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# FINANCING ARTICHOKE AND CITRUS: A STUDY OF VALUE CHAIN FINANCE IN PERU

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# FINANCING ARTICHOKE AND CITRUS: A STUDY OF VALUE CHAIN FINANCE IN PERU

Accelerated Microenterprise Advancement Project (AMAP) Financial Service

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# ABBREVIATIONS AND ACRONYMS

ADEX	Association of Exporters	MFI	Microfinance Institution
AMAP	Accelerated Microenterprise Advancement Program	MIS	Management Information System
BCP	<i>Banco de Credito Peru</i>	MSMEs	Micro, Small, and Medium Enterprises
CMAC	<i>Caja Municipal de Ahorro y Credito</i>	NBFI	Non-bank Financial Institution
DCA	Development Credit Authority	NGO	Non-government Organization
EXIM	Export-Import	P.A.	Per annum
FI	Financial Institution	PRA	Poverty Reduction and Alleviation project
FS	Financial Sector	RAF	Rural and Agricultural Finance
GDP	Gross Domestic Product	R&D	Research & Development
GNP	Gross National Product	SMEs	Small and Medium Enterprises
ICT	Information and Communication Technologies	USAID	United States Agency for International Development
IQC	Indefinite Quantity Contract	USDA	United States Department of Agriculture
Kg	Kilogram	WB	World Bank
LIBOR	London Interbank Offered Rate	WTO	World Trade Organization
LOE	Level of Effort		



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# EXECUTIVE SUMMARY

With a significant portion of the world's poor dependent on rural and agricultural livelihoods, the development of dynamic agricultural value chains can play a vital role in reducing poverty by creating jobs and income. In Peru, the processed artichoke value chain provides an expanding market for farmers to sell high value added products and recent global changes have created an opportunity for the citrus value chain to increase exports.

This study looks at financial flows within the artichoke and citrus value chains in Peru, identifies how firms and other actors in the value chains access finance both within and outside the value chain, and analyzes how access to or lack of finance impacts their overall competitiveness.

The global consumption of processed artichokes has increased dramatically during the past several decades. Although it is not a traditional crop in Peru, the Peruvian highlands provide an ideal climate for growing high quality artichokes. Their short growth cycle allows farmers in the highlands to take advantage of an extended season to produce multiple artichoke harvests each year. Furthermore, the crop is relatively inexpensive to grow, but commands a high retail price. All of these factors have allowed highland farmers in Peru to look beyond traditional crops and participate in a dynamic value chain that improves their income while responding to global market demands.

Although the processed artichoke value chain benefits from strong global demand and presents an excellent opportunity for investment, there are a number of constraints that must be overcome in Peru for the industry to maximize competitiveness and meet evolving market demands. The most significant constraints are farmers' limited access to finance, their unfamiliarity with the profitability of this new, non-traditional crop and their lack of technical knowledge of how to grow high quality artichokes.

With increased direct access to investment finance, artichoke processors would have more money to invest in human resources and have the loan capital needed to attract more farmers to artichoke cultivation. Alternatively, if farmers had better access to formal finance, processors could divert their financing to farmers to invest more in human resources and equipment to expand production to other areas in Peru. Greater technical knowledge would allow farmers to better meet the demands of the international artichokes market, in terms of quality and quantity. Finally, raising awareness of the profitability of artichokes would encourage more farmers to grow artichokes, thereby increasing processor productivity and expanding the value chain as a whole.

Some actors in the processed artichoke value chain have discovered creative ways to overcome some production and financial constraints. Firms within the value chain are working to expand production by providing credit and embedded extension services to attract more artichoke producers and to build technical know-how among existing farmers. Driven by the incentives of market expansion and increased production, it is not surprising that value chain actors are leading the way in providing agricultural finance. In fact, making a profit on their finance is secondary to production profitability and market expansion.

This study demonstrates how value chain firms—such as wholesalers, processors and input suppliers—work together to overcome the lack of formal finance within their value chain by creating win-win solutions. “Connector firms”<sup>1</sup> provide valuable short-term finance and embedded services to help farmers develop the technical knowledge necessary to produce high quality artichokes in greater quantities and improve their returns on investment. Higher returns have led to greater access to formal finance and further upgrading of firms within the value chain. The processors also benefit in terms of consistent product quality, reduced risk of non-payment, and increased production and sales.

While all of these services are providing a great deal of value and allow the Peruvian artichoke industry to compete on the global market, greater access to medium and long-term finance is required to further expand Peru’s production and processing potential. The continued lack of access to medium and long-term financing hinders the growth of this industry, putting it at risk of becoming uncompetitive internationally.

On the other hand, low product quality, a long production cycle and lack of access to finance all constrain the Peruvian fresh citrus value chain from taking advantage of the recent opening of US markets to fresh citrus. One

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<sup>1</sup> Connector firms are those firms that vertically integrate other firms into a value chain, most often through the provision of finance and/or technical assistance, in a way that strengthens the value chain overall.

of the greatest constraints to raising the quality of fresh citrus to export standards is access to longer-term finance, especially for irrigation systems.

