **Conversion of products from the field for specific markets**



Source: Ken Shwedel. Seminar presentation..

3 Lessons learned in agricultural value chain finance

Calvin Miller, Anita Campion, Mark D. Wenner and Ajai Nair

This chapter examines the experiences and lessons learned in agricultural value chain finance in different parts of the world, through the participation of experts from international organizations, researchers and consultants who have been exposed to a variety of cases, successes and also failures. The authors describe different types of agricultural chains, several finance models, a range of products and tools related to these models, and offer a number of recommendations, lessons and key elements for expanding and financing value chains.

A. Financial products, operating models and innovations

Calvin Miller

This section will examine agricultural value chain (AVC) finance as an operating mechanism, the financial products associated with AVC, operating models, experiences and innovations in AVC, lessons and key messages.

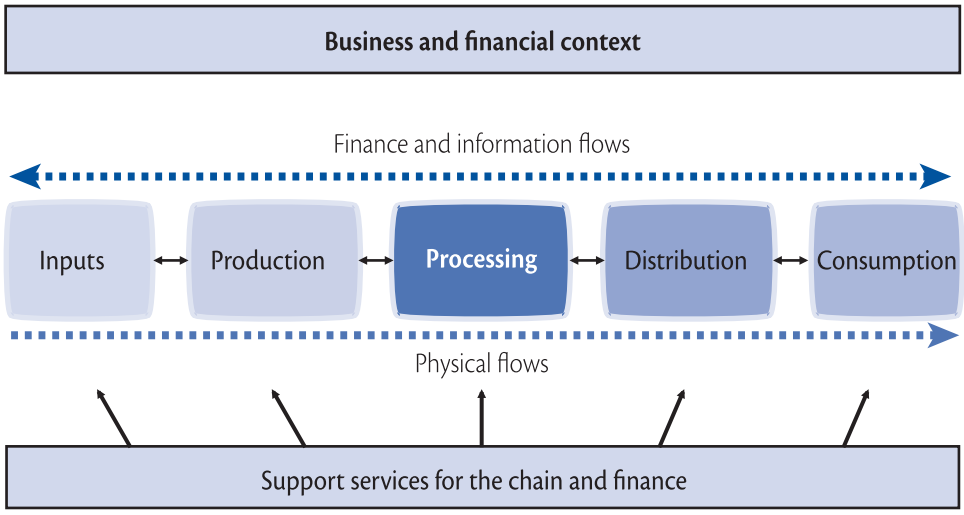
1. Agricultural chains as an operating instrument

What is a value chain? It is the collection of actors and activities that add value throughout the supply chain, linking all the different stages from planning to production to the end consumer. This refers to the chain in general. In relation to finance, the chain may be defined as the flow of credit and other financial services to the participants within the value chain as well as those provided by outside sources, which as a result form part of that chain.

It should be emphasized that what flows between the members of these value chains is not limited to credit; equally important are the other benefits obtained from simply being part of a chain. In the case of finance for small producers, for example, by being part of a chain they are more secure, have less risk and can obtain credit,

whereas outside of the chain, this would not be possible. As Ken Shwedel mentions in Chapter 2, this has to do with an interest in improving efficiency and reducing risk, both in terms of the physical flows and the financial flows (see Diagram 3.1).

Diagram 3.1 **Financial flows in agricultural value chains**



SOURCE: Calvin Miller. Seminar presentation.

Financial flows may enter the value chain at any stage, though most of the finance does so toward the end. For other products, these flows enter more at the processors' level or may also enter through input suppliers. Often these flows enter via financial triangulations, which can be more effective than trying to enter via all segments at once.

Furthermore, agricultural value chain finance adopts a **systemic approach**, resulting from an overview of all the actors and activities involved. Above all, it is a concept of how we see the chain, or the set of activities associated with the chain, and implies looking for ways to structure the finance accordingly, in order to minimize costs, maximize efficiency and minimize or reduce risk –which is most important. In other words, it is a concept based on information and analysis of risks, costs and benefits.

Value chain finance also uses a **structured approach**: finance is determined by the needs and structure of the chain plus the opportunities and capacities of its actors. It aims to integrate the delivery and payment of credit at the points of interaction within the AVC, with the different financial products being applied as and when appropriate. This can be done, for example, through the direct supply of inputs that are paid for within the system when the product is delivered. Triangulation schemes can be set up so that the buyer of a product pays the supplier who provided inputs on credit to the farmer.

2. Financial instruments

There are many financial products associated with agricultural value chains and each one has a number of instruments. In Table 3.1, the financial instruments are grouped into five categories: (a) those based on the commodity itself; (b) those based on accounts receivable; (c) finance based on fixed assets where the commodity itself serves as guarantee; (d) different products that help reduce risk; and (e) other products that improve the credit supply.

Table 3.1
AVC finance instruments, by financial product

Type of product	Financial instrument
a) Based on product	Trade credit
	Supplier (inputs)
	Broker / wholesaler
	Lead firm /contract farming
b) Based on accounts receivable	*Sale of receivables*
	Factoring
	Forfaiting
c) Based on physical assets	Credit warrant
	Repos agreements
	Financial leasing
d) Risk reduction	Insurance
	Futures contracts
	Futures and hedging
e) Improve the quality of the credit supply	Securitization
	Guarantees
	Joint ventures

Source: Calvin Miller. Seminar presentation.

This Table shows the different financial instruments of the AVC. Trader credit is among the most common, along with credit offered by input suppliers, brokers or wholesalers, lead firms and contract agriculture. All these models are based on the product itself, but others are based on accounts receivable, such as factoring and forfaiting, which are not well known, and are similar to a factoring system for longer term investments –those where the product itself can be sold, but using future returns as the guarantee.

There are additional financial instruments related to the physical asset itself, notably credit warrants, which go by several names around the world, such as inventory credit. This is perhaps one of the most widely known systems of value chain finance and is often considered one of the most important because it uses the product itself as guarantee via warehouse receipts. However, in many countries this system is not working. There are also other more informal warrant systems that operate more effectively. For credit warrants to work, it is essential to

have price differences that make it worthwhile warehousing the product –otherwise, it is bad business. Official warrant systems basically require two things: specific regulations, which many countries do not have, and also a credit administration system. Warrant and commodities management companies play a very important role if a commodity is to be used as a loan guarantee, or to extend the guarantee, and to obtain finance and ensure ease of sale. In other cases, when these facilities are not available, things can be done the same way provided that there is a group organization, not only of the first tier, but also the first and second tier to give the necessary solidity. For example, the warrant system using savings and credit cooperatives works very well.

Another tool to reduce risk is insurance –indexed insurance, farm insurance, livestock insurance, health insurance; all help to improve the credit supply. The same occurs with futures contracts, which are very important and useful in AVC finance systems.

Regarding the recommended strategy for financing agroindustry with product processing, this often falls within what is termed microfinance. There is another type of finance that targets that segment –it is not micro, it is not an area targeted by the government, and it is not served by traditional bank finance, but mainly depends on the situation. Here we can think of co-investments, especially by groups with previous experience in processing, and the other investment can be leveraged with bank finance. We can also think about factoring and other similar mechanisms where accounts can be used as security.

Another important point to mention is that when processing is involved, it would often need to be accompanied by training. But we must also consider the question of competitiveness, whether or not it will be competitive at the end of the day. That would be the first question, and also whether it is better to promote the development of value added in the producer and his group. In a larger company this mainly depends on the chain, on the capacity of the different stakeholders, on whether some organization is providing technical assistance and for how long. Because if we need to train groups of producers to process, that requires long term support and technical assistance –without that, it is very expensive to begin processing and is better to be with companies that have greater capacity for that.

3. AVC business models

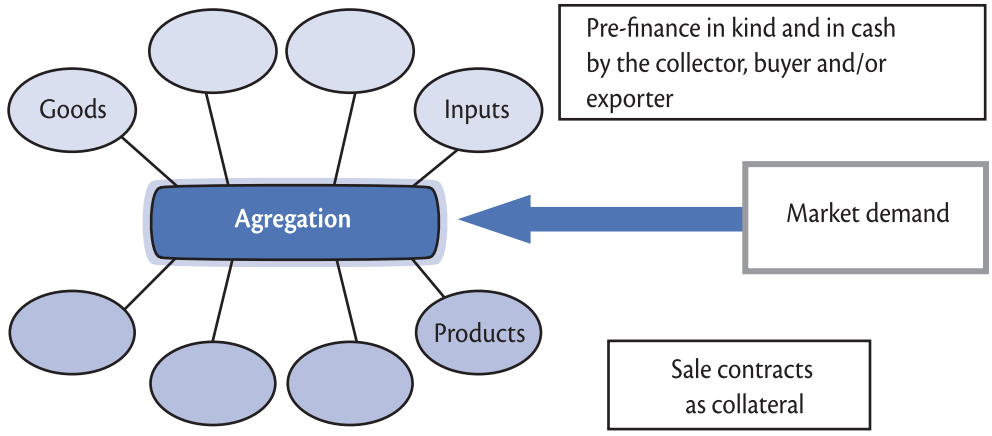
The business model is the means by which companies operate to create and capture value within the network of stakeholders in the value chain. It forms part of the business strategy and its design is determined by the leader or organizer of the chain and by the relationship between the actors. At least four models have been identified:

a) *Associative enterprises*. This is a bottom-up model, based on well organized cooperatives or producers' associations, for example the coffee chain, where the organization controls the chain right up to the export stage. The producers themselves are the leaders who organize and manage the company or association. An example of this is ASOPROF, a Bean Farmers' Association that has operated in Bolivia for 20 years, where the producers' organization manages the entire bean chain, from the supply of certified seed to exports.

b) *Lead firm, buyer*. This is basically what many companies are currently doing through value chains. A lead firm makes a contract or uses various formal or informal mechanisms to secure the purchase of a commodity with the specific conditions required; this would be at the beginning of the chain, but it also aims to secure the goods for final sale. The lead firm directly or indirectly finances other stakeholders in the chain. This model includes contract agriculture and some interesting examples are Hortifruti in Central America, VEGPRO in Kenya and the global poultry industry. There are also outgrower schemes, such as NorminVeggies in the Philippines and sugar firms throughout Latin America.

c) *Facilitation models*. This approach is used by most models that are trying to insert small farmers. It may involve a lead buyer, but mostly it is an organization that joins with another entity to facilitate training, counseling and, in some cases, even provides incentives to encourage the insertion of certain groups such as small farmers or women's groups in the chain. In other words, a non-governmental organization (NGO) provides support and technical assistance to help small-scale producers or processors to enter into a commercial relationship with larger firms of that sector. Examples of this model are TechnoServe in Tanzania, which provides assistance to processing firms to establish backward and forward linkages with farmers and markets. Another example is the "Poverty Reduction Program of the United States Agency for International Development, USAID, which provides assistance to farmers and processors in different countries, facilitating their access to export markets and to finance. A final example is Farm Concern in Kenya (see Diagram 3.2).

Diagram 3.2 **Facilitation model used by CARE, Kenya. Aggregation of demand for goods and inputs of small producers**



SOURCE: Calvin Miller. Seminar presentation.

This "commercial village" model offers organization, technical assistance and links to markets and to factoring. It combines, on the one hand, the aggregation of demand for the goods and inputs of small producers and, on the other, an aggregation of the production of small producers. It is a system that begins with the market and works in reverse.

d) *Integrated models*. This model involves a vertical integration of the entire chain, within a same firm or via strategic links with other companies associated with the chain. Many models of this type exist in Central

America, but also in Africa, particularly in the vegetable and flower sectors. Specific examples are LAFISE in Nicaragua, which operates throughout the value chain with a holding company and has strategic links with third parties, and BRAC in Bangladesh, which provides credit but ensures the integration of the chains that it finances, including the creation of necessary companies.

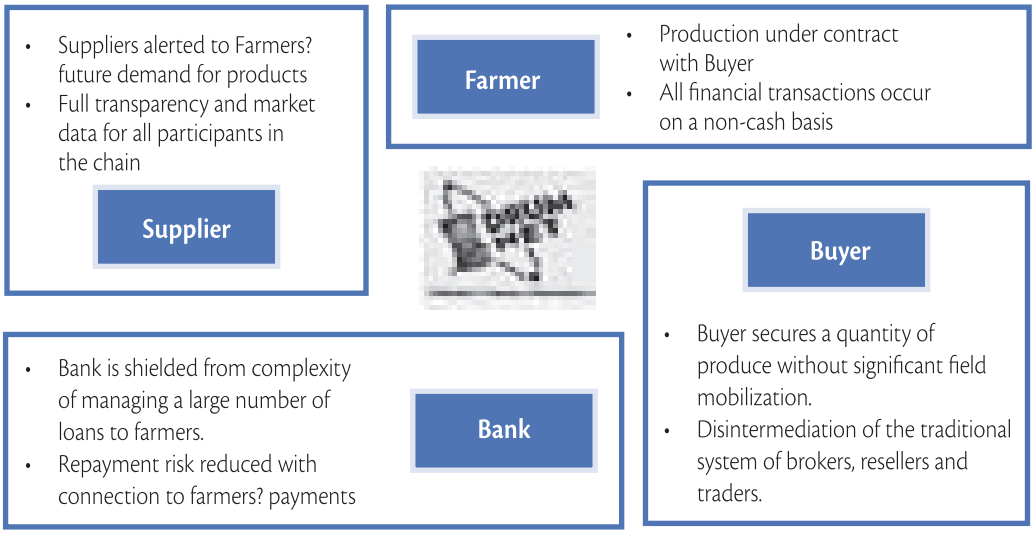
4. Experiences and innovations in AVC finance

Which model is best? The type of model to be selected depends on:

- The chain
- The capacity of the different stakeholders in the chain
- The interests of the stakeholders
- The socio-economic and political context

A number of innovative experiences use models adapted to the abovementioned points. A first example is DrumNet in Kenya (see Diagram 3.3), a large project with four areas or companies operating together: (i) a buyer firm, which makes the contract; (ii) groups of producers trained in farmers' schools and in cooperatives; (iii) an inputs retailer; (iii) and an organization that provides finance. DrumNet serves as an information management center and every step of the process is controlled with a messaging system using mobile phones and SMS. Electronic money transfers are used to speed up access to credit, and the program facilitates training and market access for small farmers who face major problems of access, both to services and in geographic terms. In general, the DrumNet model creates efficiencies, helps farmers to penetrate markets and improves their access to services.

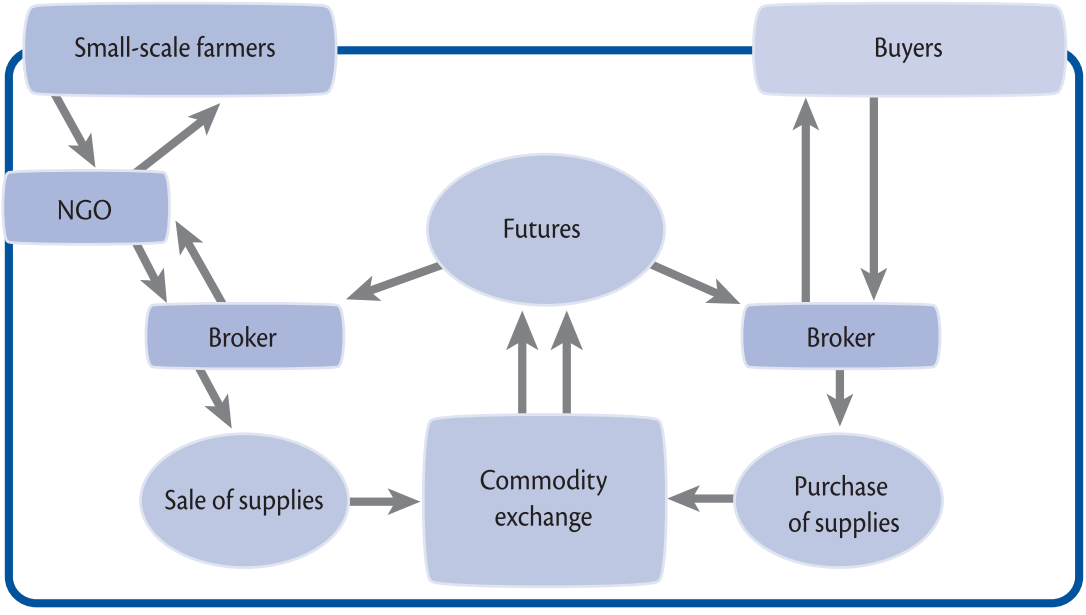
Diagram 3.3 **DrumNet. Contract agriculture with technical assistance and technology**



SOURCE: Calvin Miller. Seminar presentation.

In India, BASIX applies a price risk mitigation model, shown in Diagram 3.4. This organization offers training, finance and market access and has close links with many chains and agricultural commodity exchanges. Small farmers, many of them with properties of only half or one hectare, can make future sales through service kiosks. These are integrated sales in which farmers use purchase contracts to obtain credit.

Diagram 3.4 **BASIX. Price risk mitigation**



Source: Calvin Miller. Seminar presentation.

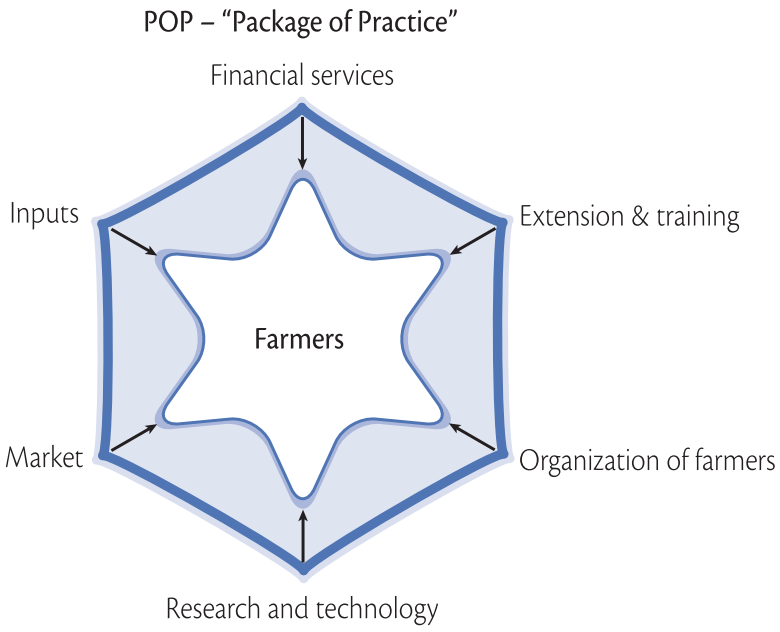
Another interesting scheme is the Yes Bank in India, with its agri-centers for small farmers. It has the largest agricultural portfolio in all of India, with the exception of the National Bank for Agriculture and, furthermore, is the best bank in India, according to one assessment. How do they do it? By using a distinctly chain-based approach in which small farmers apply a commercial agro-industrial model. The idea is to find ways of grouping small producers into organizations, using the most efficient system, according to the economic activity involved. In the case of the dairy industry, for example, small farming families usually have no more than one or two cows and it is not at all efficient to work with them directly or to guarantee the quality of their product. Therefore, these farmers form groups and become stockholders within an organization that will receive finance, and through it they will also receive technical assistance to help guarantee the necessary quality. A lot of work is also being done using other models, both with small and large-scale producers.

A different example is the e-Choupal initiative in India, an electronic platform that offers farmers information, supplies and services to boost their productivity. Farmers can also make futures sales and use the contract as a loan guarantee, with automatic repayments.

Another interesting case of positive linkages between value chains and agricultural commodity exchanges in India is the National Commodity and Derivates Exchange Limited (NCDEX), which helps reduce the risk for all small stakeholders in the chains.

Finally, the POP model, or "package of practice", is a set of financial services for small-scale farmers that includes insurance, technical assistance, technology and marketing (see Diagram 3.5). This model includes everything: it is a package of services. There are other examples of this model along similar lines, with electronic platforms linked to agricultural commodity exchanges, where everything is done electronically.

Diagram 3.5 **POP Model for small farmers**



SOURCE: Calvin Miller. Seminar presentation.

5. Lessons and recommendations

One of the most important lessons is that innovation plays a vital role in promoting integration and efficiency in agricultural value chains. Moreover, by using a facilitation model with support and training, an AVC can incorporate small agricultural entrepreneurs. However, agricultural value chains cannot provide all the financial services required by farmers and other actors in the chain.

A second lesson is related to the global financial and economic crisis, which has changed some fundamentals in the banking sector and in financial and macroeconomic management and supervision, with implications for the agricultural value chains. The crisis reduced liquidity and the credit supply, increased fears of risk and demands for guarantees, showed the effects of globalization with the rapid decline in trade and investment worldwide and

led to increased government intervention in the banking sector. The recovery has been faster in the agricultural sector and underscores the fact that value chain finance could be promoted more rapidly all over the world.

With respect to agricultural value chains as an operating mechanism, finance based on agricultural value chains promotes increased integration and partnerships between chains, identifies the weak links in order to be able to articulate the credit and non-credit services required, serves to warn of market changes and helps to extend finance to the poor population.

Another important lesson is that agricultural value chains strengthen risk analysis. The knowledge obtained via the chain reinforces the analysis of the client, the future of his company and of the sector. It also reinforces, but does not replace, the usual bankers' analysis. The stakeholders and their interconnections provide information on capacity and competitiveness, on relations between the members of a chain and on the health and future of the chain itself.

As far as possible, risks and costs should be reduced through automatic debit payments. Similarly, we must recognize that agricultural value chain finance is a partial solution to agricultural finance, and that finance is only a partial solution to the sound operation of the AVC.

To **summarize**, the keys to success related to agricultural value chains are:

- Continuous market-based information on the chains is important for all those involved.
- Partnerships based on mutual interests with interrelated systems reduce risk.
- Reduced transaction costs.
- Finance within or toward the chain is an essential element to strengthen the AVC.
- Structuring of financial products appropriate to the chain and its stakeholders is fundamental.

At the same time, chain based finance:

- Requires us to see and **understand the business** as a whole
- Adapts to the **market situation**
- Improves understanding of **risk** and its **cost**

Understanding the chain concept and **structuring finance** in a way that strengthens the chains and their stakeholders is crucial for **risk management**; it is a **strategy** for managing risk and costs. Finance directed at the chain is more developed at the **level** of **agroindustry** and of **medium-sized businesses** but can effectively reach small entrepreneurs.

It is also important to consider some points in relation to rural development policies.

- Rural development policies should insert farmers in value chains, when they can be competitive
- The institutional environment and policies should be conducive to business
- Policies should contemplate the following actions:
  - Contract agriculture
  - Price risk management or coverage (hedging) programs
  - Food quality/safety standards and inspection processes
  - Support to reinforce the weak links
  - Promote innovations in specialized financial services for the agricultural sector
  - Structure international trade policy around the concept of value chains.

Finally, it is useful to consider actions to improve the governance and regulation of agricultural value chains, such as facilitating the business environment and acceptable use policies, developing appropriate regulations for AVC and investing in information and communication technologies, commodity exchanges and customs. It is also essential to support technical-administrative training, allow trade to operate without political obstructions and recognize agricultural value chains as a mechanism for reaching out to small-scale producers with viable costs.

With respect to payments for technical assistance, these should be shared and based on the type of technical assistance provided. For example, technical assistance in research provided by governmental-type research centers and others is generally paid for with government subsidies, either partly or completely. In India, for instance, many agricultural centers offer services paid for in part by the government and partly by farmers. In many cases technical assistance is paid for directly but is often inserted within services for the sale of inputs and purchase of end products. However, the more direct and closer the technical assistance is, the more the farmer and industry should be involved because it is the only way to make it more effective. And this can be done through a system of vouchers.

B. Eight lessons of agricultural value chain finance in Honduras and Nicaragua

Anita Campion

This section is based on a study of two countries, Honduras and Nicaragua, and what was learned there related to agricultural value chain finance. Honduras and Nicaragua are fairly small countries, which was a bit of a limitation to get the level of information the researchers would have liked. But they were very relevant in that about 30 per cent of their gross domestic product (GDP) comes from agriculture and more than half the population lives in rural areas. The study was mostly conducted before the fall of cattle prices which had an impact on portfolio quality after that.

The study started out with four value chains, and was later drilled down to two of the most interesting examples in terms of financial linkages. The researchers mostly looked at plantain and dairy in Nicaragua and plantain and horticulture in Honduras, in particular sweet peppers and tomatoes. These are value chains that had opportunities for expansion, especially those that could be expanded to include more small farmers and play a role in reducing poverty, and that would have some economic importance for the country under consideration.

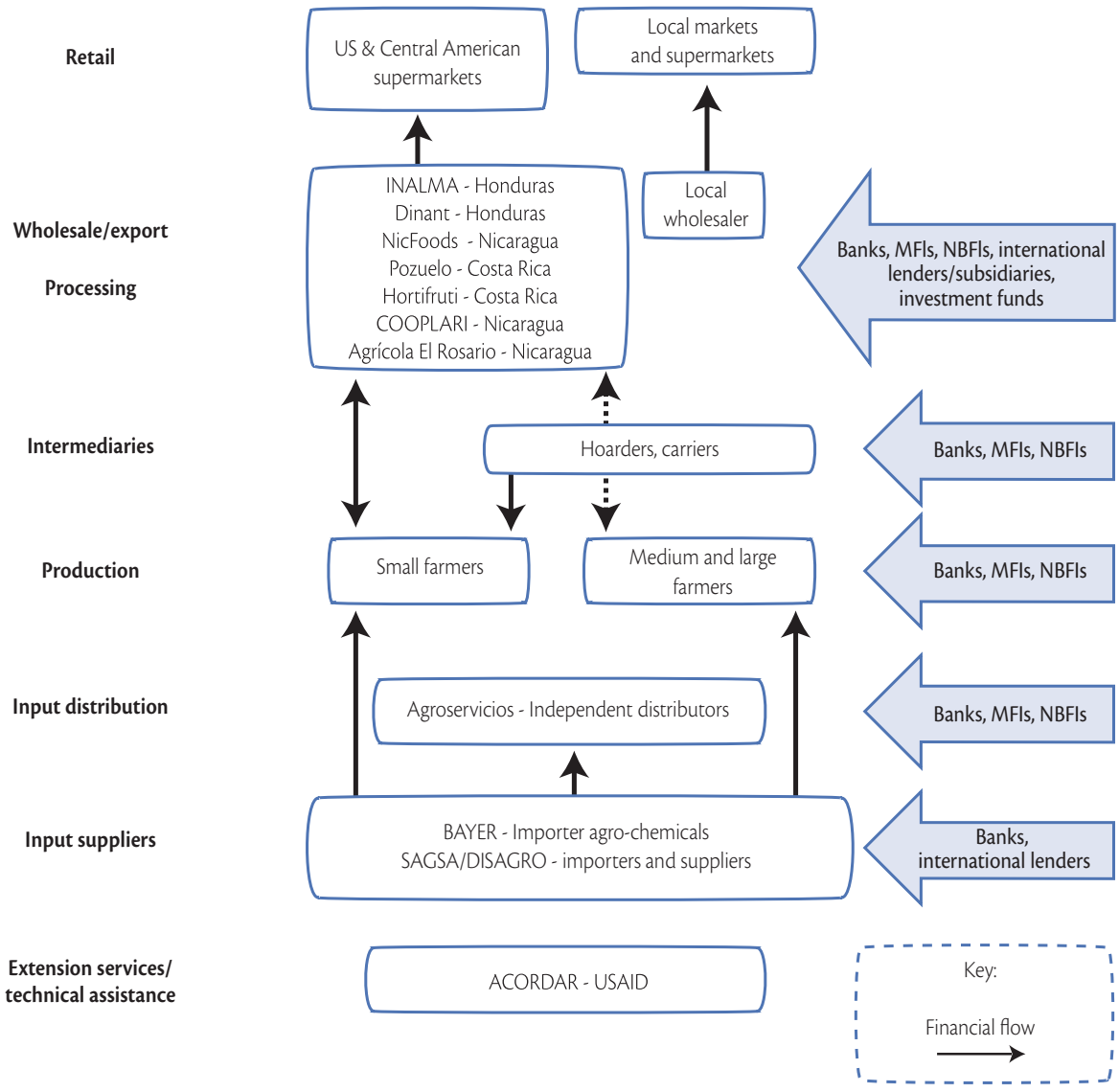
The purpose was to figure out how these models worked and their ways to intervene, to expand access to credit for these value chains and also to improve the terms of the credit available through these value chains. There are eight core lessons –key findings– that resulted from the study.

1. Agricultural value chain consolidation

The first big lesson is that we must recognize that agricultural value chain consolidation can actually happen on its own; it does not necessarily need a lot of assistance. But, the second part of the finding is that technical assistance and donor funded assistance can help to make that consolidation happen even faster, to improve integration, when more roles within the value chain are taken on and also consolidation in bringing in more actors. The plantain and dairy value chains are good examples of that consolidation happening organically, to a certain extent, especially dairy in Nicaragua, which started about ten years ago, and was partially driven by the demand for dairy from El Salvador.

Diagrams 3.6 and 3.7 show two plantain value chains, in Nicaragua and Honduras, and what we see is a fair amount of production credit happening, again, largely because of the high demand for quality plantain.

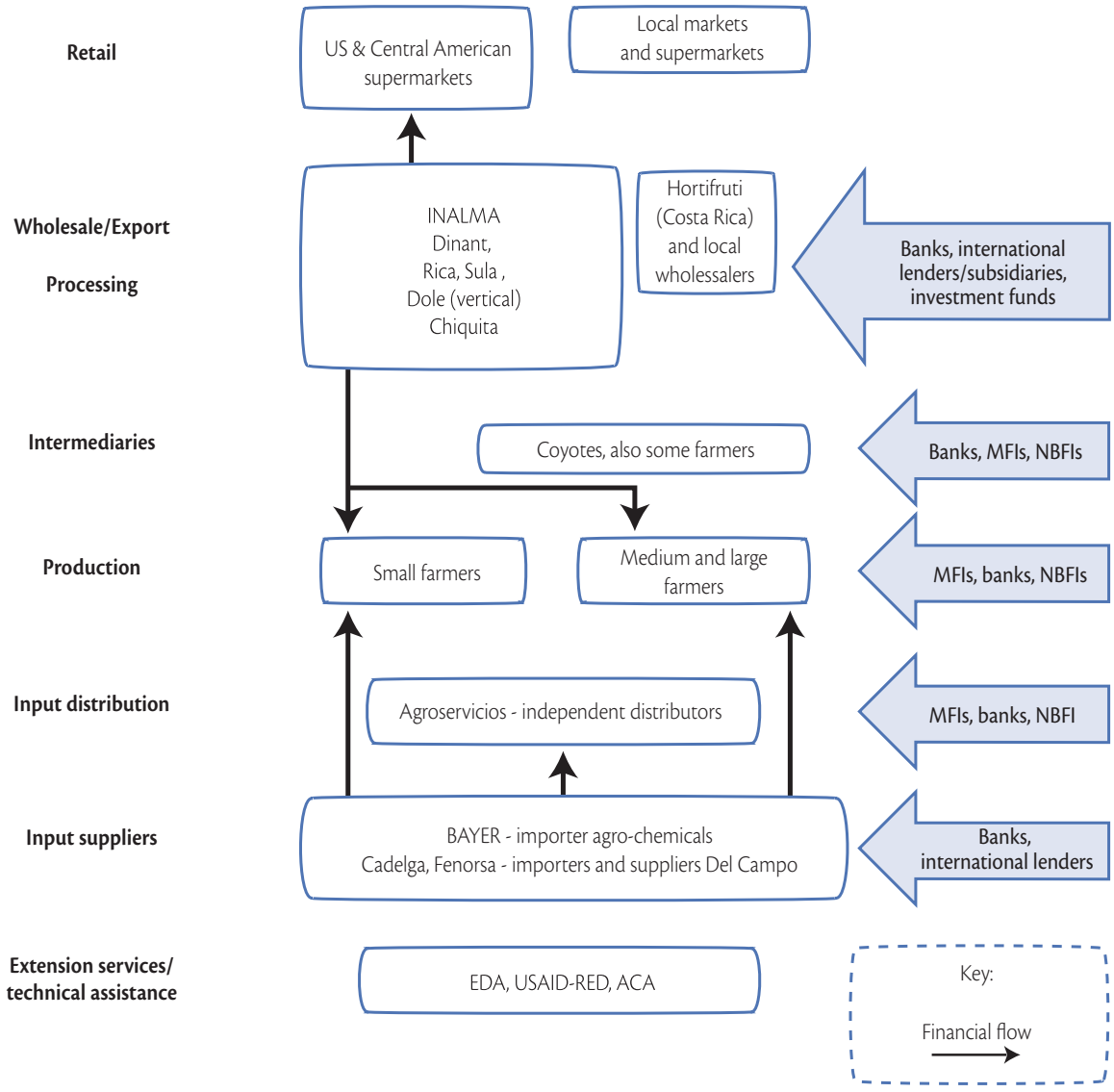
Diagram 3.6 **Plantain value chain in Nicaragua**



SOURCE: Anita Campion. Seminar presentation.

The other area where some financing was taking place was the input supply level, of about 30 to 180 days, so it was short term financing. By contrast, in Honduras there is also short term finance from the input suppliers but it was even shorter, around 30 to 60 days. It was also observed, even more in Honduras, how the role of technical assistance made a big difference in improving access to finance, especially to the small producers.

Diagram 3.7 **Plantain value chain in Honduras**



SOURCE: Anita Campion. Seminar presentation.

One of the things that was also interesting was that none of these lead firms or these processors/wholesalers really wanted to admit that they were operating direct value change finance because they really didn't want the word to get out, it wasn't something they did on a broad scale, but it was something that they often found they had to do in order to facilitate their own needs to expand the value chain as a whole.

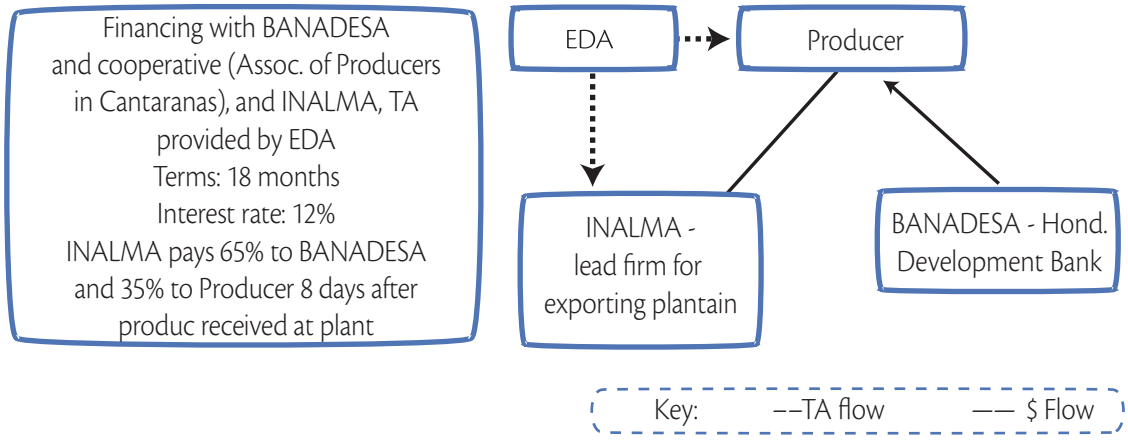
The other thing that was interesting is that, for example, Dole and Chiquita are listed in Diagram 3.7 as processors. The reality is that they are 100 per cent vertically integrated, meaning that they play pretty much all the roles from production to processing, whole selling and exporting. This is something that should be kept in mind when working on agricultural value chain finance. As more of those large firms move towards vertical integration, what is the opportunity for the small farmer?

2. Technical assistance

Coordinated technical assistance (TA) can really make a difference, especially by improving the information transparency and the linkages of other actors within the value chain. That would help to speed the consolidation process, make the value chain stronger, enable it to grow faster and access finance on a larger scale.

An example is EDA, a technical assistance project that receives donor funding, and was able to bring in BANADESA, the Honduran development bank, to offer direct financing to plantain producers in association with INALMA, the processor (see Diagram 3.8). It is a win-win situation, in which the benefit to the bank is that it has greater security in lending, because they knew the producers were receiving technical assistance on how to improve production, reduce costs, improve crop management, irrigation, understanding markets, among other topics. The EDA project also provided technical assistance to INALMA to be able to improve their production processes and make sure that they were meeting quality standards. So with that package, the bank was convinced that it would be a lower risk and they also set it up so that 65 per cent of total income would go directly to BANADESA through INALMA and the remaining 35 per cent would go to the producers so they basically insured repayment that way.

Diagram 3.8 **Technical assistance in a plantain value chain in Honduras**



Source: Anita Campion. Seminar presentation.

The benefits to INALMA, of course, were that they had a secure source of plantain that met their quality standards. The benefits to the producers were that they had a guaranteed market where they could sell their product and could also access credit at affordable terms, which they could use to upgrade their plantations. The loan term was of about 18 months, with an annual interest rate of 12 per cent, which was pretty reasonable compared to what was available in the market.

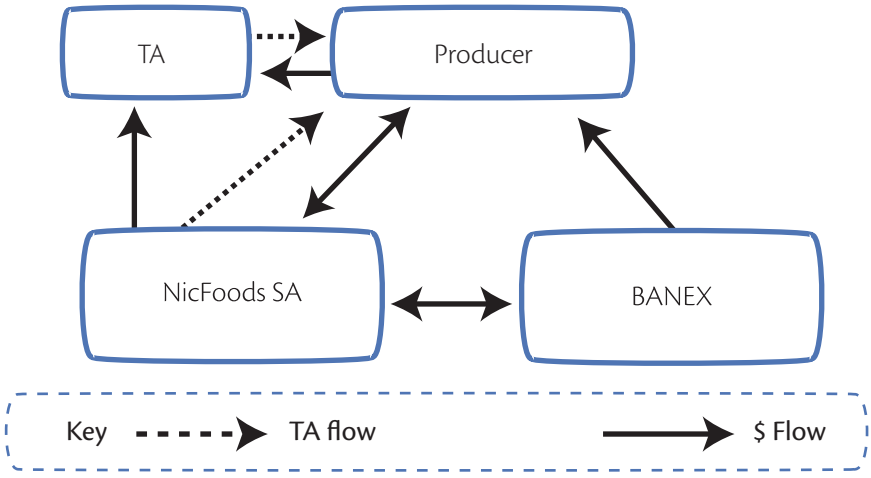
The EDA project also provides different types of market information to help make the case for value chain financing and their technical assistance. Examples are plantain prices, and when producers have access to this information, they can make better decisions about where to sell and the quality required because three out of five buyers only purchase the highest quality product, and then they leave the rest, whereas the other two will purchase the entire amount. Another example is data on the horticulture market, which shows that it has been growing. Swisscontact used this to demonstrate that horticulture is, in fact, on a growth curve, so that it is a dynamic growth sector and that there is need to engage in supporting its financing. And finally, another piece of information concerns the total number of hectares cultivated and the number of producers supported by EDA. This reveals that they have been working with a fairly small number of producers, with the average number of hectares cultivated ranging between 0.5 and 0.9, so far with successful results, but there is significant potential for expansion.

Finally, regarding payment for technical assistance, work is being done on an experimental case, a pilot plan, which is still in the trial stage. It does not seem to be a problem for the government or a donor to pay for technical assistance but once there is clear proof that it works, it would be better if the private sector paid for the service. Ultimately, the consumer is the one who should pay, but this is a bit difficult. If possible, the finance should cover part of the cost of technical assistance from the outset; this would be better to convey the idea that there is a cost involved and that, ultimately, the value chain itself must assume that responsibility. But normally, if you are working on something new, there may be research, study and development costs, which are accepted as part of countries' development work and which governments can pay for. It is a public good that can benefit many.

3. Risk reduction and access to finance

The third point is that well consolidated or well integrated agricultural value chains can: (i) Reduce risks and transaction costs related to financing; and (ii) Results in increased access to finance for actors at all levels of the value chain. One example is NicFoods in Nicaragua, with plantain, which was involved in a project where they integrated the cost of technical assistance into the model, so it is one of the more sustainable models found (see Diagram 3.9). Often the technical assistance is not factored in, and so when the donor funding ends, it disappears, but in this case, it was rolled into the financing and 50 per cent of it was paid for by NicFoods and 50 per cent by the producers.

Diagram 3.9 **An integrated value chain in Nicaragua**



Source: Anita Campion. Seminar presentation.

It also demonstrates that by creating these triangulation schemes –this interaction between the producer, the purchaser and the bank, in this case BANEX– they were able to improve the terms of the financing as well: they set up the financing at a 16 per cent interest rate, whereas 24 per cent was around the median in Nicaragua for agricultural financing. So again, technical assistance here played a very important role. NicFoods actually acted as the guarantor; they guaranteed up to US $600.000 for the fifty farmers they initially started working with to provide loans through BANEX, and then BANEX basically used the crop as a guarantee in addition to the co-signature of NicFoods. And then, they didn't require any collateral or guarantee from the producers which is highly unusual in these two countries. The other important observation is that they split the cost of the technical assistance, and also insured the payment to BANEX through the processor as well.

4. The role of banks

The next lesson was that banks, in general, are very conservative, and they generally have better options to finance, other than agricultural financing, so they are really not interested in agriculture and, if they are doing any direct producer financing, it is mostly to the really large producers.

The banks give a number of reasons of course. One of the issues raised is that the government is still intervening, offering subsidized interest rates. Indeed, the project detected interest rates of seven to eight per cent in agriculture, coming from the government and that are substantially below market. Also bankers mentioned the past government debt forgiveness program and how those can prevent people from feeling that they should have to repay. Another big factor, particularly for women, is the lack of a land title; other forms of collateral are generally not accepted, and there is no movable collateral registry, for example. Another reason for not lending

to very small agricultural producers is the exposure to acts of God. And even technical assistance, which was found could play a role, is not happening on a very broad basis, and when considering dynamic growth sectors, farmers often did not have the experience that the banks need to feel confident that they know what they're doing.

In the end, all these reasons affect the banks' guarantee requirements. Data collected showed the range of guarantees varies from a ratio of 1 to 1 up to 1.5 or even two times the loan value, as was required in Honduras. There were a few exceptions, like Bancovelo, which did not require a guarantee for small producers if they had a contract with a lead firm. Hortifruti, for example (a Wal-Mart procurement unit), was considered a viable firm. If a producer had a contract with Hortifruti for supplying tomatoes, then it would not need the same level of guarantee.

5. Microfinance institutions

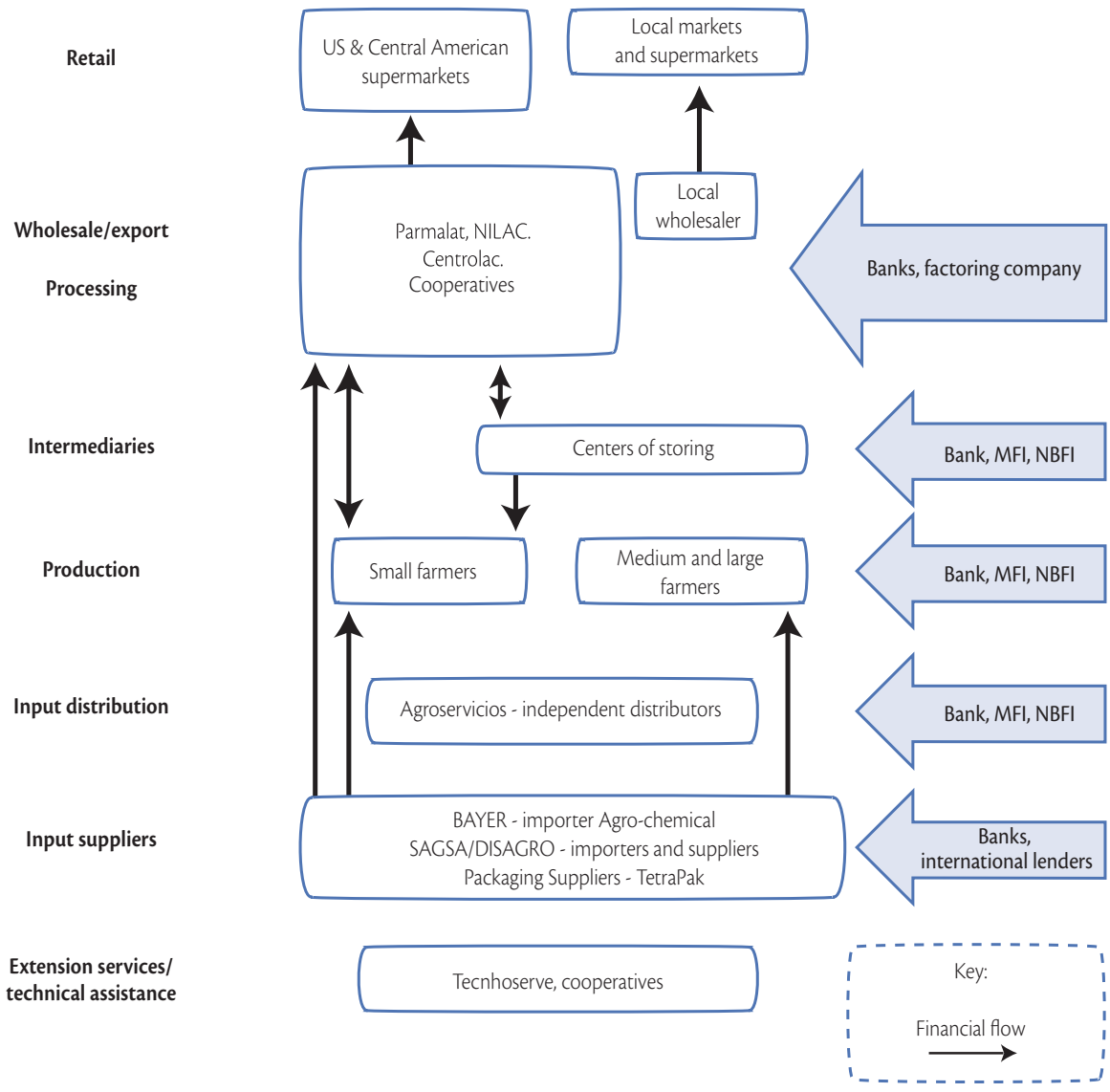
The fifth lesson relates to microfinance institutions (MFIs) which are more socially driven, and could thus be good providers of agricultural finance to small producers. However, the reality is that their model is not very different from traditional microfinance, which tends to be very small, short term loans and frequent repayments, whereas the agricultural producers mostly need longer term loans, with a possible big grace period and not those frequent payments. In other words, traditional credit products of MFIs are not well adapted to agriculture.

The other result observed is that the pricing is often not established according to risk profile, but based on the MFI's sources of finance. One MFI in Honduras, for example, indicated that all its loan obligations had to be paid monthly, so they could not offer anything that did not require a monthly type of repayment as a minimum.

6. Financing from lead firms

The sixth lesson is something already discussed: the lead firms that were offering finance to other value chain actors often did it against their will. They do not see it as their core business; they really prefer the financial institutions to be offering those services, but they do it as needed, and they try not to advertise it. One of the interesting cases was the Parmalat dairy firm in Nicaragua (see Diagram 3.10), which actually lends out milk. They lend refrigeration tanks at zero per cent interest for up to six months, with weekly deductions coming out of the milk that is collected. They found that by doing that, it only added 1 per cent to the cost of the milk that they have to pay for. And the reason why they did it, of course, was because they had to make sure they had a good source of supply that met the quality standards. And the price that dairy producers receive for their milk, which comes with the refrigeration equipment, was substantially higher than they would otherwise be paid.

Diagram 3.10 **Dairy value chain in Nicaragua**



SOURCE: Anita Campion. Seminar presentation.

Another dairy firm, Centrolac, does not offer financing for the refrigeration tanks, but they actually would give advance payments to some of their producers, and they would charge only 10 per cent interest rate, which is much lower than the norm.

The point to recognize with dairy, of course, is that is not like agricultural crops, because there are a lot cooperatives involved which are facilitating the organization of the value chain, and they can do the weekly payments because they don't have to wait for a certain period for the harvest.

7. Linkages between financial institutions and lead firms

The seventh lesson is that once financing is available within the value chains and they can show that they are able to reduce risks and costs associated with agricultural financing, especially producer finance, other formal financial institutions would then become interested, but mainly through some type of arrangement with the lead firm. Formal contracts were not used very often, but at least there were some written agreements clearly specifying the terms. Contracts did not seem easy to enforce. And in cases where one existed, there was usually a lead firm like Hortifruti or the Colonia working with a technical assistance provider that would then supply technical assistance to a farmer, and that arrangement would entice the bank or microfinance institution to become involved.

8. Enabling environment

The final lesson that must be kept in mind is that the lack of a sound business enabling environment inhibits agricultural value chains and their development, just as it inhibits business in general. But it is also a big factor in impeding access to agricultural finance. As indicated previously, contracts can be difficult to enforce, and governments and financial institutions in these countries were attributing a higher risk level to agricultural finance than seemed to merit at the time, because they had higher reserve requirements than for commercial lending, even though the commercial lenders were actually experiencing more portfolio quality problems.

There is a lack of sustainable market information systems. The more work is done with agricultural value chain finance, the more obvious the importance of access to market information. Finally, other key issues are debt forgiveness and other forms of inappropriate intervention on part of the government, as well as the lack of transparency on the over-indebtedness of the final client, which again leads to request more comprehensive information to determine just how in debt these borrowers are.

So basically, in conclusion, donors and governments can help to jump start agricultural value chain consolidation and improve access to finance by removing some of these barriers and by providing or helping to provide, some of the information and the technical assistance that is needed, that can make the difference.

The other point that must be carefully made is to have clear exit strategies, considered upfront to transition off subsidized technical assistance. The more you have some producers and processors paying for the technical assistance upfront, the easier the transition will be.