USAID and other donors can help to resolve the issues facing agricultural value chains, including the processed artichoke and citrus value chains, in the following ways:

- *Facilitate information flow from agricultural value chains to financial markets to reduce real and perceived risks of agricultural finance.* As consumer preferences become differentiated, agricultural markets must become more segmented. USAID can strengthen agricultural markets by supporting the creation of market information databases, identifying dynamic connector firms, and facilitating the exchange of value chain contacts. Most importantly, USAID can help financial institutions forge strategic relationships with growth-oriented value chain connector firms, such as the artichoke processors, for direct financing and for on-lending to producers.
- *Design interventions with connector firms to create integrated components that focus not only on increasing access to finance, but also provide technical knowledge to support the expansion of dynamic high value-added products.* By providing additional support at the smallholder level, such as in negotiation of agreements and design of win-win contracts, USAID can facilitate the flow of benefits to poor rural farmers, who often have less power to influence pricing and terms.
- *Provide training and technical assistance on agricultural lending and portfolio management to value chain connector firms and financial institutions.* Agribusiness connector firms need assistance in evaluating their approach to providing finance to ensure all unit costs are adequately factored into the pricing. In addition, such firms could benefit from best practice approaches to loan portfolio and collections management. Formal financial institutions, on the other hand, need assistance in understanding value chains and how to manage risks associated with lending to the agricultural sector. While most financial institutions are averse to lending directly to farmers, by introducing the concept of value chain “connector firms” they can identify lending opportunities that will facilitate the expansion of the entire value chain.
- *Identify ways to improve access to longer-term agricultural finance.* Given that banks are often not the best suppliers of medium and long-term finance, donors need to look to other financial institutions, such as bond markets, insurance companies and pension funds, for sources of funds that match the agricultural sector’s investment time frame. Additional incentives may be needed to help develop these

markets, such as guarantees or other types of risk sharing, to improve the attractiveness of agricultural investments.

- *Continue to study value chain finance to better understand its role in agriculture and financial sector development.* Many more questions remain related to agricultural value chains and their access to finance, so further research and pilot testing of technical assistance interventions are needed.

# INTRODUCTION

As part of the Rural and Agricultural Finance (RAF) research under the Knowledge Generation task order of the Accelerated Microenterprise Advancement Program (AMAP) – Financial Services Indefinite Quantity Contract, USAID/Washington’s Microenterprise Development office contracted Chemonics International to conduct a study of agricultural value chain finance in Peru. See Annex A for the Scope of Work.

## **Box II.1: Competitiveness Strategies**

Value chains can become more competitive by:

Improving efficiency/cost advantage of a product or service, usually by lowering the cost of production or processing, or by sourcing lower cost inputs;

Differentiating products and services from the competition’s products and services in a way that increases value to the customer;

Increasing demand influence, i.e. the ability to quickly take advantage of changes in demand and market preferences.

Source: Olaf Kula, Jeanne Downing and Michael Field, *Globalization of the Small Firm: An Industry Value Chain Approach to Economic Growth and Poverty Reduction*, microREPORT #42, USAID, Feb. 2006, p.7.

## **OBJECTIVE OF THE RESEARCH**

With a significant portion of the world’s poor living in rural and agricultural areas, supporting rural economies and agricultural enterprises is integral to poverty reduction. The objectives of the study in Peru were to examine the complex relationships and mechanisms within commodity value chains that help to overcome the higher risks (real and perceived) of RAF, and their current and potential relationships with financial institutions, as well as to explore the role of finance within and outside value chains in minimizing the constraints to value chain development, enhancing competitiveness and facilitating firm upgrading (see Box II.1).

## **APPROACH AND METHODOLOGY<sup>2</sup>**

The team, composed of an International Finance Research Specialist and a Peruvian Enterprise Development Specialist, researched which value chains to study, using global market information on demand for various agricultural products, as well as local market information on Peruvian agricultural subsectors and products. The artichoke and citrus value chains were selected as the focus of this research, which took place in Peru from November 28 to December 10, 2005. These value chains were chosen primarily because they offered the potential to compare the impact of different investment timeframes on the accessibility and type of finance available within the value chain, in addition to finance from formal financial institutions. These value chains offer significant growth potential in terms

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<sup>2</sup> All financial data in this report have been converted to US dollars, based on the exchange rate of 3.35 soles per US dollar effective in November 2005.

of job creation and increases in Gross National Product (GNP). Artichoke, mainly processed as an export crop for Peru, has a primarily international market, while citrus has a primarily domestic market, with growing export potential.

During the field research, interviews were conducted with various value chains actors including input suppliers, producers, processors, retailers, as well as officials from financial institutions, donors, government and support institutions to find out the following:

- What are the primary constraints and opportunities for business expansion within the value chain?
- What role does governance (i.e., structural power) play in influencing relationships within the value chain?
- To what extent and how does the enabling environment help or hinder access to finance within the value chain?
- What roles do local government and donors play that impact the value chain? Are the interventions positive or negative from the perspective of the various value chain participants?
- How and to what extent is finance facilitating upgrading within the value chain? In what ways is lack of access to finance hindering value chain development?
- To what extent do business development services and other support services play a role in value chain upgrading and access to finance for the value chain?
- What factors are most important for securing agricultural finance?

To ensure that the interviews represented broad perspectives within and across the two value chains, different geographic regions were examined to compare how production and access to credit varied across these areas. See Annex B for the initial interview questions.

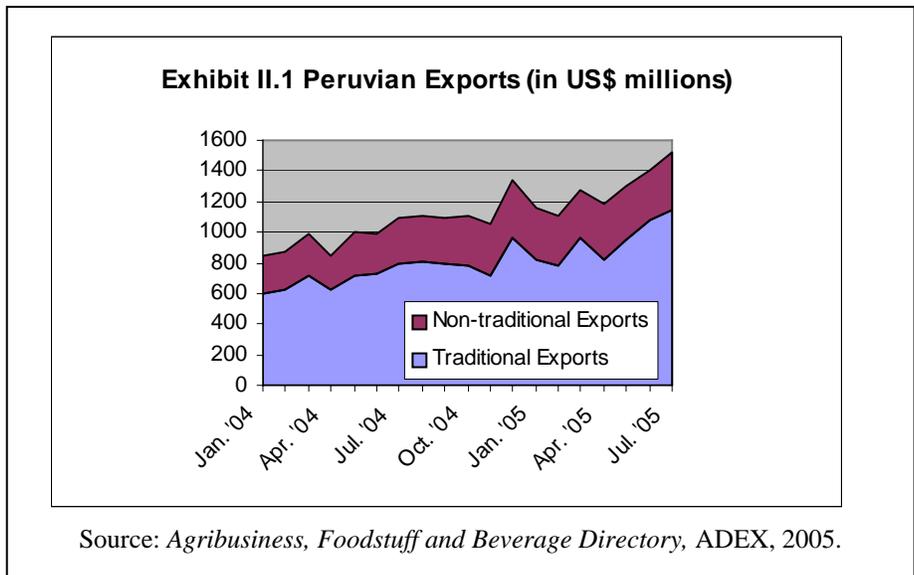
This study highlights the operational and financial flows among actors in the artichoke value chain, emphasizing how actors within the value chain interact and collaborate to increase and expand their businesses. Research findings on the citrus value chain are less emphasized, as research found few financial relationships within the value chain or with financial institutions.

## BACKGROUND INFORMATION ON PERU

Historically, Peru's agricultural sector has been strong, growing at an average annual rate of 4.4% over the past decade.<sup>3</sup> With a total population of 27.5 million, approximately 30% of the population lives in rural areas outside Lima, the capital city, and approximately 50% of rural Gross Domestic Product (GDP) comes from agriculture. According to the Ministry of Finance, however, rural contributions to GNP represented only 14% of Peru's total productivity in 2004.

## MACROECONOMIC OVERVIEW

In 2004, Peru's GDP was estimated at \$68.6 billion and the country ranked 49th in terms of global purchasing power parity. Recently, GNP has increased at a healthy average rate of 5% per year and inflation has remained low and stable, inching up only about 1% in the past year.<sup>4</sup> Both traditional exports (minerals, petroleum, agriculture and fishing) and non-traditional exports (e.g., canned and bottled artichokes) increased over 2004 and the first half of 2005 (See Exhibit II.1).<sup>5</sup> Political uncertainty over the 2006 elections is, however, putting a damper on investment. Despite strong macroeconomic performance and outlook, Peru continues to grapple with widespread poverty. While Peru's GDP per capita was \$5,600 in 2004, 54%



of the population lives on an income below the poverty line. The official unemployment rate in Lima is 9.6%, but there is widespread under-employment, especially in rural and agricultural areas<sup>6</sup>.

<sup>3</sup> World Bank website at [http://devdata.worldbank.org/AAG/per\\_aag.pdf](http://devdata.worldbank.org/AAG/per_aag.pdf).

<sup>4</sup> Ibid.

<sup>5</sup> "Peru Exports," *Volue* 323, September 2005.

<sup>6</sup> World Bank website at [http://devdataworldbank.org/AAG/per\\_aag.pdf](http://devdataworldbank.org/AAG/per_aag.pdf).

## **AGRICULTURE SECTOR OVERVIEW**

Agriculture has long been a key sector in the Peruvian economy, representing 9%-10% of GDP over the past 12 years.<sup>7</sup> Agricultural production has focused heavily on traditional crops, such as coffee, cotton, sugarcane, rice, potatoes, corn, plantains, grapes, oranges, coca; as well as poultry, beef and dairy products. However, recent positive developments suggest Peru has an opportunity to expand its high value, non-traditional agricultural subsectors, such as processed artichokes.

Non-traditional agricultural exports are larger and growing at a slightly faster rate than traditional agricultural exports. At the end of 2004, Peru reported \$63.4 million in non-traditional agricultural exports versus only \$39.3 million in traditional agricultural exports.<sup>8</sup> This trend will likely continue, given that non-traditional exports tend to offer more long-term growth potential than traditional agricultural exports.