And finally, there is no need to over-focus. Donors should not over-focus on small holders, because, while their intentions are good -wanting to serve the poorest-, what has been observed with value chain finance and value chain development, is that these value chains need to be developed as a whole. This often requires working with the larger firms as well, in order for the small firms to fully benefit.

C. Key elements in the expansion and financing of value chains

Mark D. Wenner

In this section we examine four topics: (i) types of finance, (ii) key factors in expanding finance using the value chain model –and the main message here is that finance is really not so crucial. The problem is the lack of technical assistance and finance is a by-product; it is a function of the degree of consolidation and efficiency in the chain. If a chain is well consolidated and very efficient, finance comes as a by-product. The battlefield is not so much finance, but rather guaranteeing good quality in the chain. (iii) the third point is the challenge of sustainability. One of the things we are seeing in the field is that there are many efforts in this regard; but the main weakness is that technical assistance is not sustainable. In Honduras, for example, there are organizations like FINTRAC, which has an incredible level of professionalism and provides very high quality services but when their projects –funded by the United States Government– end, it is difficult for local governments to continue with this level of service. So, we must think about how we can finance this service, and also about different ways of doing this. (iv) the final point is about tentative answers, because much of the focus to date has been on the problems of how to promote value chains; but now we should try to explore some possible solutions to the challenges facing their operation. Part of this analysis is based on a study carried out in Honduras and Nicaragua.

1. Types of finance

There are two types of value chain finance, two categories: direct finance, in which a financial intermediary offers credit based on a pre-existing relationship between the two parties. For example, between a farmer and the buyer of his crop or the buyer and seller of an input; this system is very common in some parts of the world but in the study carried out in Nicaragua and in Honduras, it was not so common. In both these countries you see the direct system, where a lead firm in the chain finances the other stakeholders and, through that leader, the chain tries to obtain finance of a formal nature.

The financial instruments fall into four general categories, as shown in Table 3.2. We will not go into detail, as Calvin Miller has touched on this point at the beginning of this chapter. But the main message is that there are different ways to achieve the same goal. In the last column of the Table, showing structured products, we can include other options such as derivatives and trusts but the idea is that a very broad array of instruments can be used. In fact, the main constraints are the institutional context and the ability of the actors involved to work together.

Table 3.2
Financial instruments by category

Commodity	Receivables	Physical collateral	Structured
• Trader finance	• Accounts receivable	• Warrants	• Loan guarantee funds
• Input suppliers	• Factoring	• Repos	• Securitization
• Marketing companies	• Forfaiting	• Leasing	• Equity investmentsl
• Lead firm finance			• Capital risk funds
			• Joint ventures

Source: Mark Wenner. Seminar presentation.

2. Key factors

The second point concerns the key factors in expanding value chain finance. We begin from the assumption that the ideal is to try to extend the scope of the finance, both in terms of the number of stakeholders in the chain, and in terms of the volume of transactions, the volume of products and the volume of sales in the chain, in order to improve growth rates, incomes and poverty reduction. There are five fundamental points:

a) *Demand-based*: For value chain finance to work, it must be based on commercial interests and on a real and effective market demand.

b) *Natural conditions for production*. At the very least, you need natural conditions that favor production; you cannot force the chain, which governments may be tempted to do. For example, certain regions of Nicaragua are very well suited to the dairy industry, because they are very near the capital where the main consumer markets and input markets are located. There is also a good road that facilitates the transportation of milk from the production areas to the capital. Another example is the Los Lagos region in southern Chile, an area extremely suitable for the production of aquaculture salmon.

c) *Appropriate infrastructure*. We cannot try to force things in unsuitable areas where there is no appropriate infrastructure. In the case of Nicaragua, at least the road that connects the production zones with the capital allows the transportation of milk, which is an extremely perishable product. In the case of Chile, the aquaculture industry began with eggs but Chile also has first class universities and research centers, so in the 1970s, the Chileans developed the industry and did great things.

d) *Coherent policy framework and support institutions*. The most problematic areas, the ones on which governments and donors must focus their efforts, are the absence of a coherent public policy framework and support institutions. Most countries lack agricultural policies that make sense and we know that the institutions that support the agricultural sector have been severely weakened in the last 20 or 25 years. It is essential to have a strong public sector to support these chains.

e) Collective *action*. A fifth factor, which is the main message of this section, is that we need collective action to add value, improve efficiency and consolidate the chain. If we want to expand the scope of the chain to include small and medium-scale producers, it is important to organize groups in order to reduce transaction costs and guarantee volume.

   If farmers are to be organized, then someone must assume and pay for this task. The study carried out in Honduras and Nicaragua showed that lead firms are reluctant to do this –it is not their priority or they do it because they are forced to. In the case of Hortifruti, for example, they prefer to work with medium-sized producers with a pick-up truck and a cell phone. They do not like to work with small farmers who do not have a cell phone or their own vehicle. Therefore, to organize small farmers someone must assume the cost of grouping them together to achieve the necessary volume and quality and to transmit the information they need.

f) *Financial innovation*. More financial innovation is required, especially in the area of risk mitigation, along with a better vision in the commercial banks. After four years, they have not changed their mindset; financiers still see transactions one by one. By contrast, the chain is a new vision: a modern vision in which many units must be seen as links and it is necessary to know the entire chain and think in terms of dealing with different segments of the chain, maybe treating them differently, but always with a common vision. After four years, there is still a lack of vision in the financial institutions, which is a shame, because the study carried out in Honduras and Nicaragua showed that chains have improved life for the financial institutions by reducing risks, grouping farmers together, guaranteeing markets –and despite this, these institutions still do not want to reduce their interest rates. This description is a sign that further progress is needed and this is a major challenge.

Value chains have existed for thousands of years and can develop under a spontaneous, organic and slow model, as in the case of the dairy chain in Nicaragua, which in the 1970s began to supply Salvadorians who wanted to buy cheap raw material to make cheese and sell it in El Salvador. Another example is Hortifruti, set up in Costa Rica during the 1970s to supply a group of supermarkets in the country. There is also Grupo LAFISE in Nicaragua, which is an integrated model with a bank, an insurance company and an agricultural marketing company, but with the problem of an unstable political situation.

But there could also be an accelerated development of the chain, driven by the public sector, donors and transnational firms, as occurred, for example, with the plantain chain in Honduras promoted by the Millennium Challenge Account; the salmon chain in Chile, supported by Union Carbide in partnership with the Government; the apple chain in the state of Santa Catarina in Brazil, which received government support; and various commodity chains in Kenya, through an intermediary –DrumNet– and the intervention of IFAD, FAO, the Gates Foundation and the NGO Pride Africa. From a public interest point of view, donors should focus on how to accelerate these processes.

3. Challenges

There are a number of challenges, particularly in the five areas listed below:

- *Technical assistance.* How do we finance and sustain the necessary technical assistance to form groups of farmers, train them, provide extension and research services, adapt computer technology, transfer market information and coordinate collective action?
- *Public policies.* How do we design and implement coherent and effective public policies?
- *Financial sector*. How do we convince financial institutions that the agricultural value chain finance model is viable and good business?
- *Legal systems.* How do we improve legal systems and dispute settlement mechanisms?

We should also add the need to modernize property registers in order to promote moveable collateral legal reform.

4. Tentative answers

Below we offer some tentative answers and proposals for interventions in two large areas: ensuring the sustainability of technical assistance and promoting financial innovation.

a) *Sustainability of technical assistance*. It is generally agreed that technical assistance encompasses three principal aspects or standards: (i) transfer of market information; farmers must understand their customers and must comply with the specifications of the end consumers so that they will want to buy the product. (ii) transfer of technical knowledge on how to comply with product specifications and (iii) quality assurance. In practice, technical assistance may include many other aspects such as research on new crops and new production techniques, organizing groups to implement financial literacy programs and even improving governance, i.e. how to organize meetings or prepare reports. If, as in many cases, the aim is to establish more than one cooperative or a group of medium-sized, business-oriented farmers with a good level of education and their own means of transport, it is necessary to invest heavily in organizing groups of small farmers.

   A second question is who should provide these services? There are different actors. Linkages are needed, for example, with research centers, extension workers of the Ministries of Agriculture, NGOs, farmers' groups, producers' associations and cooperatives. The starting point is to determine who will pay the bill, who should finance this set of services. And, once again, there is no set recipe. Initially, the ideal arrangement would involve coordination among the beneficiaries themselves, or among the stakeholders within the chain, who would charge each other commissions, or else in combination with government transfers, as part of the day to day government administration and extension services of the Ministries of Agriculture. In that regard, what we are probably seeing in practice in many African countries, for example is that the Ministries of Agriculture do not exist. So it is necessary to create a parallel structure in these countries and you end up

with a combination of cooperatives and NGOs that play the role of technical assistance providers, financed by donors.

Ideally, all members of the chain should pay for technical assistance services and they could even use part of their loans to pay for this, as is already happening in some places. In addition, it will probably be necessary to make changes to the tax regimens, so that budget allocations are supported by general taxes. However, we should avoid imposing taxes on exports, which are totally counterproductive, as we have seen in Argentina, for example. The most common form of finance is donations, which are necessary at the very earliest stages, but are not sustainable. For its part, external concession finance is not reliable in the long term.

b) *Financial innovation*. From a financial institution's perspective, more successful projects and demonstration projects (*proof of concept*) are needed, as well as improved business skills. In the last seven or eight years there have been many pilot schemes, but the results have not yet been published to show to the financial institutions. Dialogue is needed to make them understand that risk and transaction costs can be reduced through value chains, which should lead to lower interest rates. In other words, they should set interest rates according to the risk profile and not based on funding costs or on erroneous perceptions. Donors also have their share of responsibility since they provide concession funds to the financial institutions but demand a fixed spread that results in many different products with pointless costs.

Many changes are also needed in the regulatory framework, for example, in the operation of credit bureaus and moveable collateral, as well as in provisioning rules, which are adversely affecting finance for the agricultural sector.

It is important to emphasize that agricultural lending is very different from a microfinance loan; agriculture needs medium and long term loans. In this sense, if we really wish to see an expansion of agricultural value chain finance, we must solve the problem of the low level of savings in Latin America. In order to lend over the medium and long term, accumulate wealth and create first tier companies, we need to generate more savings in the financial systems –and stable savings.

It is not possible to give an absolute answer to the question of how chain finance differs from microfinance, because nowadays there are many microfinance institutions (MFIs) that are trying to integrate into the value chain model. This is producing very good results, as evidenced by two organizations in Peru, one of them, Crediquinta.

Looking toward the future and thinking about the needs and major challenges that lie ahead in the next two or three years, *transgenerity* is going to generate many costs for the chains. Also, if Latin America is going to do something to reduce poverty, we are really looking at a future where productivity will decline due to climate change, where the world's population will grow to 9,6 billion. Latin America has many comparative advantages but its productivity is very low compared with its potential. In order to make changes and improve in this field, and seeing what Asian countries such as Indonesia, China, South Korea and India have done, we need a modern agriculture; and to have a modern agriculture, countries must invest in farm infrastructure. They must invest fairly large sums and to repay these sums they need longer periods. So, for this reason they will need an institution that

has a larger capital base and, more importantly, an institution that is more diversified in terms of sectors and of geographic area. Many rural credit unions exist in Latin America but these are limited to a single area, so, when a *shock* comes, they suffer and when we look at the figures for Latin America, there are many stops and starts and when things are going very well, everyone lends to agriculture. Other countries are progressing more rapidly in the agricultural sphere because they invest more heavily in risk mitigation. In this regard, the question briefly would be: in the future, an institution with a broader presence in geographic terms, which is diversified within the sector –would it need a balance in that sense? And the other message is that to obtain longer term finance we need institutions that capture more savings and that work on the cost of finance– we cannot depend on a very high cost if we are going to provide term lending. And third, it is necessary to invest heavily in risk mitigation systems, insurance, guarantee funds, securitization and risk transfer instruments.

Finally, we need to promote competition. One of the things we have seen in the countries studied is that these are small countries with a large concentration of power in the value chains and also concentration in the financial systems. We must find ways and policies to increase competition.

D. Credit risk management in agricultural finance. Lessons from some major providers

Ajai Nair

This section shares some of the lessons and findings of a World Bank study on agricultural finance which was carried out over the past year and a half, between 2008 and 2009. The study focused on lenders who are active in agricultural finance with a particular interest in understanding how they assess and manage credit risk.

The section is divided in six areas: it will initially present the study framework. It will then go through some of the key research questions that we are trying to have answered. It will give a profile of institutions which were studied, and will consider in detail the findings of the study, and it will also refer briefly to some of the innovations observed, and finish with a set of conclusions.

1. Study framework

The objective of the study was to understand credit risk assessment and credit risk management approaches of major agricultural lenders. The sample covered around 17 institutions in seven countries. The study focused on Africa and Asia; this is very similar to the study carried out by Mark Wenner which focused on Latin America (described in the previous section of this chapter). A lot of the findings that came out of this study are very similar to what Mark found in his work, so that offers possible ways for the participants to better understand this issue.

The study covered commercial banks, development financial institutions, and micro-finance organizations. The methodology involved the assessment of around 15 institutions in five countries, and detailed assessment of two institutions in two countries.

2. Key research questions

The key research questions that were trying to be answered are organized around two sets of questions: one was on the credit risk assessment side, and the other, on the risk management side.

a) *Agricultural credit risk assessment*. The research tried to find out what information banks use to assess a credit application, how important is the agricultural domain knowledge in the bank. What is meant by this is do they have specialized agricultural loan offices? Do they have people in senior management who understand agriculture? The third question was, how were the banks quantifying credit risk? And, first of all, were they doing it? And if at all they were doing it, how was it being done? At the loan level, as well as at the portfolio level. And lastly, the study was also trying to understand how the level of credit risk was influencing the terms of credit, and that meant the interest rate charged, the length of the loan, whether it affected the amount of collateral which was required, among other issues.

b) *Agricultural credit risk management*. On the credit risk management side, some of the questions that were trying to be understood were, how common is the use of collateral substitute? By collateral substitutes it was meant things like peer groups, solidarity groups, guarantees by third parties, any substitutes other than the traditional forms of collateral which would be physical assets, both immobile and mobile. The second question was, whether lenders facilitate access to risk mitigation services for borrowers (i.e., if they sell them some insurance products). Do they also arrange for any kind of training, any kind of risk reducing advisory services? What about simple risk management techniques, and if they extend their portfolio diversification, both within the agriculture portfolio and the total portfolio. Also, are any kinds of risk transfer mechanisms are being used, i.e. sophisticated techniques like securitization or derivatives. And lastly whether there was any kind of special asset classification and provisioning mechanisms used, either from the regulators or from the institutional level itself.

3. Institutions studied

To give a sense of the diversity of the institutions examined, Table 3.3 provides a list by country. The study looked at Opportunity International Bank from Malawi and MRFC, which is the Malawi Rural Finance Company.

Table 3.3
World Bank study. Institutions examined

Country	Institutions
1. Malawi	OIBM, MRFC
2. Zambia	Stanbic, Barclays, Dunavant, Cropserve
3. Kenya	KCB, Equity Bank, Cooperative Bank, AFC
4. India	ICICI, HDFC, SBI, Basix
5. Thailand	BAAC
6. Armenia	ACBA-Credit Agricole
7. Kyrgyz Republic	Ayl Bank

Source: Ajai Nair. Seminar presentation.

From Zambia, the study covered Stanbic, Barclays, Dunavant and Cropserve. Stanbic and Barclays are the two major banks in Zambia, Dunavant is the major cotton merchandiser company, and Cropserve is an input supplier. In Kenya, the Kenya Commercial Bank was studied, one of the largest commercial banks in this country; also Equity Bank which many people might know as one of the largest, fastest growing banks in Kenya, which started out as a building society, and then converted into a bank a few years back. The study also looked at the Cooperative Bank, which is mainly, but not exclusively, a second-tier financial institution for cooperatives in Kenya. And lastly, we looked at the Agricultural Finance Corporation, which is a development finance organization.

In India, ICICI and HDFC were studied, two large private sector commercial banks, and also the State Bank of India, the largest commercial bank in this country, which is publicly owned. Furthermore, in India, the project looked at Basix, one of the leading microfinance organizations. In Thailand, the study examined the Bank of Agricultural Cooperatives which, again, is very well known as one of the largest development banks in Asia, with 80 per cent of its portfolio in agriculture. Lastly, in Armenia, the Armenia Credit Agricole bank was examined, and in Kyrgyz Republic, the Ayl Bank; these last two were the institutions where the detailed case studies were conducted.

To give a cross-sectional profile of these institutions, Table 3.4 reveals that 10 are commercial banks, five are development financial institutions and two are supply chain providers. Without going into detail, there is a cross-section within the commercial banks themselves, of course, international and national. The same is true for the development finance institutions and the supply chain finance providers.

Table 3.4
World Bank study. Cross-sectional profile of institutions

10 commercial banks
• 2 international and 8 national banks
• 1 apex bank lending to cooperatives
• 6 provide retail services to small farmers; 4 provide retail services to large farmers and agribusinesses
5 development finance institutions
• 2 agricultural development banks
• 2 agricultural finance corporations
• 1 microfinance finance company
2 supply-chain finance providers
• Produce buyer
• Input supplier

Source: Ajai Nair,. Seminar presentation.

Table 3.5 shows the extent of the outreach and size of these institutions without giving the specific names, because they did not give permission to reveal their data. Although it is not possible to reveal the institutions to which each data set refers, the reader will at least be able to get a sense of the relative scale.

The main point is that a whole range of sizes and agricultural lending are observed. At one end there are institutions where agricultural credit is expressed in billions of US dollars –four institutions in the sample–, in which the total size of agricultural loan portfolio was more than US $1 billion, and, in one case, it was more than US $10 billion. On the other hand, the majority of institutions had a loan portfolio in the range of US $10 to $100 million dollars. Nevertheless, it is important to note that all these institutions had a significant agricultural finance portfolio and that was the basis on which some of these were selected to study their practices.

Table 3.5
Institutions studied. Deposits, credit portfolio and agricultural lending

Institution	Deposits	Loans	Agric. loans	Agric. loan %	Agric. borrowers
	In US $ millions				
Institution 1		211	93	44	n.a.
Institution 2		86	86	100	25.000
Institution 3	290	639	71	11	n.a.
Institution 4	73	183	61	33	38.000
Institution 5		67	60	90	32.618
Institution 6	230	698	64	9	n.a.
Institution 7	65	124	23	19	100.000
Institution 8	6	54	22	41	142.536
Institution 9	250	135	25	18	35
Institution 10	316	229	142	62	325
Institution 11	825	5	5	100	100.000
Institution 12	1	10	4	35	67.300
Institution 13	14	13	1	7	1.100
	In US $ billions				
Institution 14	15	13	12	90	5.680.000
Institution 15	100	78	8	10	5.600.000
Institution 16	53	45	4	10	n.a.
Institution 17	16	11	1	11	165.430

n.a. not available

Source: Ajai Nair. Seminar presentation.

4. Findings

The findings are presented broadly in three categories of institutions: commercial banks, development finance institutions, and supply chain finance lenders, and in terms of credit risk assessment and credit risk management.

a) *Commercial banks*. On credit risk assessment for small loans, there were two approaches used by commercial banks. One was a parametric approach, basically using general rules and criteria to assess the credit risk, rather than assessing it on a per loan basis. An example of this is "scale finance", in which if a particular borrower is requesting US $500 or US $1.000 dollars for financing a vegetable crop, the bank has a particular amount which, as a policy, would be lent for that crop. And these amounts are separated for specific regions; this is very common in India and also in some other places. Another parametric approach present in some of the cases is the group approach: rather than assess the credit risk of each individual, the credit risk of the

whole group is being assessed, and if the group was assessed as having a good credit risk level then it is also assumed that each borrower member of the group also has a good risk level.

Now, one particular organization examined was not only using this parametric approach for risk assessment, but they were also using outsourced agents to carry out this risk assessment. This was definitely an innovation in the sense than rather than the bank itself doing the risk assessment, it was outsourcing this task to a third party. In the case of large loans, all the banks were directly using the traditional financial ratio analysis. So, the parametric approach was clearly and understandably restricted to small loans.

Only three of the 10 banks that were analyzed used credit bureaus and only for large farmers. One bank used biometric identification of borrowers, which means to uniquely identify the borrowers. This was an interesting effort by the bank to get around the fact that, in many of these countries, and in that country in particular, and in most of the countries of the developing world, there are no national identification numbers, or any kind of unique identification, so the biometric identification allows financial institutions to identify uniquely their borrowers, and then keep track of them. Lastly, five of the 10 banks used some form of credit grading, and only one used a form of risk modeling.

On the risk management side, all banks lending to farmers used collateral substitutes. This is understandable, but it is remarkable that all the commercial banks that are lending to small farmers, all were providing loans using collateral substitutes (e.g. using groups as collateral), or they were using some form of partial guarantee provided by buyers as collateral or, in some cases, they were even using things like knowledge that the farmer owns land as a collateral substitute, rather than going through the whole mortgaging process because for small loans, it did not make sense to secure the mortgage. So, different forms of collateral were being used by banks when they were lending to small farmers. The smallest loans were being approved at the lowest level, the branch level, but it is the larger loans that were being approved either at the regional office level or the main office level. In general, all use credit norms and judgment-based process and household and activity financials were considered. Three institutions use joint liability groups as the primary lending channel, and two use credit grading.

b) *Development finance institutions*. Regarding credit risk assessment, all institutions use credit norms and judgment-based process, and household and activity financials are considered; three organizations use joint liability groups as the primary lending channel and two use credit grading.

   On credit risk management, three institutions use joint-liability as collateral substitute; one requires no collateral for 100 per cent of the loans; two bundle credit life insurance; three are piloting or selling index insurance, and three use risk-based pricing. All were well diversified geographically, and two have well diversified loan portfolio between sectors of economic activity.

c) *Supply chain organizations*. With regard to credit risk assessment, there was very little credit assessment by the commodity buyer providing services to small farmers, though traditional financial analysis by input suppliers was observed. On the credit risk management part, no collateral was required by commodity buyers, and there were fully secured loans by input suppliers.

5. Innovations

Most of the innovations have already been pointed out. The main ones are: the use of biometric tools to uniquely identify borrowers, parametric credit risk assessment, outsourcing of credit risk assessment to agents who share credit risk, though a recent update shows that one provider has dropped this practice. The study also revealed tripartite lending arrangements, involving produce buyer, lender and borrower. Finally, schemes for provision of fee-based agricultural and business advisory services were observed.

6. Conclusions

Lending to small farmers at scale requires non-traditional credit assessment systems. Lending to small farmers requires, in addition, the use of collateral substitutes, but not other elements of microfinance. Successful agricultural lenders, on the other hand, have domain expertise in agriculture, at both loan officer and senior levels. Lastly, there was little risk quantification, and the use of insurance or other risk-management tools was not common.

4 Models of agricultural value chain financing. Perspective of chain members

Lamon Rutten, Ricardo Galindo, Edwin Vargas,
Rosalino Luiz Alba, Mauricio Osorio,
Fernando Chilavert and Beatriz Obara

This chapter covers the lengthiest session in the seminar, which offered broad participation to a wide range of operators of agricultural value chains. The session examined many different kinds of businesses (producers, processors, distributors) and gave a variety of examples of financing models from Latin America, Asia and Africa. The operators themselves explain how chains have become an effective vehicle for taking services to different stakeholders, and they point to areas that still need improvement.

The first introductory section is by Lamon Rutten, who formerly worked for the United Nations Conference on Trade and Development (UNCTAD) and now runs MCX, an Indian commodities trading company. Rutten shares a number of examples of innovative structures for value chain financing in India and Africa. He goes further, however, with an overview of the future of commodities financing, value chain financing (or structured financing) and risk management. His review enriches the conceptual framework proposed by Ken Shwedel.

A. De-constructing agricultural finance: how re-thinking the model can improve the method

Lamon Rutten

I am the Managing Director and CEO of Multi Commodity Exchange (MCX)[1]. Having started operations in November 2003, today, MCX holds a market share of over 80 per cent of the Indian commodity futures market, and has more than 2.000 registered members operating through over 100.000 trader work stations, across India. MCX has also emerged as the sixth largest and amongst the fastest growing commodity futures exchange in the world, in terms of the number of contracts traded in 2009.

1 This chapter is a literal transcription that preserves the oral style of the presentation.

I am here today, principally to speak about innovative finance, particularly how by rethinking your model you can greatly enhance your financing methods. I will start by speaking briefly about the need to change your models, then I will go to some of the concepts of innovative agricultural finance, after that I will speak about the risk that you will encounter and how you can deal with those: Then I will give a number of examples.

1. Commodity finance - the times, they are a-changin'

First, a short illustration from history on why as a banker or businessman, it makes sense to take a step back from time to time and think about what you are really doing. In a rapidly changing world, superficial answers to "what products or services are you providing" can rapidly become obsolete.

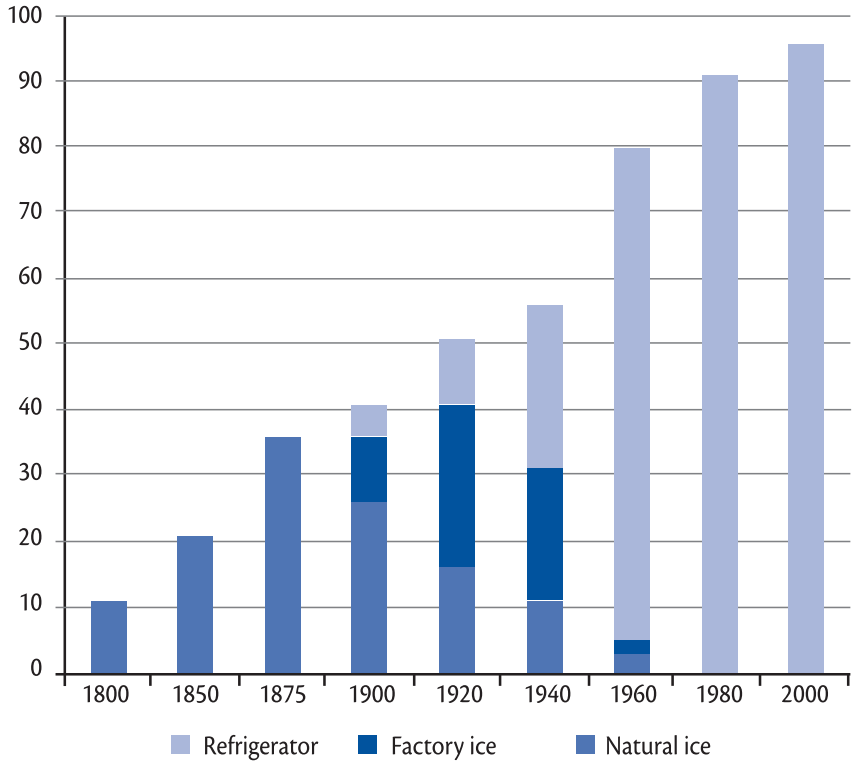
There was an industry that, at one time, was vey very large. It was an industry that had a very good reputation for innovation, an industry that set very complex logistic networks and that moved around many millions of tons of a commodity. It was an industry that in the United States was bigger than the cotton sector, it was bigger than the wheat sector. Now this, as some of you can guess, was the business of ice harvesting. Let me repeat that for those of you who will not believe it: ice harvesting.

Frederick Tudor was known as the "ice king"; one of the first self made millionaires in the United States. In the early 19th century, he created complex logistics chains to bring ice from the lakes of the North-Eastern United States not just to the cities, but even to far-away markets like the Caribbean and India. Lakes throughout the North-Eastern United States, as long as they were near railway lines, were used for harvesting blocks of ice. These were in demand by the meat packaging industry, as well as the beer industry; and increasingly by consumers (see growth rates in the 1800s in Graph 4.1). He actually moved ice from Boston to Calcutta and made money on that. It was a big industry, innovative and did things that were considered impossible before. Just imagine a sailing boat moving a cargo of ice from Boston to Calcutta, and making a profit!

Vertically integrated chains were gradually replaced by specialized producers, transporters, equipment suppliers (e.g, producers of ice boxes) and storage companies. Which, on the one hand, created efficiencies and cost reductions. But, on the other hand, made it difficult for the different parts of the chain to all react to radical new challenges in an integrated manner. Only a few managed to adapt.

Now, this industry no longer exists. It is completely gone out of existence and companies that were amongst the largest on the New York Stock Exchange have disappeared without leaving any trace. And how is this possible? Simply speaking, because **they did not understand what business they were really in**. The people who were managing these companies did not understand that **they were not providing a product**; **they were delivering a service**. They thought they were providing ice and, in reality, they were providing refrigeration. So, the moment that a more efficient way to provide that service came around, all these models became obsolete, as shown in Graph 4.1.

Graph 4.1
Changes in ice production, 1800-2000



SOURCE: Lamon Rutten. Seminar presentation.

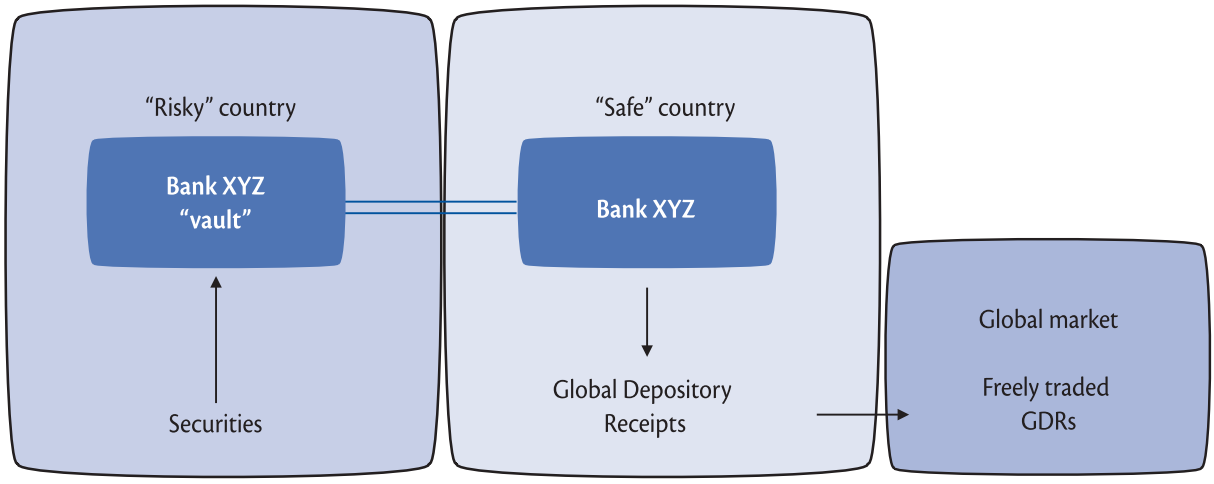
I would suggest that, in the financing sector, in the case of banks, particularly in the case of commodity finance, that we may be on the verge of a similar change. Loan officers have to understand that they are not giving loans, they are giving financing services. The way that they structure the loans is just the methods and your methods change. Basically, you can provide the same service in more efficient ways and the methods have to change with the change you see in the underlying economy.

So, it is really important for any banker, including those financing agricultural production assets to **deconstruct their financing business** from time to time, **separate the message from the medium**. The medium is the specific type of loan, the message is the financing service. Only if you think, from time to time, out of the box, will you be able to remain competitive.

The situation for banks involved in agricultural finance is no different from that of other businesses. Getting your business model right is key to your long-term survival. What are core parts of your "unique value proposition", and what are not? Managers at times fail to understand that the answer to this question changes over time. If you think the medium is the message (ie., the products that you use to provide "agrifinance" are equal to "agrifinance"), then you can be hit hard by changing circumstances. Understanding and using collateral management, structured finance and credit support techniques should be part of a banker's arsenal.

And we are now at the time where you need to be on your toes. We have seen some large changes in the security markets and these changes are likely to come also to the commodity finance markets, as shown in Diagram 4.1.

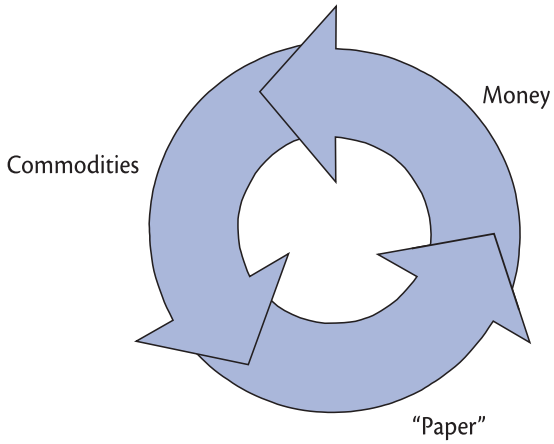
Diagram 4.1 **Securities market: converting risky into freely traded assets**



SOURCE: Lamon Rutten. Seminar presentation.

How can one do something similar in the commodities markets, converting assets in a "risky" environment into assets that can be freely traded among global investors? Commodities are becoming increasingly assets. Assets that convert into money and then back into commodities. Only if you are able to understand this asset conversion cycle (see Diagram 4.2) and how as a financier you can sit on the edge of the conversion cycle, allow the efficient transformation of money into commodities, or commodities into money, will you be able to be competitive.

Diagram 4.2 **The asset conversion cycle**



FSOURCE: Lamon Rutten. Seminar presentation.

Commodities will increasingly become a financial asset –any commodity will be like a currency. Financial markets will develop around these new "currencies". Independent entities will be doing the leg work to convert commodities, as they move through the value change, into financial assets. Technology will link it all together –through a **Global Commodity Receipt system**.

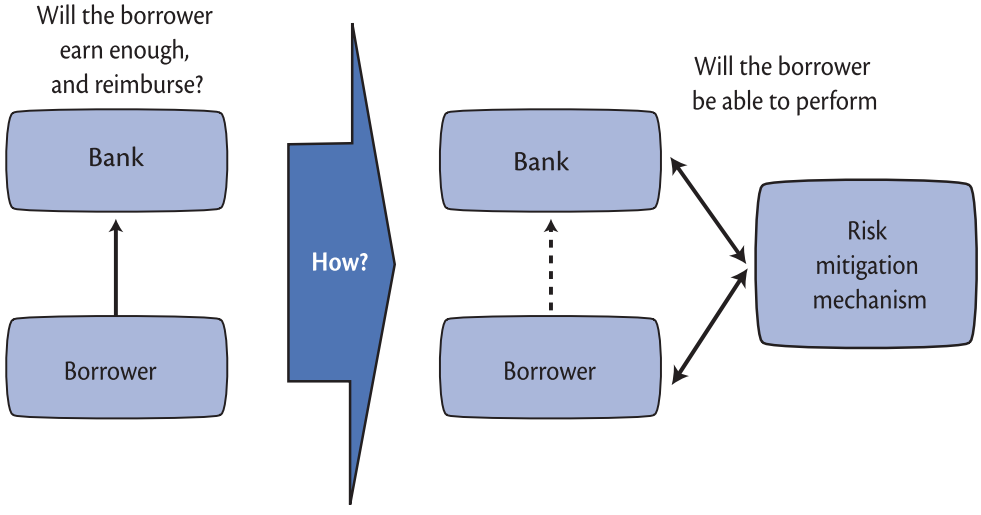
Duly "wrapped", commodity financings and their underlying commodities can become the basis for the issuance of "global commodity receipts" (GCRs). These will be liquid instruments, traded over the counter or on organized exchanges. They can be tailored to large institutional investors, or to the retail public. In Latin America, commodity exchanges have already done this sort of thing, issuing "repos" on both commodity stocks (e.g., grains), and on commodity receivables (e.g., livestock, fishery), backed by tightly structured financing transactions.

We are at a dramatic time of change for finance. There used to be walls between banks, insurers, investors, traders; they all did a little bit of business. They have now all started invading each other's terrain. With that change, as a banker you have to be proactive, you have to think of new ways to provide financing services.

2. Structured finance, warehouse receipts and collateral management. Some key concepts

The key methods for providing finance in these new environments is structured finance. What structured finance does is to move from the credit risk of a borrower to a performance risk, basically through risk mitigation mechanisms (see Diagram 4.3).

Diagram 4.3 **Structured finance: moving from credit risk to performance risk**



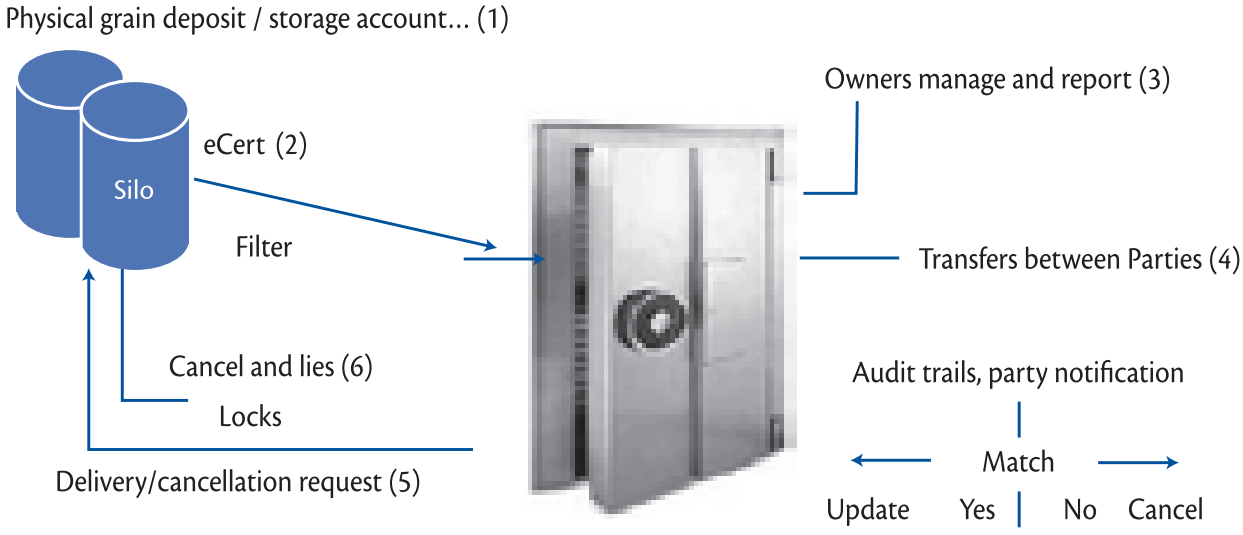
Source: Lamon Rutten. Seminar presentation.

here are many ways of doing it. Let me just give you some examples later on. But, one important component in many forms of structured finance or, if you want, value chain finance, are warehouses. **Warehouse receipt financing** is the use of securely stored goods as loan collateral. This will allow traders and others to deposit commodities in a secure warehouse where he receives a receipt certifying the deposit of goods of a particular quantity, quality and grade. He can then use the receipt as a form of portable collateral to request a loan from a financial institution.

Warehouses are already used for financing purposes by Latin American and Central American banks, but often the banks do not recognize the three different types of warehouses, namely: (i) private warehouses; (ii) terminal warehouses; and (iii) field warehouses. The latter two are the types of warehouses useful for finance. As a banker you need to know exactly what type of warehouse you are dealing with because the risk that you are taking is different. I do not want to go into detail but let me say that if you engage in warehouse receipt finance then it is time to be using electronic receipts. Electronic warehouse receipts are much cheaper, much more efficient, much less risky than paper warehouse receipts. For some tens of thousands of dollars you can have a very efficient point of exchange which not only manages physical grain deposits for warehouse receipts but also allows you to tender them, to do repo contracts, to deliver them into future exchange against future contracts.

We operate a system in South Africa (South Africa's Electronic Silo Certificates system, ESC), which manages some five million tons of grain; most of the grains produced in South Africa passes through this system. This is available (the process is described in Diagram 4.4); there's no need to be with paper warehouse receipts. ESC serves as a basis for exchange delivery systems, for warehouse receipt finance, electronic warehouse receipts trading, and information supply.

Diagram 4.4 **Electronic system of warehouse receipts**



SOURCE: Lamon Rutten. Seminar presentation..

TPhysical, printed warehouse receipts are relatively expensive. When one prints physical warehouse receipts, they require all the security features of banknotes, and there is also no easy control of double issuance of receipts. Low cost electronic systems solve these problems. As the experience of South Africa's Electronic Silo Certificates system shows, it is perfectly possible to keep the whole process, from issuance to trade and pledging, in an electronic format. This system offers an instant, secure and cost-free management mechanism to participants. Real-time, from anywhere, at anytime! The system works through the internet, and has easy interfaces with normal company back and front office operations, as well as with commodity exchanges.

Under this system, certified elevators/warehouses input information on commodity deposits into an interface provided by the system, which are then recorded in an electronic database. The database serves as a basis for exchange delivery systems, as well as, for warehouse receipt finance (i.e., an interface with banks), dematerialized warehouse receipts trading (an interface with traders and investors), and information supply (to clients, various government agencies).

For commodity sector players, a system like this can provide direct access to the capital market. Given the large gap between the rates depositors get on their short-term placements (in bank accounts or government bonds), and the high rates that most commodity sector companies have to pay, there is ample scope for the approach to become highly successful, once sufficient awareness has been created.

Now, straightforward warehouse receipt finance, where a bank basically uses a warehouse to have control over collateral, is a good instance. We are doing quite a bit of that in India, through one of our sister companies, the National Bulk Handling Corporation (NBHC). It has become, since it started in the mid-2005, India's (and probably the world's) largest support company for warehouse receipt financing, operating both, out of public warehouses and field warehouses. It already manages 3.500 warehouses and, at the peak season, organizes US $2 billions worth of finance for agricultural commodities, on behalf of agents for a few dozen banks. This system is so efficient, so cost efficient, that an individual farmer can come to one of our warehouses with a bag of products, 60 kilos of products, on the back of his bicycle; our people will test these products, will fill out the loan forms, and the next day the money is there; the loan has been arranged.

Legal conditions and financial strength of warehouses

SHowever, it is often not enough just the warehouse to seek finance, because the entity that owns the warehouse may not have the credit status that, as a bank, you really require. In countries with weak public warehouses, banks need to have a careful accreditation process in place to approve the warehouse operators they are willing to work with. In some countries, banks have decided to start their own warehousing operations, to store the commodities they have accepted as collateral for their own loans.

Often, banks decide to bypass the problem by working with an acceptable international **collateral manager**. What a collateral manager really does; he takes over the warehouse, he takes physical control of the warehouse, putting his own people there, and he basically takes on the risk of the warehouse. So, as a banker, you are no

longer exposed to the risk of the warehouse; you are exposed to the risk of the collateral manager and, normally, the collateral manager will have a level of credit rating that will benefit of large insurance packages. In short, a collateral manager "wraps" the warehouse with professional management, improved logistics and grading, and full insurance coverage. In other words, he will take over most of the risks related to the warehouse received finance.

Before advancing, it is worthwhile to explain the terminology regarding service providers in warehouse receipt finance:

a) *Inspection agencies*. They will inspect the quality, quantity and/or weight of goods, often on demand of a financier. The inspection company will not provide any guarantee on the continuing presence of the goods. Same for monitoring services.

b) *Warehousing companies*. These may provide warehousing services to third parties. There are some risks here (what is the security that the company provides against the risk that goods disappear?), but with a good legal and regulatory framework, a warehouse receipt issued by a reputable warehousing company can be a good collateral for any form of transaction.

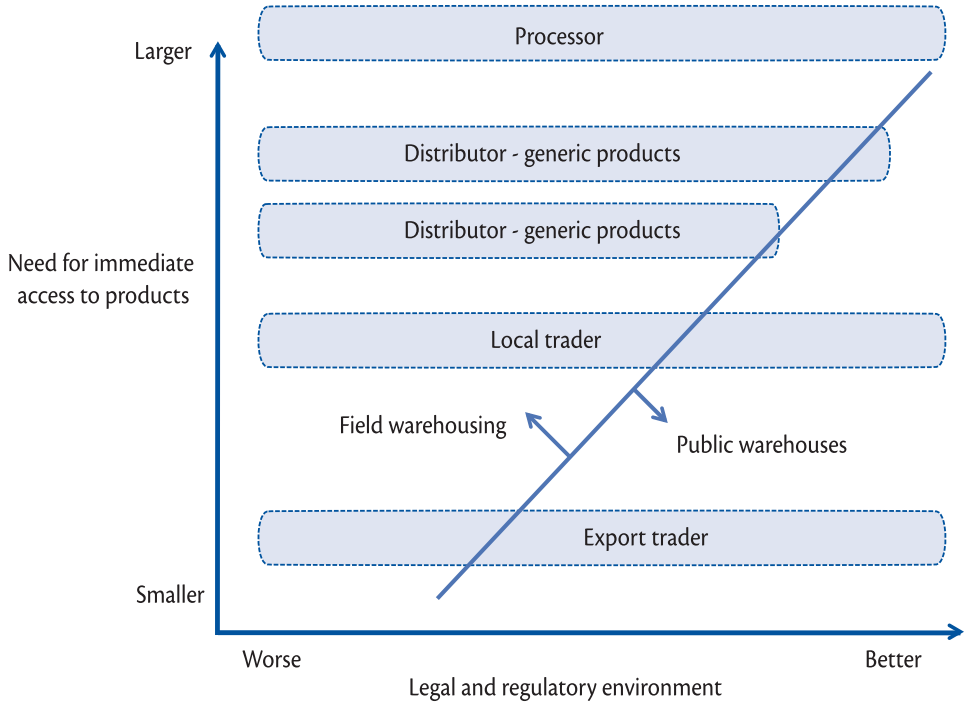
c) *Freight forwarders*. Often offer collateral management services as an extension of their logistics operations. Their open cargo insurance policies often cover such services. The collateral management will be in the forwarder's own warehouse.

d) *Collateral managers*. These offer a variety of services for ensuring the integrity of (public or field) warehouses, and the quality of commodities, in one location.

e) *Credit support agencies*. They provide all of these services, but can also secure the goods as they move through a supply chain, even if they are being processed. The agency controls the entire transaction from end to end, from the time when the bank releases funds, to the time when the loan is repaid in full. Credit support is generally provided along the supply chain.

This becomes particularly relevant if, as a bank, you want to become more aggressive in your agricultural finance, traditional finance, where you basically work with exporters with goods in an export warehouse. You can rely on warehouses, public warehouses, but the moment you move upstream, to local traders, distributors and processors, you need to outsource your risk management to collateral managers. The different relations between these actors, the need for immediate access to products, and the legal and regulatory environment, is described in Diagram 4.5.

Diagram 4.5 **Optimal financing depends on conditions**



FSOURCE: Lamon Rutten. Seminar presentation.

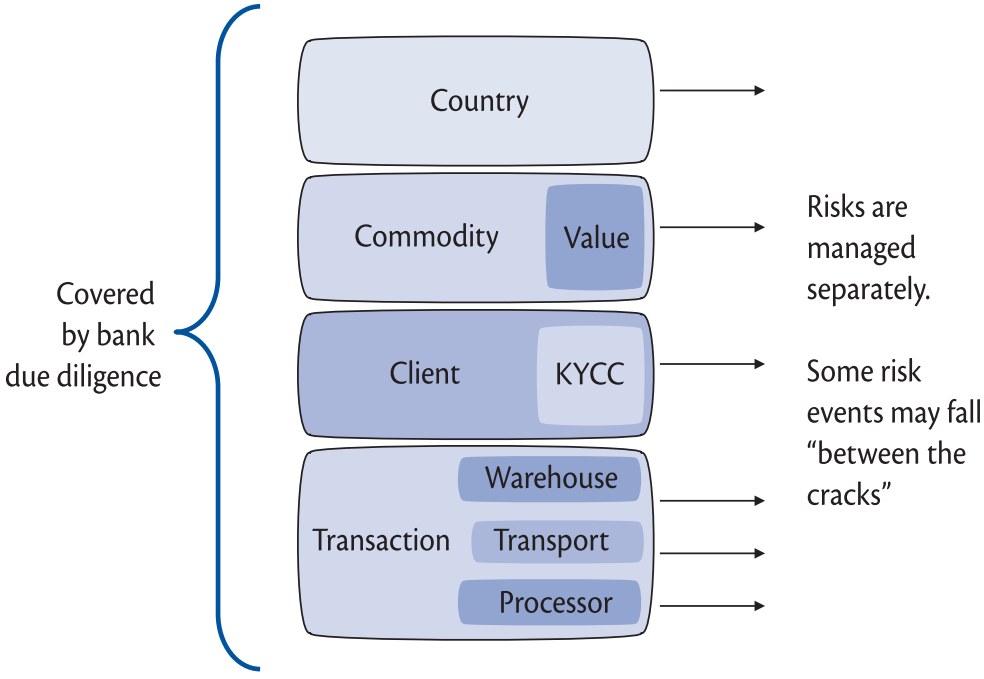
The nature of the warehouse receipt finance follows foremost the logic of the transaction. It provides post-harvest finance to **farmers** to give them greater flexibility: use a public warehouse if available, otherwise, set up field warehouse which can also act as the aggregator of physical stocks. Enables a **trader** to build up sufficiently large stocks, by using a collateral manager to allow the issuance of warehouse receipts at upcountry field warehouses, and simultaneously, accept warehouse receipts issued by a public warehouse in a port. It finances a **processor** through a field warehousing operation. Financing a **distributor**, depends on the need of the distributor to have immediate access to the stock –for financing equipment parts, a field warehouse operation at the premises of the equipment dealership may be best, while for fertilizer or rice finance, it can be a public warehouse. And to finance an **exporter**, it uses a public warehouse strategically located along the supply chain.