## **AGRICULTURAL FINANCE CONSTRAINTS**

Peru has a vibrant financial sector composed of many financial actors, ranging from commercial banks to rural banks (*cajas rurales*) and municipal savings and loans institutions (*cajas municipales*). Despite the importance of the agricultural sector to GDP and employment, however, there is little agricultural finance available from the formal financial system. In fact, as of March 2005, only 3% of formal loan capital went to agriculture, totaling US\$388.8 million.<sup>9</sup> While some Peruvian non-governmental organizations (NGOs) have attempted to fill the gap, they have only supplied an additional 2.3% of the total finance provided by the financial sector.<sup>10</sup> The primary reasons for the lack of formal agricultural finance in Peru are related to the enabling environment (macro-policy constraints), however there are also barriers at the retail market-level (micro-constraints).

## **MACRO-POLICY CONSTRAINTS**

Several constraints to agricultural finance stem from historical government intervention and from within the current policy environment.

### **Past government interventions in land reform and loan rescheduling.**

Under General Velasco's military regime, Peru began a major land reform program, expropriating land from wealthy landowners and giving it to the rural poor who worked the land. This resulted in the majority of farmers owning small parcels of land, especially in the highlands and the jungle. These smallholders began accessing loans for the first time. Following a period of high inflation and poor economic results, many rural borrowers had difficulty repaying their loans. In 2000, the government approved an Agricultural Rescue Program, designed to refinance agricultural debt through bond instruments. While this program helped the Peruvian banks

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<sup>7</sup> Ibid.

<sup>8</sup> Association of Exporters (ADEX) in Peru.

<sup>9</sup> Data from Carolina Trivelli, *Instituto de Estudios Peruanos*, Oct. 2005.

<sup>10</sup> Ibid.

manage the debt crisis, it increased the risk profile of agricultural lending, thereby discouraging formal financial institutions from offering loans to farmers. Many borrowers continue to have negative repayment histories due to this rescheduling program, despite the fact that if they had defaulted entirely on their loans, they would no longer appear in the credit bureau and be considered eligible borrowers again.<sup>11</sup>

**Government-owned bank offers subsidized agricultural loans.** In 2004, the Peruvian government reopened the state-owned bank, Banco Agrario, to appease public demands for agricultural finance. The bank had a slow start, lending only \$6.5 million in its first year to just 3,149 clients. Most of these clients were in already established productive growth sectors and probably had some access to formal credit. Banco Agrario lends at below-market interest rates of around 8% per year. These subsidized interest rates distort the market and act as a disincentive for formal financial institutions to offer agricultural finance.

**Lack of land titles.** Most owners of rural, agricultural land have yet to receive official land titles although the Peruvian government began land titling in 1992. This inhibits formal sector lending, which relies heavily on land titles as collateral for farmers and agribusiness loans in rural areas. Lack of land titles further constrains the transfer and consolidation of land into larger parcels often required to achieve economies of scale in agricultural production.

**Taxes encourage farmers to stay small and informal.** Currently, a farm or other business does not have to become licensed or pay taxes if total sales are under \$50,000. This acts as a disincentive to increase annual sales beyond \$50,000, and hinders consolidation of farm land, which could yield more economies of scale and improve competitiveness of agricultural products.

**Difficulties in enforcing contracts.** All formal financial institutions require borrowers to sign a loan contract, but few bother to take a small loan borrower to court in case of non-payment, as it often takes about two years to work through the court system.<sup>12</sup>

#### **RETAIL MARKET CONSTRAINTS**

A few market-level constraints impede the expansion of agricultural finance.

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<sup>11</sup> The credit bureau only tracks loan defaults for five years, after which they are removed from the database.

<sup>12</sup> The largest microfinance bank in Peru, Mibanco, however, does follow up through the court system when the MFI determines that the borrower has the *means* but not the *will* to repay. Management considers it important to communicate the seriousness of the contract to other clients. In addition, Mibanco reports all non-payments to the national credit bureau, preventing the client from borrowing for five years.

**Banks are extremely conservative and risk averse.** Despite ample liquidity, formal financial institutions are often uninterested in agricultural finance because they consider it to be higher risk than other lending and investment options. Historically, agricultural lending has averaged higher delinquency rates (10-15%) than non-agricultural lending (5%).<sup>13</sup> Furthermore, most formal financial institutions lend based on collateral, often far exceeding 100% of the loan amount, and mostly for short-term investments (a year or less).

**Untapped urban market potential impedes FIs' interest in rural finance.** Often financial institutions prefer lending and investment opportunities in urban rather than rural areas, which they perceive as less risky and less costly. Many traditional banks have substantial liquidity, however, with total savings exceeding total lending since 2001. This has resulted in excess liquidity of approximately \$3.3 billion, as of September 2005.<sup>14</sup> With time, growing liquidity may pressure banks to explore higher risk investments, such as rural and agricultural lending.

**Most rural banks lack resources and structure to expand.** Most rural and municipal banks are small and lack the financial and management resources to expand their rural and agricultural lending portfolios. Since they are structured as independent entities, there is no system to facilitate the flow of liquidity from one rural bank with excess savings to a bank in need of additional lending capital. Hence, they cannot achieve the economies of scale to reduce transaction costs needed for rapid expansion.

**Lack of products and methodologies for agricultural finance.** There is a general lack of knowledge on how to tailor products to meet the needs of farmers and agribusinesses and to manage the associated risks. Microfinance institutions (MFIs) are conducting some interesting pilot tests with positive results that could have implications for other financial institutions in the future.<sup>15</sup>

**No secondary market for leasing.** While leasing of tractors and other agricultural equipment could be a viable alternative to agricultural loans, there is virtually no leasing in Peru since there is no secondary market for most equipment (not even cars).<sup>16</sup>

Given the dearth of formal agricultural lending in Peru, it is not surprising that the responsibility of providing finance to agricultural producers is passed on primarily to agribusiness exporters, processors and input

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<sup>13</sup> Data from Carolina Trivelli, *Instituto de Estudios Peruanos*, Oct. 2005.

<sup>14</sup> Peruvian Superintendency website:  
<http://www.sbs.gob.pe/estadistica/financiera/2005/Setiembre/SC-0001-sc2005.PDF>.

<sup>15</sup> See microNOTE on *Rural and Agricultural Finance: Emerging Practices from Peruvian Financial Institutions*, 2006 on [www.microlinks.org](http://www.microlinks.org).

<sup>16</sup> The exception to this is leasebacks, in which the client transfers ownership of an asset in exchange for a loan.

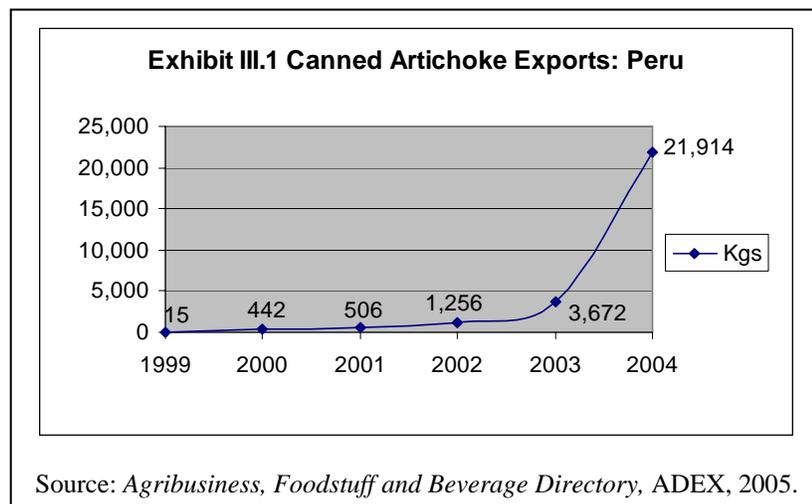
suppliers. These “connector firms” strengthen the value chain by providing short-term finance and embedded technical services to other value chain actors. Some studies estimate that finance is offered to as many as 50,000 farmers from connector firms within their value chain.<sup>17</sup> The next section describes how some agribusinesses at least partially fill the gap for finance to producers in the artichoke value chains.

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<sup>17</sup> Data from Carolina Trivelli, *Instituto de Estudios Peruanos*, Oct. 2005.

# PROCESSED ARTICHOKE VALUE CHAIN

The global consumption of artichokes has more than doubled from 1.87 billion pounds in 1980 to 3.95 billion pounds in 2000.<sup>18</sup> In 2001, the US alone imported 85 million pounds of canned artichokes valued at \$55 million, for an average of \$0.65 per pound. In 2001, the primary exporters of canned artichokes to the US were Spain (92%), Italy (4%) and Chile (2%).<sup>19</sup> In Peru, artichoke producers and processors are trying to capture



<sup>18</sup> *Vegetables and Melons Outlook*, April 18, 2002, p. 13. Economic Research Service, USDA, website at <http://www.ers.usda.gov/Briefing/Vegetables/vegpdf/ArtichokeHigh.pdf>.

<sup>19</sup> *Ibid.*

part of the European market share, which has recently been facilitated by the strong Euro and increasing wages in Spain and Italy.

## **KEY CHARACTERISTICS OF THE PERUVIAN ARTICHOKE INDUSTRY**

While artichoke is not a traditional crop in Peru, the increased global demand combined with a short production cycle and a climate in the Peruvian highlands that allows for an extended season have made processed artichoke a dynamic and growing sector.

As a result, competition between artichoke processors has resulted in producers having greater access to technical assistance and financing; and has allowed them to demand higher prices for their artichokes.

The following characteristics made the Peruvian artichoke value chain an ideal case to study:

- Peruvian artichokes represent a dynamic growth sector. The global demand for processed artichoke grew steadily, leading to increased exports of Peruvian artichokes between 1999 and 2004 (See Exhibit III.1).
- Artichokes are grown in different regions of the country with varying climates, allowing for the comparison of climatic impacts on production and profits.
- Artichokes are relatively inexpensive to grow, especially considering their market value, and therefore appealing to smallholders.
- Although artichokes do not have a long history in Peru, their increased cultivation has led to interesting approaches to value chain finance and embedded technical services from connector firms.

## **VALUE CHAIN PARTICIPANTS AND THEIR ACCESS TO FINANCE**

The value chain for processed artichoke provides an excellent example of how vertical linkages (i.e., relationships between actors at different levels of the value chain) and inter-firm cooperation can improve competitiveness of the value chain and its access to finance. This section describes the artichoke value chain and highlights the roles and links among the actors, including their access to finance. Exhibit III.2 presents a diagram of the artichoke value chain. While the product flows up the production cycle, the arrows between value chain actors illustrate the flow of finance from connector firms. The continuous lines show how some actors play multiple roles along the value chain and the dotted lines indicate a skipped function

(i.e., a role a value chain actor does not play), while allowing one to see the connection to their other functions along the value chain. For example, some processors also operate as producers, input suppliers and technical assistance providers. For the most part, however, artichoke processors do not engage in direct production. For this reason, dotted lines connect the processing function to input supply, indicating production is a skipped function.