Why, as a bank, would you want to go beyond warehouse receipt finance? This is a very attractive business for banks. Traditional warehouses receive finance if they wait until the grain arrives at the warehouse. If you use collateral managements, in particular, if you push that collateral management a bit further to become credit supports, you can finance grain that is moving into and out of a market. Just consider the way goods move from producer to consumer. Have a look at a physical market of grains. Under "traditional" warehouse receipt finance or collateral management, none of this grain could be financed by the bank. And probably, many of the people active in this market could not become your bank's client. Commodities are money!; looking at a traditional grains market, should surely make you wonder how you can extend your business in a safe manner to incorporate these large commodity flows, and the many businessmen (and women) involved in it.

3. Risk management in commodity finance

That brings me to the next topic: risks; the risk management you need to undertake as a bank, or a financial institution (see Diagram 4.6). Banks, I would argue, do not have a comparative advantage managing many risks. If you look at the typical international trade finance transaction, there are many risks: there are transaction related risks, which are, again, a function of things like the warehouses used, the transporters used, the processors used. There are client related risks: is the trader that you are financing really operating efficiently and honestly? There are commodity related risks, including the range of the price of the commodity. And there are country related risks: you may have a perfect transaction, but because of imposed currency controls, you do not get your money out of the country. Banks typically manage these risks through due diligence, and they manage them separately, one by one, and if things go wrong in a commodity trade finance transaction; it is normally because some of the risk events "fall between the cracks"; something happens because of which, bank's collateral disappears, and the risk administration mechanism that the bank put in place, does not operate for that specific event.

Diagram 4.6 **Risk management in commodity finance: do banks have a comparative advantage?**

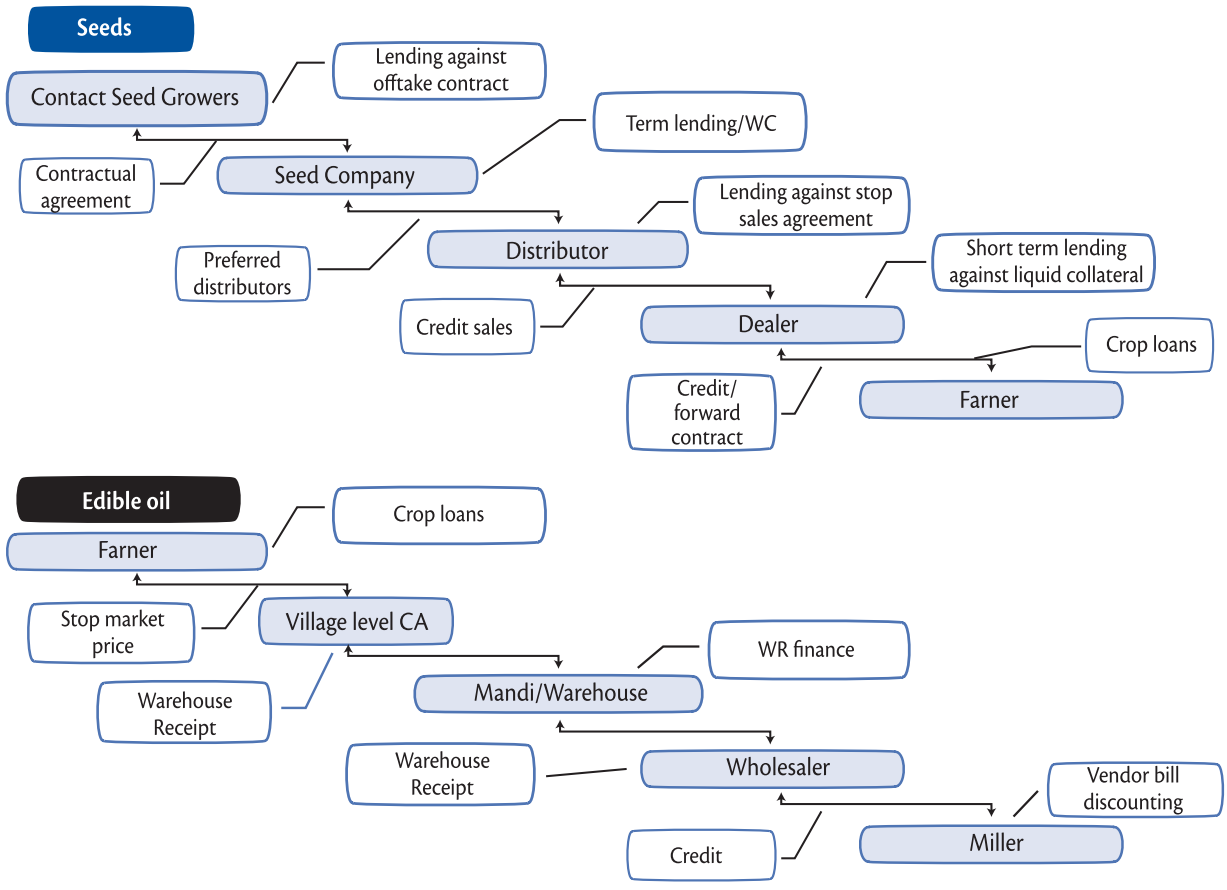


Source: Lamon Rutten. Seminar presentation.

he solution to that is to take a very systematic value chain approach, where you basically work with credit support providers to take on the risk of the whole transaction. Warehouse receipt finance and collateral management are useful, but only ensure finance for specific components in the chain. Credit support, on the other hand, makes it possible to develop revolving self-liquidating financing structures for whole segments of the chain.

Now, this is very different from the way that, even the more advanced banks involved in agricultural sector finance operate. For example, Diagram 4.7 shows a series of loan products targeting different parts of the value chain and, what can be seen there, are different loan products for different parts of the chain. Now, this is different for value chain financing, which does not have different products which basically moves money alongside the way that the commodities themselves move. The examples in the fourth section will make this a bit clearer.

Diagram 4.7 **Supply chain lending. Tailored to its elements**



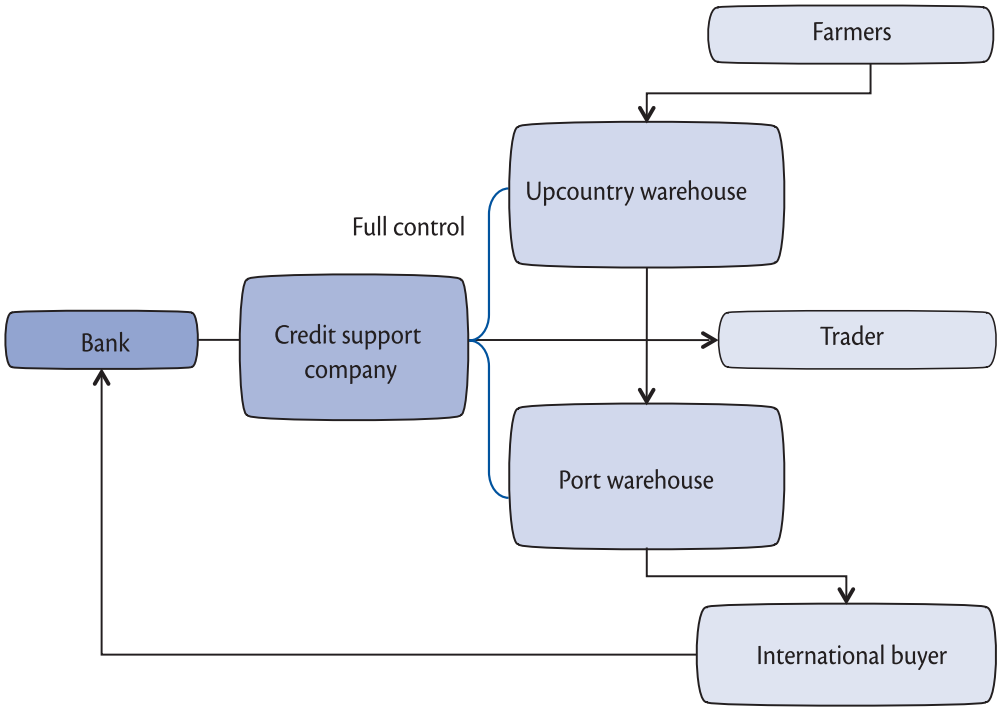
SOURCE: Lamon Rutten. Seminar presentation.

And the result of that is that, as a financier, you are financing a whole transaction cycle; from the moment the money comes in to the moment the money comes out, all the risks are mitigated in a systematical manner, and there are no cracks in the risk management. As long as money goes in, you will get your money back as a bank, one way or the other, either from the party that you have been lending to, or from the provider of the risk management. In other words, the whole asset conversion cycle can be "wrapped". From the moment that the financier puts in his funds to the moment he is reimbursed, all risks are not just managed and mitigated, but fully lay off on a collateral control/credit support company. Risk events within this "wrap" become the problem, just of this credit support provider.

4. Examples of value chain financing structures

What can be observed on Diagram 4.8 is fairly a simple case of a financing scheme for a trader who needs money to buy commodities upcountry, and deliver it into a port warehouse where to be picked up by an international buyer. In traditional finance, the bank will start financing when the goods enter into the port warehouse. Now, this is very difficult for many traders because they then need to raise money locally, for that local part of those transactions. This financing is often expensive; moreover, it is not the most risk averse way for the bank to finance, because if the trader has difficulty getting finance, he has to pay high charges for it; things can go wrong: he may not be able to properly process the commodities, he may try to avoid local taxes, and the result can be that the goods entering into the port warehouse can be rejected by the international buyer or export license is revoked because taxes have not been paid. It is much safer for the bank to start the financing already at the moment that the trader buys from farmers, put into place controls to ensure that the right quality of commodities are bought, and that they are processed properly to ensure that everyone in the chain, from transport companies to processing companies to the debt authorities, all are paid in time. The result will be that the goods that you have at the port warehouse are exactly the goods that the international buyer has contracted for, and that you will get your payments. In short, it is a financing structure of the working capital needs of a local trader in which the financial institution, which can be a partnership between an international and local bank, finances the trader's "pipeline", with appropriate discounts for goods, as they move from farmers to the export warehouse, tight control over the application of funds, and capture of the export proceeds.

Diagram 4.8 **Financing working capital needs of a local trader**

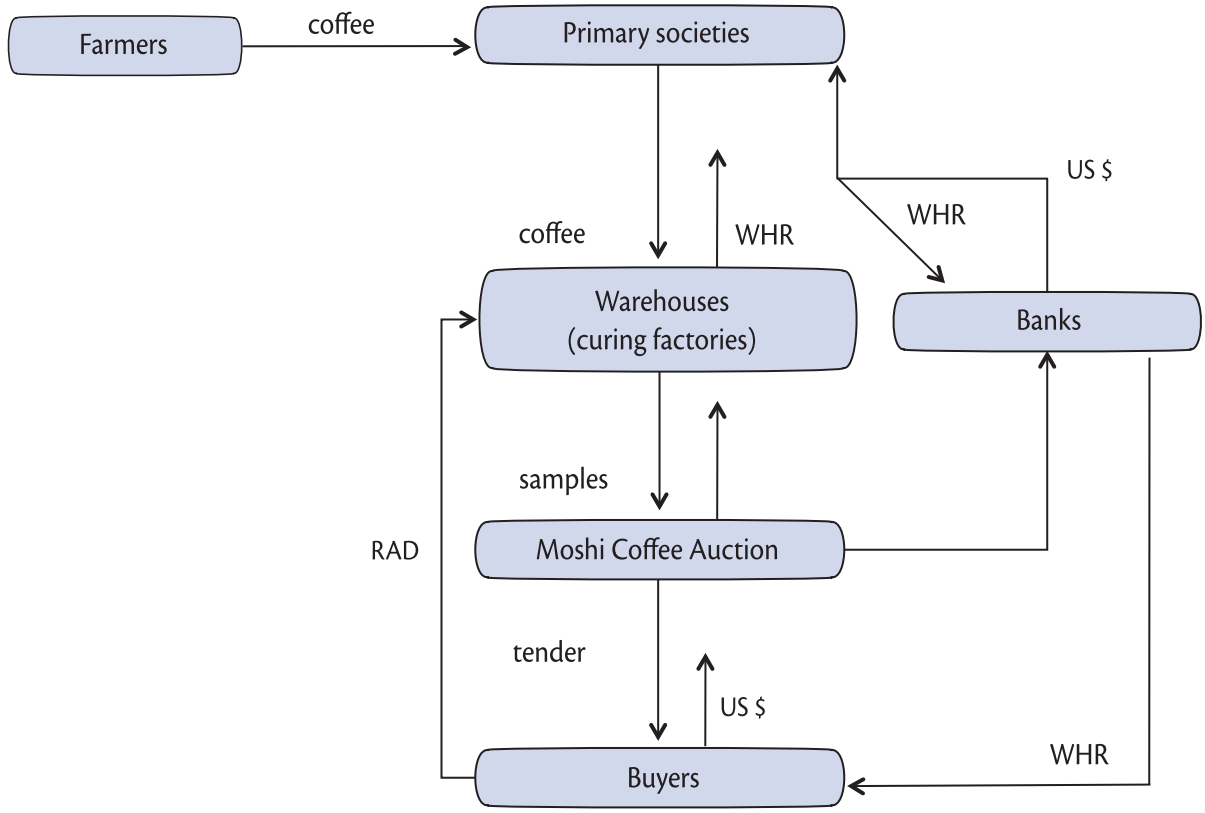


SOURCE: Lamon Rutten. Seminar presentation.

This type of value chain finance has been used, for example, in several African countries, in which I have been involved in setting them up. It has been used in very difficult terrains. I managed once a transaction that worked on a war torn part of Ivory Coast, buying cotton in a region controlled by the rebels from the North and the cotton was exported to the ports of the South, which were controlled by the government. The transaction worked very well, and got the money back for the international banks.

Diagram 4.9 shows another example: coffee finance for producers' cooperatives. Before we put into place this scheme, the banks were basically acting as, if you want, capitalization agencies. The primary societies head to compete with traders and head to buy up, bid up, the prices that they offer to farmers. Then, it took them about two to three months to actually transport, and process and auction the coffee. And, of course, in the two to three months, the price of coffee can change a lot and, not infrequently, the sums of every isolated auction were not enough to make a profit for the cooperative. Of course, that meant that the cooperative was not able to pay back to the bank; the bank had to roll its loan forward in hope that the next year coffee prices would be more attractive. We put into place a scheme that systematically manages all of these risks. It managed the price risk, as well as the quality related risks, and enabled the primary society to have all the money that it needed, and the banks to have full certitude about being reimbursed. The way that this is done is a technique called "borrowing base finance", where you basically put a discount on the coffee, which becomes smaller the closer the coffee comes to the world markets.

Diagram 4.9 **Coffee finance for cooperatives in Tanzania**

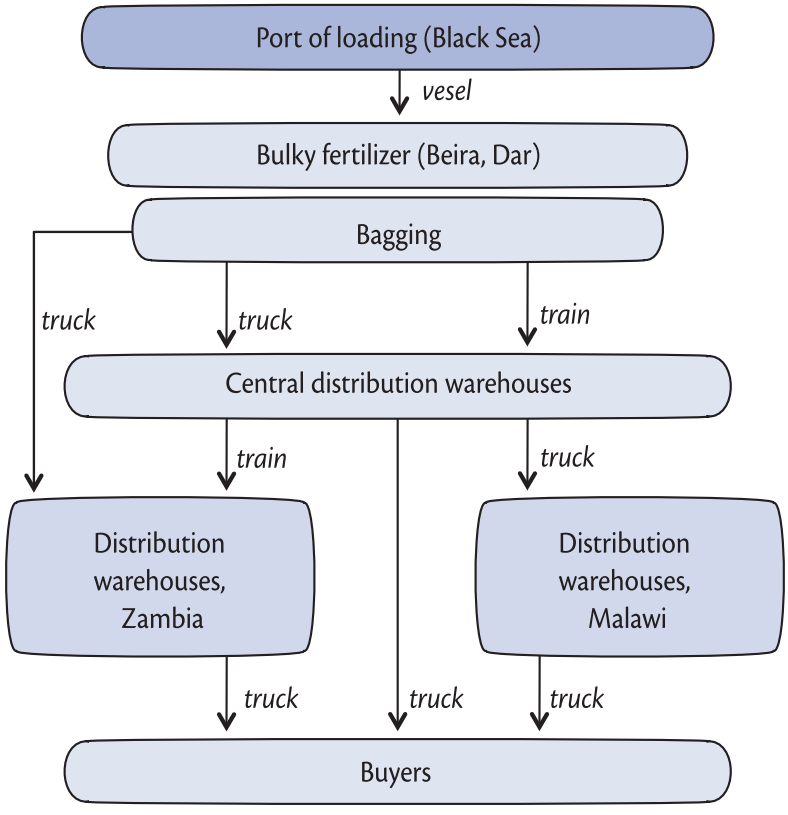


Source: Lamon Rutten. Seminar presentation.

Primary societies aggregate farmers' coffee and deposit it with curing factories. These issue warehouse receipts used by the societies to get bank finance, to make a first payment to farmers. As the societies' agents, the factories process the coffee and send samples to the auction. They get electronically tendered, the auction distributes the payments over the bank and the factories (for their processing costs). The bank pays the surplus to the societies, which make a second payment to farmers.

Another example, this time on the imports side, is described in Diagram 4.10. We financed the distribution of fertilizers from upcountry warehouses in Zambia and Malawi. We have people on the ports of Ukraine and Russia checking the quality of the fertilizers going into the boats. Our people control the fertilizers getting out of the boats. There it was transformed, if you want, from bulk to a bag; the bags were moved by train and by truck to central distribution warehouses and, from there, to the buyers. This whole chain was financed fairly efficiently and very cheaply because all the risks were systematically mitigated. The advantages of this system are two-fold: (i) international finance (at low cost) can be brought to the buyer's factory gate, and (ii) large, cost-efficient volumes can be combined with low working capital needs for the buyers.

Diagram 4.10 **Fertilizer finance in East Africa**



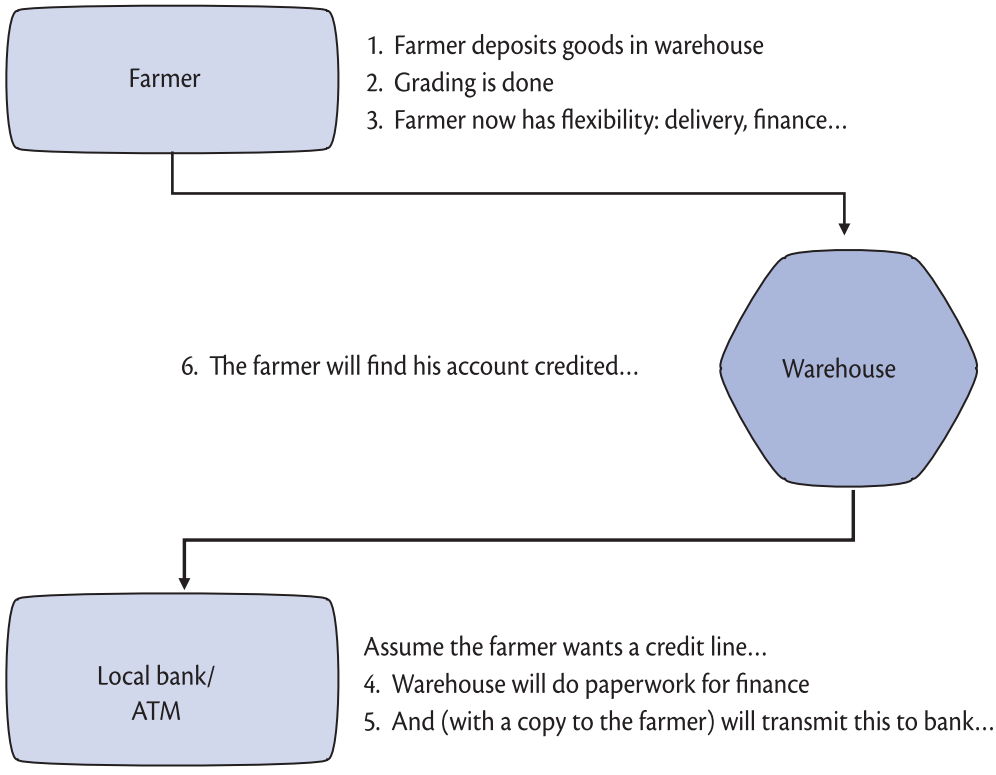
SOURCE: Lamon Rutten. Seminar presentation.

These leads to emphasize the need for proper, systematic risk management, which requires both, mechanisms to mitigate performance risk and instruments to mitigate credit risk. Mitigating performance risk should include: (i)

a mechanism governing availability of advances/disbursement, which requires a role in preventing diversion of funds through lending in tranches and independent monitoring and collateral management, to ensure funds are used as expected; (ii) cooperative merchandising agreement (CMA), (iii) security title, and (iv) all risk insurance. Regarding tools to mitigate credit risk, there are: (i) collection accounts, (ii) pledge agreement assigning funds, and (iii) assignment of receivables.

Diagram 4.11 shows some of the things that we are now doing in India: farmers deposit their goods into a warehouse; as indicated, their asset can be as little as one bag of product. Grading is done. Now, the farmer has an electronic warehouse receipt, and he can use it in whatever that he wants. Our people can fill out loan forms and then, that electronic receipt is pledged against finance. The farmer does not need to enter into any bank office; he does not need to meet any bank officer, and the bank does not need to have offices all over the place, and it uses the warehouses as its agents. If the farmer wants to sell his products there is no problem: he can put it into our electronic trading platform; he can put a minimum price that he is willing to accept; he can sell at the best price available, and he can even link the finance and the trades: basically, automatic reimbursements of the bank once his goods are sold. And the buyer, if he wants to finance, he does not need to have a working capital burden; only the moment that the goods leave the warehouse he will need to finance the warehouse, he will need to finance the goods. This can be linked to ATM's, smart cards, which allows farmers to get cash almost immediately against the goods they put into a warehouse.

Diagram 4.11 **What is being done now in India?**



Source: Lamon Rutten. Seminar presentation.

Here in India we actually run a big chunk of that model on an electronic mobile phone system. We have different applications: we use it for microfinance; we use it also for procurement schemes of large agro-processors. Farmers deposit goods in a warehouse, information about the deposit of the goods is transferred to a central server, that server is linked to a bank's server, automatically the accounts of the farmers are credited. The farmers have all been given smart cards; have all been given mobile phone access codes; automatically from their mobile phones they have access to the money that corresponds to the value of the goods they put in the warehouse. Before we put this into place and started running this, for example for a soy bean processor that was buying from well over 100,000 farmers, before we put this into place, it was necessary to move armed trucks with lots of cash around the country side; it has now all become efficient. And the system is so cheap that actually women who sell rice on the rural marketplace, can be paid by mobile phone. So you have got the farmer whose account can be credited electronically, he goes with his mobile phone to the marketplace, he exchanges the codes with the woman selling the rice, money is transferred between the two mobile phones through the central server. It is cheap, easy, safe and it avoids the hassle that the bank has in moving money around or in setting up many rural branches.

This may seem a difficult process but once you have gone through this deconstruction, you basically have a new product to provide fast easy credits. It is really that easy if you deconstruct your traditional business, you set new "agrifinance" schemes with these new modalities. We believe that all this can be done, not just in India, but also in many other parts of the world. If it works in India it can work everywhere and we would be happy to further talk with you to advise you on how these concepts can be implemented.

B. Financing the quinoa chain in Bolivia

Ricardo Galindo

This section is divided into three parts. The first outlines the strategic plan developed by the Embassy of the Kingdom of the Netherlands (Netherlands Embassy) to support value chains, the approach it adopted for this project and a description of the different chains that receive assistance. The second section discusses the fund that financed the quinoa chain from 2005 to 2008 and its current yields. Section three summarizes lessons learned.

1. Support for agrifood chains by The Netherlands Embassy

The Netherlands Embassy's strategic plan for value chains in Bolivia rests on four legs. The first is the goal of shoring up Bolivia's position on the international scene by promoting participation abroad, that is, in international forums and cultural exchanges. It focuses on aligning with public policy and building harmony among donors, which is not simple. The second major leg is sustainable natural resource management,

adaptation and mitigation of climate change. The third is economic growth and sustainable redistribution fostered by diversifying the economy with decent employment and sustainable production. The fourth and final leg is education and emancipation of the marginalized population, promoting high-quality education and access to schooling, with the support of the Ministry of Education. The work also includes vocational training through private entities and addresses full citizenship for indigenous women.

The approach adopted by the Netherlands Embassy is in line with the National Development Plan and sectoral programs. Sixty percent of the financing goes to public programs, and the rest is in the private sector. Both types of programs target production chains and production complexes as a way to promote access to technical assistance and training, attract financing based on an analysis of the production chain, and obtain legally secure land tenure rights. All the work respects principles of equity, timeliness and sustainability in providing production opportunities for the most vulnerable.

The Netherlands Embassy in Bolivia has set up several funds to support agricultural chains: (i) a fund to finance the quinoa chain from 2005 through 2008; (ii) a fund for the very small bio-trade chains; (ii) a fund to foster sustainability of quinoa, which began in 2009; (iv) an incentive to encourage investment in viticulture, also beginning in 2009, with a combination of incentives for producers who may qualify for loans from financial entities, and (v) a working capital fund for reverse market days, which is a form of public procurement.

These projects typically operate under a technical program. They receive financial support with technical assistance, adapted to different conditions and circumstances, nearly all with different objectives. An example might be to improve competitiveness or reduce poverty, depending on the program and the structure of the fund, and to promote new financial tools.

2. Fund to finance the quinoa chain

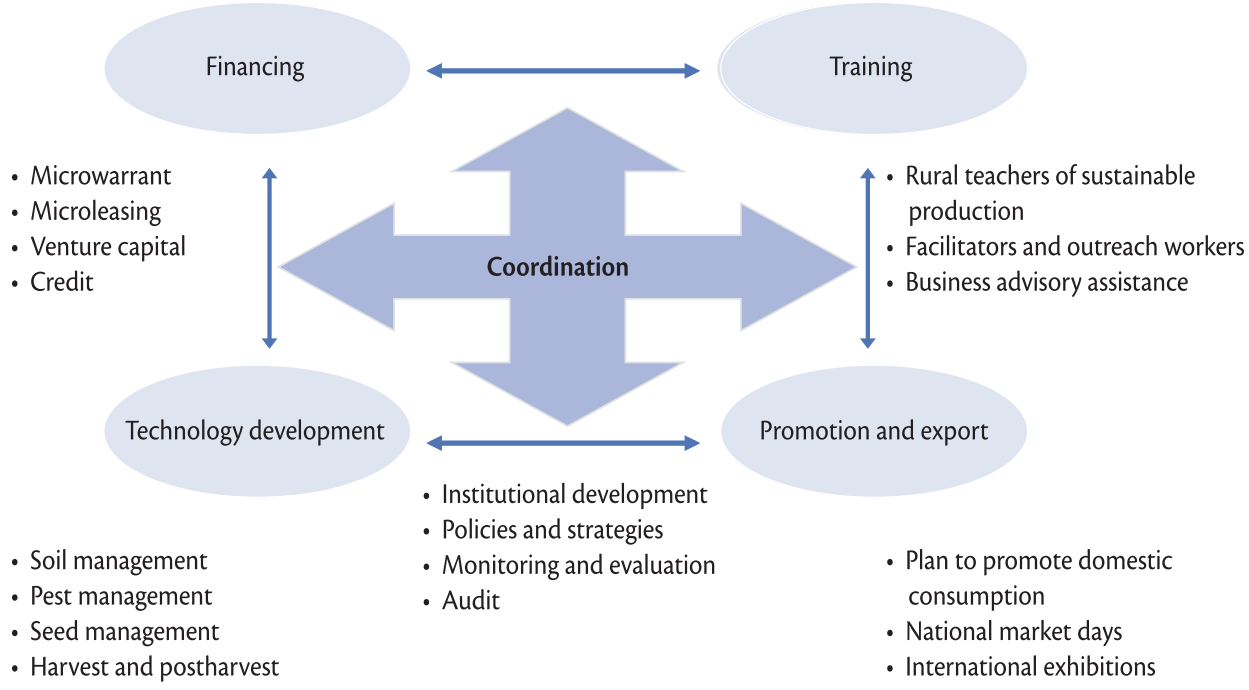
The plant sometimes known as “Royal Quinoa” has been cultivated for thousands of years and grows at elevations above 3.600 meters. It has many benefits, containing proteins, vitamins, minerals and amino acids, and is a key component in the local diet. Why does quinoa production receive support? It embodies the emphasis on poverty reduction upheld by the Netherlands Embassy, particularly for the 15.000 mostly poor families living in the quinoa-producing region.

Qunoa production accounts for 50 to 85 percent of the income for these 15.000 families, the majority of whom (over 87 percent) live at the poverty level. It is the target of public policies for economic development, poverty relief and worldwide food sovereignty. Quinoa, with its high nutritional content, contributes to food security for broad segments of the population in the Southern Highlands.

The program is built on four pillars: financing, training, technological development and promotion and export, all coordinated with an eye to institutional development in the chain and policies and strategies in the public

sphere. The coordination team also performs monitoring, evaluation and audits, as described in Diagram 4.12. In the area of financing, the program has promoted tools, access to credit, and investment opportunities by means of microwarrants, microleasing, venture capital and credit. Unfortunately, most operations have used credit only.

Diagram 4.12 **Quinoa support program 2005-2008**



SOURCE: Ricardo Galindo. Seminar presentation.

Four features of the program merit special note: (i) *Piloting*. It was the first nationwide experience with the value chain approach. (ii) *Comprehensive*. It did not discriminate against anyone. The program uses the whole-chain approach, depending on needs and impact. (iii) *Flexibility*. The work adjusts to the dynamics of the production activity itself and to the needs of the main participants in the chains, with deep analysis of the true vision and strategy of the sector. (iv) *Learning*. Naturally, much has been learned in implementation. Some of the work was good and some was bad, but it has been evaluated every year so improvements can be made.

Going into greater detail, the objective was to improve access to capital and credit for members of the chain, as a tool to make them more productive and competitive and to boost exports. The intended results were: to grant access to financial resources in the form of leasing, partnerships and enterprise financing with venture capital, develop new financial products based on needs, and provide advisory assistance and financial support to attract venture capital.

The PROFIN Foundation, hired as technical secretariat, conducted an expedited tender and asked several financial firms for bids; four were selected to take part in the program. A total of US $1,6 million was awarded, along with technical assistance to implement this new concept.

The result was that 71 percent of the funds went to individual credit, despite the interest in promoting innovation. Leasing and microwarrants made up a very small share, probably because they were new tools targeting a sector that had been unfamiliar to the financial firms. In this sense, it was worthwhile to conduct pilot projects. Although the total portfolio was awarded for US $1,6 million, actual operations were conducted for US $3,8 million, reflecting the fact that the money turned over more than twice over three years. Transactions involved clients at different spots in the value chain. So far, 54 percent are in primary production, 10 percent in storage and collection, eight percent in processing and 28 percent in marketing.

3. Lessons learned

First, the quinoa sector is a good prospect for financial firms. The program built bridges that joined producers, and indeed the overall sector, to finance companies. Significantly, the effect was seen, not only among large companies already accustomed to using credit, but also and most particularly, among small-scale producers who took out loans of US $2.000 to US $3.000. Eventually the finance companies opened contract branches in the region. It is a remote, forbidding place with no access to highways and connected only by dirt roads. Even so, the finance companies opened two branch offices there, in addition to mobile units.

Another important point is that, in the end, despite the promises, financial innovation proved difficult, especially because it was a new sector for the firms. Producers had very few resources and were unable to offer much in the way of collateral. The finance companies needed greater incentives to innovate and to continue testing new tools, and existing financial tools should have been better adapted to real conditions in the sector. Producers were offered conventional loans without taking into consideration the harvest season, when farmers would be able to sell. There was an imbalance between the reality of the sector, the farmer and the loan.

It was also clear that the technical advisory team and the facilitator should have given closer follow-up. The technical advisors merely received information and produced a report, mostly based on the numbers. There was no link between technical considerations and the financial view. Chain-based technical follow-up was missing.

There was almost no coordination between the financial institutions and the program. Funds flowed according to demand. Financial institutions evaluated the portfolio and decided for themselves whether or not they would make the loan, without allowing the program to supply information on the training it had given to certain producers or communities.

The sector received a major injection of capital, but it was too little. There was not enough for anything. The US $3,8 million covered barely four to five percent of the demand, especially when prices began rising and everyone wanted to produce quinoa or buy a hectare of land here, another hectare there, and purchase machinery.

Another point is that the financial institutions did not receive needed technical assistance on environmental issues. The emphasis found in Chapter 1 is important, intertwining issues of environment, clean production and water use. A process of analysis and training should be conducted, not only with the financial institutions, but with every entity that lends services in a chain. For example, many project loans were made for mechanization of the sector, especially disc harrows that damaged the soil. Today there is a soil management plan encouraging farmers to fertilize the land and let it lie fallow.

The last point has to do with interest rates. The initial eight percent interest on loans never came down because demand was so high. Ultimately, it is a business and is affected by the laws of supply and demand. Funding is still available from the Netherlands Embassy, and one possibility under consideration for a future program is to pressure financial institutions to charge less interest.

C. Financial innovation in the rice chain

Edwin Vargas

This section is divided into three parts: a discussion of the PROFIN Foundation and its activities in Bolivia, the case of the microwarrant in the Bolivian rice chain, and lessons learned in this experience.

1. The PROFIN Foundation and value chains

The PROFIN Foundation was created in 1997 as a program of Swiss Cooperation (COSUDE). The microfinance environment had attracted interest among emerging financial organizations in Bolivia, inspiring them to engage in a process of institution building. This environment shifted as time went by, and today the PROFIN program provides a type of support that is different from or supplemental to what it was in the beginning. From the early years, the PROFIN program worked in the area of financial innovation, primarily seeking ways to get credit into the hands of small producers in non-traditional ways. It was clearly not enough to work on financial innovation

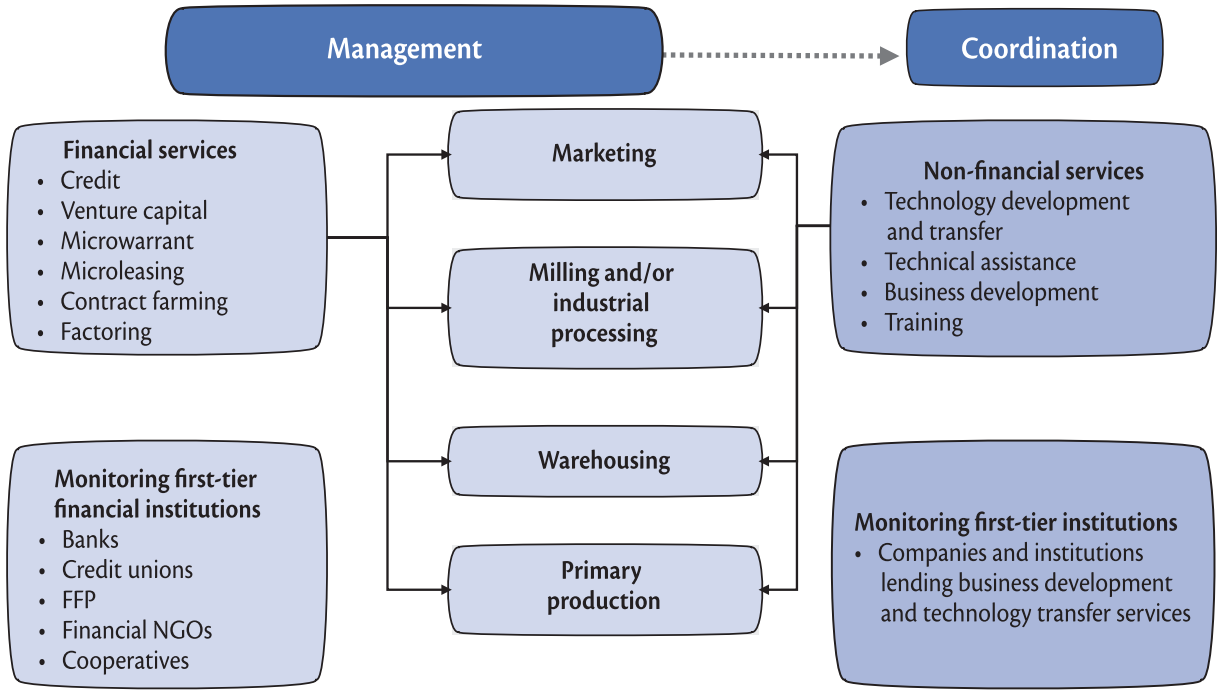
alone; financial institutions could not make use of these innovations unless rules and regulations were developed. Thus began a process of lobbying with national authorities.

The PROFIN program, which had been working with support from Swiss Cooperation only, was strengthened in 2005 with the arrival of Danish Cooperation (DANIDA), and starting that year, became a "dual agency" program. The Foundation per se was created in 2007 when it became clear that needs remained unmet and in fact the way was open to make real and lasting contributions. With the creation of the PROFIN Foundation, the mission expanded toward driving true production development processes instead of merely working with a narrow vision of financial support. This revealed the need to couple the supply of financing with other services, such as technical assistance and technology transfer.

The PROFIN Foundation is a second-tier institution. While it does not grant loans directly to producers, it is very involved in the field of financial services and strongly pushes for financial innovation. When it obtains resources from cooperation agencies, it classifies them as reimbursable funds with the requirement that they be used for financial innovation. If financial institutions were asked to send financing to a particular place, they might be afraid to do so. They are risk averse because it is unfamiliar territory to them. This was why a fund had to be set up. It allowed PROFIN to tell the finance companies, "We have this financial innovation so you can place funds. PROFIN will give you a loan at a reasonable rate, at which point you come in and conduct the pilot." With this support, the finance company becomes involved and begins to place funds; they discover that it works because loans are being made to farmers who are truly in a position to produce. The objective is for the financial firm to see that, indeed, the risk is not so high, and they can begin placing their own funds, thus ensuring that the supply of finances is available where it is needed.

The model PROFIN uses for intervening in value chains can be seen in Diagram 4.13. Financial services are a basic component, and they should be designed with a clear understanding of the chain. What novel product might be useful for each link? It could be a microwarrant, a short- or long-term loan or contract farming. This way, financial innovations are designed as a function of the value chain itself. Any non-financial services are then developed in parallel fashion. The work of the PROFIN Foundation comes afterward, in the form of follow-up with financial entities so they can carry out all planned financial innovations as defined. It coordinates both with the financial institutions and with the farmers.

Diagram 4.13 **Model for PROFIN intervention in value chains**



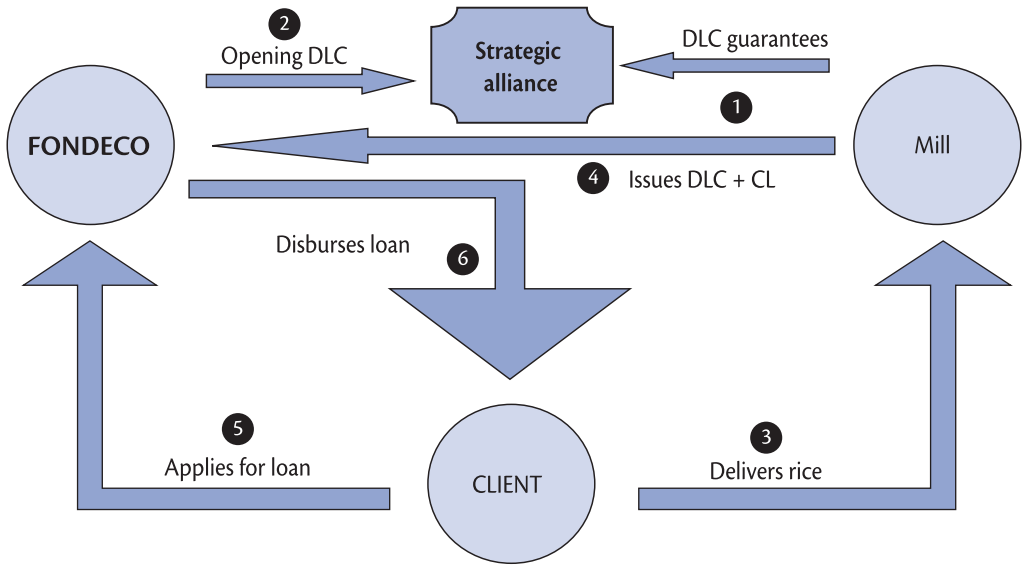
SOURCE: Edwin Vargas. Seminar presentation.

2. Financing the rice value chain

PROFIN combined efforts with a financial institution (FONDECO) in 2000 to carry out specialized assessments of financial supply and demand; it also conducted preliminary studies of the warrant system. The findings suggested that credit programs should be backed with certificates of deposit and pledge bonds (warrants) for rice and corn in Santa Cruz de la Sierra. This product would use bridge loans to finance small-scale farmers. What are the limitations on requesting a bridge loan at present? Farmers have typically needed to finance with money from anyone willing to give them credit, whether a lender, an input supply company or the mill, along with a commitment to deliver the rice to their warehouses. This places farmers under obligation to negotiate with these parties, but usually at a time of year when everyone is harvesting and prices are low. They have no choice. They need to deliver their product at that price. After the harvest season is over, prices rise by 30 to 60 percent. It became clear that farmers needed to finance their production at that time with funds from somewhere else so they would not be forced to deliver their rice when prices were low.

Meanwhile, the large number of mills had considerable infrastructure that often sat empty. There was too little work because of the overabundance of mills. The project therefore offered these mills opportunity to keep busy longer by joining a strategic partnership and extending a domestic letter of credit (DLC). The mills were interested and obtained the guarantees they needed in order to adopt a form of credit, which in fact was a pledge that all the participating farmers would deliver their rice to that mill. The mill extends credit to its clients, usually farmers, to cover all their debts, and the final product is held in the warehouse. When prices are higher, the farmers themselves decide when to sell (Diagram 4.14).

Diagram 4.14 **Flowchart of the rice microwarrant**



Source: Edwin Vargas. Seminar presentation.

Finally, certain formal constraints made it impossible to implement the warrant in accordance with standards of the Examiner of Banks and Financial Entities. However, FONDECO decided in February 2003 to implement a pilot microwarrant program for rice through a strategic partnership with a rice mill. The first stage of the pilot program ended very successfully in December of that year.

Several objectives were set for introducing this microwarrant product into the chain. The first was to benefit small-scale grain farmers by offering seasonal loans for marketing, backed by the stored rice. Another was to lessen the "transfer" of economic surplus from smallholders to commercial intermediaries. The third was to give access to credit for small-scale rice farmers who had no traditional collateral. As members of the overall rice chain, small-scale farmers are involved in production, while the rice mill, via the use of the financial innovation known as the microwarrant, takes part from warehouse to milling and finally, marketing.

The process flow is described in Diagram 4.14, showing the role of the financial institution, the mill and the end customer. The mill can submit a guarantee to the finance company because a strategic partnership is in place. The finance company extends the mill a domestic letter of credit based on the full range of guarantees for receiving the rice, storing it, safeguarding it and lending full services to the farmer. The farmers then deliver their rice to the mill, which issues a domestic letter of credit, plus a credit line (CL). Next, the farmers, having stored their rice, go to the finance company and apply for a loan, known for this purpose as a bridge loan, to cover their debts until they decide to sell their rice.

The mill serves as both depository and marketer. When the farmers decide to sell their rice, the mill begins to process all the grain and charges for this service. The mill becomes a direct guarantor of the farmers because, with all its infrastructure, it also backs the farmers' loan applications. Finally, the mill serves as a holding agent because when the farmers say "I want to sell my rice," the mill goes out to sell the rice, charges for the sale and retains the farmers' payments to the finance company. The finance company thus has several layers of protection. Its client, who is the beneficiary, is a rice farmer who needs immediate funds backed by rice stored with the authorized mill.

3. Benefits and lessons

What have been the main advantages for participants? Benefits for FONDECO, the financial institution, are: repayment of the credit guarantee and therefore, less risk; real guarantees from the mill based on stored grain, and lower credit management costs because the system is so simple. Paperwork is minimal, and collection is effortless. The rice mills also receive benefits: the credit incentives provides a competitive advantage; the mills make better use of existing facilities which are now occupied up to 100 percent of the time, instead of the previous 20 percent use, and they receive more income for the service. Client benefits are: fast credit, with loans coming through in 24 hours; higher income; lower interest rates than those available with conventional loans because this is low-risk credit, and the finance company therefore incurs minimal costs and can provide cheap credit to farmers. Rice farmers also enjoy lower transaction costs.

Many lessons have been learned. It would be a mistake to begin with the microwarrant if insufficient infrastructure were available for storage. Ownership of stored grain needs to be very clear. It is also important to be careful about contraband when rice prices are high. At the start of microleasing, it is critical to find reliable suppliers who have sufficient stock and can meet delivery commitments on time.

D. Family farming cooperatives in Brazil

Rosalino Luiz Alba

This section describes the system of family farming that operates in many countries, most significantly, Brazil. It explains the system, followed by a full, detailed description of one of the cooperatives in the sector, Central Cresol Baser. This credit union offers credit and other financial services linked to a variety of non-financial support activities, from training to programs on gender, youth and environmental protection.

1. The family farm system and the solidarity-based economy

Cresol Baser is part of an integrated system of credit unions that support one another through solidarity-based action. These credit unions operate under federal law, are bound by the regulatory framework for credit unions and, as financial institutions, are subject to oversight by the Central Bank. They are also members of a central credit network and regional service centers which provide special assistance.

The members and leaders of the credit unions are family farmers who, when the system was created 15 years ago, registered by setting up a checking account in the bank. They were very unusual, a group almost entirely excluded from the financial system. Today, family farming can be found all over the country and accounts for five percent of all land under cultivation. Family farming is highly diverse and holds the potential to be even more so.

The credit component of this network of family farm cooperatives and social economy in Brazil consists of seven institutions operating in different parts of the country including the Northeast and especially at the southern tip. They maintain business relationships with different financial institutions, depending on where they are located. For example, in the south they work closely with the Banco do Brasil and with the BNDES (Banco Nacional do Desenvolvimento Economico e Social), Brazil's development bank. Both provide services for financing, check clearing and processing of other documents, or serve as the main source of long-term financing. They also enjoy business relationships with regional banks, such as the BRDE (Banco Regional de Desenvolvimento do Extremo Sul), private banks and local governments.

2. Central Cresol Baser

The Central Cresol Baser is a conglomerate of family cooperatives operating out of southern Brazil since 1995. Its mission is to strengthen solidarity-based integration among small-scale farmers and their organizations through credit and the transmission of knowledge, pointing toward sustainable development. It is a decentralized network of cooperatives of small-scale farmers or farm families, whose main challenge is social inclusion of the target group with a focus on sustainable local development. As of December 2009, it had a total credit portfolio of US $290 million, 46.000 active borrowers, deposits totaling US $119 million, 105.000 deposit holders and total

assets worth US $390 million. In 1996 it started with five service centers and 1.639 members, and today it can boast 159 centers and 76.375 members, most of them families.

Cresol Baser offers financial services including credit, voluntary savings and insurance. It has business development programs, education and training opportunities and interventions of many kinds. As part of this diversity of services and activities, it works with the government, mostly in the area of public policy. The main program with which it coordinates is PRONAF (Programa Nacional de Fortalecimento da Agricultura Familiar), which offers several different types of financing for farm producers. The six lines are: costing, investment, fish farming, handicrafts and two housing products, one for home repairs the other for new homes. The costing line offers products especially for agricultural value chains. Investment activities cover a range of products, including conventional investment and agroindustry, investments by youth and special lines for agro-ecology. All these operate under the rubric of family farming. Family farmers by definition have three or four plots of land at the most, totaling around 30 hectares. Because they are small-scale farmers, they need to be provided with technology, such as organic agriculture, diversification and more.

It is important to assess the quality of their land, the amount of family labor they have and what types of credit lines they need. For example, they may need credit for food production, machinery purchase, equipment, modernization of the fleet, medical care, benefits, or beef and dairy production, which makes up most of the income for many families. The idea to equip them with tools that will improve their production yield. Under agricultural production, additional lines of credit are available for fruit production, modernization of the fleet, flower cultivation and pasturage. It is not unusual for three, four or five families to buy one machine together, as these are small family groups. The institutions in the system need to study who will have access to credit.

The Cooperative Training Institute (Instituto de Formación del Cooperativismo Solidario), faced with a high demand for qualified people, created a training model. Many people are needed to work in managing credit and cooperatives, which is the Institute's area of specialization. Its role is to train financial overseers, general staff, members, and the current and future directors and leaders of cooperatives.

An insurance program, Cresol Seguros, was also set up to offer a more complete range of financial services: loans, trust funds, insurance. Currently in the works is a technology cooperative that will be used for making large-scale purchases of machinery and equipment, lending support in the area of information technology, and training in the use of management software. Plans are underway to organize these production chains further, equipping them to produce more and better with higher quality and thus contribute more to development.

An additional program was designed to upgrade or acquire housing, known as *Mi Casa Mi Vida*, or My House, My Life. The program has already covered over 900 homes. A family training program works to improve relationships among youth, men and women and also addresses child care. The goal is to give young people an opportunity to participate in income generation, labor and decision-making on what to do with the property. Another program, Gender and Generation, will train 1.500 women and increase their participation in managing the cooperatives.

E. Integrated intervention in Colombia's beef value chain

Mauricio Osorio

Cattle raising is one of the most important activities in the Colombian agricultural sector. The Fondo Ganadero de Santander (Santander Livestock Fund), which has been in existence for over six decades, has positioned itself strongly at the different stages of the beef value chain, even creating a financial institution, Crezcamos, that lends credit, insurance and other services to small-scale livestock producers.

1. Colombian beef production

Cattle raising is the most prominent economic activity in the rural sector of Colombia, and its role in the national economy continues to be relatively significant. Nevertheless, it has been hit simultaneously by numerous crisis situations, a difficult environment that is very visible in agricultural and livestock production. This is due, not only to the chronic lack of an institutional framework and public investment as a condition for development, but also to the social imbalance and climate of lawlessness and violence that has taken hold of rural areas in Colombia due essentially to a critical lack of government presence. The violence lasted many years, and because the conflict gathered particular strength in rural areas, beef producers and other farmers were the first victims and the most hard hit. Many were displaced into the cities.