This study is focused on financial flows within Peru. As most of the financial flows at the retailer and wholesaler levels occur outside Peru, this study did not capture those transactions, but large wholesalers often offer retailers supplier credit, charging additional costs associated with delayed payments, based on the number of days from the date of delivery.

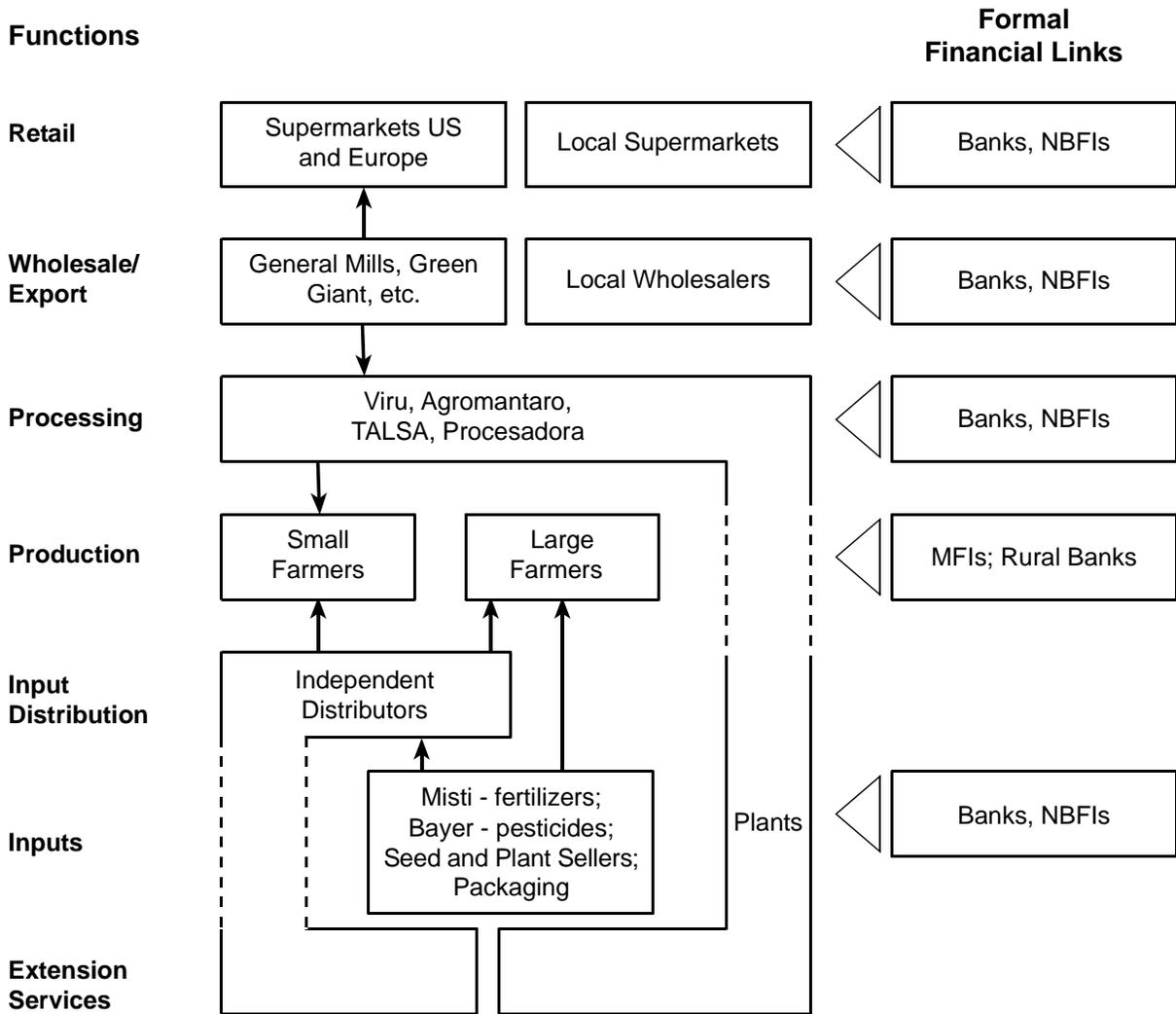
### **RETAILERS RECEIVE SUPPLIER FINANCE FROM WHOLESALERS**

The vast majority of artichokes produced in Peru are processed and sold for export to a variety of retail stores (from supermarkets to specialty grocers) and restaurants in the US and Europe. The wholesale exporters generally offer supplier finance to retailers, charging additional fees for delayed payments, based on the number of days after delivery. Less than 1% of processed artichoke is sold by processors directly or via wholesalers to retailers in Peru.