Estimates of the sector's overall worth and its total share in added value suggest that cattle production makes up nearly 3.6 percent of Colombia's gross domestic product (GDP). This is an impressive figure for an activity that is carried out on an individual basis, especially in rural areas. Within the agricultural sector, its relative weight is undisputed, as it makes up 27 percent of the agricultural GDP and 64 percent of total animal production.

Nearly 40 percent of all farm units have some type of cattle activity (see Table 4.1). FEDEGAN took a census of 496.147 farm plots; of these, 48 percent have fewer than 10 animals per plot, and 82 percent hold less than 50 animals. That is, they easily qualify as small-scale cattle production. The country also has a significant livestock middle class (17 percent of plots measure 50 to 500 hectares) and finally, only 1,1 percent of the plots (1.564) hold over 1.000 head.

The sector generates family employment more than jobs for hire, with a high non-monetary component in labor compensation. This type of association predominates among the smallholdings, which in fact make up the majority. As the size of the herd grows, the use of family labor decreases and the amount of labor hired from off the farm increases.

Table 4.1
Structure of the Colombian cattle sector

Number of plots	Number of cattle per plot	Type of cattle		Percentage of total plots
		Number of plots	Classification	
239.413	Fewer than 10 animals	406.709	Small (82,0%)	48,3
103.814	11-15			20,9
63.563	26-50			12,8
42.926	51-100	83.677	Medium (16,9%)	8,7
30.469	101-250			6,1
10.282	251-500			2,1
4.116	501-1.000	5.680	Large (1,1%)	0,8
1.564	> 1.000			0,3
496.147	Total	496,147		100,0

SOURCE: FEDEGAN.

2. The role of the Fondo Ganadero de Santander in the beef value chain

The Fondo Ganadero de Santander (FOGASA) is 64 years old, founded in 1945 as a private corporation whose stated objective for the region and the department was to bring development, growth and sustainability to the agricultural sector. It would offer a variety of activities governed by broad social objectives, and the main focus was on production, industrialization and financing of agricultural goods and services. The public sector holds fully 40 percent of the organization, between the national government and local government. Significantly, the remaining 60 percent ownership of the Livestock Fund consists of 4.200 members; of these, 90 percent are small-scale producers who have been learning and growing over the six decades that the institution has been pursuing its social objective.

The beef value chain as a whole, from the primary sector to the consumer, consists of five stages as described in Diagram 4.15: cattle raising, slaughter and meat production, shipping of animals and meat, marketing and consumption. The Fondo Ganadero de Santander is actively involved, with its portfolio of services and the development of best practices, at every stage except shipping.

Diagram 4.15 **Beef value chain**

SOURCE: Mauricio Osorio. Seminar presentation.

Shipping is the only field in which FOGASA is not involved. At all the other links, it plays an active part in particular spheres of development of the chain, as described below.

a) *Cattle raising*. This cycle is divided into two important parts: first, management of cows, when small-scale farmers decide to rethink the use of their female animals as a production sector per se; and second, whether to hold onto their animals or market them as calves. How does the Livestock Fund contribute to this cycle of cattle raising? The Fund has five farms in several regions of the country, each one covering 5.000 hectares of land. On these farms, it has made major efforts to develop a farm management model. During the life cycle of the cattle, FOGASA is also involved through FOGASAL, which in partnership with domestic stockmen produces salt and distributes it through private feed stores and through the FONAGRO network of supply outlets. This network of stores provides livestock inputs on very short-term credit. Another contribution to this part of the process is TECNI@AN, which in partnership with the National Stockmen's Federation (Federación de Ganaderos Nacional, FEDEGAN), provides training, administrative support, help with machinery and equipment, technical assistance and technology transfer, so that small-scale cattle raisers or producers can manage their farms better.

b) *Slaughter and meat production*. The greatest challenge in this link of the chain is that slaughterhouses are very far-flung. It is often said that there is a slaughterhouse in nearly every municipality of the entire country. Not only are most of them located on inappropriate sites; in addition, most fail to meet even the most basic quality standards in their processes, health practices and environmental management. What has the Livestock Fund done to solve this problem? It created the company Frigorífico FOGASA, one of the five most modern slaughterhouses in Colombia and the most developed in the Northeastern region of the country. It is certified to produce for export. Today it has capacity to slaughter 800 animals per day, most of which are exported.

c) *Marketing*. Another link is the marketing of animals and meat. There are three main marketing channels: (i) commissioners, who serve as wholesalers; (ii) neighborhood butcher shops, chain supermarkets and the processed meat industry, and (iii) the institutional sector, such as hotels, hospitals, clubs and the armed forces. Marketing is the least populated link in terms of number of operators, but the most profitable, although small-scale producers benefit very little from it. FOGASA is developing an infrastructure project called The Hitayara Market Coliseum. Every two weeks its holds stock shows where small-scale cattle raisers and buyers can take part in the auction, submit buy or sell bids and obtain better prices, and small-scale producers can talk directly to buyers.

The second tier of beef marketing is a network of aged beef sales outlets called Carnes Magras. Cattle raised through the animal production stage and slaughtered at the packing plant can be made available to consumers under legally mandated health conditions.

Finally, at the stage of *consumption*, very few people can afford added-value products, and most of the market still prefers fresh, non-aged and unprocessed beef without distinguishing among different cuts or grades. This is another area where the Livestock Fund is active, promoting high-quality beef consumption.

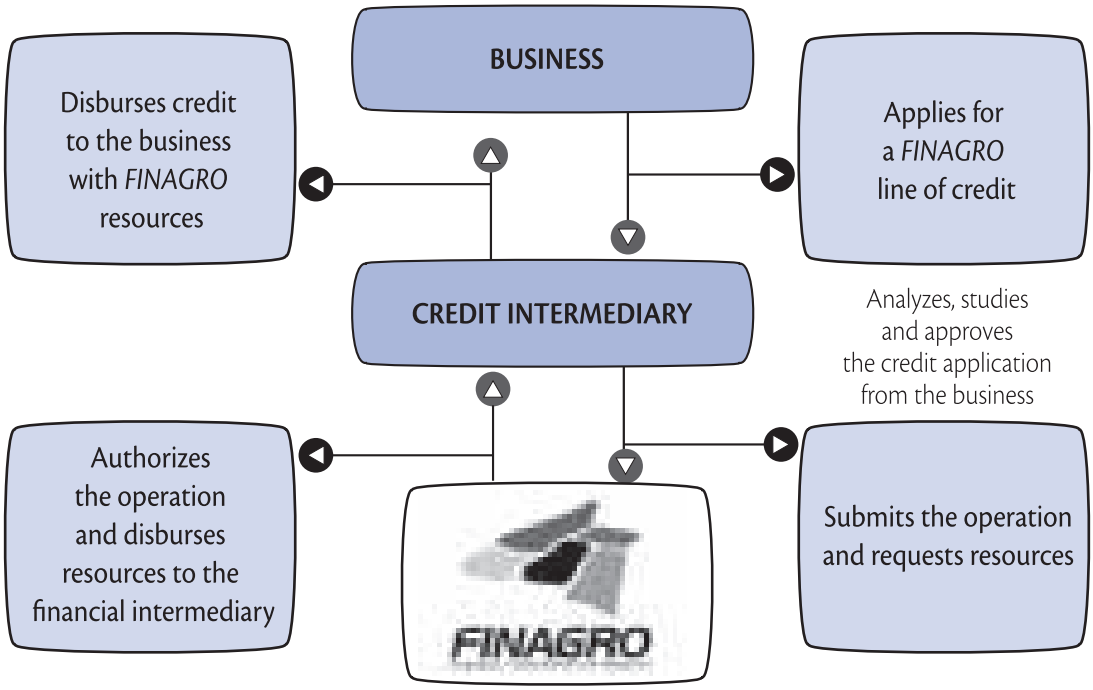
3. Financing the beef chain

How can the beef chain be financed in the territory covered by the Fondo Ganadero de Santander? Several different approaches will be summarized here. One is a financial institution, Crezcamos, created directly by FOGASA.

In 2001, the government enacted a bill allowing livestock funds to rediscount credit operations with the Fondo para el Financiamiento del Sector Agropecuario (FINAGRO), one of the most important second-tier institutions in Colombia. FINAGRO issues bonds redeemable through the financial system, by which it raises money to be invested in the entire agricultural sector. Even as the livestock funds were being set up to operate and were becoming regulated by Colombia's Bank Examiner, new changes in the laws barred the funds from this type of activity. As a result, many found themselves with fully prepared credit programs , but with little or no operations. Only two or three livestock funds around the country were able to perform a small number of credit operations.

Traditional financing is always available, and FINAGRO extends it through financial intermediaries, as illustrated in Diagram 4.16. FINAGRO, as a second-tier bank, offers resources to develop agricultural projects using loans available through financial intermediaries sitting on FINAGRO, such as banks, finance companies, commercial lending institutions and credit unions. This means the processes for submitting documents and for analyzing and approving credit applications are carried out directly with the financial intermediary.

Diagram 4.16 **Traditional financing through FINAGRO**



SOURCE: Mauricio Osorio. Seminar presentation.

FINAGRO has very soft credit available for small-scale producers, Afro-Colombian communities and low-income rural women for up to US $20.000, with as much as 100 percent financing of direct project costs and interest rates of no more than four to six points above the reference rate. Even so, the main intermediary is the Banco Agrario, which on average may take three to four months to disburse. It is highly inefficient, and every year grants only around 140.000 loans.

Given this situation, FOGASA continued to seek an alternative approach by which to finance the Fund's member cattle producers. In 2008, the option arose to invest in a recently created corporation, Crezcamos, which was first set up in 1997 as a credit program under FUNDACOOP, a microfinance organization of the teachers' union. This foundation had grown strongly, but the teachers were no longer interested in the finance business, with all the demands that would be applied by the oversight bodies because the credit fund had grown so large. The corporation was therefore created by several partner organizations: FOGASA (20 percent share), the FOGASA packing plant (15 percent), INCOFÍN, a Belgian fund specialized in microfinance (36 percent) and a group of private investors holding the remaining 29 percent.

Crezcamos was thus strengthened and positioned as a microfinance institution with an emphasis on operations in the rural sector, working the same line of coverage as the Fondo Ganadero de Santander. This MFI adopted a clear mission: to be the top company in the Northeastern part of Colombia in lending financial services for micro- and small-scale enterprises, thus contributing to the development of its clients' family economies. The Crezcamos finance portfolio includes:

- *Crediagro*. This line of credit can comfortably cover the financing needs of its agricultural business, provide it with necessary working capital, purchase short- and medium-term fixed assets and offer expeditious services.
- *Credinegocios*. This line of credit can comfortably cover the financing needs of the non-agricultural business and provide necessary working capital and purchase of fixed assets.
- *Crediportuno*. This line of credit provides a mechanism for developing seasonal business opportunities and thus meeting its needs for working capital over the very short term.
- *Credirenovación*. Clients with an excellent payment record and a history of good business can use this line of credit are able to turn over their loans, raising the amount and lengthening the term.
- *Credimoto*. This line of financing is used to purchase motorcycles that simplify mobilization and transport of client merchandise. It boosts productivity for business units, both agricultural and commercial.

Crezcamos has also developed a portfolio of insurance products highlighting micro-enterprise insurance to protect these very small businesses from problems such as theft or catastrophic events and allows them to insure business content, machinery and merchandise. It offers life insurance, homeowner's insurance and insurance for assistance in paying funeral expenses.

Finally, Crezcamos has been expanding its coverage. By December, 2009, it was operating in 28 municipalities, often in places where no other microfinance institutions were present. Most of the families receiving services belong to strata 1 and 2, that is, the lowest-income groups, and they make up 97,4 percent of the total population served. In 2009, the institution disbursed US $ 8 million through 9.500 loans.

F. Experience of a non-financial multinational with small-scale stevia producers in Paraguay

Fernando Chilavert

This section will describe the international stevia market and its growing demand in the food and beverage industry, how it has developed in Paraguay and the role that PureCircle is playing in all these processes, including the critical matter of technical assistance. The PureCircle operation demonstrates what happens with financing for small-scale farmers and sheds light on the relationship between small-scale farmers and the finance institutions that give them credit. This is because PureCircle does not provide direct financing to the stevia production chain.

1. International stevia production and the role of PureCircle

The stevia business has been present in Paraguay for years, even decades. Stevia is native to Paraguay and was taken to China to create new varieties. From China, cuttings of these plants traveled to many other countries, including Egypt, Australia, the United States, Argentina, Brazil, India, Indonesia and Malaysia. As a result, today stevia can be found as far away as Chinese Siberia.

The problem in Paraguay is that stevia production and marketing have always been very difficult processes, especially for the farmers, because they never had a guaranteed market. Hordes of people have always swarmed out into the countryside to tell them, "Take this! Plant it! When it's ready, we will come back and buy it from you." Years would go by, and they never came back. Farmers began to mistrust stevia cultivation, with the exception of a few local enterprises that continued to promote the crop. It was these businesses that managed to bring about an increase over the years in the acreage planted to stevia in Paraguay.

PureCircle, a company created in 2002, appeared in Paraguay in 2008. It invented its own technology for extracting rebaudioside, which along with stevioside is one of the two components of stevia. Stevioside is less sweet, or even bitter, while rebaudioside is the sweet compound. In December 2008, the United States Food and Drug Administration (FDA) approved the use of a component of stevia. It did not approve stevia as a food product generally recognized as safe, but approved rebaudioside, commonly known as Reb A. What is Reb A used for? Basically, it is a sugar substitute, a natural plant compound that contains no calories. Reb A is used commercially to replace a certain amount, but not all, of the sugar. It can also replace most other chemical sweeteners.

PureCircle is a world leader in the production of Reb A, or high-quality stevia. Its operations can be found all over the world. In Kenya it holds a joint venture with FinLay Tea, a British company that has been been working in Africa for over 100 years. It has a partnership in Asia with Wilmar International y Olam International. Its institutional clients include Pepsi-Cola, Coca-Cola, Merisant, Danone and Nestlé. It owns plantations in China (15.000 hectares and growing rapidly with government help), Paraguay (500 hectares with plans to reach 6.000 hectares in five years), Kenya (5.000 hectares being planted) and in a number of other countries: Thailand, Laos, Vietnam, Egypt, Peru, Colombia, Bolivia and Chile.

What did PureCircle do differently from the rest? The answer is simple. The company owns intellectual property rights for a small number of plant varieties. Even more important, PureCircle entered the stevia business as a 100 percent vertically integrated company. It ran everything from agricultural production to product industrialization to marketing, which was lacking in the past, especially in Paraguay. Now that the United States market has opened to rebaudioside, the sky is the limit. In fact, just a year and a half ago, Sprite Green was launched in the United States as the only carbonated beverage of the big producers such as Coke and Pepsi that is sweetened with Reb A and contains no sugar.

The business of Pure Circle in Paraguay is to foster the cultivation and harvest of premier-quality stevia leaves from improved varieties. These improved varieties have a much higher percentage of stevia than the traditional crop grown in Paraguay. While traditional plants contained an average of 35 percent, the company's proprietary varieties contain 75 to 85 percent.

In Paraguay, 90 percent of the useful arable land is under soybeans, followed by wheat, sunflowers, rice, corn, cotton and several minor crops. PureCircle has a two-pronged target for stevia cultivation: both small- and medium-scale producers, and large farmers. The large producers will not come under the lens of this study, as they are able to obtain their own financing because of their size. The emphasis here will be on the micro-, small- and medium-scale producers. PureCircle is working with this group in Paraguay, made up of some 700 small farmers holding 700 plots or farms that grow stevia on one-fourth to one hectare of land. The average farmer in Paraguay owns 10 hectares of land, many through inheritance and without formal title, or received from government agencies or through agrarian reform programs. One hundred percent of the labor is provided by family members. Small farmers in Paraguay generally do not hire outsiders to do their work. The family labor force is limited to the father, mother and underage children because the older children tend to migrate to the cities or to the capital.

2. Who pays for technical assistance?

An important point emphasized by Anita Campion in Chapter 2 is technical assistance and how to pay for it. This is also a priority in the PureCircle operation. The company has 55 people on the payroll, four of whom are in management, one who works with systems in Haiti, and the rest of whom serve as professional agronomists and field technicians. If the company hopes to meet its expectations for farmers, it must provide them what they

need: teach them and accompany them. Purchase contracts for three to five years of production contain a clause stipulating that if the farmer does not abide by the instructions of PureCircle technicians, the contract can be nullified. Why is this? It is for the same critical reason explained by Campion: financing. In this case, PureCircle pays. If extension services are needed, the company provides them. If the technology package for planting an improved variety calls for the use of clonal reproduction rather than seeds, the farmer is fully steeped in the relevant information in the areas of influence. PureCircle conducts the operation with 100 percent technical assistance. The technical specialists work for the company, not for the government or a farmer cooperative or the Ministry of Agriculture, and much less for local governments or municipalities. This is the only key for obtaining a high-quality product and changing the farmers' age-old mindset by which they do whatever they want, however they want. Their custom is to plant, sit and wait for rain, and expect someone to come along to buy their products. This is not what the company wants, so it needs to work and invest.

What is the relationship between the company that pays and the loan? None at all. Technical assistance is an obligation imposed by the company that buys the product, not the government or the lending company. Why is this? When PureCircle receives the final product, a dried leaf, it applies the same quality standards that are demanded in the manufacturing plants. In order to meet these standards, farmers must be "taught how to walk." It is a simple process that they presumably know how to perform, but they never do it because no one has ever told them to or demanded it. This is why farmers need to be taught and accompanied for the first five years until the crop is well established and mature. By this time, the crop has penetrated the mind of the farmer who has understood that all instructions must be followed in order to obtain the best possible outcome. Until this is achieved, technical assistance is an obligation imposed by the company that buys the product and demands the quality. PureCircle needs to show farmers how to obtain high quality until they can do it themselves.

3. Financing small-scale stevia producers

The financing needed by that this type of micro-, small- or medium-scale producer is a function of the irrigation system. Financing is provided to install irrigation based on observed differences in income between plots or farms that have an irrigation system, and those with no water. The ability of farmers to generate income cannot be dependent on whether or not it rains. This is why they need to receive ways and means, in this case, irrigation. Unfortunately, as Anita Campion described for the case of Honduras, Paraguay has smallholders with land but no title. It also has lenders, not formal finance companies, that can charge whatever they want because rural areas lack micro-finance institutions, and the government is non-existent, for all intents and purposes, to finance small scale-farmers.

Commercial banks have never been seen in the Paraguayan countryside. If you travel 100 kilometers distance from the Paraguayan capital city of Asunción and leave the main highway, drive another five kilometers, or 105 kilometers from the city, you find people who have no electricity or running water. These people have nothing, least of all a loan. This has been the situation in Paraguay for more than 35 years. The source of financing for small-scale farmers has always been self-support from their own farms, so they have never had any growth

potential. In some cases, the state has intervened by providing loans through the Development Bank, but it required loan collateral, and many producers in the Paraguayan heartland are simply not equipped to provide such guarantees. More recently, small loans have become available through NGOs and micro-finance companies that extend financing to micro-, small- and medium-scale producers, often at high interest rates.

Based on the experience that PureCircle has developed with farmers out in the field, the following list of requirements should be considered by micro-finance companies or, in general, any firm that offers financing to small-scale farmers:

- *Minimum bureaucratic requirements*. You need to go to the farmer. Farmers do not know how to get around in large cities, and often do not even want to. They want to stay home in their own environment, their own small world, which is where they feel safe. Several companies now have a network of branch offices in all the major cities of the country.
- *Appropriate repayment conditions*. PureCircle is coordinating with the finance company Financiera El Comercio, which offers a product that runs parallel to the crop cycle. Loans to small-scale farmers in Paraguay have typically been for terms of 12 to 36 months, without considering the crop year before deciding what product or financial service should be offered. They would normally charge principal plus interest with regular payments, and repayment had to begin before the crop was even ready for sale, much less for the market.
- *Flexible, appropriate loan guarantees*. New production mechanisms exist today whereby many companies sign a production sales contract with the farmer, and this contract can stand as backing for a subsequent loan. The system is explained in other sections of this chapter and other parts of the book; it is an approach not often practiced in Paraguay because, as also explained in this book, there are so many intermediaries or coyotes. A farmer can sign a crop sales contract 30 pages long, but if the coyote comes along and offers a few cents more, the product is gone. PureCircle in Paraguay recently had an experience with a farmer who was going to be paid one dollar per kilogram of product. Someone showed up and offered 70 cents for the same product that was going to be sold for a dollar, and the farmer sold. One of the clauses in the contract stipulates that the plants belong to PureCircle, and if the farmer sells pledged leaves to another party, the contract is rendered null and void. This was the first such case, and they asked the farmer, "What happened? Why did you sell? Not only that, you sold cheaper." The farmer said, "It was Wednesday. I needed to buy something that couldn't wait until Friday, when you were coming." They learned the lesson that it is not enough to go only on Fridays. The company needs to stay close to the farmer. They also learned how important it is to understand the farmer's needs. Because of a two-day difference, he sold more cheaply and lost money, but had cash in hand.
- *There is no one recipe*. There is no one recipe. Many financial products may be available, but none of them is the perfect solution for every farmer's problems. As Ken Shwedel explained in Chapter 1, both the product and the producer need to be made bankable. Successful application of a strategy for one sector does not necessarily guarantee that the same strategy will be successful in other sectors. This is why we need to know what is being offered. We need to adapt to the product, and above all, adapt to the borrower. A soybean

exporter who can deliver shipments worth US $30 million per year is not the same as a small farmer able to sell US $5.000 or US $10.000 per year. The sizes and conditions of each sector need to be understood before offering financial products.

- *Appropriate incentives*. The borrower needs to receive appropriate payment incentives, such as easy access to new loans for larger amounts, new products, linkage with other service entities, and the like.

One mistake that PureCircle detected in many finance companies was that they cannot see the forest for the trees. They want to lend money, whether they are private or publicly owned, and they see farmers but cannot see what is behind the farmer. They do not look at that farmer five or 10 years hence. The product offered is for today, at interest rates that can be charged today. There has been no process of analysis before granting credit or deciding what type of product will be offered to the farmer.

Finance companies should not be offering money only. Money is a means, but they should be offering solutions. If farmers have no education, little financial culture, or do not know how to make the best use of profits earned with this loan, it will do no good. The farmers will not be able to apply for a second loan, and the company will not grant one. We need to know what is being offered, we need to be acquainted with the person it is being offered to, and we need to know what best to offer.

G. De Deby Green Ventures Capital en Kenya

Beatriz Obara

Kenya Gatsby Trust was one of the four African trusts established by the United Kingdom based, Gatsby Charitable Foundation. It was a non-profit business support organization involved in the facilitation of capacity development of micro and small enterprises, through business development services (BDS), financial services and technology development.

The program ended in September 2009, and thereafter, it was supposed to be taken over by the commercial banks, but none of them was willing to do that. The author, a former officer at Gatsby Trust, teamed with other partners and continued the work of the Trust through a new company: De Deby Green Ventures Capital Limited. In the rest of this section, there is a macroeconomic overview of Kenya, and a description of the financing operations of the new firm, emphasizing its factoring facility.

1. Macroeconomic overview of Kenya

Kenya's economy is the largest and most diversified in the region. Its financial and transportation systems are the economic lifeline for much of East and Central Africa. This country's economic growth was of four per cent for 2008.

Population, by the year 2007, was of approximately 35 million. Average population density stands in 13,1 people per square kilometer, and there is a small and medium entrepreneur population of about 2,3 million. The lending interest rates within the last three years have been around an average of 24,3 per cent and the exchange rate has been standing on about 65 shillings per dollar.

Main institutions in the Kenyan financial sector are: the Central Bank of Kenya (CBK), the Pensions and Insurance Authority (PIA), and the Securities & Exchange Commission (SEC). There are banks and non-bank financial institutions (licensed and supervised by the CBK); contractual savings institutions (also supervised by the CBK), and capital market institutions (supervised by the Capital Markets Authority).

There is a very strong playing partner in the financial sector, and that is the microfinance industry; there are almost 60 MFIs in the country (see Table 4.2). There are also three public financial institutions, local commercial banks (29), private commercial banks (10), and two mortgage finance institutions (two have been licensed since 2008). There is only one non-bank financial institution, because it is not that easy to be licensed to be a player in that market.

Table 4.2
Kenya. Types of financial organizations

Institutional type	Number	Percentage
MFIs	59	57
Public financial institutions	3	3
Local commercial banks	29	28
Private commercial banks	10	9
Mortgage finance institutions	2	2
Non-bank financial institutions	1	1
Total	**104**	**100**

Source: Beatriz Obara. Seminar presentation.

A study conducted in 2009 indicated that approximately 66 per cent of the adult population does not have access to financial services due to: (i) limited delivery channels, especially in rural areas, (ii) high charges, (iii) lack of collateral to access credit, and (iv) lack of banking history for the unbankable.

Agriculture is the leading growth sector in the Kenyan economy. It is estimated that agriculture accounts for about 24 per cent of GDP, and employment of about 70 percent of the country's labor force. Agriculture is particularly important for Kenya's poor: 70 per cent of the poor live in the countryside, and depend on agriculture as their main source of income.

The agricultural sector is dominated by production of a few cash crop export commodities, including tea, coffee, horticulture, and cashew nuts. Production for domestic market is dominated by cereals, dairy, horticulture, sugar cane and meat.

2. De Deby Green Ventures Capital

De Deby Green Ventures Capital (DGV Capital) is a limited company, whose focus is value chain financing, both in the agricultural sector and in manufacturing. The mission is to facilitate better business linkages by eliminating the financial stress experienced by businesses during transactions. DGV Capital is giving priority to the agricultural sector, which currently takes up 80 per cent of its portfolio (see Table 4.3), deliberately because of the need to address poverty challenges within the Kenyan society, which affect farmers more directly.

Table 4.3
DGV Capital. Clients by type of activity

Activities finance	Current clients	Potential clients	Average disbursements/ week- Kshs
Tea	450	3.000	400.000
Rice	210	3.500	400.000
Fish	80	2.000	100.000
Cotton	608	8.000	200.000
Total	**1.268**	**14.500**	**1.100.000**

Source: Beatriz Obara. Seminar presentation.

From Table 3.3, it can be realized that most of DGV's current clients are from the agricultural sector because it inherited Kenya Gatsby Trust's portfolio which was focused on the rural sector and on the limiting factors that were making the rural folks not being able to access credit. Serving this sector is an opportunity because microfinance institutions exist, but their clients are required weekly or monthly repayment, which does not match the agricultural production cycles.

Factoring

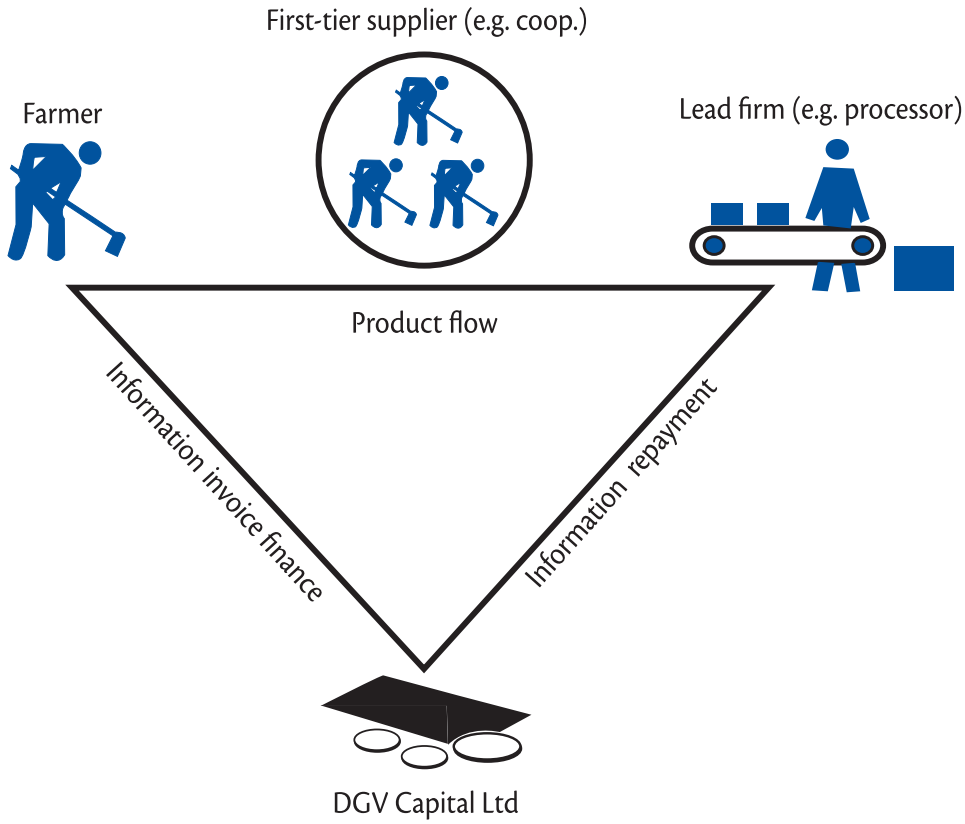
DGV Capital introduced a factoring facility, as a result of several circumstances, and four in particular, namely: (i) collapse of agro-marketing cooperative societies which catered to low income household, (ii) closure of bank branches in rural areas after financial liberalization, (iii) stringent bank lending terms and conditions, and (iv) growth of the microfinance movement, but limited innovation and flexibility in disbursement.

Some of the financial sector weaknesses being addressed under the factoring facility include: (i) limited access to finance; (ii) poor market knowledge of the financial sector; (iii) poor credit culture; (iv) bureaucracy: banks are very bureaucratic and also, when it comes to the micro finance lending processes, at times, because of adaptation of the methodologies, banks are so static, do not want to change to what the clans want. It is important to come up with new products, and that is the reason why DGV Capital has come up with instant

products that are suitable for the clans and their needs. (v) Poor market access is also an important constraint. Producers in the rural sector want to sell to credible institutions, and several times, the buyers have come on and gone away with their products, assuming that the money will come in two days; the producers waited for two months and the money has not been forthcoming. So, what happens the: DGV comes in to play that role of carrying out the diligences, and assuring that whichever company that is going to contract with these farmers is that type of company that is recognizable, and is reputable, and respects the low trade within the mutual trust that should be within the community.

Regarding the factoring facility, it allows the suppliers to convert accounts receivables (approved invoices and delivery documents) into instant cash by discounting them with the DGV Capital factoring at an agreed fee (see Diagram 4.17). Accounts receivables or invoices represent money due from the suppliers' customers (buyer) to the Factor at face value of the invoice, so that he/she does not have to wait the normal 30, 60, or 90 days for the invoices to be paid. On the due date, the customer pays DGV Capital the full amount of the invoice, as per the agreement entered between the parties.

Diagram 4.17 **DGV Capital factoring facility in Kenya**



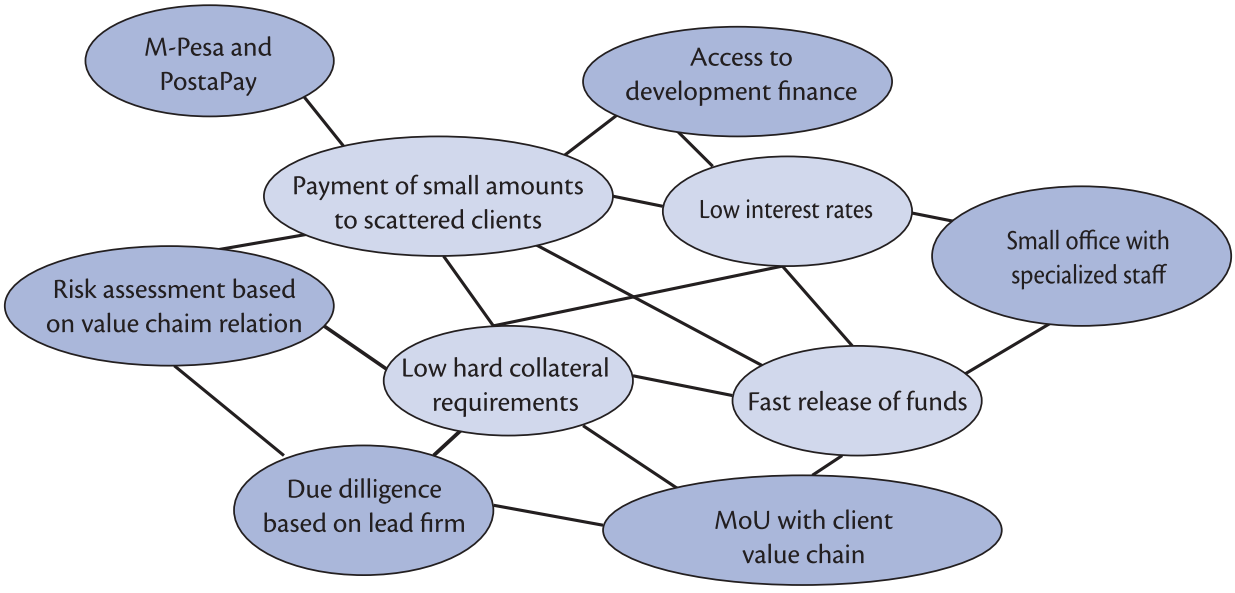
Source: Beatriz Obara. Seminar presentation.

What does factoring do to these particular clans? When a clan has a cow and the cow has fallen sick, the vet doctor will not come to treat the cow, no matter how much they tell the doctor that they will pay in 30 days. The vet wants the money immediately, even before he can treat the cow. So, in many cases, the farmers would wish to have a contract that assures them a certain amount of money in 70 days, for example. It is important for a farmer to know that after harvest, he will be able to get 70-80 per cent of the money; the rest may come later on. And the factoring houses must be strategically placed to be able to care of that particular linkage. Some banks are already doing that, but the market is huge, and given the way the country is structured, the banking system does not reach the whole country, so there can be found quite a number of the rural setup that is still marginalized by the banking system. So, DGV is trying to come in to facilitate those services, looking for those particular areas where the clans are being able to sell to credible buyers. In their contracts, farmers have payments of 30, 60 or 90 days from supermarkets and the other storehouses, and DGV Capital discounts these documents.

The structure in Diagram 3.16 shows the farmer, who must be associated to a group, because DGV does not have the capacity to deal with every individual. There must be a processor who needs to be credible; the processor may have borrowed and may not be eligible for having loans, but may, nevertheless, be able to guarantee and still be able to pay to DGV Capital. So far, in 99 per cent of the cases, there has not been any problem, and the delays have been because the check was not yet done, or something of that nature. DGV does not have cases of exports, but it hopes to grow and eventually move to exports.

The potential market for DGV Capital factoring includes all "modern" agricultural chains, where small farmers are linked to creditworthy lead firms. The value chain must be characterized by stable business relations, coordination and communication, quality management, and other elements of "modern" supply chain management. DGV Capital has developed and tested service delivery modules, that now form the core of its activities. These modules are highly versatile, and ready for replication throughout the region (see Diagram 4.18).

Diagram 4.18 **DGV Capital business model**



Source: Beatriz Obaram. Seminar presentation.

Finally, the overall areas of focus and interventions at DGV Capital are: (i) agribusiness: in this area, it is offered both, pre-order financing to farmer groups and invoice discounting to processors (milk, tea, and horticulture), (ii) manufacturing: in this area the firm focuses on invoice discounting; and (iii) services and information and communication technology: this mainly benefits from invoice discounting.

5 Innovative schemes to support agricultural value chains. The perspective of financial institutions

Richard Clark, Teresa Rivarola de Velilla,
Andrés Urquidi, José Carlos Vaz and Héctor Pacheco

This chapter describes the development, in recent years, of the financial services provided to support the different actors involved in agricultural value chains by a number of institutions in Latin America. The aim is to present the issues using an "applied" approach, in which financial organizations can share their experiences, successes, recent innovative products and the difficulties faced in their implementation. This chapter also includes many valuable lessons and recommendations. The cases examined range from commercial banks –private and state– to microfinance institutions (MFIs), as well as a credit union and a private finance institution. Most of the organizations represented here serve micro, small and medium enterprises. Two of them are primarily MFIs and one, Financiera El Comercio in Paraguay, focuses entirely on agriculture.

A. Credit unions and agricultural value chain finance

Richard Clark

The World Council of Credit Unions (WOCCU) is the global trade association and development agency for the international credit union system. WOCCU advocates on behalf of the global credit union system before international organizations and works with national governments to improve legislation and regulation. Its technical assistance programs introduce new tools and technologies to strengthen the credit unions' financial performance. Worldwide, 54,000 credit unions in 97 countries provide services to 186 million people (www.woccu.org).

This section describes an initiative to support agricultural value chain finance in Perú, implemented by WOCCU and FENACPREP, the National Federation of Credit Unions of Perú. It outlines the methodology applied, considers the lessons learned and describes the different tools used, including tools for mobilizing deposits.

1. The FENACREP/WOCCU project in Perú

Credit unions have had a very negative experience with agricultural loans and often lack credit analysis tools for rural loans. For the producers, the lack of access to financial resources makes it hard to apply the recommendations made by technical assistance providers. Other difficulties include a dependence on intermediaries, low levels of organization and a history of paternalism.

The FENACREP project in Perú set out to address these problems. Its overall strategic objective was to increase farmers' access to financial services and strengthen their links with production and marketing value chains in rural areas. The idea was to introduce a new methodology to reduce the risk involved in providing credit to small-scale farmers and other value chain actors, increase the percentage of earnings returned to small producers and facilitate their access to markets and market information. Before beginning the implementation phase, five key conditions had to be met, namely:

a) Presence of groups of organized producers, with productive and market potential.

b) Minimal basic infrastructure, particularly roads, communications and electricity.

c) End buyers willing to participate in the chain's construction or consolidation, or in both.

d) Presence of solvent and solid financial institutions, committed to the rural sector and with offices near the production areas.

e) Presence of projects or private technical assistance providers.

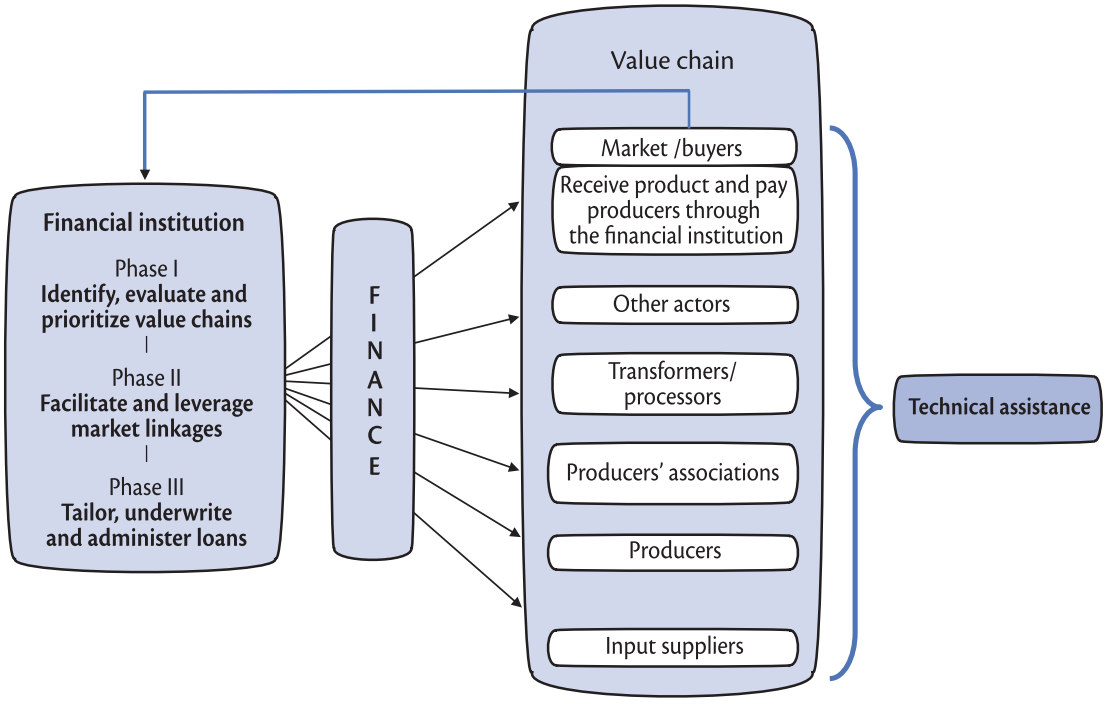
The presence of projects offering technical assistance is very important. One problem encountered with credit unions is that, in the absence of agricultural technical assistance, they themselves attempt to provide it. In a WOCCU project in Kenya, an agricultural technical assistance office was opened within the credit union and, in fact, it did not work well. So that is one lesson learned. Once the five key aspects have been met, the three phases of the methodology can be applied, as described in Diagram 5.1.

Phase 1: *Identify, evaluate and prioritize value chains.* This phase, in turn, consists of three steps: (i) Gathering the necessary information for an in-depth market study; (ii) Evaluating individual value chains. The aim here is to review the value chain analysis tools; map the value chain; prepare a SWOT analysis; assess the producers' technical ability, level of organization and access to markets; and identify potential financing opportunities. (iii) Prioritizing the value chains.

Phase 2: *Facilitate and leverage market linkages*. The second phase of the Perú project is the most important and is not so common. The first step is to prepare general loan **products**, according to the needs of each value chain. The second step is to organize **workshops with value chain actors**. These workshops normally bring together all key actors, who meet for two or three days to discuss the value chain, identify problems along the value chain, develop possible solutions, reach agreements and gather production data and financial data needed to design appropriate loan products. Finally, **the results of the** workshop are **documented**.

Phase 3: *Tailor, underwrite and administer the loans*. The first step is to evaluate the credit history of each value chain actor requiring financing, then analyze the cash flow of the borrowers and establish the terms and conditions of the loans: interest rate, guarantees and refinancing terms. The operation is formalized through signed contracts with the value chain actors; then the loans are disbursed, monitored and the loan payments recovered. The process begins again, including the stages of learning and innovation.

Diagram 5.1 **Value chain finance methodology**



SOURCE: Richard Clark. Seminar presentation.

2. General lessons learned

The value chain finance (VCF) methodology developed in Perú can be adapted to different contexts, products and geographic areas. As that experience has shown, providing credit to value chain actors helps farmers establish sustainable businesses. Based on the lessons learned in Perú, it has been determined that successful value chain finance includes the following elements:

a) *Experience*. Credit unions must ensure that the methodology works before they increase their lending (number and amount of the loans).

b) *Borrower credibility*. The market determines the success or failure of value chain financing. Credit unions should work with established producer groups and select buyers who have experience and a good business reputation.

c) *Formal commitment*. All participants should sign contracts that include penalties for not fulfilling their responsibilities.

d) *Compliance*. The risk increases dramatically if the cooperatives skip any of the three phases of the methodology. Value chain credit analysts and their managers should be trained to understand the importance of completing each phase to ensure long term success.

Often, credit unions think only about agricultural production and the clients are obliged to handle business and financial negotiations. A full evaluation of the chain ensures that special attention is paid to the end market and to interventions that increase the producers' role in the value chain and its value added. Thus, the producers, along with the rest of the value chain actors, must gradually increase their involvement and their continuous commitment. At the same time, anyone who has worked in rural areas knows how difficult it is to obtain formal contracts, but a written contract is required –a kind of gentlemen's agreement, if you will, but it must be in writing– something formal so that all the parties know their responsibilities and the penalties for non-compliance.

The risk dramatically increases if the credit union skips any of the three phases of the methodology. Value chain credit managers should be trained to understand the importance of following each phase to ensure long-term success. For example, it is essential to avoid the temptation of dismissing the workshops as unnecessary and cutting corners by skipping from phase one to phase three; all the phases are very important. The entire process, from the field assessment to the first disbursement of funds takes around six months.

3. Where is WOCCU now?

What is WOCCU doing in the area of agricultural value chain finance? There are thousands of credit unions in rural areas all over the world, but they either do not lend to small farmers or if they do, it is not done effectively. And why is that? The institutions that do not offer loans have had bad experiences, because the people live in very remote areas. It is much easier and safer to give loans in urban areas and the risk in agriculture –at least the perceived risk– is very high, as noted in several chapters of this book. Those institutions that do lend to farmers, do it badly. They operate with funds subsidized by governments or donors, acting with good intentions because they want to help poor people. They give them subsidized money but there is a great lack of knowledge and they operate under a high risk.

What is WOCCU doing? Based on the project in Perú and on projects in 10 to 15 countries around the world, the plan is to create a "toolkit" containing methodologies, manuals, formats and guides to help rural populations. Several projects have already been implemented where credit unions have direct links with technical assistance providers. Financial training will be given to agricultural service providers (private) and agricultural training to the staff of credit unions.

The toolkit will include a set of agricultural financial instruments and technological tools, such as PDA and POS, and will operate via cell phones and local agents. It also contemplates savings tools, as described by Mark Wenner in Chapter 3, which have always played an essential role in WOCCU's work.

Where does WOCCU want to go? It hopes to increase the incomes of credit union members, attract new members and deposits and provide a range of financial services, offering more affordable loans in rural areas, and be better equipped to design financial products and services tailored to the agricultural sector, in general. WOCCU is making an effort to design new agricultural products, bearing in mind the risks of agriculture, to see if it can reach poor people in the countryside. It also encourages credit agents to visit rural communities and provides training on good agricultural practices and the WOCCU value chain methodology.

All these actions aim to ensure that member producers have: access to timely finance, at a reasonable price, in order to optimize their production and increase their incomes; improved access to inputs and market information; and better access to inputs and market information to improve their methods, means of subsistence and incomes. And, also, to enable credit unions to expand their financial markets.

B. Financiera El Comercio. A successful experience in agricultural value chains in Paraguay

Teresa Rivarola de Velilla

This section examines agricultural value chains in Paraguay, and more specifically the model applied by Financiera El Comercio and the agents involved. It also considers the roles, responsibilities and the replication of the model through partnerships, as well as some figures, results obtained with production chains, lessons learned and conclusions.

El Comercio operates in Paraguay, a country with an area of 406.000 square kilometers, six million inhabitants and a bilingual population that speaks Spanish and the native language, Guarani. It has a GDP of US $16.000 million and an average per capita income of US $2.350. The country's primary activities are agriculture and cattle ranching.

1. Financiera El Comercio

Financiera El Comercio was founded 33 years ago and has 630 employees, 70 per cent of whom are based in rural areas. The institution has over 20 years of experience working in Paraguay's rural and agricultural microfinance sector, in particular. Unlike the great majority of MFIs in Latin America and the Caribbean, and even in other parts of the world, its work has focused on the country's rural and agricultural sector.

We often hear the recommendation –reaffirmed in this book by several authors– that microfinance institutions should have a presence in the interior of the country. Financiera El Comercio has 50 branch offices and service centers as well as 250 customer service points throughout Paraguay. It represents the Western Union brand in the country, mainly as a tool for developing closer links with the rural-agricultural sector. Its knowledge of this sector attracted the interest of the ACCION international microfinance network (MFN), which today forms part of the institution's stock package, through ACCION Gateway Fund. It has also incorporated as stockholders the International Finance Corporation (IFC) of the World Bank Group and, more recently, the ACP Group, which owns a very substantial percentage of Mi Banco de Perú, one of that country's largest microfinance institutions.

El Comercio has a portfolio of US $83 million, of which 70 per cent is in the interior of the country. The average loan is US $1.500. It has 84.000 active and passive clients and serves 35.000 micro-entrepreneurs throughout Paraguay. During harvest periods, when demand for credit increases, this rises to 42.000 clients. Its portfolio at risk for more than 30 days is 3,3 per cent, while in rural-agricultural micro-credit the risk portfolio is 2,5 per cent. As to the product portfolio, 68 per cent of El Comercio's portfolio is in microfinance, 12 per cent in personal loans (to salaried employees) and 15 per cent in loans to small and medium-sized producers, with an average loan of US $21.000. The remaining five per cent of the portfolio corresponds to credit cards.

2. Soy value chain and training

Twenty years ago, when Financiera El Comercio decided to work with micro-entrepreneurs, it took the firm decision to work with people in the interior of Paraguay. Moreover, in its definition of the interior of the country it included not only clients involved in trade and services, but also agricultural producers, many of whom benefited from debt cancellations soon afterwards. This was a period of major challenges and El Comercio chose a crop that was not grown on a massive scale at that time: soy; now it is. Back then, soybean was produced on small farms of between five and ten hectares. The institution knew that the agricultural sector was high risk, that there were many challenges to address and paradigms to change, particularly the idea that farmers were not creditworthy, or bankable and that their production depended on the weather.

El Comercio understood that it could not operate alone in the interior, so it looked for strategic partners. The concept of agricultural value chains was unknown, but the institution wanted to work with partners that were very close to the farmers, so it decided to work with silos on a pilot scheme with small-scale soy farmers. This process involved many years of learning about farmers' needs, their production cycles, production costs per hectare, how much labor was required etc.

The pilot was implemented over a long period of between six and seven years and, from the eighth year, the Inter-American Development Bank decided to use the initiative to develop rural and agricultural micro-credit in Paraguay. In 2000, the program received support from a project of the IDB's Multilateral Investment Fund (MIF) and staff members of *Acción Internacional* were contracted as consultants, who transformed the empirical knowledge gained in the early years into technological knowledge. This led to the development of a rural and

agricultural micro-credit technology, which has enabled Financiera El Comercio to expand its pilot plan to all the country's rural areas and to all the crops grown in Paraguay, including sesame, sunflower and cassava.

Nowadays, the world's microfinance institutions often mention "financial education". In those days it was not called financial education, but during the pilot's first stage of implementation, a lot of work was done in that field. El Comercio went into the interior knowing that, six months earlier, two institutions, the *Banco Nacional de Fomento* and the *Crédito Agrícola de Habilitación*, had cancelled very large debts owed by the agricultural sector. Consequently, it was necessary to talk to farmers and convince them that El Comercio was a for-profit institution and that it captured public funds, which had to be repaid and that the intention was to work together, for mutual benefit. In other words, the farmers would benefit by having access to loans, training and a market, through the silos. In those days, before this was called "financial education," El Comercio undertook a major effort to make producers aware of the need to repay their loans.

In the original model involving three actors –the farmer, the silo and Financiera El Comercio– the silo, in addition to providing storage facilities, offered training to help farmers boost their production. El Comercio also made a major contribution to training producers in financial administration, dispatching its trained loan officers to work with the farmers and show them how to determine their income, their expenditures, their surplus, their production costs, their requirements and when they needed to request a loan. Rural and agricultural micro-finance technology was already available and the loan officers also had experience in rural credit analysis.

3. Financing the soybean chain

As to the responsibilities of the three actors (see Table 5.1), the silo was responsible for delivering the seed, storage and marketing, training farmers and setting prices. The silo also had the task of identifying potential clients and recovering the sums loaned, through authorizations extended by the farmers to the silos. Finally, the silo shared its database containing the clients' information with El Comercio. In other words, El Comercio worked hand in hand with the silos. An important part of this system is the agreements signed, particularly the financing of the producer-silo contracts and the farmer's authorization for the silo to repay the loan. El Comercio's legal department has worked very hard on developing these agreements, but other actors have also been involved in preparing the contracts, to ensure that these are really signed with the full knowledge of all concerned, and not by imposition.

Table 5.1
Roles and responsibilities of actors in the soybean chain

Participants	Responsibilities	Agreements (formal and informal)
Silos. (Small, large and/ or multinational)	1. Delivery of seed, storage and marketing. 2. Training for farmers 3. Setting prices (agreement with producers) 4. Identification of potential clients. 5. Recovery of the sum loaned (authorized by the farmer and FIELCO) 6. Use of database	• Financing for contract (producer-silo) • Silo is authorized by producers to repay loan.
Farmer	1. Harvest is delivered to the silo as per the contract. 2. Repayment of credit on time. 3. Demonstration of techniques learned through training in order to improve productivity.	• Contract between silo and small producers. • Loan contract with Financiera El Comercio.
Financiera El Comercio	1. Training loan officers with knowledge of agricultural products. 2. Loan offer and evaluation 3. Disbursements, recovery and monitoring of loan payments. 4. Access to banking services for farmers.	• Loan contract with small producer. • Agreements between the farmer, the silo and Financiera El Comercio • Authorization for loan payments.

SOURCE: Teresa de Velilla. Seminar presentation.

What was the farmer's responsibility in this scheme? To make sure that his crop was professionally grown, thereby demonstrating that the training had been useful, and also to repay the loan on time. Financiera El Comercio trained loan officers with knowledge of agricultural products –and here we should mention that these loan officers were normally the children of farmers who have had an opportunity to receive a different education. They had agricultural knowledge plus knowledge of the area, and El Comercio taught them all about rural and agricultural micro-credit technology, credit supply and evaluation, disbursement, recovery and monitoring of loans. Although the institution now has a large number of service points, these were opened gradually over time. Initially, the El Comercio assumed the risk of disbursing the funds and collecting payments directly from farmers, which often resulted in a somewhat low rating by Fitch Ratings and Standard & Poor's, because of the risk involved in visiting the farms, disbursing the loan and, in some cases, collecting payments. However, internally, the structure had been prepared to minimize the risks. Therefore, from the beginning, El Comercio worked closely with the farmers on their farms, so they did not need to travel or pay for transportation, or leave their farms during working hours to do business. This was a very different approach from the public-sector banks, and meant that at no time were farmers discouraged by the fact that state banks offered more favorable interest.

El Comercio accompanies farmers so that they can grow or harvest their products. A loan contract is signed with the small producer, along with agreements between the farmer, the silo and the finance institution, and the authorization for payment of the loan.

The institution's objective with this program was always to create a win-win situation. In the early years, however, El Comercio had to subsidize the product; but it also invested so that farmers could increase their production, their productivity and the area under cultivation. It was a win-win plan, with gains or benefits for small farmers, for the silo and for the financial institution, as shown in Table 5.2. Producers had access to banking services and an opportunity to build a good credit record. Subsequently, the model was successfully replicated with other crops such as sesame, sugar cane, tobacco, coffee, stevia and dairy production.

Table 5.2
Objective in financing the soybean chain: win-win

Gains for small farmers	Gains for the silo	Gains for the financial institution
• **Access to credit through a financial institution** (credit record and access to banking services for producers)	• **Risk shared** with the financial institution.	• **Reduction and diversification of risks.**
• **Reduced dependency on input providers, silos or** other intermediaries.	• **Access to corporate loans.**	• **New market segments in rural areas**
• **Reduction of transaction costs** (credits, payments)	• Secures client loyalty **through the** services offered: training, credit at better rates etc.	• **Reduction of costs.**
• **Training aimed at improving production.**	• **Security in transfer of assets.**	• Increased **know-how in agricultural loans.**

Source: Teresa de Velilla. Seminar presentation.

We also face the great challenge of expanding this model to other activities, such as small livestock farming (chicken, pigs, fish) products for home consumption, cotton and cassava production. It is important to add that, based on its work, and on knowing the farmer's needs and being with them, El Comercio has created a wide range of products to help them improve their living standards –even the quality of their housing– including various loan products, credit and debit cards and even services such as currency exchange, money transfers and utility and tax payments, among others.

4. Lessons learned

With regard to the lessons learned and, by way of conclusion, we wish to emphasize the following eight points:

a) Training and access to appropriate technologies at the institutional level is the main tool of the current sustainable model (trained loan officers).

b) Recruitment of loan officers in rural areas.

c) Development of appropriate support for project monitoring, by using management reports for supervision purposes (reports by branch, by region, by product and by credit analyst).

d) Strategic partnerships for large-scale replication of the experience.

e) Loan repayments tailored to farmers' products and to the production cycles.

f) Provide incentives to diversify income through non-traditional crops or productive activities.

g) The financial institution should have: (i) a solid knowledge of the rural sector and (ii) a "network of branches" in the country's production areas.

h) The model is profitable because transaction costs are reduced and risks are shared.

Encouraging farmers to diversify their production through different economic activities is an important factor for El Comercio which, in any case, does not finance single-product farmers. Although this financial institution has worked and invested in this effort for many years, it has not yet reaped all the potential fruits, although it is certain that these will be achieved. A stronger partnership is needed between Paraguay's private sector and public sector so that Financiera El Comercio can increase its clientele from the present 84.000 clients, to 150.000 clients, and so that it can really have the social impact that Paraguay needs and deserves.

C. FIE and production chain credit. Comparison with traditional urban microfinance

Andrés Urquidi

The FIE Bank is a consolidated urban microfinance institution in Bolivia and only in recent years has expanded into rural areas. Agricultural finance is an even more recent activity and, although this represents a small portion of its credit portfolio, it is very important for the institution and is a milestone in the process to penetrate this niche and expand its financial services to the agricultural sector.

This section contains a brief introduction to the Banco FIE, followed by a description of the instrument designed to finance agricultural value chains and some of its applications. It also analyzes its impact on the market and the difficulties of implementing the methodology. Finally, it offers some conclusions and recommendations.

1. FIE

FIE was established in Bolivia as an NGO in 1985, with the aim of providing access to credit for a population that, in those days, was completely marginalized and excluded from this service. FIE began by offering individual loans, at a time when the trend was to offer group loans, and was also the first institution to introduce individual micro-credits. In 1998, FIE became a regulated institution, operating as a private finance fund (PFF). In Bolivia this modality is specific to MFIs, and enables them to carry out a number of operations very similar to those of the banks.

As a regulated institution, FIE began to diversify its products, offering not only credit but also deposits, and embarked on a process of growth and expansion into other geographic areas. In 2010 it celebrated 12 years as a regulated entity, and is now one of Bolivia's leading financial institutions. In fact it is on the verge of becoming a bank this year, with the aim of serving the same microfinance niche but operating as a bank.

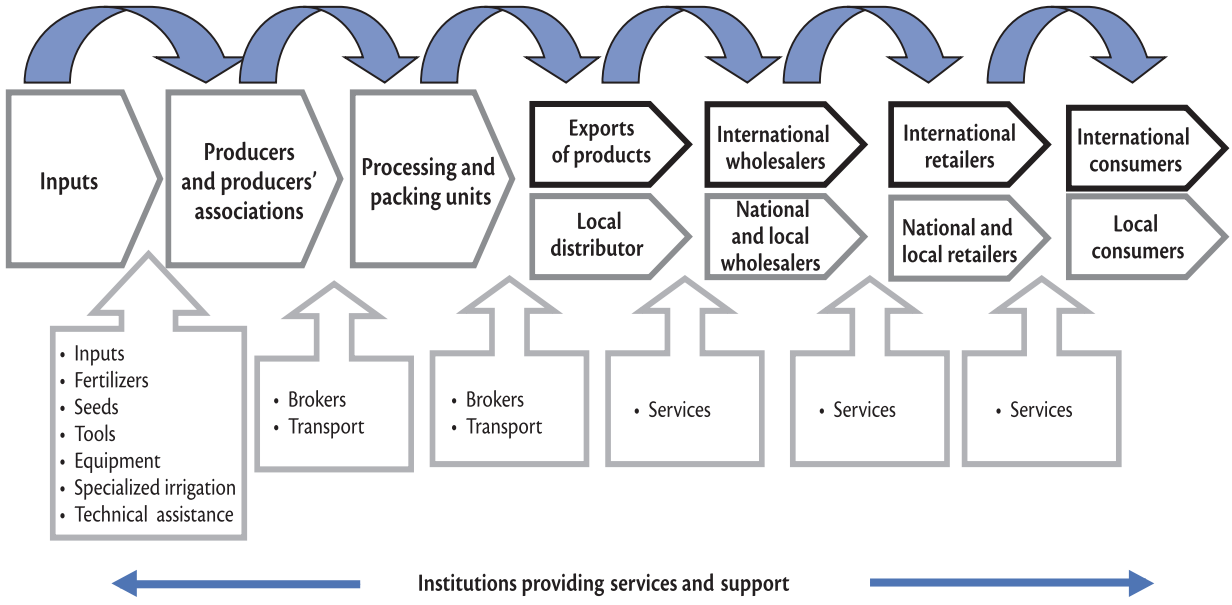
FIE currently offers a large number of credit products for micro, small and medium businesses, as well as loans for other types of clients and needs. Within this last category, it offers a production chain loan, which has been operating for two years and is described in the following section. With regard to deposits, FIE has different types of savings accounts and term deposits. It also offers services such as remittances, local and international money transfers and the collection of national taxes and levies.

As a result of its accelerated growth in recent years and its expansion into new areas of the country, FIE currently has around 130.000 borrowers and around 380.000 deposit accounts. As of February 2010, the loan portfolio was nearly US $316 million, and the portfolio at risk, of one day or more, was 1,1 per cent. As to geographic coverage, FIE has 132 offices in Bolivia's nine departments. This institution began working in urban areas, expanding first into middle-sized towns or peripheral urban zones and more recently operating in more rural, but not purely agricultural towns.

2. Value chain finance

Diagram 5.2 shows a number of value chain actors and their different needs. FIE has developed loans specifically for production chains precisely with a view to designing a financing strategy for the agricultural value chain as a whole, serving the client, not as an isolated producer, or as an individual or as the sum of individual producers, but as a chain in which all the actors are linked together. The development of this product represents a major change of approach with respect to individual urban micro-credit.

Diagram 5.2 **Needs of the value chain actors**



SOURCE: Andrés Urquidi. Seminar presentation.

Another important feature of this product is that finance has been incorporated into the points of interaction within these chains, taking advantage of existing relationships which, in some way, serve as moral guarantees. FIE has decided to work only with viable chains that have already identified potential markets and demand for their products.

As a result of agricultural value chain finance, FIE has also modified its strategy for opening agencies. Previously, agencies were normally opened to cater to known activities, such commercial activities or services. But with the new product, FIE changed its approach to opening agencies, targeting markets where the chains are consolidated. Consequently, five agencies have been opened in rural areas, with a completely different approach to the previous ones. This effort is part of FIE's strategy to expand its business and also to reduce the transaction costs for clients. It is always necessary to improve financial conditions, but it is especially important to be close to the clients in order to reduce their transaction costs. In small sums, these may be more significant than a one percent reduction in the interest rate, for example.

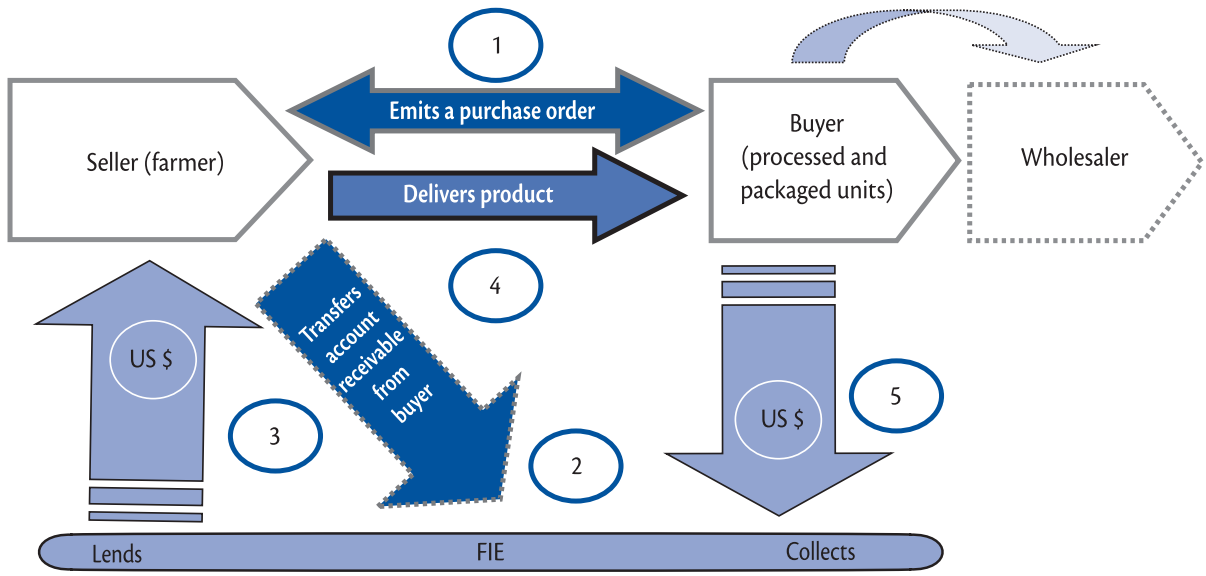
To support production chains, an innovative product or instrument known as *purchase order financing* (POF) was developed and implemented in the tropical regions of Yungas de la Paz and Chapare, where there are extensive coca leaf plantations. The chains that were specifically selected for this product are already consolidated or in the process of consolidation, with identified markets and demand, namely the coffee, palm hearts, banana, pineapple and cacao chains. This innovation was introduced through a strategic partnership with the ARCo project (Rural Competitiveness Activity-RCA), financed by the United States Agency for International Development (USAID). The project was already working in these regions, promoting alternative development, i.e. alternative products

to coca leaf. An interesting synergy developed between ARCo, with its previous knowledge of these markets, and FIE which has provided the loan resources.

ARCo's overall strategy has been to promote sales by providing technical assistance. This basically involves supporting the business aspect and improving the quality of the products. It also provided donations for longer term investments. FIE's role is mainly to provide finance for working capital; unfortunately, at present, this is only available to value chain actors that already have a demand and a supply.

Purchase order financing basically covers payments to suppliers and other costs associated with production, such as transportation, needed to fill a purchase order placed by a buyer, either within the country or abroad. Some FIE clients export under this system (see Diagram 5.3). FIE operates through contracts and requires a process of risk analysis, both in relation to the buyer and the seller, before it approves a loan.

Diagram 5.3 **Purchase order financing: basic operation**



SOURCE: Andrés Urquidi. Seminar presentation.

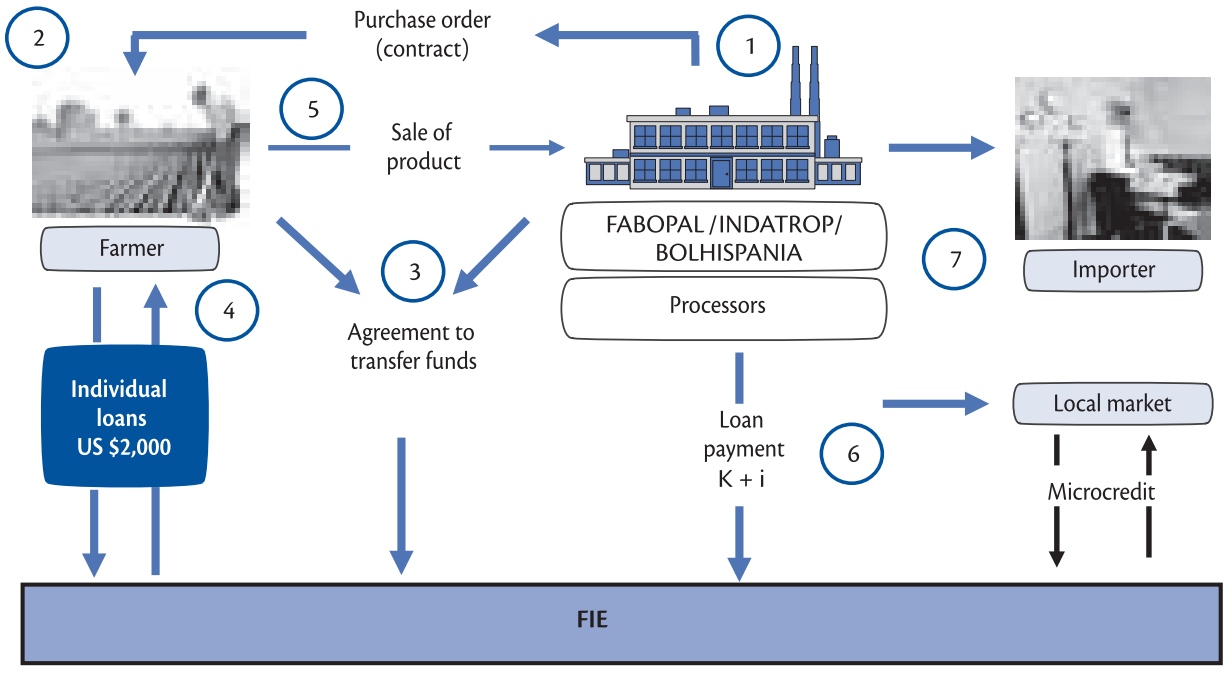
Diagram 4.3 describes the overall operation of POF, in which a buyer places a purchase order with a seller –in this case a broker or a processor, who issues a purchase order to small producers. The small producer requests a loan but makes an accounts receivable assignment agreement, transferring the account receivable to FIE, which receives the payment directly from the buyers. Thus, once the assignment of receivables occurs, FIE proceeds to disburse the loan. This system is innovative, in the sense that an unconventional guarantee is being used, and it allows for a self-liquidating operation.

This product is also very flexible and can be used in several chains. It has already been replicated with dairy producers in the Bolivian highlands and is attractive because it can be applied in the different linkages of the chain. For example, it was used with an association of small businesses and with a medium-sized cooperative

that exports coffee, using the same rationale as in the general model: a company abroad (an importer) places a purchase order; the cooperative requests a loan from FIE and makes an agreement for the assignment of accounts receivable between the supplier and the importer; FIE grants the loan and with that money the business can pay suppliers for raw materials or cover the costs required to export the products. When the importer receives the product, he directly pays FIE for the total of the sale. The microfinance institution obviously keeps the part corresponding to the capital, plus the interest for the time elapsed, and deposits or hands over the balance to the company.

The above example applies to a medium-sized or large company that exports a product. In the example described in Diagram 5.4, the loan is given directly to small-scale palm heart producers. In this case, larger processing and packing firms are involved, which issue a purchase order –not for each individual transaction– but rather, based on an annual contract with a producer to supply the products to these three companies, using the same rationale: with that contract, the producers request the loan, an agreement is made for the assignment of receivables, the loan is disbursed and once the product is delivered, FIE receives the loan payment, capital plus interest, and the producers receive the difference. Subsequently, the processors export the product.

Diagram 5.4 **Finance model for the heart of palm value chain**



Source: Andrés Urquidi. Seminar presentation.

An important point is the way in which this system avoids the risk of the producers selling their product to a company other than the buyers with whom they have an agreement. In some ways, these three processors acted as an oligopsony; they fixed an agreed price– nothing in writing, but rather a gentleman's agreement. However, "under the table", they would offer fungicides or other types of inducements to farmers, especially the larger

producers, so that they would have an incentive to work with one or other of the three processors. Therefore, an agreement was signed with the three firms establishing that regardless of which of these firms the producer had made the initial agreement with, if in practice he sold it to another of the three firms, it was still recognized within the agreement and the payment would be made directly to FIE. In this way the risk has been reduced.

3. Impact on the markets

Under this system, producers have moved from direct financing by suppliers, to financing through a regulated financial institution. Previously, only NGOs operated here, but with FIE, producers now enjoy increased access to credit, as well better terms and conditions as regards interest rates and guarantees, as well as access to additional services. Being a regulated institution, FIE can provide a wide range of services, not just credit.

As of December 2009, FIE's value chain finance portfolio totaled approximately US $3,1 million dollars, with 332 operations. The average sum loaned was nearly US $10,000 dollars, and borrowers included small-scale producers and small and medium-sized businesses. The coffee chain has been the main recipient of value chain finance, obtaining nearly 60 per cent of the POF funds. The portfolio at risk is very low, almost zero per cent, and the agencies that have opened with this new approach have also developed micro-credit portfolios, financing business activities or services.

4. Difficulties in implementing the project

First of all, there are the well-known difficulties of operating in rural areas: problems of access, the impossibility of using certain types of guarantees and the lack of basic services, especially communications. FIE operates online and in order to make deposits online, major investments are needed in satellite communications, which imply fairly high costs.

Two other factors –perhaps the most significant challenges– have been the political risk in these areas and the lack of trained personnel. Since the Morales Administration took office, US cooperation has not been very well regarded, and therefore, FIE has worked with a high degree of independence from USAID's ARCo project. Although this project has provided valuable market intelligence, FIE has operated autonomously lending entirely from its own loan resources. As to the issue of personnel, in general MFIs have tried to decentralize their operations: an agency manager is a key position for FIE and it has been very difficult to find suitable staff to fill these posts. In some cases, employees who had worked in urban areas offered to transfer to rural agencies in order to get promotion but, once in the countryside, they asked to return to the city because they could not get used to rural life.

Another challenge was the effort required to build FIE's institutional credibility, which was something new for everyone. Relationships were established with the leading actors in rural areas: union leaders, authorities, associations and businesses; in this regard, ARCo provided support with market intelligence. Finally, in order

to offer a wide range of products to farmers, FIE tried to create culture of savings, despite many difficulties in attracting deposits.

5. Conclusions

The most important conclusion is that value chain finance is an effective tool for reducing risk and transaction costs and, especially, improving the chains' access to financial services.

Another conclusion refers to a point mentioned in previous chapters, concerning the reluctance of financial entities to operate in rural areas, particularly those like FIE which started out as urban microfinance organizations. The most important thing is to have a "social" vision of development. FIE is also committed to this social vision, but with the condition that these operations must be profitable and self-sustaining. Although the institution is considering the option of initially implementing cross subsidies, so that the urban areas would subsidize the rural areas, in the medium and long term these operations must definitely be sustainable.

It is also essential to think about diversifying the risk, avoiding concentrating on certain sectors or chains. Beginning with something simple has been very important –something simple that has worked. Using that initial experience as a starting point, the approach has been replicated in new chains and scaled up to more operations.

Finally, other important factors to consider are: the socio-political context and the role of the subsidies available in the area. If it is an area where there are many subsidies, where it is difficult to compete, it is doubtful whether we can work with the people and make them aware of their obligations as debtors. It is often difficult to make producers see the difference between donated government funds, versus private money that comes from savers.

D. Banco do Brasil and finance for agribusiness

José Carlos Vaz

Brazilian agriculture is not only characterized by large volumes of production but also by an unequalled global positioning, resulting from a long-standing agricultural tradition, the high productivity achieved in recent decades and various government programs to support this sector, particularly agribusiness and small family farms. The Banco do Brasil is a key part of the administrative machinery that supports Brazil's agricultural sector, with some impressive statistics. This section contains a brief account of the bank's activities, giving an idea of the scale and leadership of the agricultural sector and, finally focuses on the subject of finance, emphasizing several important issues.

1. Banco do Brasil

The Banco do Brasil is a Brazilian state bank founded 200 years ago. Initially, it was Brazil's central bank and today operates as an agent of national commerce, foreign trade and rural credit. In the last 15 years it has focused more on commercial banking like the rest of Brazil's commercial banks and, in that sense, is subject to the same banking regulations applied to all the rest of the financial and banking intermediaries.

The bank's loan portfolio totals R $ 285,5 billion (approximately US $167.000 million, as of December 2009), representing nearly 24 per cent of the total credit portfolio in the Brazilian financial system; it has total assets of US $402.000 million and deposits of US $192.000 million. It has 54.2 million clients, served by 5.000 branch offices in Brazil and another 30 abroad; it has 104.000 employees and 43.772 automatic teller machines (ATM).

The Banco do Brasil has long financed Brazilian agribusiness, given its historic role as a government agent for the implementation of rural credit policies, and has used various experiences and work methodologies to deliver financial services to the agricultural sector and to rural families. Currently, it is responsible for 59 per cent of rural bank loans in the country.

The Bank's agricultural and agroindustrial credit portfolio is around R $ 67.000 million (Reales), equivalent to approximately US $39,4 billion. Nearly 60 per cent of Brazil's grain production is directly financed by the Banco do Brasil. The institution has over 1.640 small rural credit agencies, serving nearly 1,4 million small rural producers, individuals and families, and a financial underwriter that provides farm insurance.

The Banco do Brasil's strong presence in rural areas allows it to maintain many more agencies in the country's interior than other financial institutions offering rural credit. This means it can offer banking services to businesses engaged in all types of economic activity in those regions.

2. Brazil's agricultural sector

Brazilian agriculture is highly diversified and complex. Brazil is the world's leading coffee producer and the major producer of orange juice, sugar cane and beef (see Table 5.3). It is also ranks among the leading producers of several other crops.

Table 5.3
Brazil. Positioning in world food production and trade

Commodity	World Ranking		Percentage of world trade
	Production	Exports	
Coffee	1º	1º	28
Orange juice	1º	1º	86
Beef	1º	1º	31
Sugar cane	1º	1º	39
Soy	2º	2º	36
Chicken	2º	2º	44
Maize	2º	2º	13
Pork	3º	3º	10
Cotton	4º	4º	5

SOURCE: José Carlos Vaz. Seminar presentation

The country has over five million rural properties, covering 330 million hectares, of very diverse sizes, ranging from small-scale farms on small plots to large legally constituted entities with rural properties of at least 29 hectares each. An estimated 16,7 million people work in agriculture, including rural producers, their families and temporary or permanent laborers.

In the country's southern region, agriculture is highly diversified with very fertile lands, many smallholdings with traditional family farms and a very strong and fairly efficient cooperative structure, which has gradually been incorporated into agribusiness and marketing activities, as well as activities at the agroindustrial level.

3. Rural finance

These features of the Brazilian agricultural sector undoubtedly attract all the financial agents. Depending on the region, there are different types of crops and farms and therefore different financial needs. For example, the southeastern region is dominated by medium and small-scale family farmers, with smaller properties: old coffee plantations; milk production using traditional or less modern techniques and a cooperative system in the process of regulation.

Some areas are engaged in primary production activities but also produce ethanol, but without a business structure. The production of ethanol and sugar is an operation that can be effectively used to generate electrical energy, with business activities that are completely different to agricultural production. Central Brazil is dominated by large properties and medium-scale farmers growing cotton, soy and millet, who basically use their own finance or obtain finance from buyers. There are also small producers who need considerable technical assistance and others that have problems with their water supply.

Banks provide nearly 35 per cent of rural credit and the rest comes from marketing companies or from other rural producers. Large producers often finance each other, but also use certain international banks which are key players in financing the major Brazilian producers. The country's highly automated land register, which is linked to the main investment and lending institutions, provides important support to rural credit, allowing these institutions to analyze the risk for each rural loan client. Agreements also exist with nearly 3.000 rural extension firms that provide the necessary accompaniment and advisory services to farmers in their production processes. Other programs that support rural finance are:

i. *PRONAF*. The National Family Agriculture Program (PRONAF) is an important social program in the Banco do Brasil that provides credit for rural families. It offers timely loans for producers needing finance, and currently provides medium-term loans to nearly 1,3 million families, who use the credit to purchase machinery and equipment. Rosalino Luiz Alba describes the program in greater detail in Chapter 4.

ii. *Technical assistance*. In Brazil, technical assistance is widely available to producers, is free of charge and is guaranteed by law. The assistance provided depends mainly on the structure of the companies served by the State. The vast majority of producers use TA, for example in PRONAF. Landowners use a number of TA inputs and the cooperatives, principally, are the ones that take most advantage of that free technical assistance. Small producers involved in market integration processes use technical assistance, both through companies and in the cooperatives. Brazil faces a major challenge in providing TA services to small family farmers, for whom new instruments have been approved, for example, using resources directly to hire private technical assistance firms to compensate for the shortcomings of governmental TA providers.

iii. *Rural insurance*. Rural insurance is regulated by federal legislation, which gives preferential tax treatment to insurance companies. The Banco do Brasil offers two types of insurance: public or government insurance, i.e. PROAGRO, and private insurance. PROAGRO is for small producers and guarantees the repayment of their loan if they are unable to pay it back. When a small farmer takes out a loan, he is immediately insured through PROAGRO. In the case of small producers, this insurance is obligatory. Small farmers who take out a loan with PRONAF, for example, are required to take out this insurance, which is subsidized and covered by the National Treasury. When a disaster or losses occur, this must be reported to the financial agent and to all the businesses affected; once it has been confirmed that a loss did in fact occur, a valuation is made and submitted to the financial agent and to the banks, which determine how much of the financing will be charged to the producer and how much to the National Treasury.

   Private insurance may be used both for investments financed externally or for those financed with the producer's own resources or with resources loaned among the producers themselves. When these large producers take out a loan they are not required to take out agricultural insurance with PROAGRO or Farm Insurance. But this is not the case of the Banco do Brasil, which does require borrowers to be covered by PROAGRO. Farm insurance costs vary from between 8.0 and 12,5 per cent annually, with a government subsidy of around 50 per cent.

There are nearly 15 insurance firms in the country that offer agricultural insurance. These firms, together with the Banco do Brasil, annually submit an insurance plan to the Ministry of Agriculture, and this must be approved by the Federal Insurance Agency and by the Ministry of Agriculture, which defines the subsidy to be granted for each particular crop. That subsidy will be charged directly by the insurer. Rural insurance firms normally establish a premium in the policy register; based on this premium, the farmer's subsidy is deducted.

iv. *Competitiveness*. In Brazil, rural credit plays a major role in the localization and application of agricultural technologies. During the 1970s, when credit was highly subsidized, interest rates were negative in real terms. This financing led to technological developments in several crops, such as soy and millet, which subsequently triggered a major expansion in agricultural production in southern Brazil. Rural credit was a major factor in the introduction of technology and greatly increased competitiveness in the 1970s. In the 1980s, the Brazilian government suffered a financial collapse with all those agricultural policies, which affected the sector. During the 1990s, emphasis was given to certain credit lines that were adopted by other banks and, as a result, a private finance system emerged complemented with rural credit –a private system that favors input suppliers. As a result, Brazil has developed a business-oriented agriculture dominated by large producers, operating with very few credit subsidies and with well established agricultural technology applications, which are making great strides.

However, subsidized rural credit is widely used by small-scale farmers and by farms belonging to cooperatives. The challenge is to change the methodological approaches of Brazil's small farmers, not through credit but through technical assistance –robust technical assistance delivered via producers' associations, and through the creation of integrated marketing systems that allow them to obtain contracts, either through one of their fellow cooperative members, or directly with processing or export firms.

In general, Brazilian agriculture has a solid and competitive cost structure and is highly efficient because it has relatively few subsidies and access to many natural resources. The use of technology is basically an outcome of its performance, efficiency and its historical tradition in agricultural production, which has led to high levels of efficiency. The 2000s decade has brought about many important economic changes in Brazil and its currency has remained fairly strong against the dollar. However, much more technology is needed in order to effectively manage the costs and work efficiently with natural resources, so as not to lose these reserves, which will be needed by future generations.

E. BancoEstado Microempresas in Chile: from "invisible" banks to "co-creation" with clients

Héctor Pacheco

The final section of this chapter begins by directly challenging readers, to make them think, with the author's opinions about three issues that generated discussion on the first day of the Seminar, a controversy also described in the preceding chapters:

a) *High interest rates.* Why do banks charge such high interest rates? The banks speak about fair trade but want to take the profits from the business and production of small-scale agricultural producers; that is why they have such high rates. But behind those interest rates, the banks are hiding their inefficiency. They are not capable of improving their products, their systems, their processes, their technology evaluation and risk evaluation systems, their service models, their sales models or their information systems. Because they are inefficient in all those areas, they pass the costs on to the client and take a good slice of what the farmers produce. That is the reality, based on our knowledge of banks in all the Latin American countries, even in Chile.

b) *Serving the agricultural sector.* Why don't banks serve the agricultural sector? Because banks have a problem: they want their clients to adapt to the bank's needs and do not realize that banks must adapt to their clients' needs. That is why they do not serve rural clients. Experience shows that, in general terms, things are going very well for banks and financial institutions such as FIE and Financiera El Comercio, the two major examples described in this chapter. These institutions adapt to their clients' circumstances and are capable of restructuring their operations and their model based on their clients' specific needs and the processes in which they are capable of interacting. That is the essence. The notion that banks should not serve agricultural producers because of the high risk involved is false. Here we have the example of FIE, with a delinquent portfolio of less than one per cent; we have the example of Financiera El Comercio, with a portfolio at risk of more than 30 days, of less than three per cent. In the case of Banco del Estado, it is around two per cent.

c) *Serving urban microenterprises.* Finally, what is the point of only serving the world of small-scale farming but not the world of urban microenterprise? The BancoEstado Microempresas does so and makes a continuous effort to promote innovation and proximity with its clients. We find surprising experiences in the daily lives and activities of micro-entrepreneurs. We can understand and learn from them; they provide us with opportunities for proximity and accompaniment. In the end, the Bank ends up falling in love with its clients –farmers, small-scale fishermen, haulage contractors, traders, craft workers. Thirteen years ago, when the Bank launched its microenterprise program, the author and another employee established a condition that is a source of great pride, and has been fulfilled, to date, by 1.050 bank employees: all employees who work in the BancoEstado Microempresas must be previously interviewed, selected and approved by a client and must spend two days in a small business, in a farmer's field, in a fisherman's cove or in a trucker's yard, sharing and living that experience. At the end of that process, the client makes an assessment, and only if approved, can the bank employee work in the Program.

The first section of this presentation describes the Chilean agricultural sector and its position in international agriculture. Then it examines and describes the challenges facing Chile's rural microenterprises, the evolution of the BancoEstado Microempresas' agricultural finance program, its products and the agricultural value chain processes in which it is involved.

1. Chile and world agricultural trends

Chile has 17 million inhabitants, an annual GDP growth rate of four percent and an unemployment rate of nine per cent. The country has approximately 1.500.000 microenterprises and of these, around 180.000 are agricultural producers. Small businesses employ 50 per cent of the workforce and account for 97 per cent of the country's companies but only contribute 3,2 per cent of GDP. This inequality persists not only in Chile, but also throughout Latin America. The rural milieu is home to around 2,8 million people and produces exports worth US $11.000 million. It is important to bear this figure in mind, because many years ago, Chile set itself the challenge of becoming a leading world food producer. In 1999 it was ranked 27th in the world; in 2004, it was among the first 25 nations and by the end of 2009, Chile was number 17. By the year 2020 it hopes to be the world's eighth food producer. That is the challenge.

What are the world's main food trends? In terms of obesity, in the United States statistics for 1985 show that eight states had obesity levels of between 10 and 14 per cent, with the rest of the states below 10 per cent. Five years later, in 1990, 32 states had average obesity levels in that range. In 2000, only one state had that level of obesity, and all the rest had surpassed that range, with obesity levels of between 15 and 24 per cent. In 2003, the average obesity level in 14 states was between 15 and 19 per cent, with the rest of the states averaging between 20 and 24 per cent, except for the four states that were already in the category higher or equal to 25 per cent of obesity.

The interesting point is that agricultural production must respond to demand, as Ken Shwedel notes in Chapter 2, and nowadays people are demanding healthy foods. In this regard, there has been a boom in the so-called Mediterranean diet, with its positive impact on reducing cancer, Alzheimer's disease, coronary diseases and death in general. Chile is located in one of the world's five Mediterranean climate zones, between 30 and 45 degrees latitude, on the western side of the continent, with wet winters and dry summers, like California, South Africa and southwestern Australia. Around 87 per cent of Chile's food exports are "Mediterranean" products. Moreover, the country practically has no border crossings, except in small areas bordering with Perú and Bolivia, which affords it some measure of protection from plant and animal health problems, pests and diseases. Agricultural production can take place in a context of safety, which is essential for small-scale farmers interested in producing and contributing to value chains geared to export markets.

2. Challenge for Chilean agricultural microenterprises

The challenge for the BancoEstado Microempresas is to help Chile become a micro-entrepreneurial powerhouse in food production. Surprisingly, 20 per cent of the food produced in Chile is grown by micro and small farmers. Therefore, Chile will never become a world food power, will never reach eighth place in the world ranking by 2020, unless it is first capable of becoming a world power in small-scale agriculture.

How has the Bank contributed to this? It currently has over 70.000 borrowers with a loan portfolio valued at more than US $500 million. Some important features of its approach that are worth mentioning are:

a) Executives are agricultural specialists working in the field

b) Specialized technology used for risk evaluation.

c) Coordination with all institutions involved in the processes.

d) Products and services tailored to production and marketing cycles.

e) Integrated business services (for businesses and families).

f) Responsible lending to clients (avoiding over-indebtedness)

g) Contribution to social inclusion, commitment and care of the environment.

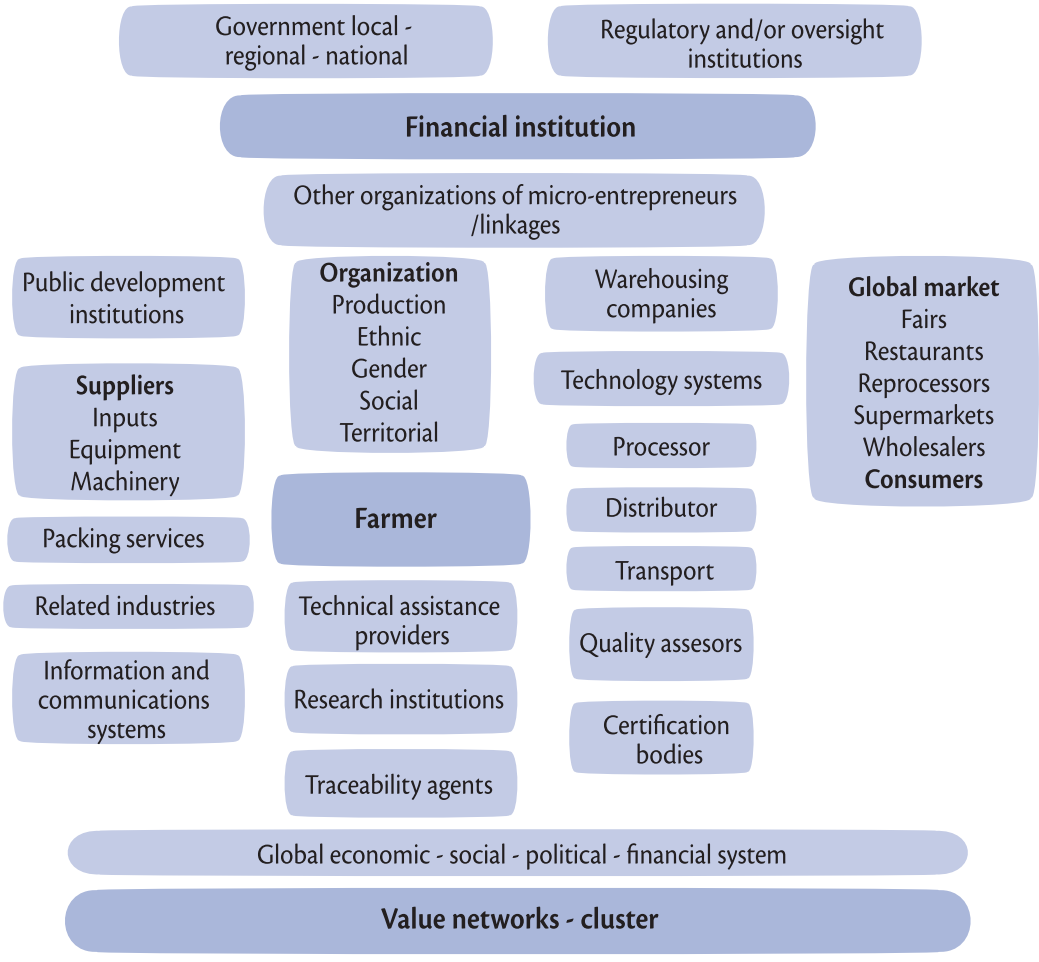
It is important to emphasize that bank executives are constantly in the field, with mobile branches, and even participate in fairs. These executives are specialists and only deal with agricultural producers, using specialized technology and a coordinated approach to the value chain process.

3. Evolution of the BancoEstado Microempresas program

How has the program evolved? It has changed from serving individuals to contributing value to the productive, business and social processes of micro-entrepreneurs. That is what has happened. Previously, the relationship was lineal, one to one, between the financial institution and the client, where the latter demanded services and was provided with solutions. A couple of years ago, the Bank introduced changes in its client services and today it is involved in the value chain process.

What exactly has been done? In the first place, to recognize that clients must be understood as part of a systemic process. They are not alone, and are not only in a chain, but are part of a whole network of relationships, as described in Diagram 5.5, which only shows some of the actors. If we were to draw lines showing all the linkages between the finance institution and the actors, there would be a network covering practically the entire diagram. For this reason, the Bank prefers to speak of value networks, instead of value chains. The interesting point, as shown here, is that the financial institutions participate in all the linkages and work with all types of actors: from public-sector development institutions and suppliers of inputs and equipment, to traceability and quality certification firms as well as the financial and social systems.

Diagram 5.5 **BancoEstado Microempresas: systemic understanding of the linkage process**



Source: Héctor Pacheco. Seminar presentation.

The Bank is part of a large value network for farmers, but its relationship with those farmers cannot only be understood on an individual basis; that is not sufficient. The Bank must consider the whole network and its clients' many needs. The value lies in adapting its products to the clients' needs, and not expecting them to adapt to the Bank's. The Bank should work to make farmers more competitive and improve their quality of life. However, it is not only necessary to consider the issue of productivity –when a farmer is inserted in a value chain, his productivity improves, he produces more food– but if he becomes ill or loses his job, the health system must protect him. Like the average employee, he should also be able to retire at the age of 65, instead of what usually happens in Latin America, where farmers continue working until the age of 80 or 85 years, or until their death. In Chile, with the reforms introduced by the Bachelet Administration, independent workers –farmers, small-scale fishermen, craftsmen, taxi drivers– can enjoy job security, social insurance, healthcare and a decent pension system. In other words, they can improve their quality of life. And the Bank contributes to all that because it financially articulates these State benefits toward the clients.

4. Products and processes

What are the Bank's main lines of work? In the agricultural sector it provides loans for a wide range of inputs, raw materials and investments in equipment (see Table 5.4). Similarly, it offers an array of financial solutions for families: for the farmer, his/her spouse and the children, the family context, the future generations. Thus, finance is available not just for clients, men or women, but also for their children. The issues of social security, social protection and job security are of interest.

Table 5.4
BancoEstado Microempresas. Products for clients of value networks

	Product
1. Finance for agricultural activities	1. Inputs and raw materials
	2. Investments in equipment and machinery
	3. Land purchase
	4. Irrigation systems
	5. Good agricultural practices
	6. Partnership projects
	7. Restoration of degraded soils
	8. Climate-related emergencies
	9. Modernization of production
	10. Quality certification
2. Finance for families	1. Home purchase or improvement
	2. Education for children
	3. Job protection
	4. Social security
	5. Access to social insurance
	6. Access to health
3. Means of payment	1. Family account
	2. Electronic account
	3. Current account
	4. Credit card family-supplier
	5. Card supplier-differentiated lines
4. Insurance	1. Agricultural
	2. Health, client and family
	3. Social insurance and future
	4. Life insurance and assistance
	5. Protected activity
	6. Protection workplace accidents
	7. Occupational hazards

SOURCE: Héctor Pacheco. Seminar presentation.

With regard to means of payment, the Bank offers family accounts, business accounts, supplier accounts and personal accounts among others. In relation to insurance, it offers health insurance, insurance for productive activities, life insurance etc.

Processes in which BancoEstado participates

Instead of thinking about individual products, it is interesting to consider the client's relationship with the Bank, based on how the latter, as a financial institution, is able to articulate that relationship. If we can understand what a network really is, that the client interacts through forward, backward, upward and downward linkages with a set of other institutions, it becomes easy to develop all the financial products that one can imagine. There many are examples of this, such as the one shown by FIE, where an institution can link itself financially with a supplier, a producer and a distribution channel. The benefit also lies in how the financial institution is able to remain invisible in that relationship. For example, an agreement for payment could be reached when the farmer delivers his production to the processor (agroindustry): the processor pays the bank because the client gave an authorization, and the client takes the difference because that is the margin of profit that he obtains from his production. But the point is how to make the process functional and design the service model so that the farmer does not have to go to the bank agency every day, so that he can focus on his main activity –production– and not on financial activities, information gathering or dealing with other aspects. This creates new opportunities to develop interesting and attractive accounts, products and services.

In the relationship between farmers and suppliers, for example, we could think about facilitating the delivery of inputs through expedite finance, investment in machinery through agreements, the improvement of infrastructure, automated irrigation and investment in clean technologies.

5. Conclusions and recommendations

At the risk of being repetitive, it is important to reiterate three major conclusions mentioned throughout this final section, which in turn serve as recommendations for financial institutions interested in providing effective accompaniment to their clients in value networks.

a) *The farmer as part of a process*. It is important to consider the farmer as part of a process that includes commercial, social, cultural and also family aspects, not just productive ones. The value chain is not simply a process linked to economic and productive activities, but also to gender activities, ethnic activities, social activities, cultural activities and local/territorial activities, among others.

b) *Invisibility of the banks*. The second point is that banks must understand that the value chain or network involves numerous relationships, processes, information, steps, transfer of knowledge and that they (the banks) must be "**invisible**" in order to contribute effectively to that chain or network. The banks do not have to be the main actors; they must be behind the scenes, at the service of the entire process.

c) "*Co-create" products with the clients*. And, finally, another lesson learned has to do with BancoEstado Microempresas' own process. Initially, the institution began to develop all its models, services and products *for* the clients. Afterwards, we realized that this was not adequate and began to do it "*from* the clients" (client-driven). However, some years ago we realized that it was not sufficient to develop a model, or a product, or service in this way; rather, that it was necessary to do it *with* the clients. Hence the proposal of learning how to "co-create" with the clients: this is the challenge that our organization has set itself.

The processes and products can be offered in a complex way, with cutting-edge technology, using electronic accounts, the internet, intelligent cards and an electronic account associated with a POS; each time a client needs to collect supplies he swipes his card through the POS and the intelligent card identifies the POS through an IP address and allows the user to see which supplier will be delivering the inputs. Another option would be a pay button installed in an agroindustrial firm; the farmer who buys or sells to that agroindustry could activate the pay button and by means of an electronic transfer communicate with the Bank so that the credit lines are approved online. BancoEstado Microempresas uses all these systems, but also has other simpler ones, for example sending correspondence to its clients via papers left on the containers in which milk is delivered. No matter how complex or simple the system, the financial institution must be aware of the network of relationships among its clients and of the need to make itself invisible and facilitate the processes. That is how the bank must adapt its product or system to the needs and circumstances of its clients.

6 Methodologies to strengthen agricultural value chains and improve their financing

Mario Miranda, Lorna Grace, Beate Weiskopf,
Ruth Junkin, Geoffrey Chalmers and Manuel Miranda

This chapter studies the application of training programs and other tools designed to strengthen the operation and financing of chains and offset risks. It offers a full range of possibilities, from sophisticated index insurance programs built with information on the El Niño meteorological phenomenon, to the use of information and communication technologies to facilitate financing programs for chains. It describes a specific methodology for creating and strengthening chains, and another for use in developing financial services for agricultural value chains. Finally, it examines different contractual arrangements among members of the chain and describes a very complete system to support and monitor the strengthening of small-scale farm producers in Chile.

A. Systemic risk, index insurance and agricultural contracting in developing countries

Mario Miranda

Index insurance is an innovative way of addressing some of the risk problems that permeate a value chain, and it is an area still very much in development. While it is described as a new idea, it has actually been around since the 1940s; however, recent years have seen a great deal of activity to develop new ways of implementing index insurance, at least to address the problems of the developing world.