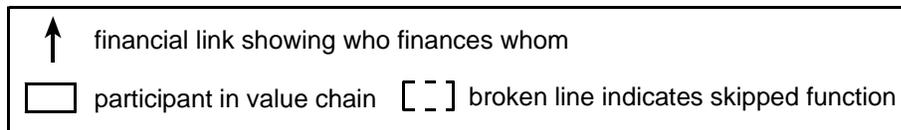
### **WHOLESALER CONTRACTS FACILITATE FINANCE FOR PROCESSORS**

The primary wholesalers of processed artichokes are large multinational exporters, such as General Mills, Green Giant and Del Monte. Given the strong demand for processed artichokes, international wholesalers offer a fixed price to the processor assuming certain quality standards. Some processors have used this contract to facilitate access to short-term finance from commercial banks, but banks usually mitigate the majority of the risk by requiring the processor to provide in excess of 100% collateral from other business or personal assets. This financing is generally insufficient, however, as processors explained that they had relied primarily on personal funds to expand their businesses and that additional finance was needed.

### Exhibit III-2. Artichoke Value Chain



**Key:**



The wholesalers reduce their own risks by screening processors and producers to assure quality control. They manage the logistics of shipping the product, paying for freight, customs and clearance, for which they

charge approximately 8% of the export value. Hence, their income largely depends on how high of a price they negotiate with the retail buyer.

A small percentage of processed artichoke is sold to grocery stores in Peru. Local wholesalers act like brokers/distributors and facilitate the sale of processed artichokes by the processor to the retailer.

### **PROCESSORS OFFER PRODUCERS FINANCE AND EMBEDDED SERVICES**

There are four artichoke processors in the value chain: Viru, TALSA, Agromantaro and Procesadora. Viru is the largest processor and operates in the coastal area of northern Peru and is the largest supplier of artichokes to General Mills in Peru. TALSA and Agromantaro are fiercely competing for second place, while Procesadora is a small-scale processor with very limited access to funds to grow and compete with the others.<sup>20</sup>

All processors are multi-functional, as they operate not only as processors, but also as input suppliers and technical assistance providers, as is described below.

To motivate farmers to grow artichoke, processors use their own funds to finance 30-100% of the farmers' start-up costs. Rather than offering a cash loan, the processors provide farmers with small artichoke plants (i.e., seedlings), the value of which does not have to be repaid until after the first harvest (4-5 months later). No direct interest or fee is charged for this service, implying that the cost of finance is embedded in the price or the input is used as a loss leader to attract farmers to grow artichokes. The other benefit of providing seedlings is to increase the potential yield of the product. Artichoke seeds are hard to grow, but once they have reached the seedling stage, they are far more likely to survive through production. In this way, the processor reduces its risk of defaulting on its contract with wholesalers to provide a certain quantity of processed artichokes.

To ensure high quality, the processors provide free technical assistance and training (i.e. imbedded services) to the farmers on how to prepare the land, apply pesticides and fertilizers, and plant the seedlings. In addition, they work with input suppliers to negotiate price discounts of four to five percent for pesticides and fertilizer. The costs of these services are embedded in the product pricing.

By having a fixed price contract from the wholesaler, the processor is able to sign three to five year contracts in which farmers agree to sell and the processor agrees to buy the product, based on certain quality standards.

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<sup>20</sup> This publication uses Peruvian legal definitions for enterprise sizes as follows: micro (1-10 employees), small (11-50 employees), medium (51-200 employees) and large (201+ employees), per <http://www.actetsme.org/peru/peru02.htm>.

#### **Box III.1: Contracts with Processors Lead to Formal Agricultural Finance for Farmers**

Despite banks' normal aversion to direct agricultural lending, some rural banks, including the Caja Municipal Huancayo, Caja Rural Los Libertadores and EDPYME Confianza, were willing to lend to artichoke farmers, due to the financial credibility of the processors and demonstration of profitability. Interest rates ranged from 2.5% to 3.5% per month (equivalent to 30% to 42% annually), with loan terms of 6 to 8 months. Most loans required the farmer to guarantee the loan with his property. If the land was not registered, the farmer could show a "certificate of possession" in which the local municipality verified that the person had a history of living there and working the land. Most of the loans were paid out in tranches, linked to the need to pay for fertilizer or prepare the land, with interest accumulation based on the value of each disbursement, followed by one lump sum payment of principle and interest due after the harvest. Average loan sizes were small relative to the investment, ranging from \$746 to \$1,045 per hectare, representing 20-29% of the total investment (including land costs per hectare). This amount is sufficient to cover the cash needs of the investment and provide some income smoothing for the farmer.

Since the processor is primarily interested in the highest quality product, the price offered for the highest quality is much higher than the minimum acceptable quality, thereby giving an incentive to the farmer to improve quality over time. Some producers were able to use their contractual relationship with an artichoke processor to access formal finance, as described in Box III.1.

Augusto Fernandini, part owner of the processor Agromantaro, said that the greatest limitations to developing his business are the difficulty in convincing rural farmers to try growing a new product and their limited resources for investment. If farmers are not convinced with all the upfront incentives provided (fixed price contract, seedlings at cost, fertilizer discounts and free technical assistance), Agromantaro sometimes offers to rent the farmer's land and hire the farmer as an employee to demonstrate the full benefits. Agromantaro expects that next year far more farmers will be interested in growing artichoke and hopes to expand this product line and others in the highlands.