There is general awareness that droughts, floods and "systemic weather events," or risks, can have a profound impact on agricultural processing and will spread throughout the entire value chain. These effects from systemic weather events make agriculture and agribusiness generally a riskier endeavor than other lines of industrial production. Our primary question is more general: can index insurance help agriculture, banks, cooperatives and processors in developing countries manage risk and reduce the cost of doing business?

1. Index insurance basics

One of the motivations that led me to become involved with index insurance was the experience I gained through 10 years of work in the Piura region of Perú with Jerry Skees, from the University of Kentucky and GlobalAgRisk. We were interested in developing a way of managing the risks associated with large El Niño events. This meteorological phenomenon can have a profound impact in many parts of the world, but particularly in Piura, which is situated right at the eastern edge of the Equatorial Pacific, where El Niño events actually take place or originate.

What is index insurance? Index insurance is unlike the more usual forms of insurance, such as auto insurance or life insurance, in which the insured pays a premium and, in the event of loss, the insurance company pays an indemnity to compensate. Index insurance is not based on verifiable losses, but on an index, a set of indicators and several measurable variables that are highly correlated with the losses but are not themselves the loss.

An index may be any objectively or reliably measurable variable that is highly correlated with the losses of the insured. The critical condition that must be satisfied by a viable index is that neither the insurer nor the insured can have an effect on the indemnity paid by the insurance. What are a few examples of indices that might be used to develop index insurance contracts?

i. *Area yields*. Think of processors working in a region; the insurance contract would not pay individual farmers based on their individual losses, but rather on average loss throughout the entire region.

ii. *Rainfall*. Instead of insuring losses, it insures the most important factor in agricultural production; in many places that would be rainfall. Drought insurance would be a form of index insurance.

iii. *Other indices*. Other indices can be used once the basic principles of how index insurance works are understood. There are many creative ways to implement it. Jerry Skees is currently working with a program in Mongolia in which insurance company payments are based on the regional mortality of livestock. Mongolians raise a lot of livestock in their agriculture. The contract being developed there is based on regional livestock mortality.

This author's work with El Niño indices in Perú is an attempt to develop a contract that will pay when a large El Niño event occurs.

2. Pros and cons of index insurance

Index insurance, very different from traditional insurance, offers some profound benefits. It also has some limitations. Traditional insurance does not work or is very costly in certain circumstances, both in the developing and the developed world, due to what we economists understand as the problems associated with asymmetric information, one of them being **moral hazard**. Moral hazard arises when, following the formalization of an insurance contract, the insured are faced with incentives to change their behavior. They

now worry a little less about risk and about risk mitigation because they are insured against it. **Adverse selection** takes place because an insurer cannot know exactly how losses are distributed for the insured. Sometimes insurers will get it right, and sometimes they get it wrong. Adverse selection arises when certain individuals, observing that the rate is relatively low, purchase insurance at a higher rate than they would otherwise. Moral hazard and adverse selection can lead to general failure of insurance markets and are sources of high costs. Another problem associated with traditional insurance is the administrative costs; since insurers have to pay, they need to check everybody's claims and review anyone who places a claim on a loss. In order to adjust the claim, somebody has to check it out and then determine how much will be paid. None of these problems arise with index insurance. The primary benefit of index insurance is that there is no moral hazard because the insured cannot influence the indemnity. Adverse selection does not occur because there is no private information, and administrative cost are low because insurance claims do not have to be adjusted individually. The insurance contract pays if and only if the El Niño index published by the National Oceanographic and Atmospheric Association falls below some predetermined level. The amount to be paid does not depend on anyone's particular losses.

There are some problems, however, mostly associated with basis risk. Index insurance would normally be tied to a specific systemic risk, but does not cover other lesser risks. The risks not covered by index insurance are known as basis risk. So although index insurance can be provided at a very low cost, it is not a perfect insurance instrument. The degree to which it is not perfect is referred to as **basis risk**, and the effectiveness of index insurance will depend on how highly correlated the index is to losses. How much correlation can be established between the El Niño event and the losses experienced by farmers in Piura? In fact, the correlation is quite high, although less than 100 percent, so the insurance does not cover everything. Several examples of index insurance programs throughout the world are:

- Area yield insurance in the USA and Canada.
- Excess or insufficient rainfall insurance in India, since 2003.
- Rainfall insurance tied to credit in Malawi, since 2005.
- Livestock mortality insurance in Mongolia, since 2006.
- ENSO or El Niño Southern Oscillation insurance in Perú (the author's own project), since 2007.

3. Alternative uses of index insurance

The academic literature and practitioners have held extensive debate about whether index insurance works. In their view, index insurance does not work because it fails to cover too many risks and it is not cost effective. Based on the author's own experience of 10 to15 years in this field, such arguments tend to be true. Even with the use of a basis as good as a rainfall index, the correlation between losses and drought is still not high enough to attract strong interest among farmers in purchasing index insurance. But perhaps we are asking the wrong

question. All to often, they believe that index insurance should not be paid directly, or should not be offered directly to producers; in fact, index insurance works best in the context of a value chain.

Index insurance should be most valuable to agricultural banks, cooperatives and processors. In short, the real place for index insurance is somewhere in the value chain, for fairly straightforward reasons: banks, cooperatives and processors work with very large numbers of farmers. This means they are effectively putting together a portfolio of farmers, whether in the form of loans or of production contracts. While all of these are risky, when farmers are pulled pulling together into groups, much of the idiosyncratic risk not covered by index insurance is diversified away. In short, index insurance may not do a particularly good job of tracking the losses of individual producers, but it should do a substantially better job of tracking the losses of an institution that works with large numbers of farmers. This could be banks, processors who work with large numbers of production contracts with farmers, or cooperatives. We call these "risk aggregators."

This is where the author is now focusing his efforts. A great many individuals still take the position that index insurance should be offered to farmers. They argue that index insurance promises to help the poor and should be delivered directly to the poor. Although some people are skeptical that this instrument can be used at other points in the value chain, the author feels otherwise. Many benefits will propagate through the value chain if the risk is managed at some point in the value chain. What risk is this? It could include the risk of droughts, the risk of floods, the risk of El Niño events.

The author is currently at work at Ohio State University with his good friend of many years, Costa Rican Claudio Gonzalez-Vega, to determine how systemic risk is distributed through the agricultural value chain. One of the questions being addressed is: can index contracts be used to enhance the economic viability of farmers, banks, cooperatives and processors? Certain fundamental questions need to be addressed. The idea is to develop a new technology for lending, or a new technology to examine lending processes as well as other aspects of the value chain. Naturally, research began by targeting the relationship between banks and farmers, although all the work being done can be generalized across the value chain to include processors, cooperatives, exporters and the rest.

4. Agricultural banks as insurers

We can begin with agricultural banks as an example, to give you some idea of how index insurance would work. In good times, farmers would pay their loans, while in bad times they default. In the event of widespread drought, many farmers default, and banks tend to respond by restructuring debt. They bear the cost when a borrower fails to pay a debt. So in the end, the bank absorbs a great deal of risk that would otherwise be borne by the farmer. When the farmer has a loan, it serves as a risk transfer mechanism. How? In bad times they do not repay their loans, so risk is transferred through the loan contract to the bank. The bank absorbs risks associated not with one borrower only, but with many borrowers. These many borrowers may be hit all at the same time

if there is a catastrophic event such as a drought or an El Niño current. These costs are implicitly borne by the bank, and in the end, they will be paid by borrowers, who will be charged a higher interest rate. Current research is seeking ways to handle or manage this risk more effectively, transferring it efficiently through the financial system. This will result in lower costs in the contractual relationship between bank and borrower.

A number of more detailed questions are being asked: Should the bank require a borrower to purchase an index insurance contract in order to take out a loan, making it a condition for a loan? Another approach would be not to require individual borrowers to purchase index insurance, but instead for the bank to use the contract directly to manage its portfolio risk. Research findings suggest that it is far more effective for the bank to use the instruments directly in a strategic risk management plan, rather than require individual borrowers to purchase contracts as a condition of a loan.

5. Current efforts in Perú

That is the state of the basic research, which is continuing in this area. Although the author is an academic, he is working on design issues and economic efficiency issues. As already stated, it comes with about 10 to 15 years of experience, mostly in Perú. This region is particularly interesting because the El Niño phenomenon in Piura does not merely double or triple the amount of precipitation; in fact, rainfall can be up to 40 times the normal level. It produces catastrophic floods that destroy everything, not only crops but also infrastructure. The water deposits lays sediment in the large reservoirs, causes immense damage, and for the banks, results in default by many borrowers. The most severe floods on record occurred in 1983 and 1997, with the latter qualifying as the largest in the century. There are questions about whether the El Niño events are becoming more frequent and severe. The work in Perú has focused on persuading regulators to approve the El Niño insurance contract. Many interesting problems had to be wrestled with, including institutional problems. Is an El Niño-based index insurance contract a derivative? Is it insurance? There is no clear answer, and they will have to resolve the matter. Work is being done with reinsurers, such as PartnerRe. Direct work is also underway with four banks, one business in the value chain and three farmer associations, trying to design the instruments so it will work on the ground. Overall, the work is a combination of academic research and on-the-ground applied experience. The goal is to develop a market for insurance that will not only help banks, but also support processors throughout the value chain to develop a new and more efficient way of transferring risk to benefit both those high up in the value chain, and producers.

B. The role of contracts in agricultural value chain finance

Lorna Grace

The project Farmer Access to Credit (ACA, by its acronym in Spanish) is financed by the Millennium Challenge Account-Honduras (MCA) and implemented by ACDI/VOCA. It seeks to improve relations between horticulture farmers and the financial sector by incorporating these farmers as qualified borrowers into loan portfolios so they can benefit from the financial products and services offered by this sector. This section addresses the role of contracts and agreements in agricultural value chain finance, based on the ACA experience and other projects administered by ACDI/VOCA in various countries.

1. Background

The main objective of the ACA project is to increase the supply of credit and the availability of other financial services to horticulture farmer and agribusiness. As of May 2010, a total of 5.400 farmers had gained access to credit as a result of ACA; given the context in Honduras, this is a sizable achievement.

Without going into too much detail, it is important to comment on the overall environment, especially when dealing with the value chains. Low levels of confidence exist among the several players in the value chain, exacerbated by past debt forgiveness of agricultural loans and existing government credit subsidized by BANADESA.

Many value chains can be found in horticulture in Honduras; however, they are small and narrow, unlike many other cases presented in this book, frequently entailing fairly large value chains.

All players, most notably the banks, are highly risk averse and reluctant to lend to this sector. Producers are poorly organized. The few good organizations and producers can be found mostly in coffee and in some basic grains, as Honduras has a long tradition in coffee production.

Another problem is lack of land titles; even those that exist are fairly informal and cannot be easily used as loan guarantees. Many of the small producers also rent acreage, so the land issue is still quite informal.

At the same time, horticulture is relatively new. Although melon and tomato producers have been active in Honduras for a long time, many new kinds of fruits and vegetables have been introduced more recently through heavy investment under a variety of projects including MCA/ USAID, which lends technical assistance to producers.

Honduras has 14 good growing zones highly suited to many different kinds of fruits and vegetables, as well as functional ports and relatively good roads. All these features have contributed to the rapid growth of the horticulture sector, with the country's fairly easy access to some of the biggest markets in the world.

2. The use of contracts

i. Financing between wholesalers and retailers in the trade credit system

ii. Use of triangulation, with two options:

- Triangulation with payment arrangement
- Triangulation with payment arrangement and guarantee

iii. System of warehouse receipts

iv. Shared risk/financing trust fund

Below is a description of each case, with a summary of the key elements. All the cases use some type of contract to facilitate financing, which lessens risk; as a result, the mechanisms and contracts become tighter. Types of contracts range from just an informal agreement all the way to a relatively complex trust fund contract between players.

a) Trade credit system

In the context of the trade credit system in Honduras, as is probably the case in most countries, the horticulture sector very rarely uses formal written sales contracts between wholesalers and retailers. Only 10 to 20 per cent of horticulture production was found to use such contracts formally setting prices and other conditions.

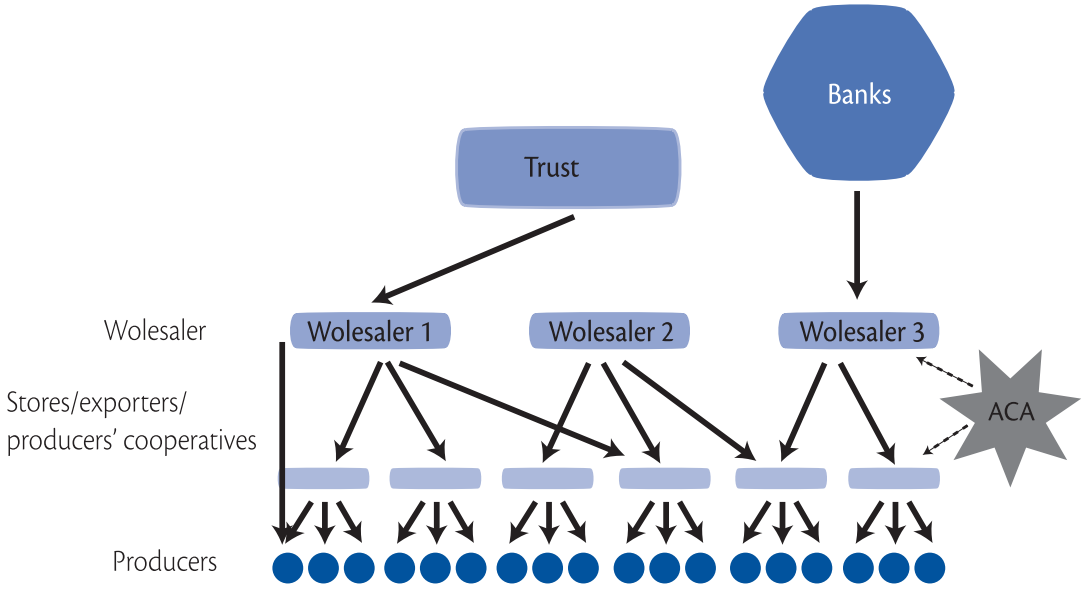
Under the more common system, producers purchase through an input provider, such as a farmer's cooperative, tender or buyer. Input providers supply significant amounts of short-term financing for small- and medium-scale horticulture producers and for small stores. Credit is always for a 30-45 day term. If some other sort of guarantees are available, such as farmer's or banking guarantees, the term could stretch to 90 days.

Where labor is not a significant component of financing needs, the system of trade credit works quite well. In the case of horticulture producers, however, especially the very small farms consisting on average of just one-half or up to a whole hectare of land, labor is generally not a major factor.

Traditional institutions, such as banks, being very risk averse, are reluctant to finance small farmers. The problem is really two-fold. On the one hand, financing for producers and stores (*tiendas*) is very short-term, so wholesalers extend 30-day financing to stores, which then offer 30-day financing to producers. The other problem or issue is the *tiendas* themselves, a thousand mostly independent stores. These stores have not generally had much access to financing because the financial sector is risk averse and because their accounting practices are often quite informal. On average, wholesalers have better access to funds than retailers.

Diagram 6.1 illustrates these kinds of relationships. The ACA project provided a means to leverage the wholesalers; because they have access to funds either from a trust fund or a bank, they then lend to the stores for a term of 90 to 180 days, sometimes even more. These *tiendas*, whether exporters, producer cooperatives or just stores, then sell their goods to the producers.

Diagram 6.1 **Leveraging relationships. Agreements between input providers**



SOURCE: Lorna Grace. Seminar presentation.

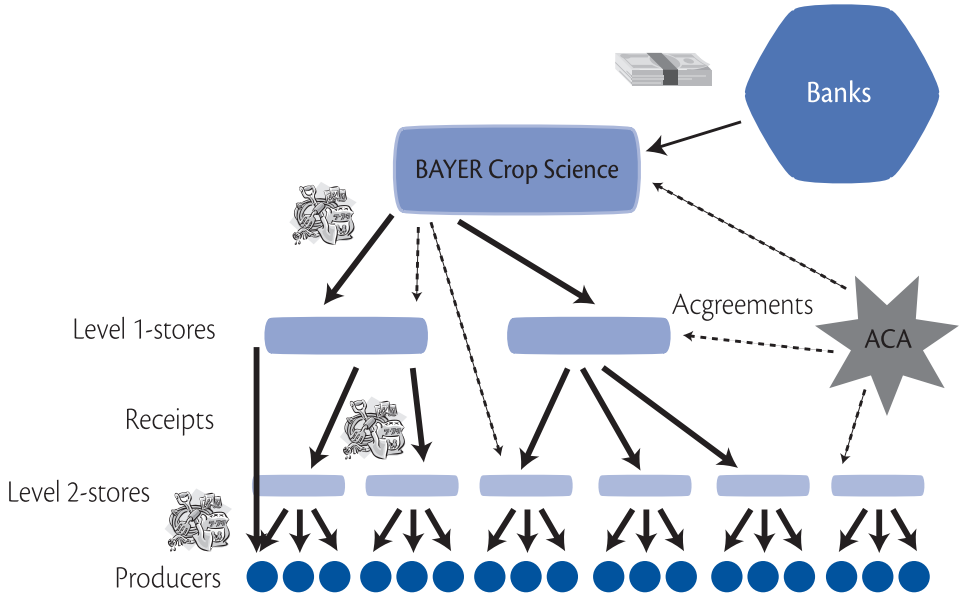
The project's goal was to adapt credit to horticulture producers, limiting paperwork and extending the term. The challenge was to convince wholesalers to participate by providing longer-term credit to retailers (or offering a guarantee to banks that provide credit to retailers), obliging retailers to extend the term to producers. Another key element is to formalize the wholesaler-retailer credit relationship with the use of receipts, private contracts and agreements. Retailers can then formalize their credit to producers by introducing basic loan applications, requesting identification, conducting an analysis (including consultation with a credit bureau), and doing follow up.

One of the models or schemes implemented involves a store, a wholesaler and producers. The independent store receives financing from a wholesaler with the use of receipts. There is no formal agreement between the store and the wholesaler; there is, nevertheless, a formal agreement between the store and ACA (the technical assistance project), and another contract between the wholesaler and the Project.

A second model is slightly more complex than the first, and involves a buyer, a wholesaler and producers. In this case, two wholesalers finance a buyer, who then lends to producers of Tabasco chile. The buyers generally enter into contracts with Tabasco chile producers, and the buyers also hold a private contract with the wholesalers, FENORSA, a fertilizer company, and Cultivos del Norte, a buyer and exporter.

The success achieved in the last three years has attracted the attention of other large players, such as Bayer Crop Science, which is a fairly large multinational; the ACA project is now working with them in their Agroempresarios de Éxito project (see Diagram 6.2).

Diagram 6.2 **Systematization of stores**



SOURCE: Lorna Grace. Seminar presentation.

This model features two tiers of stores. A buyer finances the tier one stores and provides them with technical assistance. ACA lends technical assistance to help stores lend better; the stores also receive technical assistance from the project in areas of accounting, administration and management, which is critical. This formalization will allow the system to continue, even before the ACA project pulls out, as Bayer will assume the Project's role.

The key elements in this model are the private contracts that solidify the agreement, especially the critical agreement on term extension. In the systematization model, receipts are underpinned with triangulation agreements, which reinforce the responsibilities of each party (technical assistance and financing). The entire process is always based on existing trust.

b) Triangulation

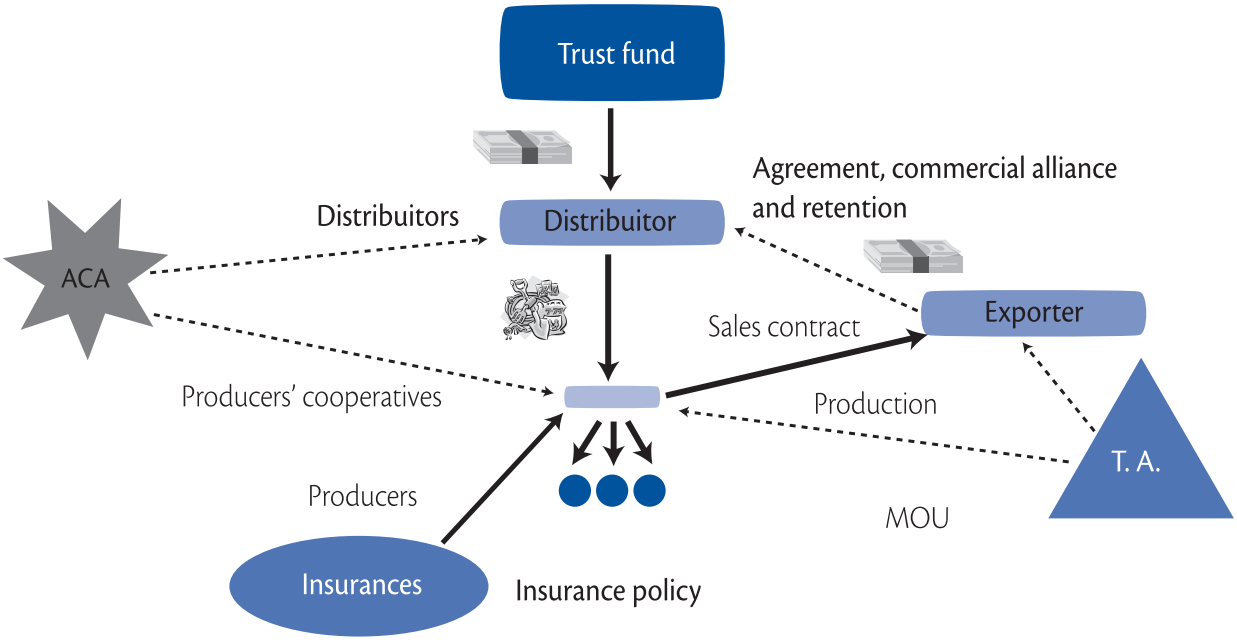
Triangulation is an agreement of sale between producer and buyer, in which the contract serves as risk mitigation for the financing agent. A cooperation agreement is developed between the buyer and the financial organization to remit payment to the latter upon product delivery. This model also integrates into the triangulation a guarantee agreement between the buyer and the technical assistance provider, by using a commercial alliance

agreement (*convenio de alianza comercial*). The agreement of sale between the producer and the buyer serves as an asset of value, guaranteeing the financing in countries where it can serve as legal tender. Key elements of contracts and procedures in the classical triangulation model are:

- Producer's sales contract, specifying price, amounts and quality, are signed over to the bank.
- Cooperation agreement between bank and buyer specifies timing of transfer of payments.
- Buyer maintains close communication with bank (by agreement), reporting on fruit deliveries by each producer.
- Buyer provides some technical assistance to producers, thereby serving in a monitoring capacity.

One of the models developed by ACA in Honduras is **triangulation through alternative partners** for financing plantain (see Diagram 6.3). A producers' cooperative that has a long-standing relationship with a processor/buyer receives technical assistance in production and packing of product. The Input supplier (*distribuidora*) provides input financing with a partial guarantee from the buyer and retention of payment through the buyer of the plantain.

Diagram 6.3 **Triangulation through alternative partners**



SOURCE: Lorna Grace. Seminar presentation.

It is a commercial alliance agreement between the input supplier, the exporter and the technical assistance provider for production. The technical assistance provider, the exporter and the producers also sign a memorandum of understanding (MOU) with one another. An additional interesting feature in this model is the insurance offered to producers through the cooperative. Key elements of the model are:

- Agreement of sale between producer and buyer specifies minimum prices and amounts, as well as quality.
- Long established relationship between buyer and producers.
- Buyer provides 50 per cent guarantee.
- Technical assistance provider is one of the signers of the Commercial Alliance Agreement.
- Input provider supplies inputs in amounts and timing established in the investment plan.
- Crop insurance (insurance contract) is mandatory and financed by input provider.
- Agreement to remit payments from the buyer to the input provider, in the Commercial Alliance Agreement.

There is also a memorandum of understanding between the producers, the buyer, and the technical assistance provider.

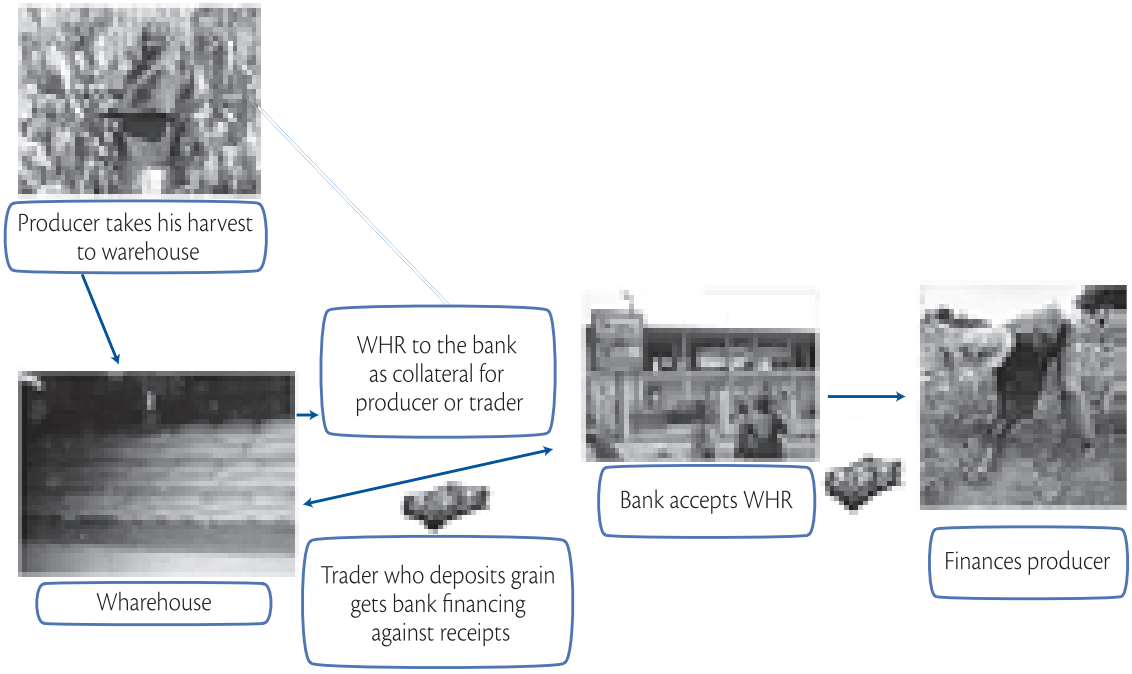
c) Warehouse receipts

In the case of non-perishable goods, producers' warehouse receipts (WHR) serve as a guarantee for subsequent financing. Diagram 6.4 shows a classic warehouse receipt model. The producers take their harvest to the warehouse, and can then give their warehouse receipts to the bank, which may accept it as collateral for the producer or trader.

The requirements for lending against these receipts are:

- Secure storage with sufficient insurance coverage.
- Product standards and market intelligence.
- Depositor's ability to increase earnings over time, while covering storage and finance costs.
- Regulator.
- Bank's willingness to lend.
- Reliable receipt that can be easily used for collateral.

Diagram 6.4 **The process of warehouse receipts**



Source: Lorna Grace. Seminar presentation.

This model comes from an ACDI/VOCA project in Kenya. Warehouse receipts had no legal standing in Kenya as a tradable instrument, so the choice was either to revise the legal framework or link the receipt to existing contract law. The second option was selected, and the warehouse receipts were embedded in a series of contracts that cover such matters as when to sell the grain, when to transfer it, and how the grain should be stored and controlled.

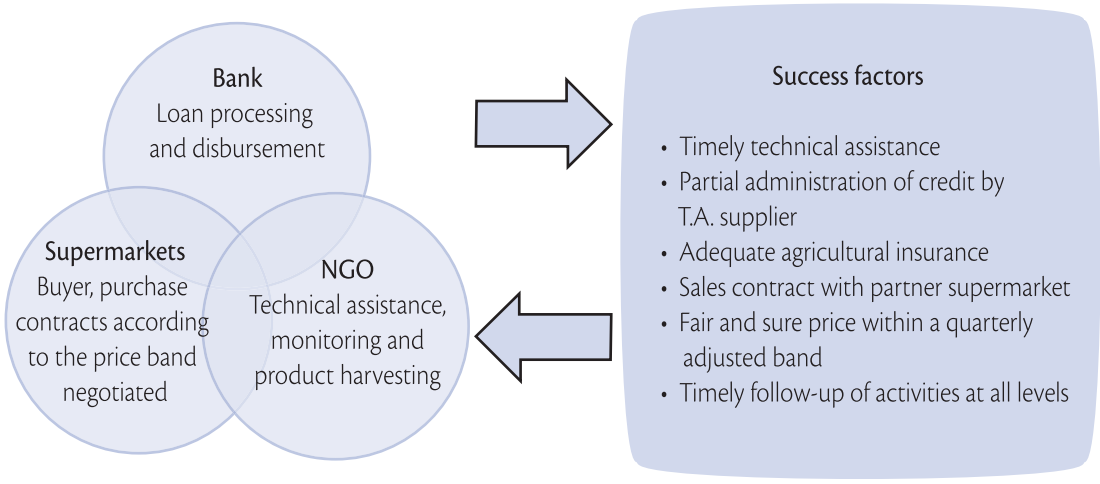
Under the standard warehouse receipts issued by East African Grain Council, the **title** to "receipted" property is controlled by linked contracts; these contracts allow for **transfer of ownership**. Further, **contracts** call for disputes to be settled by arbitration, and the results of arbitration are quickly **enforceable** within legal system.

Early results show that a pilot effort with just over 1.000 metric tons in the first year failed to expand in the second year due to government interference in the market. One bank developed a loan product linked to warehouse receipts and issued US $110.000 in loans against receipts; it reported US $95.000 profit (after costs) on the 1.000 MT.

d) Shared risk

The last example is that of shared risk (see Diagram 6.5). It was part of the "Recursos para mi tierra" program and brought together three partners willing to join funds and forces. The system was created to secure financing for producers of potatoes and has now has expanded to other crops. The bank, a buyer, and the technical service provider are responsible for evaluating and delivering credit, purchasing product within a prescribed range of price guarantees, and remitting payments directly from the buyer. The model uses a trust fund and purchase and insurance contracts.

Diagram 6.5 **Shared risk. Financing trust**



SOURCE: Lorna Grace. Seminar presentation.

The diagram shows the success factors, emphasizing on-time technical assistance. Farmers have crop insurance, and from the very first cycle, they used it to file claims.It worked well and producers were paid. Their success in accessing the insurance cemented the legitimacy of the trust fund, as one of the typical problems is the conviction among many producers that insurance firms never pay. Finally, technical assistance providers monitor producers at the source.

Key elements of the joint trust fund agreement are:

- Crop insurance integrated into the financing prices.
- Technical assistance (and therefore, monitoring) has a financial commitment to success.
- Purchase contract has a range of prices embedded in it.
- Creation of a technical committee to solve issues.

The price band was important because potato prices often fluctuated. This lent greater legitimacy to such a finance arrangement on the part of the producers. There are also risks in the joint trust fund. Merely being in a

group and having a contract does not necessarily cause people to behave any differently than they did before. Clearly, the existence of a partnership does not necessarily correct individual poor behaviors. Sometimes there are problems when the bank fails to disburse on time, and the supermarket is often less than prompt in paying producers. These issues are being fixed because they could trigger dropouts by participating farmers.

Farmers have been through four cycles, since September 2008, and are currently in their fifth cycle. The trust fund has grown, in commitments by the parties, from about US $500.000 to US $3.000.000. The expansion includes entry of other crops (up to 24), and plans for the fifth phase call for about 150 producers to be covered.

3. Conclusions

Contracts are only a means to an end, serving to structure and enforce already constructive relationships among parties. It is these relationships that help provide mutual benefit to all participants, helping them reduce cost and manage risks.

The level of formality of the arrangements or models presented reflect the risk profile and culture of the parties, from hand shaking, standard invoicing practices in the stores system, to purchase contracts and MOUs and the creation of legal entities, such as the trust fund. The model should be kept as simple as possible while still creating trust. Finally, whenever feasible, third parties should be included to provide technical assistance.

C. Fostering value chains in GTZ. The case of ValueLinks

Beate Weiskopf

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) is an international technical cooperation agency of the Federal Government of Germany for sustainable development. It has operations in over 100 countries. Chapter 7 gives a detailed account of GTZ activities. The rest of this section will explain what GTZ is doing to foster value chains; it will then discuss how the agency is developing financial agreements in value chains, and finally, offer a few examples of work now in progress and lessons learned.

1. The GTZ approach to fostering value chains

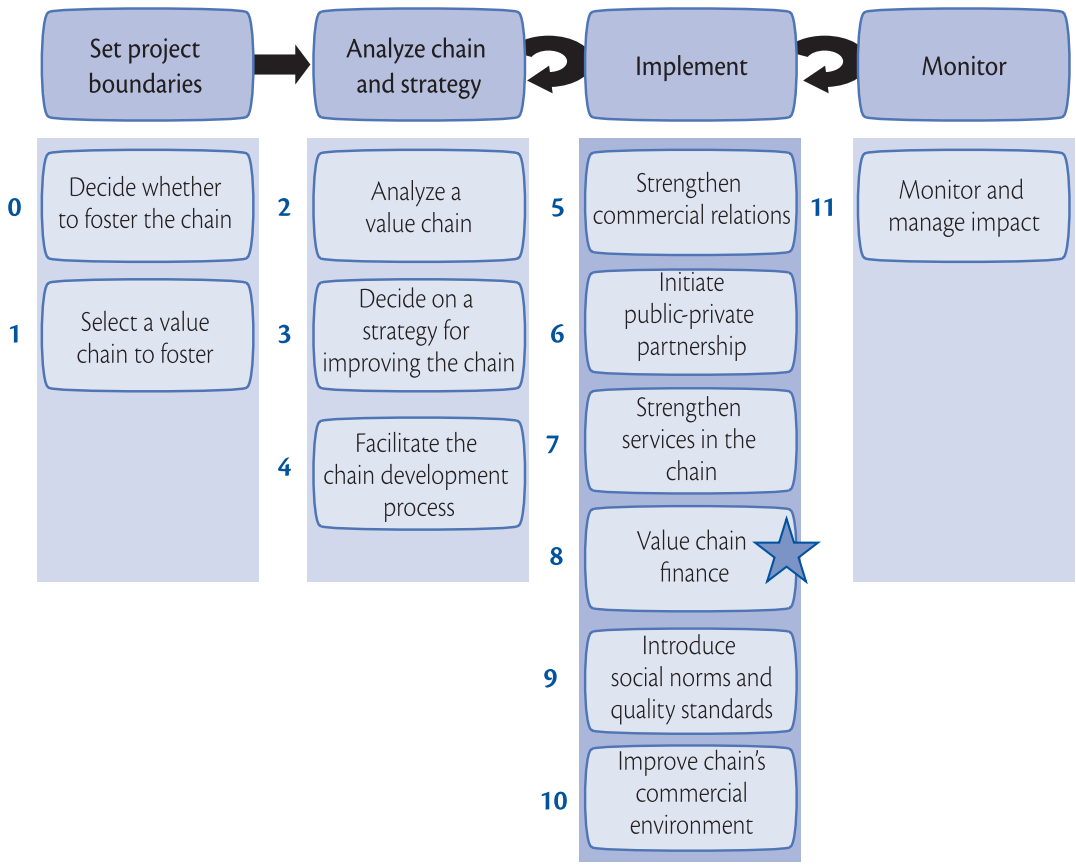
GTZ work is guided by the sustainable development model. All its activities are built on this model and are sustainable. This sustainability-based approach is a key factor in all the work it does, and the key competency is capacity development. GTZ is engaged in a full range of activities, three of which seek specifically to foster value chains: rural development and management of natural resources; sustainable economic development; and environment, climate and biodiversity.

Why is GTZ interested in value chains? The agency sees value chains as a key ally in its work. The underlying objective of its activities for building value chains is economic growth (greater volume sold, higher value projects).

Given this objective, value chains hold out excellent possibilities for attracting small-scale producers. GTZ also believes that value chains provide a means to connect small enterprises and small-scale producers to medium-sized and large enterprises, and such linkages hold great promise for achieving win-win situations and pro-poor growth. Furthermore, the inclusion of small-scale producers can help chains offset risk and become more competitive. There are many examples of both types of benefits. Eight years ago, when we first began to work on these issues, there were questions as to whether it was feasible to include small-scale producers. This is no longer in doubt; today the discussion revolves around how to do it, how to finance it, whether this kind of financing can be obtained, technical assistance and other issues that have been set forth in earlier chapters. Clearly, much progress has been made over the years.

GTZ uses a methodology called **ValueLinks** that was developed in 2002-2003. It consists of four basic steps: (i) setting project boundaries; (ii) analyzing the chain and developing a strategy; (iii) implementing activities to improve the chain, and (d) monitoring (see Diagram 6.6 below).

Diagram 6.6 **ValueLinks methodology. Fostering value chains**



SOURCE: Beate Weiskopf. Seminar presentation.

Certain specific issues are inherent to each step. For example, one of the concerns in Step One is to consider how value chains are selected for development. Step Two calls for a number of analytical activities, especially mapping work with stakeholders and developing the strategy. Step Three, implementation, generally introduces a number of critical issues, such as strengthening trade ties and improving services in the chain; here too, financing the value chains is an important consideration.

a) *The market/demand approach.* An essential principal is to identify promising products that have growth potential and offer economic opportunities for the poor. The idea is to work with chains that hold out real growth potential. This is the only was to achieve results.

b) *Private-sector leadership*. Leadership for developing value chains should always come from the private sector.

c) *Understanding value chains as a system*. The project works intensively with all the different stakeholders, coordinating a shared vision with them. Companies, service providers and support organizations all develop their shared interest in bringing growth to the end market, and they cooperate as a business community.

d) *From the regional dimension to the global dimension*. Differences may include the size of value chains, scope of support and organization/governance.

e) *Action approach*. It is an iterative process with optimized ignorance. The idea is to obtain quick results; analysis, while not neglected, takes place at an appropriate level.

f) *Modular concept*. Principles, criteria and toolboxes, instead of a rigid methodology.

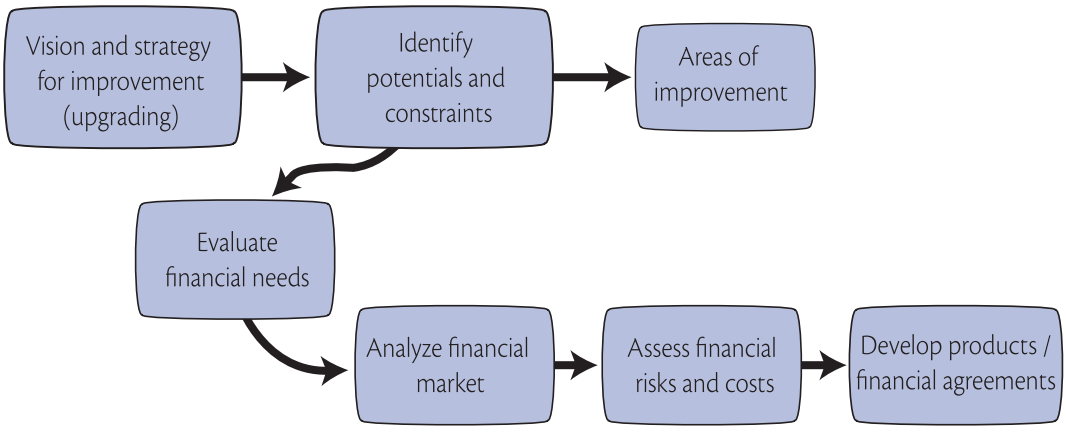
g) *Manage the interface between fostering value chains and other concepts of development*. Although this approach is modular, it is associated with other concepts, such as regional economic development, the evolution of service markets (Business Development Services or BDS) and development of the investment framework.

This ValueLinks concept took shape through experience with over 80 value chains in many countries around the world. The chief participants in Latin America have been Ecuador, Brazil, Perú, El Salvador, Nicaragua and Paraguay. These chains represent a broad range of products, including basic foodstuffs, livestock, fishing, forestry products, fruits and fruit derivatives and industrial crops.

2. Developing financial agreements in value chains

What about financing for value chains? The real question is how to develop financial agreements. The process begins with a vision and a strategy for improvement, worked out jointly by all the different stakeholders participating in the chain (see Diagram 6.7). This should include not only operators, but also the private sector, which is the owner of the product, service providers at the different levels and support agencies. The exercise identifies potential and constraints for developing the chain, as well as areas of improvement.

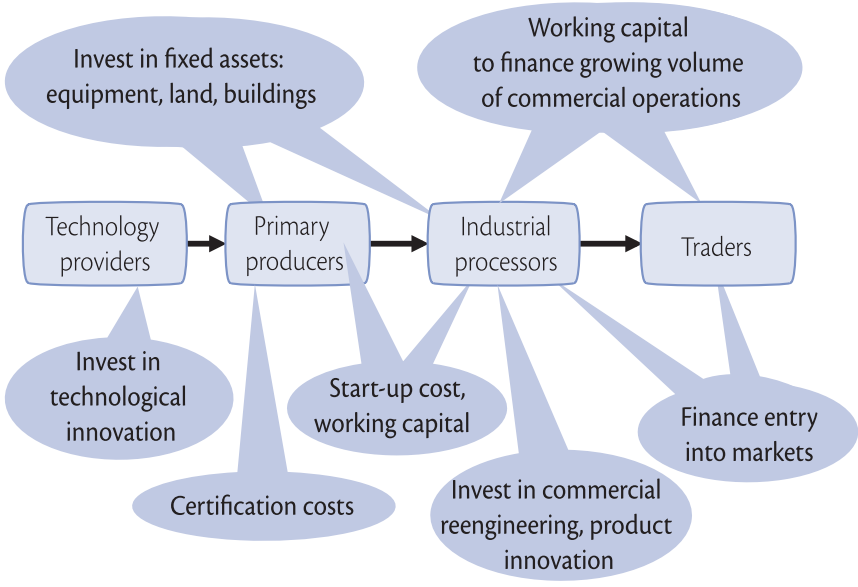
Diagram 6.7 **Finding solutions to finance the value chain**



SOURCE: Beate Weiskopf. Seminar presentation.

The matter of financing often arises during this process, It is handled by first evaluating financial needs, analyzing the finance market, assessing the risks and costs of financing and finally, developing specific financial products and agreements. Naturally, this is done in conjunction with leading enterprises and with financial institutions (see Diagram 6.8).

Diagram 6.8 **Identifying the value chain's financial needs**



SOURCE: Beate Weiskopf. Seminar presentation.

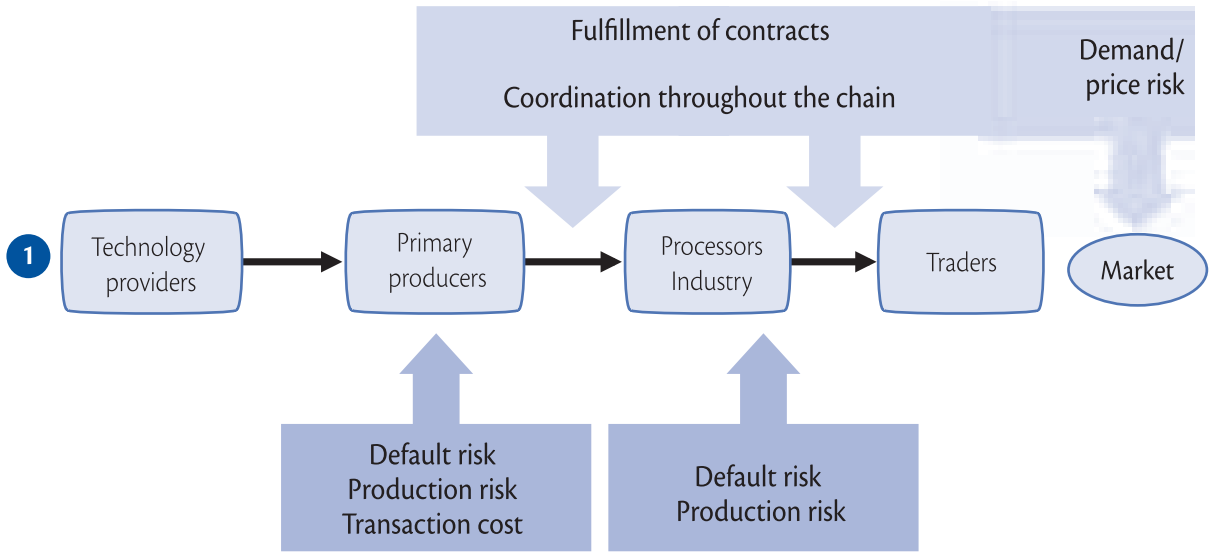
This constraint analysis generally reveals many financial needs all along the chain. Diagram 6.8 shows a few possibilities, including lack of fixed assets, lack of financing to purchase equipment or for operating capital, certification costs, technology innovation, and the like. The process of analysis considers the financial needs that operators will incur as the plan for improving the value chain unfolds, and compares them with the chain's options for financing, including both self-financing (revenues, savings, cash flows) and external financing agreements. This type of comparison clearly reveals financing gaps.

Once they have been identified, the reasons for these gaps can then be examined. For example, companies may not yet have a credit history to use in obtaining external financing, or small-scale producers often have no collateral or access to external financing.

After the gaps and their underlying causes have been analyzed, the study can consider associated risks that could arise if financing were obtained. As can be seen in Diagram 6.9, this analysis is divided into two parts: risks and costs associated with the value chain and its business model, and risks and costs associated with individual borrowers. The risks identified could include, for example, production risks, climate risks, transaction costs, and the like.

Diagram 6.9 **Financial risks and costs throughout the value chain**

Risks and costs associated with the chain and its business model



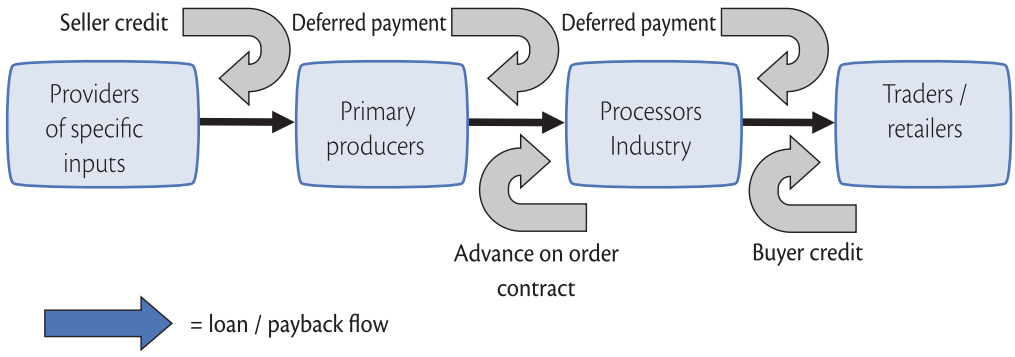
Risks and costs associated with individual borrowers

SOURCE: Beate Weiskopf. Seminar presentation.

The next step is to analyze the financial market in the different countries. The idea is to find financing solutions to close some of these financing gaps. Certain options may lie inside the chain itself, as described in earlier chapters. For example, larger companies or purchasers of the product may be able to meet financing needs for

smaller companies or producer associations (see Diagram 6.10). Input suppliers or large buyers may be able to open accounts or lines of credit for other members of the chain with which they interact.

Diagram 6.10 **Financing agreements inside the value chain**



SOURCE: Beate Weiskopf. Seminar presentation.

Financing solutions may also lie outside the chain. Ideally, finance institutions would partner or associate directly with stakeholders at the different stages of the chain. This could include input or technology suppliers, primary producers, the processing industry and distributors, as can be seen in some of the examples given in Chapter 5. Funding sources may also have indirect links with members of the chain through the type of triangulation arrangements described by Lorna Grace in Section B above.

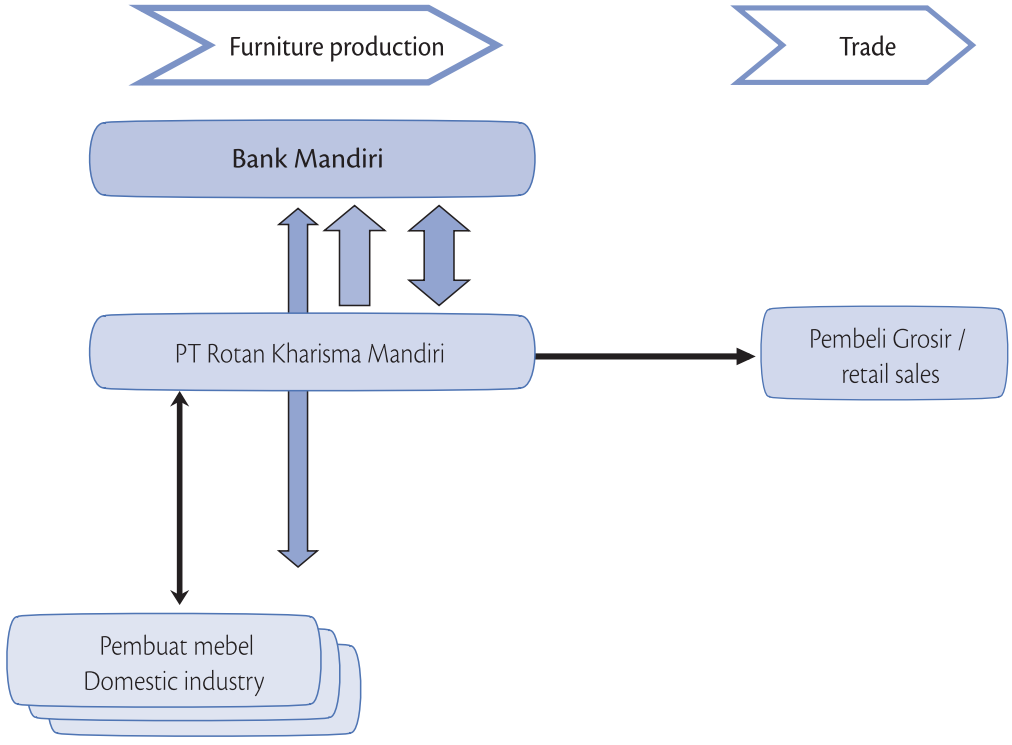
3. Facilitating financial arrangements

The examples described below are taken from GTZ projects all over the world. The first case is from Ecuador. FAPECAFES is a cooperative of around 1.200 coffee producers. The cooperative actually covers the entire chain, from field production to final export, based on buy-sell contracts with importers, roasters and alternative financing institutions. The participating finance institutions (Alterfin, SIDI, Root Capital, Stichting Doen and the Rabobank Foundation), which work with fair trade programs and the organic market, make their loans to the cooperative, supplying it with sufficient capital to purchase the members' products. Since 2003, these finance institutions have been able to meeting the growing needs of the FAPECAFES cooperative.

The second example is also from Ecuador. It is a cacao chain that increased its acreage so extensively in past years that it no longer had enough financing. GTZ, by working through a credit union, provided funds for cacao associations that wanted to add more cropland. The credit union extended the credit to producers to grow seedlings and recovered its loans through direct payments by producers who use the plants to increase their crop acreage.

A third example is from an Indonesian chain that produces rattan furniture (see Diagram 6.11). A furniture manufacturer in Indonesia, who needs large volumes of raw material, holds supply contracts with a number of small- and medium-scale companies. The manufacturer backs these small-scale suppliers by providing security for their bank loans. In this case, then, the furniture manufacturer assumes the financial risk of backing his suppliers; it is a win-win situation for him, ensuring on-time supply of the inputs he needs.

Diagram 6.11 **Structured three-party financing (Indonesia)**



Source: Beate Weiskopf. Seminar presentation.

Finally, in a recent example from Nicaragua, GTZ worked together with CATIE using a methodology that Ruth Junkin will describe later in this chapter. The process culminated in the signing of an agreement with Produzcamos, a recently created publicly-owned bank that Nicaragua set up to foster agricultural activities, and specifically, to boost small-scale farmer access to credit instruments. In this case, GTZ supported the process by offering technical advisory assistance through local organizations to help minimize risk for the financial instrument.

4. Lessons learned

The first lesson is seen all too often: financial services are not well adapted to the specific needs of small-scale producers. For example, in its work with indigenous producers in Nicaragua and Ecuador, GTZ has found a

serious need to design instruments adapted to the needs of value chain members. Each chain, each sector and each group of stakeholders needs made-to-order solutions that also take into account the specific needs of women.

The second lesson is that financing is only one of several instruments, and GTZ always combines it with other activities to promote value chains. Financing should be linked to other development activities, such as market access and business development services (BDS). This is the only way to work successfully with groups of farmers.

A third lesson is that the top priority should be to find financing solutions inside the agricultural value chain, thus sharing risk among the different stakeholders. This is easier to achieve if the right conditions are present.

The fourth and last lesson is the need to develop policies and legal instruments that will facilitate credit access by groups that do not yet have it.

D. Methods to develop financing strategies for agricultural value chains

Ruth Junkin

This section offers a guide and several methodologies to develop financing strategies for value chains. These tools were created by the *Centro para la Competitividad de Ecoempresas* (Eco-enterprise Competitiveness Center, CECOECO) at CATIE. The work was done by the author and José Angulo, with sponsorship from the Regional Unit for Technical Assistance, RUTA.

1. Consider diversity of settings

Earlier chapters discussed the importance of agricultural value chains for fostering competitiveness in the rural sector of Latin America. They also emphasized the importance of financing to keep the chains competitive, noting that there are no universal recipes for financing value chains. Financial services may come from a wide range of stakeholders, including trade partners within the chain, formal financial institutions, or semi-formal financial institutions. Financing may also come through commercial firms, non-formal lenders or others.

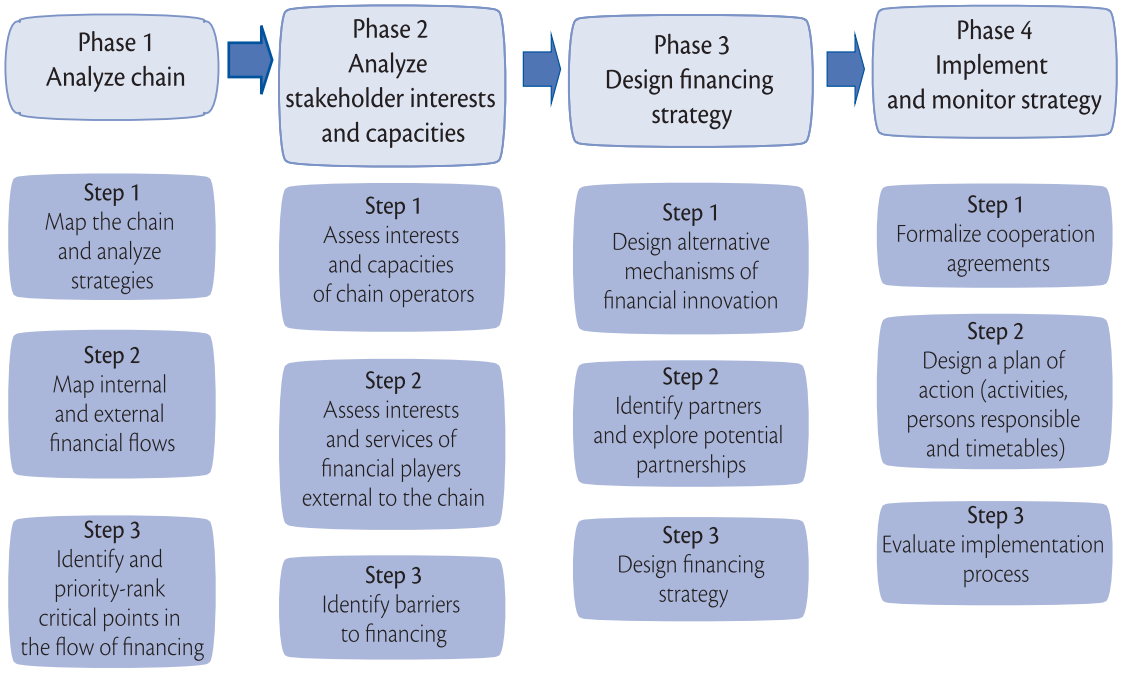
All these may play a major role to keep the value chains working and needed funds flowing. The interests of the different stakeholders, especially banks, also need to be recognized. In Chapter 5, the representatives of financial institutions highlighted the importance of recognizing their clients' true interests, but clients also need to recognize the interests of the banks and other financial institutions in order go in, speak the same language with them and understand one another. Stakeholders all have particular interests; they also have particular capacities, and the finance model that is eventually worked out will be based on these capacities. For example,

no two organic coffee chains are alike, because the members of one chain may have achieved a much higher level of development than those in the other. These different capacities need to be understood. Differences also exist among countries, among regulatory environments and among overall legal systems. One country may offer certain financial products that a neighboring country does not. Creating a trust fund in Nicaragua is not an option because no such thing exists legally.

There are clear differences, and each chain has its own risk profile and its own business flow. Each one is unlike any other, and the specific case needs to be examined in order to develop a financing model. While some readers may be experts and already know what to do, others are wondering how to proceed in such a diverse environment with so many financing models available. CECOECO has developed a simple guide with a step-by-step method for learning about the chain, understanding the interests and capacities of its members, and on this basis, developing a financing strategy and a workable finance model.

The purpose of the guide is to facilitate analysis for developing financial strategies to support rural value chains. It consists of four phases: (i) analyze the chain, (ii) analyze the interests and capacities of chain members, (iii) design the financing strategy and (iv) implement and monitor the strategy (see Diagram 6.12). The guide also gives a conceptual introduction, a methodological guide and specific instruments. The rest of this section is a summary of the first three phases and the instruments used in each one. The full document can be found on the Internet at: www.catie.ac.cr/cecoeco.

Diagram 6.12 **Summary of the financing strategy development process**



SOURCE: Ruth Junkin. Seminar presentation.

2. Analyze the chain

The first phase, analyzing the chain, consists of three steps. Step One is to map the chain and analyze its strategies. As other authors have already noted, before financing a chain or promoting a chain finance model, it is important to become familiar with that chain. This guide draws heavily on the ValueLinks work by GTZ, abbreviating the process somewhat. ValueLinks is very large and has much to offer, and these two methodologies fit together quite well in this regard.

The use of this guide helps shed light on answers to a number of questions. How is the chain organized? Who are the operators of the chain? How do products move through the chain? What are the rules of the game? Are there contracts, or not? How is the decision made on when to sell, what to sell and what quality is needed? Who provides services to the chain? Are there certifiers? Technical service providers? Business service providers? What volume of transactions do the different links sustain? Clearly, all this will become important later if the idea is to attract funding, because if the chain is very small with tiny transaction volumes, it will probably be best to consider an internal financing model or a micro-finance institution (MFI) rather than a large bank. The situation is quite different for a high volume of transactions, and it is important to know what strategies are in place for improving the chain. Any talk of a chain ultimately revolves around real-life people with names and faces. Whether it is a corporation, a cooperative, or individual producers, they are always specific people, and the value chain simply means that these real-life people with names and faces are coordinating with one another to improve their benefits or to make their chain more efficient or competitive. It is also useful to ask: what kind of **strategy** do they have to improve their chain? This is part of mapping the chain.

Step Two is to analyze **internal financial flows**. As Beate Weiskopf stated earlier in this chapter, trade partners in most chains provide each other with some type of financing. Perhaps a farmer delivers the produce and waits for payment, thus in fact financing the buyer; or a buyer pays an advance to a farmer or other supplier. How are these transactions performed? When do they occur? What is the connection between cash transactions and product transactions? All these questions need to be answered in order to understand who is financing whom. There are still more questions. What is the volume of such transactions? Under what conditions do they take place? Are they formalized? Informal? Do they call for collateral guarantees? Are they non-secured? Do they include some type of formal commitment made to deliver the product? Under what conditions?

It is also important to know how much **external financing** is available. The task is to find out from direct stakeholders or operators in the chain whether financing is or could possibly be available from external sources, be they banks, micro-finance institutions or credit unions. This includes learning what other complementary services might be available in the sector, such as storage facilities.

The chain analysis phase is completed by identifying critical points in the flow of financing and determining whether or not the chain's internal financing opportunities offer sufficient volume and availability. If not, what critical point of the chain is merely limping by? This means looking at the entire chain, and not merely a single link. There could be a problem with financing at the first link, where primary production takes place. However, there could also be an issue with the exporter. So the question becomes: where is it and what is happening?

Where are the bottlenecks in the flow of financing? At what point does one or another stakeholder run out of capital or encounter liquidity problems? How do these situations affect the efficiency, consolidation and competitiveness of the entire chain? It could be that some particular problem is having a serious impact on one of the stakeholders, but has no real implications for the chain or the ability of the chain to compete. You need to know this and begin priority-ranking the points you will be addressing. What will be the financing needs for strategies to upgrade or improve the chain? For example, if you need to improve your product quality by installing a new processing plant, will you need financing? Where will the money come from? Again, how much of a flow will this entail? How big are any financing gaps? This is also necessary if you hope to sit at the same table with financiers or with financing entities and speak clearly with them.

3. Analyze stakeholder interests and capacities

The different authors of this document all insist on the importance of knowing your client. This is especially so in agriculture, as farmers and their organizations are often unfamiliar with the banking sector, while few in the banking sector are acquainted with producers. Their first task, then, is to get to know each other. It is important to understand, for example, whether producers are subject to bouts of non-liquidity, even for a brief period. Producers want to improve their production capacity. They want god prices, price stability in some cases and prompt payment. They want to ensure liquidity and minimize risk. This has implications for the finance model being developed.

What about brokers or buyers? What are their interests? Do they care more about timely delivery or supply quality? Are they more concerned about paying reasonable prices or earning benefits for their members? Buyers that are cooperatives may have particular interests or proposals that they will want to see reflected in the financing model. Another important point is that distributors generally do not want to extend financing because this is not really their line of business. Because it is not their central competency, they want the banks to do it. The author has found, however, that marketing cooperatives or processing cooperatives often do want to give financing as a way to "lock in the producers" and ensure a supply. Therefore they need a model that will support this commitment while still recognizing their capacities. Triangulated models can do this.

Financial institutions may be interested primarily in strengthening the basis of their business, improving risk management or fulfilling a mandate for social service. They may also have an interest, for example, in triangulated systems with producers and marketers, innovating their financial products or partnering with service providers. The guide also calls for a study of actual capacities. No matter how much a cooperative would like to extend credit, if it lacks the capacity to manage a large volume of accounts, or to collect, or to manage an information system, it may not be a good idea to do it. Their dual areas of capacity need to be understood equally, both as providers of financial services and as receivers or clients of financial services.

One point discussed in various sections of this book is the lack of coordination when several different financial institutions are involved at separate points in the chain. While this does occur, it is also true that different

types of needs exist in the chain and call for different types of financial institutions. An MFI may be the best place for a particular group of producers to borrow working capital because it is accustomed to working with this sector. Another chain may include both primary production and collection centers, as is common in dairy production, and may need to finance equipment. In such a case, the MFI may not be in a position to develop a leasing arrangement, and some other type of financial institution would be more appropriate. Finally, it is also important at this stage to identify barriers to financing, which could include such factors as those summarized below in Table 6.1.

Table 6.1
Barriers to financing

Category	Barrier
1. Risks	i. Capacities
	ii. Collateral
	iii. Information
	iv. Nature-based
	v. Market
	vi. Roads
2. Infrastructure	i. Roads
	ii. Banking services
3. Institutional development	i. Public policy
	ii. Financial instruments
4. Culture	i. Institutional culture
	ii. Personal culture
5. Awareness	i. Awareness of financial options among producers and producer associations
	ii. Little understanding of financial institutions in the chain
	iii. Risk perception

Source: Ruth Junkin. Seminar presentation.

4. Design financing mechanisms

First, define financial products, taking into account the critical points in the financial flow, strategies, upgrading or improvements in the chain and any barriers to financing. Recognize the interests and capacities of the different stakeholders and help them to understand each other. Many issues can often be resolved simply by "sitting people down at the same table."

Find about more about the environment and explore it as much as possible. For example, it is commonly claimed that Nicaragua offers no long-term financing options for coffee. However, one bank complains that it has a long-term line of financing for coffee and no takers. Go out and see what you can find. It is also essential to link up with other services and create synergy, as for example with technical assistance services or business assistance programs. Remember, too, the importance of building inclusive financial systems. While it is good to have financial flows within the chain, there may also be a demand for services that members of the chain are unable to provide, such as savings, insurance or others. Finally, in designing financing mechanisms, it is good always to take the broad view and seek out common needs shared by several chains. For example, when serving a micro-stakeholder in the chain, find similarities useful for making certain products more widely available by combining with other chains.

E. ICTs: more than cool applications?

Geoffrey Chalmers

The title of this section is actually a question. Do information and communication technologies (ICTs) promise anything more than what we already know about? Are they more than just the latest fad in *cool* software applications?

The author does not consider himself an expert in ICTs, and indeed it is quite fitting for a non-expert to present this particular topic. In fact the importance of ICTs has little to do with the technological advances of recent years. If these technologies matter at all, it is because they offer a more feasible, more economical, more efficient means to facilitate the growth of agricultural chains by offering better access to financial services. A secondary question is whether they facilitate the flow of information and new or improved trade relations.

This presentation will describe two cases. The first is from Mexico, a case whose focus from the very beginning was on financial services. The second case, from India, is a chain which until recently had given no thought to financing. What the two cases have in common is that credit was not the crux of the main problem.

1. What are ICTs expected to do?

Given the potential of ICT tools, what can we actually expect of them? I suggest three things. The first is **information and transparency**. An appealing way to describe this is by saying that technologies can "light up" the value chain. The idea is to reveal everything there, all the valuable information that is present in the chain but that sometimes lies in obscurity. ICTs illuminate information on both sides of a commercial transaction, toward producers and toward buyers. In a simple example, this could include prices, weather and market trends.

The second value of ICTs is **access**, which also has several features. It begins with access to product markets, which will be seen later in the India case. It also includes access to sources of financing, which will be seen in the Mexico case and, especially for financial institutions, access to rural areas, which are sometimes remote.

The third area of interest is the matter of **costs**. This is an important issue because it is so easy to be persuaded of the need for the latest technology, even when it may not be the best choice. A USAID official who was an expert in ICTs always said that when she helped programs in the different countries, she insisted on considering all the technology options. Her most important mission was to persuade people who were very excited about such technology that it may not be the best solution. Three out of four times when she came to help, her job was to convince them that the time was not yet right or that they should explore other options first. People should narrow their expectations when ICTs are under discussion. The same barriers that have always existed are still in place, but the idea now is to find new ways of overcoming them.

2. Mexican mango producers and the ASEA solution

This first case study is the value chain for *Ataulfo* mangoes. This is a very tasty yellow mango that has been well received in the market and has a financial relationship with *Solución ASEA*. Significantly, the first thing that was done was a thorough analysis of the value chain. In other words, the process did not begin with the idea of financing or of using ICTs. Instead the complete, comprehensive analysis of the full chain clearly found that the priority and the main barriers were not financing issues.

In fact, the critical barrier was field productivity, which indeed was closely associated with considerations of financing. What were the main problems? First, the small-scale producers were missing out on numerous market opportunities and had no liquidity. Much of their liquidity was already tied up in advances paid to producers, and they did not have enough liquidity to tolerate the delivery schedule demanded by high-profit potential sales channels (packers and exporters). They also lacked financing to invest in improving their processes and technology so as to serve these channels better. Meanwhile, the packers had all their liquidity tied up in credit to farmers.

The first step was to conduct a study of producer costs, revenues and mango yields and compare it to sales options. The analysis found that farmers who sold to intermediaries or "coyotes" in order to receive cash payment fetched such a low price that they could not hope to break even with a yield of less than eight tons per hectare. Producers who sold directly to the packing plant received a better price and, even at yield levels of four tons per hectare, were able to break even; the problem was that the packing plant did not pay cash. A third group, organic mango producers, sell to an exporter and, even with yields as low as two tons per hectare, are able to make money. However, this is the most difficult channel to maintain because it pays no advances. Few producers dare to use it.

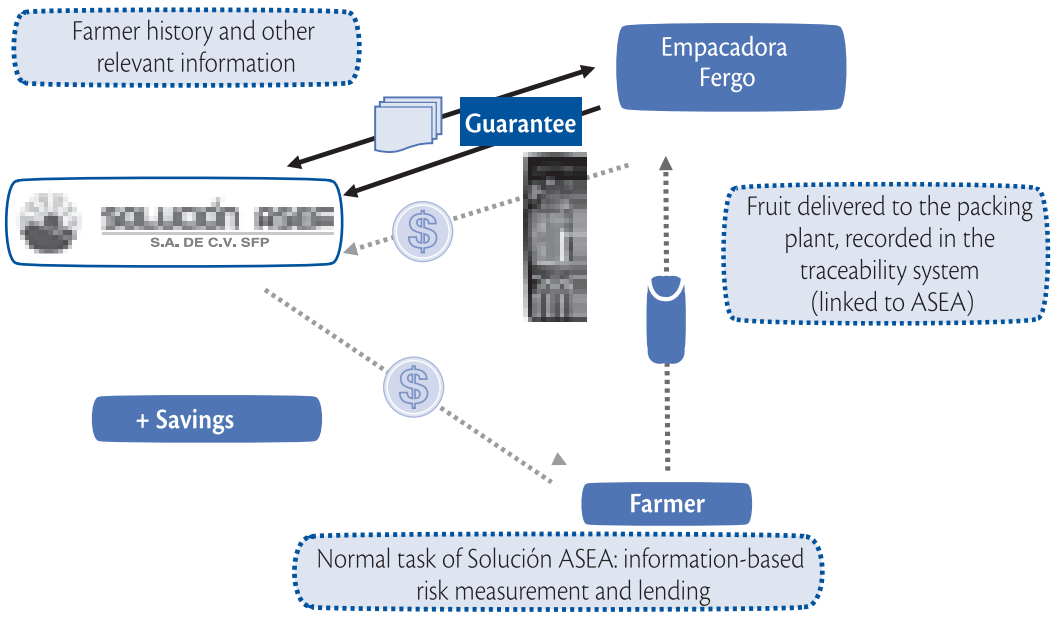
Having begun with an analysis of the problem, the next step is to examine possible solutions and thus determine the possibility of useful ICT applications. The situation as described presents opportunities for a financial institution to become involved. This type of initiative is a critical component for upgrading so that farmers can advance from present channels to others that hold out the promise of better income.

It is actually quite simple. In order to produce, farmers need working capital and investment capital to make improvements in their operations. Packing plants stand to gain, in theory, if their suppliers have access to financial services and can thus continue to be good, reliable, stable suppliers. Of course, there are also cases such as those described by Ruth Junkin earlier in this chapter. Although some packers prefer to lock in their producers, if they take a more long-term view, they do have shared interests. In this Mexican case, packers prefer to have some other entity lend to the farmers.

The financial institutions themselves are interested in seizing this new market opportunity, but first they need more information. They do not know the farmers well. Thus arises a question: are ICTs truly a useful tool for solving this problem? Or are they merely the latest "cool" fad? This is the big question.

The simplest solution is for the packer to share performance information with the finance company (see Diagram 6.13), which in itself requires no technological tool. It is just information, and it can be shared using any means. It does not call for a special sophisticated platform.

Diagram 6.13 **ICTs in México. Pilot credit program**



SOURCE: USAID / AFIRMA

The value of ICTs is their ability to organize this information and make it systematic, which is useful for a number of reasons.

a) *Scale*. At first it may seem very easy for a financial institution and a packing plant to share information using any rustic methods they have. However, if they decide to move to a larger scale, or perhaps expand into other product lines, it all becomes very complicated and requires more systematic information.

b) *History and reliability*. If several years of data are involved, it is important to think about reliability. For this purpose, a company was brought in that was specialized in technology and data management, to improve reliability by working through a third party that had no interest in financing.

c) *Multiple MFIs*. A pilot program was conducted with a single financing institution, but the idea is to attract the interest of several others as well. A more systematic platform can facilitate this.

d) *Multiple uses*. Perhaps the most important consideration is that a more sophisticated platform is useful not only for financing purposes, but also for possible future uses, such as traceability or certain certifications. So this platform handles data that is not only useful for a financial institution, but may also be valuable to other entities that have somewhat different interests but that require much of the same information.

Diagram 6.13 describes the Mexican case, using a triangulation system similar to those discussed in earlier chapters and in other sections of this same chapter. The innovation here is the use of the mobile telephone, which is the basic platform the specialized company developed. It is a very simple data base that farmers can manage themselves, and to which the financial institution has access. The system is simple because it is nothing more than an adjustment to the traceability software they were already using. While the non-financial services it offers are useful, it is also a means to provide more and better financial services, such as savings and longer-term credit.

3. GMED in India

This study covered a produce chain in India, a country that is one of the world's largest producers of fruits and vegetables. It found that 30 percent of the losses were caused by inappropriate post-harvest management. The problem was very clear, and the solution, which had nothing to do with financing, emerged from the chain analysis.

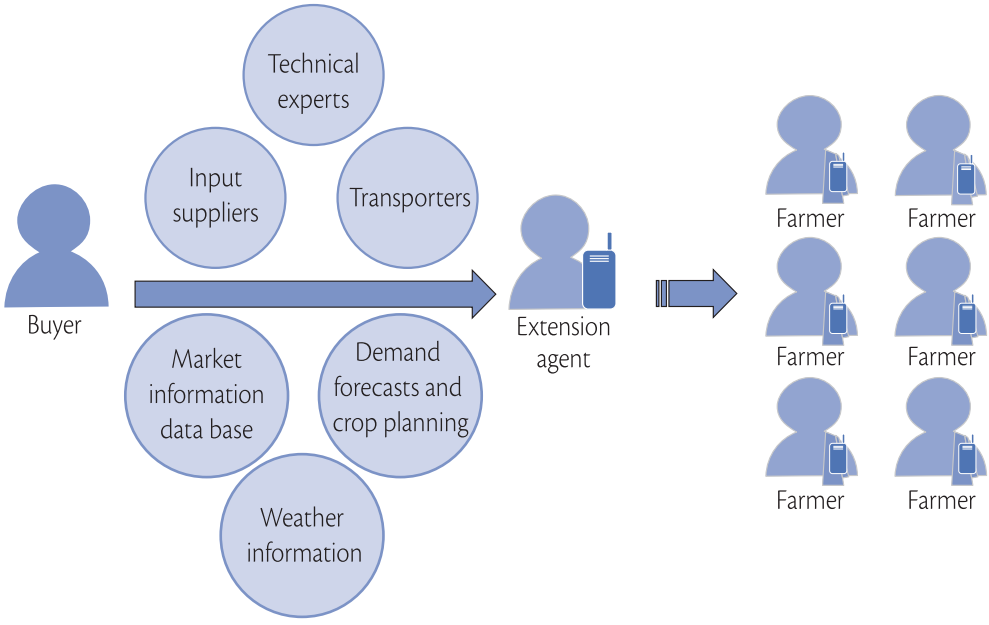
Significantly, this system collects information in both directions of the trade: information sent toward producers and information from producers to buyers and other members of the chain. One of the cornerstones of the system is a canvass of the farmers, a one-time survey based on 30 questions. It provides a wealth of information on many different facets of the farmer's life.

The basic program consists of ICT applications through mobile telephones, with two interfaces: one for sending technical information, and the other offering modules for managing the production chain. Users gain access to information through intelligent, Windows-equipped telephones and low-cost mobile telephones. Many of

the messages are sent by voice, catering to illiterate participants. The information is individualized so that all member producers receive information of specific interest to them. The approximately five messages per day include useful local facts, crop data, and more. The messages are a vehicle for providing technical advisory assistance, market information and other important alerts. There is also a real-time help line farmers can use if they have questions for an expert. The system is available to buyers, input suppliers and producer organizations or cooperatives.

Diagram 6.14 describes how the freshConnect system operates. The arrows point in one direction only –toward producers. However, it is very important for information to move both ways. Application 1, toward the producer, is a very useful information packet to improve borrower status. It helps clients improve their profile in the eyes of a financial institution. It is a real-time information system that extension agents use to communicate with producers. It provides a means to: (i) transfer information on soils, crops, water use and pest control, all directly to farmers; (ii) disseminate market information in real time, and (iii) forward questions and feedback to knowledge centers.

Diagram 6.14 ***FreshConnect* in India. Operating structure**



Source: Geoffrey Chalmers. Seminar presentation.

In the other direction, Application 2 is a production chain management system that interconnects the segments of the fresh produce chain. It provides a way to: (i) schedule supply needs based on planting and harvest, and (ii) accurately schedule delivery of production supplies, information on good agricultural practices and product delivery dates. It makes the whole chain more efficient and in so doing, helps buyers and the entire chain to be more competitive. This is where it holds great opportunities to detect information of value to the different stakeholders, including finance institutions. It is useful to know how well farmers have performed over time, how

loyal they are, how their products have sold and their compliance record. This very valuable information covers the basic principles that show a potential client to be creditworthy.

Benefits of the system can be found on both sides of the chain –for producers and buyers alike– as described in Table 6.2. The reader needs to consider the perspective of the financial intermediary, as to whether the information, including survey data, is truly valuable, whether it is of interest to a financial organization that serves all the stakeholders in the chain. Think about the sustainability of the survey and who pays for it. This point holds great potential because specialized companies have come along that go out to the field to conduct surveys and then sell the data to financial institutions, state governments and regional governments.

Table 6.2
***freshConnect* in India. Benefits for producers and buyers**

Benefits for producers	Benefits for buyers
a) Higher income	a) More efficient production chain
i. Higher yields	i. Costs
ii. Better quality	ii. Quality
iii. Lower transaction costs	iii. Traceability
b) Small producers gain access to a larger scale	b) Access to underserved rural markets
	i. Prospects for higher income
	ii. Loyalty and trust
c) Individualized knowledge	c) Better control over products and inventory costs
d) Real-time information to shorten distances	

Source: Geoffrey Chalmers. Seminar presentation.

The results show 200 producers connected to HyperCity, 150 producers connected to Foodland and 200 producers connected to Adani AgriFresh. Moreover, certain farmers are growing vegetables according to buyer specifications. As the reader can appreciate, these findings cover producers, that is, the non-financing part of the chain. Where are the survey findings on financing? That will be the next step in the project. Even so, the case is significant because it demonstrates that ICTs can in fact shed light on valuable information that is all too often lost. Financial institutions will take an interest because it is an easy way for them to familiarize themselves with clients, the business and the chain. Even though ICTs are nothing but a tool, they are a useful response to one of the challenges addressed in the Seminar that gave rise to this book: how to leverage existing trade relationships and natural information flows to reduce risk and make the chain more competitive.

F. Development and extension for family farming in Chile. The case of INDAP

Manuel Miranda

This final section of Chapter 6 covers the case of Chile's *Instituto de Desarrollo Agropecuario* (Agricultural Development Bureau, INDAP), a public-sector institution under the Ministry of Agriculture. This agency has aligned all its services, structure and programs with a view to improving small-farmer access to "agri-trade" chains.

The bureau was founded 47 years ago. It does its work on two levels: first by developing regulations and setting policy, and second, through coordination and linkage. It has a staff of over 1.600 people, with 120 local offices that support 150.000 producers every year through: (i) credit, (ii) technical advisory services and (iii) non-reimbursable incentives. It grants credit both directly and through a private bank. Its coordination work is performed by approximately 2.000 consultants. It has a budget of around US $300 million per year, portioned out as follows: 18 percent for operating expenses, 51 percent for non-reimbursable incentives and the remaining 31 percent, or a little more than US $93 million, for credit. The rest of this section will describe the main lines of action that govern the work of INDAP.

1. Agriculture and the food industry in Chile

Agriculture and the food industry are an important, high-profile sector in Chile. The country boasts 5,1 million hectares of arable land, 8,5 million hectares of grazing land, 11,5 million hectares of land for forestry development and 14 million hectares of land for conservation. The Chilean agri-food sector operates in highly competitive markets. Even the domestic market, while small, is very competitive, with growing demand, more consumer awareness, a diversity of investors, many of whom are expanding, and a concentrated, integrated industry. The external market is also expanding and becomes more and more demanding as time goes by. It has provided the sector with a favorable trade balance and expanding markets and product lines.

Food exports are Chile's second largest source of foreign exchange, exceeded only by copper. Significantly, this economic growth in the agriculture and agri-food sector has also gone hand in hand with a steady lessening of rural poverty. Indeed, in 2006 the country succeeded for the first time in pushing rural poverty below the level of urban poverty (12 vs 14 percent), and while overall economic growth unquestionably plays a part in this, the State's public policy work is also critical.

One very relevant public policy has been the determination by the Chilean government to make Chile an agri-food powerhouse. It is an agri-food powerhouse that includes small-scale agriculture, a large and diverse sector whose entrepreneurs, although they come from different social classes, all encounter ever-greater difficulties in selling their products. They are owners, renters or sharecroppers (under shared-risk contracts with landowners), farming less than 12 hectares of land with basic irrigation and whose primary income is from agriculture.

Small-scale farming accounts for nearly 95 percent of all farms and 22 percent of the country's total production; 10 percent of this output goes to on-farm consumption. This is why small-scale farming is in line to benefit from and contribute to this country vision of Chile as an agri-food powerhouse, with its not-insignificant presence in the chains. If Chile wants to keep its "agri-trade" chains competitive, it must therefore support small-scale farming, which faces the many constraints and challenges listed in Table 6.3.

Table 6.3
Main constraints and challenges

Capacities	• Aging farmer populations. • Limited technical and managerial know-how.
Resources	• Small land holdings • Lack of water resources or reliable irrigation. • Low soil quality.
Technology	• Low adoption of available "hard" and "soft" technologies.
Market	• Quality and amount of products and suppliers. • Limited market networks. • Little commercial bargaining power.

Source: Manuel Miranda. Seminar presentation.

These small-scale farmers are highly heterogeneous; all are entrepreneurs, but at greatly dissimilar scales. At one end, the sector includes small-scale farmers who supplement their agricultural production with off-farm activities, mainly by selling their labor, a category known as "multi-activity," while farmers at the other end of the spectrum export their products to the United States, Japan and the European Union. They all share similar prospects for the future: it will become increasingly difficult for them to sell their products, whether peddling jams at the local market or door to door, or selling their products overseas.

Small-scale farmers are linked into the chain at different positions. As was already said, only 10 percent of their production is consumed on the farm itself. This means that the great majority of these small-scale producers are engaged in selling goods. If the future promises increasingly sales prospects, the development agencies such as INDAP or other institutions must therefore provide a better technical response to the challenges of marketing. The main objective of development policy is thus to strengthen productive linkages for small-scale farmers.

2. Development policy

Development policy is based on three essential principles. First, it is an **inclusive** policy, which means it addresses all farmers, no matter their scale of production. As was noted above, support services are provided to everyone. At the same time, it is **differentiated**, meaning that the magnitude and intensity of support varies according to the needs of each farmer. In the third place, and of particular importance, it is **intentional**. INDAP and other

development agencies must discern and technically distinguish exactly what support will be given to each particular small-scale farmer. Ultimately, support is lent in whatever area is most crucial for each individual farmer to enter the relevant "agri-trade" chain most effectively.

As a practical expression of this development policy, four years of effort have been invested in structuring agricultural extension systems. As it happens, "agricultural extension" was a term that had fallen out of use in Chile many years earlier.

Today it is making a comeback as a new agricultural extension system that features a series of clear steps. The first is to clearly identify the **constraints** on each farmer's ability to enter the "agri-trade" market. These constraints are then **removed** by means of a platform of **flexible services** adapted to groupings of specialized, high-quality producers. The next step is to **measure outcomes**, that is, determine whether visible progress is being made over time. Finally, it always maintains a very specific **focus** on **stakeholders**, mainly the producers and INDAP professionals who lend field services. Chile has been outsourcing its production development services since 1982, placing them in the hands of private companies.

3. Identify constraints

The first challenge is to identify the constraints on farmers. It asks questions such as: Where are the farmers? Where is their land? Who are they? Why aren't they all alike? What are the different categories of farmers? Where are they positioned in the chain? What critical points need to be addressed? Leaders of the process began by canvassing the length and breadth of Chile, identifying those products most associated with small-scale farming in the different territories. Two particularly innovative markets should be emphasized, as they have become especially important in recent years. The first is the whole gourmet niche, or products being positioned at the pinnacle of international haute cuisine; the other is rural tourism.

The farmers have been placed into four categories (see Table 6.4). Briefly, commercial farmers support themselves 100 percent on agriculture; the smallest "multi-activity" farmers combine farming with off-farm activities.

Table 6.4
Farmer segments

Commercial segment 1:	external markets, highly specialized in a single product.
Commercial segment 2:	domestic markets, multi-product.
Multi-activity segment 1:	supplement farming activities, local markets, multi-product.
Multi-activity segment 2:	supplement farming activities, local markets, mostly on-farm consumption, multi-product.

Source: Manuel Miranda. Seminar presentation.

What is the most important part of this first phase? The outcome should be to devise national and regional strategies for each segment. How can these strategies be developed? The task is to identify critical points, the factors that prevent farmers from joining the chain or from selling their products better, simply stated, as a function of **niche**, **territory** and **category**.

4. Service center

Once the constraints and critical points have been identified, the next question is, how can they be removed? The answer is a service center with a focus on technical assistance or agricultural extension. Today 75.000 farmers are receiving technical assistance with the support of outside consultants. The different consultants are assigned as a function of the strategy and their particular ability to mold market requirements to the real-life production conditions faced by farmers in each different setting. They take into account not only the financial situation, but also production setting, training status and the like. This is done by first developing an individual assessment to be used as a baseline, and then working out a three-year business plan for overcoming at most three of that particular farmer's main critical points. How are the different types of technical assistance assigned? Through a variety of support programs:

a) *"Multi-activity" technical advisory services*. First of all, specific technical assistance is offered for "multi-activity" farmers, the smallest of the small. It operates through the municipal governments and serves 50.000 producers.

b) *Commercial technical advisory services*. This technical assistance targets the approximately 20.000 producers who have a commercial profile. Technical assistance may be provided either by private companies or by the agribusinesses that are direct buyers of the farmers' products.

c) *Technical advisory services for women*. One branch of technical assistance specifically targets 3.000 women producers.

d) *Technical advisory services for the indigenous* Indigenous farmers also receive specific technical assistance; this program began in 2010 with 1.600 families.

e) *Technical advisory services for associative enterprises of small farmers (EAC)*. This technical assistance specifically serves approximately 120 associative enterprises of small farmers. It is provided through business management centers.

All these lines of technical advisory assistance follow the same line of thinking outlined above: an individual assessment that identifies and priority-ranks needed services, and a service center to remove constraints. As can be seen in Table 6.5, the service center provides five broad categories of services. (i) The first, skills building, is the banner program for upgrading farmer skills. Its purpose is to develop farmers who are serious professionals in each of the settings and niches. (ii) The associativity program is designed to support both farmer groups and associative farm enterprises. (iii) The investment development program supports on-farm investment and projects for soil improvement, irrigation and plant breeding. (iv) The finance center covers credit and financial

services. In this area, INDAP supports small-scale farming, and services include short- and long-term credit and crop insurance. The center also processes the bonds that serve as a means to coordinate financing with private banks, known as financial coordination bonds (*bono de articulación financiera*) and delegated coordination bonds (*bono de articulación delegada*). (v) High-quality services and product differentiation, including a program called "A Taste of the Country" (Sabores del Campo), specifically associated with gourmet products. It has opened shops throughout the capital city of Santiago and has display cases in certain supermarkets, offering the products of small-scale farmers. (vi) The specific market access programs began with Productive Partnerships, a program in which INDAP partners with business groups whose members are most likely to be interested in the product niches served by small farms, such as supermarkets, agribusinesses and restaurants. The companies that are members of these business groups provide technical assistance and buy the farmer's products. Note that the work involves not only private companies in the strictest sense of the word, but also the associative farm enterprises involved in the program. Grain storage is another important service for strengthening linkages. While it operates just like all the other services, it has one significant difference. This crop season, it will become a member of the agricultural market exchange, and as such, will have a much greater ability to secure payment for small-scale farmers' grain sales. Other options include local, regional and national market days. *Expomundo Rural* is a large annual exhibition that showcases the work of Chile's small-scale farmers. Every year, the entire city of Santiago eagerly awaits the opportunity to purchase products from the farmers, and above all, to do business.

Table 6.5
Key development services

Skills building	• Professionalization of farmers • Management • Associative program
Investment development	• Investment development program • Degraded soils program • Small-farm irrigation program • Livestock genetic program
Financial services	• Short- and long-term credit • Crop insurance • Financial coordination bond • Delegated coordination bond,
Product quality and differentiation	• "Sabores del Campo" program • Rural tourism program • Labeling program.
Market access	• Program for production partnerships • Grain storage program • National, regional and local market days • Fair Trade initiatives.

Source: Manuel Miranda. Seminar presentation.

The service center is also certified under the ISO 9001-2000 standard, guaranteeing that any farmer will be treated in the same way and according to the same procedures in any of the outlying branch offices. Service delivery has been made much faster with the installation of a system known as early operation of services. In the past, INDAP yearly development services began on January 2, the earliest possible date for interested parties to submit their applications. Today the application date has been moved back to the previous October. Because all administrative procedures are performed three months earlier, farmers can receive their subsidy or loan checks by January 2.

5. Monitoring process and focus on stakeholders

The extension system is subject to a monitoring program run by outside companies. Monitoring basically measures three factors: (i) It ascertains whether technical assistance in the field is being given properly, that is, whether activities are being completed according to the business plan. (ii) It assesses the results of the business plan, and whether the agency actually did what it said it would do, and finally. (iii) It gauges user satisfaction. The computerized system reveals competitiveness gaps involving five basic issues: problems with productivity, costs, quality, added value and market access.

The monitoring program keeps a clear focus on system stakeholders, both the private consultants and the users themselves. In the former case, a system has been set up (see Table 6.6) for consultants to improve the quality of their services, whose centerpiece is a competency certification program. Over time, it will guarantee that consultants working in any product category, such as berries, honey or dairy, are properly trained to provide the type of assistance they have promised to give. In the second place, consultant performance will be evaluated under this monitoring system. Obviously, all those who fail to meet expectations for reasons of their own making will be removed from the system.

Table 6.6
Consultant improvement system

National Registry of Consultants
System for Certification of Competencies
System for Performance Appraisal and Classification
Incorporation of senior specialist consultants
Strengthening social oversight of services
Encouraging the participation of consultants

Source: Manuel Miranda. Seminar presentation.

The work with producers mainly concentrates on listening to the client. This is the overarching issue: listen to the client through all available channels, including the Website and the so-called CADA and CAR, which are local branch offices of the different agencies and the regional offices of INDAP. Every branch office has farmer representatives on hand who report on how the service is being received and even give annual approval of the INDAP budget for the area and the region. In addition, the Website (http://www.indap.gob.cl/) lists all available services and even INDAP employee salaries. This means Chile holds as public information the amount of money earned by everyone working for INDAP, identification of users, services they are receiving, what agreements the institution holds with public and private institutions and for how much.

6. What does this extension model offer?

The first benefit is that it lessens farmer risk. Nowadays true financial coordination can be performed because it is much more risky to work with a farmer who is alone in the world than with one who, in effect, is supported by technical assistance and other programs or services for production development. The second very important factor is the ability to define the financing mix. INDAP is facing a problem, or something that could become a problem. First it delivers subsidies, meaning it hands out money, but it also delivers credit, meaning it collects money. The question is, how can it work out the mix? Who should be financed by subsidy, and who should receive credit? The model or system for identifying critical points is crucial here because those critical points that call for innovation need to financed with subsidies because they are riskier, while the others should be financed with credit.

The third important factor is to move toward "graduating" farmers. A farmer cannot continue forever and always to depend on technical assistance or to use the same tools. If measurements can be performed, if there is an initial baseline, if farmers are told that they are at point "a" and will be helped to reach point "b," and if this is measured over time, then the opportunity will come for each farmer to graduate, whether from the entire system, or from one or another of the development services.

Finally, it is important to design the partnership policy well, because INDAP can lend certain services to remove some of these critical points, but not all of them. For this purpose it must turn to other government or private agencies, including the banks. If banks can remove the critical point of financing, and in some cases more efficiently than INDAP itself, then the bank should do so, leaving INDAP to focus on farmers who have less likelihood of qualifying for bank credit.

Agricultural extension, beyond its concerns with mere production, is a process of teaching and learning, both individually and in community. This is where ICTs gain special currency as today's vast technology that can be used to interact by communicating and, ultimately, to have a common bond, which by definition means community. It is a place where common objectives are shared, and the great challenge is for agricultural extension to find ways of managing knowledge, change and human talent. Chile has given us a particularly simple example: from the standpoint of technical assistance, it would appear very easy to say "I want this farmer

to produce an additional sack of lentils." The academic or technical perspective tells us that such a thing is very easy. However, how many thoughts are running through that farmer's mind, and how many events are occurring in his or her life that place conditions on that additional sack of lentils? This challenge is profoundly complex and deeply technical. It is not enough simply to say, "I want this, and this is what I will have." It calls for much greater knowledge, far beyond the purview of mere agronomy or veterinary science.

7 Dialogue with international agencies

Calvin Miller, Beate Weiskopf, Dietmar Stoian, Carmen Álvarez and Carmen Alvarado

This chapter summarizes the discussions held with representatives of international cooperation organizations. The Seminar took advantage of the presence of members of international cooperation, research and education institutions to share information on grants, finance facilities and training programs and projects available in the thematic area covered by the meeting, or in related areas.

A. FAO

Calvin Miller

The United Nations Food and Agriculture Organization (FAO) was founded in 1945. Its name in Spanish (*Organización de Naciones Unidas para la Agricultura y la Alimentación*) refers first to agriculture and then to food, although the organization really covers both areas, given that without a strong agriculture there is no food. FAO is now more concerned than ever before about guaranteeing future food supplies; last year, in December, a world summit on food security took place and was attended by heads of state from all over the world.

FAO works in many countries and has offices in nearly 80; these Representations are not very large because they work in coordination with the governments, through the ministries of agriculture, industry and, sometimes, finance and trade. FAO also works with many NGOs and development programs. It offers technical assistance, carries out research and information activities and, in general, supports agricultural development policies using members' funds and also the institution's own funds obtained from the quotas paid by different countries of the world.

The institution is organized into various departments. The area of agricultural finance is within the Agriculture and Consumer Protection Department, specifically in the Rural Infrastructure and Agro-industries Division. This division is, in turn, divided into four areas of action: (i) agribusiness and finance; (ii) value chains and marketing; (iii) agro-industry, and (iv) engineering and mechanization. The main areas of work include actions to create a policy framework and an enabling environment for agribusiness, promoting public-private investment,

providing support through strategies and policies to strengthen rural infrastructure, training to facilitate access to competitive markets, leadership to strengthen producers' organizations and technical assistance to improve financial and investment policies for agriculture and agro-industry.

Basically, FAO aims to establish competitive institutions for the future, with appropriate regulation and legislation. It carries out extensive research in many different fields and publishes the results. As part of its work, it tries to bring people from different regions together and organizes events where participants can learn from one another –for example, this Seminar in San José– so that the information, experience and knowledge accumulated all over the world can be shared.

Below is a description of the work carried out by two of the four units of the Rural Infrastructure and Agro-industry Division, whose work is more closely related to agricultural value chain finance.

1. *Value chains and marketing*. In relation to marketing extension services, this group promotes stronger links between agriculture and agribusiness units, produces manuals for extension workers and training videos for marketing fruits, vegetables and grains. It also provides advice on issues such as costs and margins and helps farmers to understand and use market information. On this last point, FAO has developed the Agrimarket 3 software, along with guides for establishing and improving market information systems.
2. *Agribusiness and finance*. This unit carries out studies on agribusiness and finance and promotes investment in and improvement of the enabling environment for agribusiness. It works with the Regional Agricultural Credit Associations (RACA) and other networks. It has published a wide range of materials on financing agricultural investments, investment funds, risk management and insurance, among other topics. It has also developed the Microbanker MIS system.

The agribusiness and finance group is also assessing the finance needs of agro-industries and agribusiness. It has just completed a study on investments and investment funds as a mechanism to reduce financial risk, and has created a fund. Nowadays there are many microfinance funds, but few operate in the agricultural sector. A summit on Development of Agribusiness and Agro-industries will take place in Nigeria, in March 2010, to promote the creation of a facility with investment funds and training funds for agro-industries.

As mentioned previously, disseminating information is an essential part of FAO's work. An important tool is the Rural Finance Learning Center, a website (www.ruralfinance.org) that can be accessed in Spanish, French and English.

Efforts are also under way to improve conditions in the agro-industrial sector, in terms of the policy and regulatory framework, and to help producers' organizations and entrepreneurs create market conditions that allow for greater competitiveness and compliance with quality, health and mechanization standards, etc.

In relation to cooperation opportunities, these are mainly related to access to statistics and publications, research alliances, FAO's Partnership Programs (with young professionals, retired experts and visiting experts), the Young Professionals Program, the FAO Volunteer Program and the open doors policy. Technical cooperation is available

to support projects in the field. In general, cooperation opportunities are more successful if these begin with a request submitted through the local or regional FAO office. FAO's general website is www.fao.org.

B. GTZ

Beate Weiskopf

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) is an international cooperation enterprise for sustainable development which has operated worldwide for more than 30 years. Its mandate is to support the German Government in achieving its development objectives by promoting complex reforms and change processes in developing and emerging countries. GTZ's activities are aimed at **improving people's livelihoods and prospects on a sustainable basis.** The agency works for the German Federal Government but also operates on behalf of other clients of the public or private sector, national or international.

1. Priority thematic areas and countries in which GTZ works

GTZ executes programs in many different countries and also has regional programs, which are always based on inter-governmental agreements in the organization's priority thematic areas and on the goals to be achieved. The agreements made with governments refer mainly to impact indicators.

GTZ focuses on a maximum of three priority areas in each country. In Latin America these areas are: (i) Good Governance; (ii) Rural development and natural resource management; (iii) Environment, climate change and biodiversity and (iv) Water.

In Central America, GTZ operates in Nicaragua, Honduras, El Salvador, Guatemala and Costa Rica, where it is present only through regional projects. In South America, GTZ works in Peru, Ecuador, Bolivia, Paraguay, Colombia, Brazil and Chile. However, in Chile it is scaling back its operations and is only involved in some environmental projects. GTZ's main interventions are in countries with the highest poverty levels.

2. Value chains approach

GTZ promotes the value chain approach in several Latin American countries: in Ecuador in the coffee and cacao chains; in Brazil it is working on a forestry value chain, specifically in relation to biodiversity, which is fairly successful; in Peru it is working to develop biotrade value chains. In El Salvador, GTZ has cut back considerably on its value chain activities while in Nicaragua it is working with several chains with the aim of supporting forest conservation efforts. In Paraguay GTZ has done a lot of work on the timber and soy value chains, while in Honduras it is working on two programs using the value chains approach.

An interesting initiative that has been developed specifically to promote the value chains concept is *ValueLinks*, a toolkit created through an international partnership between GTZ, ValueLinks and private consultants that are using and disseminating this methodology. GTZ organizes regular meetings on the ValueLinks approach, both at regional and international level, to facilitate training and sharing of experiences. It is also considering a certification system for those involved in disseminating and implementing this methodology.

GTZ works with many partners, both at the international and the regional level. Its main partners in efforts to promote value chains are CATIE and RUTA, two organizations with which it has worked for some time on mainstreaming gender in value chains. At the end of 2009, GTZ launched a toolbox to support the implementation of value chains with a gender perspective, which can be accessed through its website. At regional level, German cooperation has established a work group on value chains and a PPP program that is described below.

In this context, the main tool offered is a Manual entitled The Methodology of Value Chain Promotion for the implementation of workshops on the ValueLinks approach. There is also the ValueLinks Manual and the Value Chains with a Gender Perspective Toolbox, containing different modules and training courses, which are available at the websites listed at the end of this section. The website also provides access to documents and publications produced by different countries that apply these methodologies. Users can enter the site and search by country and by topic. The web page containing the Value Chains with a Gender Perspective Toolbox offers more than 100 instruments that can be used to promote chains at the different stages, in thematic areas such as finance and other topics, such as organizational development and the territorial approach.

3. Public-private partnerships

Another interesting tool used by GTZ to promote value chains is the "Public-Private Partnership" or PPP. The basic concept of PPP programs or projects is that they are based on a common interest shared by private companies and public sector stakeholders. The organizations involved in implementing PPP projects define shared goals in their joint activities, which are financed 50 per cent by the public sector, and 50 per cent by the private sector.

In these initiatives private firms finance activities that are beyond the scope of their own business interests, for example, by contributing to capacity building efforts or to the implementation of support services for value chains. For this purpose they obtain financing from the public sector or, in this case, from GTZ.

One of the basic criteria for PPP projects or programs is that they share common objectives and that all partners –both public and private– benefit. Furthermore, the projects must be compatible with the German Government's development policies and must contribute to the Millennium Goals. Each partner makes its own contribution and the division of the costs must reflect the results for each party; however, usually the costs are split 50-50% between the private sector and the public sector. The project components must go beyond the company's main activities, i.e. these funds may not be used in any way as subsidies for the company's activities. Rather, the aim is to harness the company's resources to support all the needs identified in the strategy to promote specific chains to which these companies are linked.

The GTZ's general website is http://www.gtz.de/en/. The ValueLinks manual is available at: www.cadenasdevaloryppp.org and the toolbox on value chains with a gender perspective is available at http://www.ruta.org/toolbox/toolboxGenero.html .

C. CATIE

Dietmar Stoian

Unlike the other institutions described in this chapter, the Tropical Agricultural Research and Higher Education Center (CATIE, by its Spanish acronym), is not an international agency but rather a regional knowledge center.

1. CATIE

During the 1970s, the Inter-American Institute for Agricultural Sciences (IICA, by its Spanish acronym) implemented a number of specialized multinational programs with a hemispheric projection. However, subsequently, all research and education activities were separated from the Institute's global tasks. This differentiation led to the creation of the Tropical Agricultural Research and Higher Education Center, CATIE (http://www.catie.ac.cr) in 1973.

CATIE's mission is to contribute to rural poverty reduction by promoting competitive and sustainable agriculture and natural resource management. The institution works in different areas, in a kind of triangle that combines applied research, training and education –particularly at the postgraduate level, and finally, technical cooperation, delivered through projects that are executed in the region.

The center has a regional outlook, but focuses mainly on what is termed tropical America. CATIE has 13 member countries: from Mexico, in the north, to Paraguay in the south, to the Dominican Republic in the east, with Spain as an affiliated member.

CATIE's work is organized in eight different programs. Four of these focus on production systems: (i) agro-ecology/food crops; (ii) Agroforestry /tree crops; (iii) sustainable livestock, particularly silvopastoral systems and (iv) forest management and conservation. There are also four cross-cutting programs: (i) competitiveness and value chains; (ii) governance and socioeconomics of environmental goods and services; (iii) territorial management, and (iv) climate change. All eight programs incorporate three thematic areas: markets/chains, ecosystem services and adaptation to climate change.

2. Competitiveness and Value Chains Program

The area of value chains and their financing is addressed through the Competitiveness and Value Chains Program. This program includes the Center for the Competitiveness of Eco-enterprises (CeCoEco), which issues certifications for organic agriculture, fair trade and sustainable forest management, for example.

The Program seeks to promote social and environmental responsibility in agriculture, forestry and tourism. Why does it emphasize social and environmental responsibility as a key factor for competitiveness? Because nowadays this aspect is still considered a competitive advantage but in the future it is expected to become yet another requirement to remain in certain markets. This approach coincides with the views expressed by Ken Shwedel in Chapter 2.

3. Multi-chain approach

The Competitiveness and Value Chains Program aims to see value chains not in isolation, but rather from a livelihoods perspective. In other words, it adopts a multi-chain approach. In Chapter 6, Manuel Miranda of INDAP uses the term multi-product, with a meaning similar to CATIE's definition of the multi-chain approach.

For example, although small farmers may be limited by the amount of land available to them, they often produce different crops or products and are thereby automatically integrated into different chains. The idea is to harness this diversity using the multi-chain approach, which has three aspects: first, a **multi-service approach,** involving the articulation of three types of services: technical, business and financial, also known as "the holy trinity."

The previous chapters emphasize the importance of technical assistance and financial services, and for CATIE it is also extremely important to differentiate between technical and business services. Why? Because not only is the demand obviously very different but also the supply. There is a good technical level throughout Latin America, and a fairly good structure of technical services; at the same time, a wide range of financial services is available. But what is really lacking in the rural sector is business development services (BDS). There are few if any specialized business services to support the development and consolidation of value chains and facilitate finance.

The second aspect of the multi-chain approach is that it is **multi-sectoral**, which means it involves public-private partnerships. It is very important to clearly define what the public sector does best, what the most appropriate role is for the private sector and, finally, what is best facilitated by civil society organizations.

The third aspect of the multi-chain approach is that it is **multi-scale**, encompassing everything from micro to macro. Much has been said about promoting private-private partnerships, or horizontal partnerships, between producers organized in cooperatives or associations. But there are also vertical partnerships with forward and backward linkages of the chain, which could be processors or buyers at the intermediate level, i.e. at the level of a region or a territory. Here we see the importance of public-private partnerships for capacity building, coordination and facilitation. Finally, there are also macro-level partnerships, which normally consist of public-

private and private-private partnerships. One example of this is the Regional Agro-environmental and Health Strategy (ERAS), which involved joint efforts by CATIE, RUTA, IICA and other institutions. It is a combination of coordinated approaches between the ministries of the environment, agriculture and health of Central America.

4. Fields of action and business development services

CeCoEco has four main fields of action: the first is the provision of business development services, with the aim of linking these with technical and financial services; the second consists of different capacity building programs; the third is applied research; and the fourth is information and knowledge management.

In relation to business development services (BDS), CeCoEco offers a market intelligence system, with elements such as competitiveness strategies, business associations, chain governance, business planning and coordination with technical and financial services, and taking advantage of online bilingual (English and Spanish) services and tools. These are provided through two platforms, one for the agricultural sector called AgroEcoBusiness (www.econegociosagricolas.com) and another for the forestry sector called ForestEcobusiness www.econegociosforestales.com. Both platforms provide various services, including an online business center where small enterprises can set up their own virtual *stand*, sell their products and make any announcement they consider relevant. There are also a number of virtual tools, for example, one that combines a business plan with a strategic plan, ensuring that these two plans are compatible.

In terms of linkages with financial services, the idea is to identify and facilitate "bankable" projects, and identify the financial services available within and outside the chains. For example, there are links with financial service providers external to the chain (donations, credit) and access to financial services within the chain. Finally, more recently agricultural insurance has been included based on indices.

With regard to capacity building efforts, CeCoEco has established several strategic partnerships. In the area of training, it offers a diploma in Rural Enterprise Development jointly with CATIE and CIAT of Colombia, with different modules, one of which specifically focuses on value chain finance. It also imparts many training courses in the context of different projects or simply according to client demand. In addition, two Masters programs are available, both of them in English, which attract 90 per cent of students from Latin America. One of the programs is a Masters Degree in International Agribusiness Management offered jointly with INCAE, and the other is in Sustainable International Tourism with the University of North Texas.

In the area of applied research, CeCoEco aims to develop innovative **concepts, methodologies and tools** in various fields such as the management of inclusive and sustainable value chains; organization and enterprise development with CSR; risk management; impact evaluation; the political-legal and regulatory framework for sustainable rural enterprise development (SRED); logical sequencing and coordination between technical, business and financial services for SRED; SRED led by women and sustainable tourism. Additional information is available at: www.catie.ac.cr/cecoeco .

D. IDB

Carmen Álvarez

This section describes the private-sector facilities and services of the Inter-American Development Bank (IDB) that offer support to small producers. The Vice Presidency for Private Sector Operations was created two years ago and is responsible for private sector initiatives and non-sovereign guaranteed operations.

The IDB Group has traditionally financed countries and the private sector through its three constituent institutions, including very large private-sector operations that invest in roads or in ports. The Inter-American Investment Corporation serves businesses requiring capital for operations in any sphere. Two years ago the IDB created the Opportunities for the Majority Initiative, which is described below. There is also the Multilateral Investment Fund (MIF) for small and medium-scale businesses that work with producers at the lower end of the agricultural value chain.

1. Opportunities for the Majority

The Opportunities for the Majority Initiative was created to promote and invest in business solutions and business models that would operate at the base of the pyramid with low-income communities, either as consumers, distributors or producers. These enterprises must be of a sustainable nature, i.e. not a corporate social responsibility project by a company wishing to work with the community where its plant is located –it must work with producers at the base of the pyramid or with distributors or consumers. The idea is to encourage companies to reach out to clients farther down the production chain than those they would normally serve, and help them through the learning curve. This probably implies working with a business model that is unfamiliar, or else with one that they know, have already implemented and wish to expand to other countries, other regions or other markets. These models are normally extremely creative and innovative and are sometimes set up not only by an individual company, as described in the preceding chapters, but in partnership with central governments, local governments or NGOs.

The Opportunities for the Majority facility was created with US $250 million dollars and is aimed at agro-industries in Latin America and the Caribbean (large, medium and small), with an inclusive approach, and with annual sales of US$ 30 million dollars or assets of US $5-10 million dollars. The terms may be as long as 12 years, at market rates and loans are accompanied by non-reimbursable technical assistance. As of February 2010, eight loans had been approved and nine technical components, for a total US $57,7 million.

2. MIF

The Multilateral Investment Fund includes a finance facility called Opportunities for Small Rural Producers in Latin America, directed at agro-industrial companies that include small-scale producers in their value chains. To qualify for these funds, a company must have minimum assets of US $5 to 10 million, so that an effective risk analysis can be conducted. The finance provided by this facility ranges from US $2 to $5 million, and may be used

for any type of investment project requiring capital: agro-industrial expansion programs, increased productivity, projects to develop linkages between small producers in the chain, short-term working capital, partial credit guarantees. The loans are accompanied by non-reimbursable resources, which can be used to improve quality standards and efficiency, modernize production techniques and develop business plans to improve the integration of small-scale producers into the agro-industrial companies' supply chains.

The goal of the MIF is to promote the development of the private sector in Latin America, especially of small and medium-sized businesses. The MIF is in the process of modifying its strategy and will focus on the following four lines of action: (i) access to basic services; (ii) access to training or job skills development; (iii) access to finance (which is what the MIF has always done) and (iv) market access. Projects implemented within these four basic lines primarily have access to non-reimbursable technical cooperation funds, through financing is also available.

The MIF looks for projects with the following characteristics: (i) innovation; (ii) demonstration effect –projects must be replicable in other countries or sectors; (iii) sustainability; (iv) creation of partnerships in the community where they operate; and (v) *additionality*– i.e. projects must show that MIF financing is essential to their execution. In other words, if a commercial bank provides finance, there is no need for the IDB to be involved.

3. Mini MIFs

The MIF includes a smaller financing facility that is more focused on poverty reduction, called Mini MIFs. These are small grants for up to US $150.000, which are obtained more rapidly and have an execution period of 18 to 30 months. To qualify for funding, all projects must provide 30 per cent matching funds. These grants are normally used to support small pilot projects, facilitate the market insertion of small producers, increase the competitiveness of micro and small businesses or develop links with small-scale farmers in remote rural areas. Eligible project areas include: development of job skills, development of small and medium-sized businesses, micro-enterprise development and environment.

4. Social Entrepreneurship Program

The Social Entrepreneurship Program (SEP) is one of the IDB's oldest programs and is now administered by the MIF. It was established in 1978 with two main pillars: finance, with loans of up to US $1 million, and non-reimbursable technical cooperation grants for up to US $250.000. SEP basically focuses on rural finance, but two years ago its sphere of action was expanded to include the provision of public services such as water, education or energy. However, rural finance remains the Program's main activity. Many of the projects funded are being executed through partnerships; if producers do not have credit programs within their own cooperatives, they must form a partnership with an organization that knows how to manage credit and, between the two, apply for the project loan.

The relevant web pages, including the application forms for each type of loan, are listed at the end of this section. The SEP page also has a flow chart with steps that must be followed to submit project ideas. The Majority Markets page lists projects that are already being financed through the OMJ Facility and explains how to obtain funding. It shows the business models that are already being financed, not only in relation to value chains, but also for the implementation of services and other issues. Interested parties can also contact the IDB Country Offices where there is always an MIF specialist who will provide advice and assistance regarding the MIF and the SEP.

The MIF's general website is http://www.iadb.org/mif/, the Social Entrepreneurship Program's website is http://www.iadb.org/mif/pes/ and that of Majority Markets is http://www.majoritymarkets.org/ .

E. SDC

Carmen Alvarado

Swiss cooperation basically has two international cooperation instruments. One of these is the Swiss Agency for Development and Cooperation (SDC/COSUDE), attached to the Federal Department of Foreign Affairs, which executes cooperation programs in various countries around the world, mainly through donations. The second is the State Secretariat for Economic Affairs (SECO), attached to the Swiss Ministry of Economic Affairs, which also has development cooperation programs. First I will briefly explain what the SDC does and at the end I will make some comments about SECO.

1. SDC

Swiss cooperation works in several priority countries in Latin America and the Caribbean. In Central America it operates mainly in Nicaragua and Honduras, the countries with the lowest per capita incomes. It also works in Bolivia and in Cuba. Recently SDC left Ecuador and will also be leaving Peru in the coming years.

The program in Central America, which is explained in greater detail below, has three areas of work: (i) economic development for the poorest segments through value chains; (ii) governance and public finance and (iii) basic infrastructure and local services, especially drinking water and sanitation infrastructure, renewable energy and disaster prevention and mitigation.

In the first thematic area, economic development, SDC aims to increase employment and incomes among the poorest populations and strengthen their food security. SDC has three areas of intervention, including actions to improve the regulatory framework and the business environment in order to develop and enhance the activities of small entrepreneurs and small producers.

A second line of work involves efforts to develop financial and non-financial services and to improve the capacity of those who provide business and technical assistance services. This obviously includes supporting the role of the State as a service provider. In addition, this area of intervention covers training, job skills development

and certification of competencies for those who lack formal qualifications but who have the ability to do a professional job.

SDC's actions are guided by two intervention approaches. One is the "**multi-chain**" approach, also used by CATIE (see section C in this chapter), which simply mirrors the way in which farmers reduce their risk by producing different crops and carrying out different activities on their land, in order to guarantee their food supply. SDC uses this approach in several of its programs, considering it the most effective way to support small producers. The second is the "**multi-stakeholder**" approach, based on the Swiss agency's way of working, which is firmly committed to public-private cooperation as a means to ensure that the interventions are sustainable and encourage strong linkages within the value chains themselves. To that end, SDC actively promotes platforms for public-private dialogue in the different chains, in order to reach agreements on their needs and encourage collaborative actions within the value chains. These are known as framework competitiveness agreements and have been implemented both at the national-sectoral level as well as in some territories or municipalities in the countries.

With respect to financial services, it is essential that those who provide or facilitate such services are aware of the information generated by the dialogue platforms, so that they can really respond to needs identified and agreed upon by different actors in the chain. This is similar to the triangulation approach described during this Seminar.

Finally, another major feature or approach of the SDC is capacity building, again with an emphasis on ensuring the sustainability of the projects supported. This last approach is also applied in the sphere of financial services, with the program being strongly geared to enhancing the skills of service providers so that they can better know and serve their clients. But on the clients' side too, the program launched a subcomponent a few years ago to provide financial education. Ideally, this aspect should be addressed on both sides, both on the demand side and on the supply side.

SDC has worked with several value chains in Central America, particularly in Nicaragua and Honduras, including the honey, vegetable, dairy, fruits, bean and maize chains. The program has focused strongly on the bean and maize chains, because these crops are of major cultural importance to the region. But it is also exploring international markets linked to organic products such as cashew, hibiscus flower, coffee and cacao and is supporting the development of these chains. In addition, SDC supports various tourism conglomerates in those two countries, mainly focusing on community-based tourism.

SDC has provided assistance through the PYME-Rural program executed by Swiss Contact, and is supporting a knowledge management platform in Latin America called ASOCAM, on sustainable small-scale mountain agriculture. This is the origin of the agricultural sector program that focuses on sustainable mountain agriculture and the knowledge management platform includes different experiences and work materials on the topics of economic development, governance and technical assistance, among others. The website is www.asocam.org and SDC's home page in Spanish is www.sdc.admin.ch/es/Pagina_principal .

2. SECO

The Swiss Secretariat of State for Economic Affairs works in Latin America with an emphasis on countries such as Colombia and Peru, but also supports actions implemented at the regional level. There are basically three areas of intervention: (i) economic development; (ii) public finances; and (iii) infrastructure. SECO concentrates primarily on developing value chains linked to international trade and also supports standard-setting and metrology programs, as well as national quality systems in general. In addition, it promotes policy dialogue in various private-sector value chains.

Although Swiss Cooperation does not have a direct budget for some countries, such as Costa Rica, it does provide cooperation via SECO, through a private institution called CIFEMA. This organization facilitates funding for the Latin American region. For example, in Central America it has provided resources to LAFISE to finance small and medium-sized businesses, both for risk capital and for credit, at a relatively lower cost than LAFISE would normally offer. This is done together with other partners, such as MIF.

8 Summary and conclusions

Mark D. Wenner

Good afternoon colleagues, ladies and gentlemen.1 I think this seminar has been very enriching. Speaking for myself, I have learned a great deal and I think over these past four years, the rural areas have progressed considerably. I hope the pace will pick up in the next few years.

A. Summary

It is my job to summarize these two days of work. Of course I cannot do it perfectly, but at least I will try to highlight briefly some of the main points where we seem to have reached consensus. I hope this summary will encourage all of us to continue developing this financing model and make it bigger, more effective, and truly a great tool for promoting development among our people.

1. Value chains today

I believe the concept of financing agricultural value chains is still valid, despite all the difficulties we have encountered over the past four years with the worldwide financial crisis and rising energy prices. Ken Shwedel's presentation was right on target and gave a very compelling, competent and persuasive argument (Chapter 2). More then ever before, we must move quickly to perfect this instrument and not neglect it.

2. The complexity of value chains

The other point we all understand is that this is a very complex subject. We already know that major challenges lie before us, including rising energy costs, climate-related productivity losses, too little investment in the sector, severely weakened banks in industrialized countries that have little appetite for taking risks, and looking into

1 This chapter is a literal transcription and reflects the spontaneous style in which the presentation was given.

the future, we are living in a world where the population is exploding. By 2050, there will be 9.6 million people living in this world, and we will need to boost productivity if we hope to feed this larger population. At the same time, we are witnessing rates of rural poverty that are still too high and multitudes of small- and medium-scale farmers who are not competitive. Worse yet, we are living in a world where natural resources, the foundation of economic activity, are under very heavy pressure. Although people are clearly focused on these problems, and especially on the energy market, over the next 20 years, the most critical shortage will be that of water –fresh , safe drinking water.

3. Types of financing

In reality we have two kinds of financing: from inside the chain and from outside the chain. We have seen financing programs from inside the chain in Central America; financing from outside the chain comes from banks that fund certain members of the chain based on knowledge of the relationship among stakeholders. In other parts of the world, especially Asia and Africa, much more diverse approaches are being used inside the chain. As was stated in the seminar, financing through the chain holds great promise because it is a way to bring down transaction costs, counteract market and credit risks and build competitiveness. It was also noted, however, that there is no magic formula for how to finance chains. Various models and instruments are in use. The secret to success depends on a good understanding of the chain, the legal and economic environment, capacities and interests of stakeholders, and creativity.

4. Tools

A wide variety of tools can be used for promoting financial chains, and I will not list them all. I was very much struck by Lamon Rutten's presentation (Chapter 4) about the new sophistication being developed in India's market, and very impressed with the case of microfactoring in Kenya (Chapter 4). Briefly speaking, I think we have more than enough instruments to address this problem. More than anything else, the constraints are lack of credibility and the legal environment in which stakeholders are working.

5. Beyond financing

This seminar focused on financing, but I think the discussions and presentations revealed the presence of other critical and necessary factors. Simply speaking, these factors revolve around technical assistance and training for stakeholders, especially small-scale farmers. Also needed are consistent, effective policies, at least a minimum endowment of physical infrastructure, and effective support institutions. One point that stood out was institutional capacity, as in the examples from INDAP in Chile (Chapter 6) and the Banco do Brasil in Brazil (Chapter 5). In fact the key message here is that while the public sector should not dominate the scene, it does need to be strong and capable.

6. The consolidation of value chains

Another point is that while value chains can be consolidated through a process of gradual evolution, consolidation can also occur on an accelerated timetable. External agents are usually involved when change comes quickly, such as governments, international organizations or donors, and transnational corporations. I believe, as Linda Báez explained, that we must try to include small-scale farmers because they are being somewhat left out at present. In fact we need to think about how to motivate actions by these overlooked players. Every stakeholder has advantages, disadvantages and weaknesses.

7. Market orientation

Another point discussed here is that the key assumption, if we hope to avoid problems and remain transparent, is that actions to develop the chain must be based on market principles, that is, demand for a product. The project should not be dreamed up by some politician or based on an idea that sounds good; it needs to be grounded in economic reality. When all the stakeholders who want to consolidate the chain more quickly can agree with this premise, the terms, volume and efficiency in the chain improve. It is essential to respect this principle and behave accordingly.

8. Role of the state

As I see it, the government needs to play a role that is extremely important but limited. It is more a facilitator of the process. It should focus on improving the legal and regulatory framework, extension services, infrastructure development, research, technological innovation, training, collecting and disseminating information, facilitating systems for risk preparedness, and the like. I liked what Ken Shwedel said: "…public policies cannot lag behind, they must go hand in hand with changes in the market structure…".

9. The role of financial intermediaries

Looking at the other side of the coin –the role of financial intermediaries– I think the first step they should take is to adopt a better vision, a more holistic, comprehensive vision of this market segment. Their vision still remains too focused on a single client. The second challenge is that they need to invest; they must take the time to get to know the chain in its entirety.

There are numerous different chain financing structures. I think the most typical example is the case where the banking sector, a financial NGO or a credit union finances individual stakeholders who in turn offer some kind of sub-financing to other members of the chain. An example of the direction we could move is a program in which a partnership or coordinated undertaking takes shape between a bank, a service provider, a farmers' cooperative, the warehouse where they sell their products and a guarantee institution. This is a very common model in India,

the United States and Europe. Lamon Rutten's presentation (Chapter 4) gives additional descriptions of modern approaches.

Something I found particularly interesting was Beate Weiskopf's presentation (Chapter 6). One of her slides, with four broad sections –set project boundaries, analyze chain and strategy, implement and monitor– on the GTZ Value Links methodology very effectively summarizes the essence of the methodology and the factors that need to be studied and analyzed to understand the value chain more completely. This is a slide we should try to communicate to finance institutions because they still do not understand.

Another case we should emphasize was outlined by Teresa de Velilla: the Financiera El Comercio in Paraguay (Chapter 5). This institution has contributed much to financing agricultural value chains. Paraguay is a very poor country, strongly agrarian, with a very difficult environment. It does not have good infrastructure. It has public banks whose actions tend to cause distortion. The government is weak, illiteracy rates are high, and despite all this, Financiera El Comercio is an example of an institution that has produced excellent results in financing agricultural production chains. So the message is: Yes we can!

10. Innovation

The other thing I want to mention, looking toward the future, is the importance of innovation. Jeffrey Chambers presented a very interesting slide on the possibilities of mobile phones (Chapter 6). This is also happening in Kenya, Uganda, South Africa, India and Bangladesh. All the farmers have mobile phones and use them to access market information and negotiate where and at what price to sell their products. This is something that would be very easy to do in Latin America because the telecommunications infrastructure in this region is 10 times as good as that in Africa or Bangladesh.

B. Challenges

I want to close by talking about challenges. I agree with all the points raised by the two rapporteurs. I believe we need to focus on how we will sustain this, how we will finance technical assistance and all these non-financial support services. My preference would be to work within the systems so that every stakeholder would pay a commission or make some contribution; obviously, they may need a government subsidy to get started until the chain is consolidated. I do believe this issue will be with us for many years. If we do not resolve it, we will forever live with the problem of "projectitis" that is so common in Latin America. We are very good at setting up projects, but as soon as the project is over, the donor leaves and the project dies.

In the second place, as Rafael Díaz so clearly explained, we need to formulate and implement public policies that are consistent and effective. Many countries are making a great deal of noise, ushering in policies that are counterproductive, voiding much of the impact made by real stakeholders who are trying to foster value chains.

Third, even though we have seen great progress over the past four years, much remains to be done in order to convince and attract financial institutions to adopt this vision and model of financing through agricultural value chains. I think what we need to do first is demonstrate that much money can be made with this type of financing. One of the cases I find most compelling is the Compartamos micro-finance institution in Mexico that recently made US $486 million in an IPO. They were heavily criticized by everyone in the world of donors and the social sector, but the wealthy and the investors sat up, took notice, and said, "Ah ha! This is a market! An opportunity!" Along these lines, I think we need to demonstrate that profits can be made, that a market can be created to attract financial institutions.

I have two final points. First, we clearly need to improve judicial systems and mechanisms for conflict resolution in order to address the problem of power in the chains. Second, we need to measure and assess the impact of these pilot programs. This is the only way to prove their value and convince others to come along and try to support value chains.

I will close with this message from Ken Shwedel: "...the value chains approach is crucial for rural development, and finance is an essential tool to achieve it." Thank you for your attention. Thank you too for your good company and for the valuable exchanges. I hope we will continue working together as we seek a better future for our peoples.

Annex 1

Speakers and moderators

A

Alba, Rosalino Luiz
CRESOL
rosalino@cresol.com.br
Brazil

Alvarado, Carmen
COSUDE
carmen.alvarado@sdc.net
Costa Rica

Álvarez, Carmen
IDB El Salvador
carmenalba@iadb.org
Spain

B

Bojanic, Alan
FAO
alanjorge.bojanic@fao.org
Bolivia

C

Campion, Anita
AZMJ
acampion@azmj.org
United States

Chalmers, Geoffrey
USAID
gchalmers@acdivoca.org
United States

Chilavert, Fernando
Pure Circle Paraguay
fernando.chilavert@purecircle.com.py
Paraguay

Clark, Rick
WOCCU
rclark@woccu.org
United States

F

Flores, Julio
REDCAMIF
floresc@fdl.org.ni
Nicaragua

Flores, Javier
Ministry of Agriculture
Costa Rica

G

Galindo, Ricardo
Embassy of the Netherlands
ricardo.galindo@minbuza.nl
Bolivia

Gómez, Miguel
RUTA
mgomez@ruta.org
Nicaragua

Grace, Lorna
ACDI/VOCA Honduras
lgrace@acdivocahonduras.org
United States

J

Junkin, Ruth
CATIE-RUTA
rjunkin@crs.org.sv
United States and Costa Rica

K

Ketterer, Juan Antonio
IDB Costa Rica
juank@iadb.org
Spain

L

Lizano, Eduardo
Academia de Centroamérica
elizano@academiaca.or.cr
Costa Rica

M

Mesalles, Luis
Academia de Centroamérica
lmesalles@academiaca.or.cr
Costa Rica

Miller, Calvin
FAO Rome
calvin.miller@fao.org
United States

Miranda, Mario
OSU
miranda.4@osu.edu
United States

Miranda, Manuel
INDAP
mamiranda@indap.cl
Chile

N

Nair, Ajai
The World Bank
anair@worldbank.org
India

O

Obara, Beatrice
Biashara Factors
bobara@biasharafactors.com
Kenya

Osorio, Mauricio
Crezcamos
mauricio.osorio@crezcamos.com
Colombia

P

Pacheco, Héctor
Banco del Estado
hpache60@bancoestado.cl
Chile

R

Rivarola de Velilla, Teresa
Financiera El Comercio
teresavelilla@elcomercio.com.py
Paraguay

Rutten, Lamon
MCX
lamon.rutten@mcxindia.com
India

S

Shwedel, Ken
Rabobank México
shwedel@rabobank.com
United States

Stoian, Dietmar
CATIE
stoian@catie.ac.cr
Germany

U

Urquidi, Andrés
FIE
aurquidi@ffpfie.com.bo
Bolivia

V

Vargas, Edwin
Fundación PROFIN
evargas@fundacion-profin.org
Bolivia

Vaz, José Carlos
Banco Do Brazil
jcvaz@bb.com.br
Brazil

W

Weiskopf, Beate
GTZ Nicaragua
beate.weiskopf@gtz.de
Germany

Wenner, Mark
IDB Washington
markw@iadb.org
United States

Annex 2

Participants

A

Aguirre, Lucía
SWISSAID
swluciaa@ibw.com.ni
Nicaragua

Aldana, Marco
ACEROLA Management
m.aldana@acerola-manegement.com
El Salvador

Alfaro, Carlos
Ministry of Agriculture
fielizondo@gmail.com
Costa Rica

Alvarado, Federico
Banco Crédito Agrícola de Cartago
federicoalvaradov55@gmail.com
Costa Rica

Álvarez, Pablo
HIVOS
pablo@hivos.or.cr
Chile

Amse, Juan
ProPemce
mercedes.díaz@propemce.org.ni
The Netherlands

Andino, Maritza Aura
APTPEFPEN Asociación de Productores Profesionales
elojoche_nic@yahoo.es
Nicaragua

Andrade, Diego
ACDI/VOCA Ecuador
yarmas@acdivoca-prodel.org
Ecuador

Araujo, Ariana
Centro de Estudios para el Desarrollo Rural
mvanlidt@cdr.or.cr
Costa Rica

Arrébola, Eugenia
PRODERNOA
earrebola@hotmail.com
Argentina

Azofeifa, Ligia
Ministry of Agriculture
fielizondo@gmail.com
Costa Rica

B

Báez, Linda
RUTA
linbaez@manquehue.net
Nicaragua

Baracatt, Jorge
Fundación FAUTAPO
jaqueline.segovia@fundaciónnautapo.org
Bolivia

Barahona, Ana M.
CoopeAS RL
gimagu@gmail.com
Costa Rica

Barquero, Gary
Sociedad Calificadora de Riesgos
ynavarro@scriesgo.com
Costa Rica

Barquero, Rafael
Banco Crédito Agrícola de Cartago
oscaroga7@hotmail.com
Costa Rica

Barrantes, Gerardo
RUTA
gerardo@ips.or.cr
Costa Rica

Beez, Peter
COSUDE
sonia.Miranda@sdc.net
Suiza

Blandón, Johana
FONDEAGRO
fondeagro@fondeagro.org.ni
Nicaragua

Blandón, Rigoberto
Chemonics
riblasa50@hotmail.com
Nicaragua

Bogarín, Eduardo
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

Broughton, Phillip C.
FINCA International, Inc
pbrougton@finca.org
United States

Buitrón Iván
Asoc. Guatemalteca de Exportadores
ivis.aju@ageexport.org.gt
Guatemala

C

Cáceres, Roberto
Chemonics
roca161064@yahoo.com.mx
Nicaragua

Calderón, Vanessa
Land Concept
vanevane.24@hotmail.com
Venezuela

Canales, José Ernesto
CATIE
ecanalesperalta@yahoo.es
Nicaragua

Canek, Maritza
Fideicomiso FDLG
saraproldan@fdlg.org.gt
Guatemala

Carranza, Carlos
Universidad Nacional
ccarranz@una.ac.cr
Costa Rica

Carrillo, Aida de la Cruz
Chemonics
carai1998@yahoo.com
Nicaragua

Casanovas, Roberto
IDEPRO
rcasanovas@idepro.org
Bolivia

Cech, Alexandra
ACDI/VOCA
acech@acdivoca.org
United States

Celis, Rafael
Academia de Centroamérica
rafacelis@gmail.com
Costa Rica

Centeno, Irma
Catholic Relief Services-Proyecto A4N
icenteno@crs.org.sv
El Salvador

Céspedes, Oswald
Academia de Centroamérica
ocespedes@academiaca.or.cr
Costa Rica

Chalcu, Edyn
FAO
leonel.gomez@fao.org
Guatemala

Chávez, Héctor
Programa de Acceso a la Tierra (PACTA/FAO)
hchavez.pacta@fao.org.hn
Honduras

Cojón, Edgar
FAO
leonel.gomez@fao.org
Guatemala

Colombet, Héctor
Ministry of Agriculture and Fishery
hcolom@minagri.gob.ar
Argentina

Cuadra, Mercedes
Consultant
mercedescs@cablenet.com.ni
Nicaragua

D

Díaz, Mercedes
ProPemce
mercedes.diaz@propemce.org.ni
Nicaragua

Díaz, Rafael
Centro Internacional de Pol. Económica
rds2602@ice.co.cr
Costa Rica

Delfino, Domingo
Land Concept
domingodelfino@hotmail.com
Venezuela

Duarte, Raúl
USAID-CARANA Corporation
fduarte@carana.com/cheisecke@carana.com
Paraguay

Duque, Diego
Solución ASEA
asistente@solucion-asea.com.mx /
diegod@slucion-asea.com.mx
México

E

Enciso, Francisco
IICA
francisco.enciso@iica.int
México

Escobar, José Cristóbal
FAO
martha.martinez @fao.org
El Salvador

Espinal, Oscar Obdulio
GTZ
oscar.espinal@gtz.de
Honduras

Edeso, Dolores
RUTA
Costa Rica

F

Fernández, María Eugenia
ACDI/VOCA
llucker@acdivocahonduras.org
Honduras

Figueroa, Mabelle
INAMU
mfigueroa@inamu.go.cr
Costa Rica

Fischel, Astrid
CoopeAS RL
gimagu@gmail.com
Costa Rica

Fonseca, Adolfo
Escuela Agrícola Panamericana Zamorano
falvarez@zamorano.edu
Sapain

G

Galeas, Miguel Ángel
ACDI/VOCA
llucker@acdivocahonduras.org
Honduras

Gamboa, Tania
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

García, Aurelio
Red Española de Desarrollo Rural
redr@redr.es
Sapain

Garro, Kattia
IPS
kgarro@ips.or.cr
Costa Rica

Gayle, Shirley
INAMU
sgaley@inamu.go.cr
Costa Rica

González, Diego
IICA
diego.gonzalez@iica.int
Costa Rica

González, Heiner
Banco Popular de Costa Rica
rortega@bp.fi.cr
Costa Rica

González, José
Banco Crédito Agrícola de Cartago
jose728@hotmail.com
Costa Rica

González, Olga
Banco Crédito Agrícola de Cartago
ogonzalez80@gmail.com
Costa Rica

González, Roberto
Banco G&T Continental
rgonzalez@gytcontinental.com.gt
Guatemala

Gottret, María V.
CATIE
mgottret@catie.ac.cr
Bolivia

Guevara, Mabel
Catholic Relief Services-Proyecto A4N
mguevara@crs.org.sv
El Salvador

Gutiérrez, Guillermo
Chemonics
guillermogutierrezcastillo@yahoo.com
Nicaragua

Gutiérrez, Luis Roberto
Ministry of Agriculture
fielizondo@gmail.com
Costa Rica

Gutiérrez, Patricia
ACDI/VOCA
llucker@acdivocahonduras.org
Honduras

Guzmán, Fernando
FUDEMI
fguzman@cablenet.com.ni
Nicaragua

Guzmán, Gilberto
CoopeAS RL
gimagu@gmail.com
Costa Rica

Guzmán, Luis Fernando
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

H

Haedo, Ricardo
PRODERNOA
earrebola@hotmail.com
Argentina

Hernández, Carlos
Oikocredit
chernandez@oikocredit.org
Costa Rica

Herrera, Danilo
IICA
laura.mendez@iica.int
Costa Rica

Hidalgo, David
Banco Crédito Agrícola de Cartago
dhidalgo@fodecosur.org
Costa Rica

Hintze, Luis
IDB
anaz@iadb.org
Perú

Hita, Vicente
Red Española de Desarrollo Rural
redr@redr.es
Spain

Huesca, Ulyses
Abt Associattes, Inc
blancaanalco@abtmexico.net
México

I

Incer, Róger
Banco de la Producción
rincer@banpro.com.ni
Nicaragua

J

Jerez, Iván
PASA-DANIDA
pasa@cablenet.com.ni
Nicaragua

Julajuj, Antonio
FAO
leonel.gomez@fao.org
Guatemala

K

Kooper, Manfred
Banco Crédito Agrícola de Cartago
mkooper@productoskyc.com
Costa Rica

L

Landero, Marlen Lucía
GTZ
marlen.landero@gtz.de
Honduras

López, Ligia
Ministry of Agriculture
fielizondo@gmail.com
Costa Rica

Lozada, Gabriela
Abt Associattes, Inc
blanca analco@abtmexico.net
México

M

Mamani, Pedro
Fundación FAUTAPO
pedro.claver@fundacionautapo.org
Bolivia

Manzanarez, Oscar
Fondo de Desarrollo Local
mtamariz@fdl.org.ni
Nicaragua

Martínez, Fernando
FUNDAHMICRO
info@fundahmicro.hn
Honduras

Martínez, José
Banco Crédito Agrícola de Cartago
alvaradocac@ice.co.cr
Costa Rica

Martínez, Laura
Oikocredit
lmartinez@oikocredit.org
Dominican Republic

Mata, Angeline
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

Medina, Héctor
IICA
hector.medina@iica.int
México

Méndez, Silvia
Financiera El Comercio
lizairrazabal@elcomercio.com.py
Paraguay

Mendoza, Adrián
COSUDE Swisscontact
Honduras

Mendoza, Alexander
UICN-Regional Office for Mesoamérica
alexander.mendoza@iucn.org
Venezuela

Mendoza, Inés
Fairtrade Labelling Organization FLO-Aportes
i.mendoza@fairtrade.net
Perú

Meneses, Karla
CONARE
kmeneses@estadonacion.or.cr
Costa Rica

Montero, Carlos
Banco Popular de Costa Rica
rortega@bp.fi.cr
Costa Rica

Montoya, Francisco
AFODENIC
cgarcia@afodenic.com
Nicaragua

Mora, Lianna
Oikocredit
lmora@oikocredit.org
Costa Rica

Mora, Minor
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

Mora, Tarcisio
Banco Crédito Agrícola de Cartago
tarcisiom@minys.co.cr
Costa Rica

Morales, Carmen Eugenia
RUTA
cmoarales@ruta.org
Costa Rica

Morales, Isabel
Ministry of Agriculture
jozelecruz@gmail.com
Costa Rica

Morávek, Víctor
Fundación FAUTAPO
jaqueline.segovia@fundacionautapo.org
Bolivia

Moreno, Ana Lucía
RUTA
Costa Rica

Murciano, María José
Red Española de Desarrollo Rural
redr@redr.es
Spain

Murillo, Rosa
FAO
mmurillo@gmail.com
Costa Rica

Murillo, Teresita
Oikocredit
tmurillo@oikocredit.org
Costa Rica

N

Natareno, Carlos
Oikocredit
cnatareno@oikocredit.org
Guatemala

Núñez, Santos
Programa de Acceso a la Tierra
sasinu65@yahoo.com
Honduras

Nunnari, Mario
Oikocredit
mnunnari@oikocredit.org
Costa Rica

P

Pacheco, Camilo
PASA-DANIDA
Nicaragua

Páez, Roberto
PRODERNOA
earrebola@hotmail.com
Argentina

Parada, José Eduardo
Oikocredit
j.eparada@gmail.com
El Salvador

Pasos, Rosa
IADE-UAM Instituto Americano Desarrollo Empresarial
rosapasos@cablenet.com.ni
Nicaragua

Pasricha, Nicole
MEDA
npasricha@meda.org
Canada

Pérez, Geovanny
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

Pérez, Miriam
Oikocredit
mperez@oikocredit.org
Nicaragua

Pérez, Oscar
CABEI-Proyecto Cambio
perezo@bcie.org
El Salvador

Pliego, Carlos
Oikocredit
cpliego100@prodigy.net.mx
México

Portilla, William
Root Capital Inc
wportilla@rootcapital
Costa Rica

Posas, Francisco
COSUDE Swisscontact
fp@swisscontacto.org.hn
Honduras

Puglielli, Lara
Global Partnerships
ipuglielli@globalpartserships.org
United States

Q

Quesada, Ivan
Fundación Mujer
iquesada@fundacionmujer.org
Costa Rica

R

Ramírez, Abraham
GTZ
abraham.ramirez@gtz.de
Honduras

Ramírez, Allen
Banco Nacional de Costa Rica
Costa Rica

Ramírez, Marisol
Banco Crédito Agrícola de Cartago
marisol.ramirez@bancreditocr.com
Costa Rica

Ramírez, Yessenia
Banco Crédito Agrícola de Cartago
yramirez@fresquitacr.com
Costa Rica

Ramos, Hugo
USAID
hramos@usaid.gov
Ecuador

Ríos, Celia
FONDEAGRO
fondeagro@fondeagro.org.ni
Nicaragua

Rivera, José
Chemonics
marlonrivera@yahoo.com
Nicaragua

Rizo, Elizabeth
FONDEAGRO
fondeagro@fondeagro.org.ni
Nicaragua

Rodríguez, Ana Marcela
RUTA
Costa Rica

Rodríguez, Iván
COSUDE Swisscontact
ir@swisscontac.org.hn
Honduras

Rodríguez, Johana
IICA
johana.rodriguez@iica.int
Costa Rica

Rojas, Carlos
Ministry of Agriculture
jozelecruz@gmail.com
Costa Rica

Roque, Celso
CATIE
celsorocky@yahoo.es
Nicaragua

Ruzicka, José Antonio
Hortifruti
jose.ruzicka@latam.wal-mart.com
Costa Rica

S

Sacuj, Carmela
FAO
leonel.gomez@fao.org
Guatemala

Salas, German
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

Salazar, Danilo
Banco Crédito Agrícola de Cartago
d.salazar@proagroin.org
Costa Rica

Saloj, Santos
FAO
leonel.gomez@fao.org
Guatemala

Sánchez, Dennis
FAO
dsanchezpmo@gmail.com
Costa Rica

Sánchez, Juan J.
Banco Crédito Agrícola de Cartago
delsurco@yahoo.com
Costa Rica

Sánchez, Karina
Abt Associattes, Inc
blanca_analco@abtmexico.net
México

Sánchez, Rosalba
Banco Crédito Agrícola de Cartago
delsucro@yahoo.com
Costa Rica

Sánchez, Yeudin
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

Santos, Manrique
ACDI/VOCA
llucker@acdivocahonduras.org
Honduras

Sequeira, Andrea
Banco Popular de Costa Rica
rortega@bp.fi.cr
Costa Rica

Sierra, Gabriel
GTZ
adelcatacamas@yahoo.com
Honduras

Sierra, Marco Tulio
RUTA
Guatemala

Sola, Liliana
PROSAP
amussano@prosap.gov.ar
Argentina

Solano, Víctor
Ministry of Agriculture
vso1133@yahoo.es
Costa Rica

Solís, Juan Pablo
HIVOS
ipablo@hivos.or.cr
Costa Rica

Solís, Marvin
Chemonics
ilosleon@yahoo.com
Nicaragua

Solórzano, Nils
FAO
nitigre@racsa.co.cr
Costa Rica

Soraide, David
Fundación FAUTAPO
david.soraide@fundacionnautapo.org
Bolivia

T

Tapia, Salvador
Embassy of Finland
jaimevillarraga@microfinanzasparaeldesarrollo.net
Nicaragua

Tijerino, Tatiana
VECO Mesoamérica
adminmngt@vecoma.org
Nicaragua

Torres, Elmer
Banco Nacional de Costa Rica
yherrera@bncr.fi.cr
Costa Rica

Tortosa, Josep
Red Española de Desarrollo Rural
redr@redr.es
Spain

U

Ulloa, José
Oikocredit
julloa@oikocredit.org
El Salvador

Urbina, Alexandra
Ministry of Agriculture
fielizondo@gmail.com
Costa Rica

Ureña, Heidy
Banco Crédito Agrícola de Cartago
heidy.ureña@bancreditocr.com
Costa Rica

V

Valenciano, Jorge
jorgeandrey@costarricense.cr
Costa Rica

Van der Kamp, Rick
IFC
rvanderkamp@ifc.org
The Netherlands

Van Lidth, Marije
Centro de Estudios
para el Desarrollo Rural
aaraujo@cdr.or.cr
The Netherlands

Vargas, Pamela
RUTA
Costa Rica

Villalobos, Flor
FAO
flor.villalobos@fao.org
Costa Rica

Villalobos, Octavio
Chemonics
ovillalobos@cuentadelmilenio.org.ni
Nicaragua

Villarraga, Jaime
Corp. para el des. de las Micr.
jaimevillarraga@microfinanzasparaeldesarrollo.net
Colombia

Villegas, Luis
Ministry of Agriculture
fielizondo@gmail.com
Costa Rica

W

Walkers, Eduard
Oikocredit
ewalkers@oikocredit.org
The Netherlands

Y

Young, Robin
DAI
robin_young@dai.com
United States

Z

Zapata, Jennifer
ICCO
jennifer.zapata@icco.nl
Nicaragua

Zeledón, José
Ministry of Agriculture
jozelecruz@gmail.com
Costa Rica

Annex 3

Program

Agricultural Value Chain Finance

Costa Rica, february, 22-24 , 2010

February 21

Registration

Registration of participants	
Receipt of materials	

February 22

Inauguration

Moderator	Alan Bojanic, FAO, Representative in Costa Rica
Welcome	Javier Flores, Ministry of Agriculture of Costa Rica Miguel Gómez, RUTA Luis Mesalles, Academia de Centroamérica
Keynote speaker	Ken Shwedel, Rabobank México Agricultural value chain finance. Four years on
Discussion	
Coffee break	

Lessons learned in agricultural value chain finance

Moderator	Geoffrey Chalmers, ACDI/VOCA
Speakers	Calvin Miller, FAO Anita Campion, AZMJ Mark Wenner, IDB Ajai Nair, The World Bank
Discussion	
Lunch	

Models of agricultural value chain financing. From the viewpoint of participants in chains

Moderator	Juan A. Ketterer, IDB Costa Rica
Speakers	Ricardo Galindo, Embassy of The Netherldands (Bolivia) Edwin Vargas, PROFIN Foundation Rosalino Luiz Alba, Cresol Baer (Brazil) Mauricio Osorio, Crezcamos (Colombia) Fernando Chilavert, Pure Circle (Paraguay)
Coffee break	
	Cases in Africa and Asia
	Financing commodity management and exchanges, Lamon Rutten, MCX (India)
	Innovations in Africa, Beatrice Obara, De Deby Green Ventures Capital (Kenya)
Discussion	

February 23

Innovative approaches for supporting agricultural value chains. From the viewpoint of financial institutions

Moderator	Julio Flores, REDCAMIF
Speakers	Rick Clark, WOCCU/FENACREP (Perú) Teresa de Velilla, Financiera El Comercio (Paraguay) Andrés Urquidi, FIE (Bolivia) José Carlos Vaz, Banco do Brasil (Brazil) Héctor Pacheco, Banco del Estado (Chile)
Discussion	
Coffee break	

Methodologies to strengthen agricultural value chains and their financing

Moderator	Carmen Alvarado, COSUDE
Speakers	
Risks and contracts	
	Index Insurance for value chains, Mario Miranda, Global Ag. Risk, Inc. and The Ohio State University
	Contract arrangements, Lorna Grace, ACDI/VOCA Honduras
Strengthening value chains	
	Strengthening value chains, Beate Weiskopf, GTZ
	Guides for facilitating value chain financing, Ruth Junkin, CATIE-RUTA
	The role of IT, a Mexican perspective, Geoffrey Chalmers, ACDI/VOCA Development and extension for family farming in Chile, Manuel Miranda, INDAP
Discussion	
Lunch	

Dialogue with international agencies

Moderator	Miguel Gómez, RUTA
Speakers	Calvin Miller, FAO Beate Weiskopf, GTZ Dietmar Stoian, CATIE Carmen Álvarez, IDB Carmen Alvarado, COSUDE
Discussion	
Coffee break	
Closing	
Moderator	Eduardo Lizano, Academia de Centroamérica
Conclusions	Rapporteur 1: Linda Báez, Nicaragua Rapporteur 2: Rafael Díaz, Costa Rica
General conclusion:	Mark Wenner, IDB
Closing	Miguel Gómez, RUTA Luis Mesalles, Academia de Centroamérica

February 24

Visits to leading firms in agricultural value chains *(requires a separate registration, 8:30-4:30 p.m.)*

Option 1	Coopedota, Dota (coffee)
Option 2	APACOOP, Santa Cruz de León Cortés (fruits)
Option 3	Gerber, Cartago (fruits and vegetables)

With all the changes the crisis has wrought in the current environment, the question arises: Is the concept or model of agricultural value chain finance still relevant? Yes it is!, and now more than ever before. Are we prepared? Perhaps..."

Ken Shwedel, Rabobank México

You need to de-construct your business from time to time, and separate the "message" from the "medium". If you think the medium is the message (ie, the products that you use to provide agri finance are equal to agri finance), then you can be hit hard by changing circumstances."

Lamon Rutten, MCX India

Academia de Centroamérica

Tel. 506 2283-1847
www.academiaca.or.cr, info@academiaca.or.cr