Another processor, TALSÁ, offers a similar package to Agromantaro and operates in the same geographic area. The competition between the artichoke processors has resulted in farmers having access to more technical assistance and financing, as well as higher prices for their artichokes than likely would have been available otherwise. While this level of competition offers the temptation for farmers to engage in side selling (selling their artichokes to the other processor for a higher price or to avoid paying back their input and financing costs), all farmers have been loyal to their contracts to date and many of them emphasized their close relationship with the extension agent as the reason for not considering working with the other processor.

### **MOST PRODUCERS ARE SMALLHOLDERS AND LACK ACCESS TO FINANCE**

There are hundreds of artichoke producers in Peru, the majority of whom are smallholders. Farmers have been growing artichokes in the highlands for the past three years, where artichokes can be grown 9-12 months of the year, as opposed to four months along the coast. Overall, their experiences have been quite positive, especially when compared to that of growing traditional crops, such as potatoes and corn. In fact, many farmers lost money growing potatoes over the past few years, as supply greatly exceeded demand, causing market prices to drop well below the cost of production.

Farmers reported investment costs of approximately \$3,000 per hectare to grow artichoke, including the value of their labor, but excluding the cost of land. Exhibit III.2 breaks down these costs. While many farmers were cautious about growing a new crop, having a fixed price contract in advance provided a big incentive to invest in artichoke. Many initially planted artichokes on a small portion of land, but increased the amount of land dedicated to the crop as their profits increased. Despite the profit potential,

none of the farmers interviewed exclusively grew artichokes, implying that diversifying their crops was a risk management strategy.

**LARGE FARMERS.** Large farmers employ as many as 100 workers (75% part-time) to assist with preparation of land, planting, fumigation and harvest. Part-time labor is plentiful and inexpensive, with workers receiving approximately \$3.58 (for females) to \$4.47 (for males) per day. Due to the lack of land titling, large-scale farmers often rent rather than purchase additional land to expand their business. One limitation to business expansion identified was the cost of land rental, which ranges from \$600 to \$4,480 per hectare per year in the highlands.

**SMALL FARMERS.** Most small farmers have very few resources to dedicate to agricultural investments. Given that most have only one to five hectares of land, growing high value rather than traditional crops can determine whether a farmer is able to work his own land or rent it out and become a farmhand for a larger producer. Small farmers are less likely to have access to water, requiring them to either invest in a well and small pump, or to pay to have water brought in. Unfortunately, no formal financing is available for irrigation systems.

Local producers are working to develop an association of artichoke growers in the highlands to coordinate efforts to find better technologies, share information on how to use pesticides and to collectively negotiate with banks for better financing.

### **INPUT DISTRIBUTORS AND SUPPLIERS OFFER PRODUCERS FINANCE AND EMBEDDED SERVICES**

In 2005, artichoke farmers spent approximately 30% of their initial investment on inputs, most of which went toward fertilizer and pesticides. These inputs are supplied through distributors and directly through suppliers.

**DISTRIBUTORS.** Small farmers primarily receive inputs from distributors, who charge approximately 25-50% more than cost for pesticides and 15% more than cost for fertilizer. These gross margins cover the distributors' labor, transport and financing costs, leaving only about 3% profit to the distributor. Most distributors offer supplier finance by providing inputs upfront and allowing 120 days to repay. This allows the producer time to harvest and sell the crop before payment is due.

**SEEDS AND SEEDLINGS.** Most artichoke producers access seedlings directly from their processor. Strong inter-firm cooperation between seedling growers and a research institution, ADEX, played an important role in facilitating research and experimentation with a wide variety of seeds, which strengthened Peruvian competitiveness in the artichoke industry, as described in Box III.3.

**FERTILIZER.** Misti, a medium-sized company with 30 full-time and approximately 100 part-time employees, is the primary supplier of fertilizer. During the past year, the company generated sales of \$90 million. Misti has more than 400 clients, 50% of which are large agricultural producers and 50% are distributors (representing 60% of sales and an additional 3,000+ producers).

According to Luis Alberto Chocano Belaunde, General Manager of Misti, the main constraint to increasing fertilizer sales is a lack of knowledge of the benefits of fertilizers in increasing production volume. Belaunde says, “Many farmers still think of fertilizer as an expense rather than an investment. However, this is changing thanks to the growing number of export products.” Misti and its distributors also offer technical assistance to farmers to increase their awareness of the benefits of using manufactured fertilizer and how to apply it appropriately. This service is offered at no additional cost to the client and is seen as a means to develop the fertilizer market. Given that approximately half of Peru’s farmland does not yet use manufactured fertilizers, significant growth potential remains for this product.

Most of Misti’s growth has been self-financed, but the company has received working capital finance from its supplier, Conagra Foods, at LIBOR + 2% (currently 12%) payable within 180 days.<sup>21</sup> Misti has never been limited to accessing finance on these terms, but Misti takes the exchange rate risk since the finance is in US dollars. Misti has also received short-term finance via factoring and credit lines in U.S. dollars and Peruvian soles from local banks, including Banco de Credito Peru (BCP), Banco Continental and Banco Wiese, at 12% per annum.

Misti assumes the greatest financial risk within the value chain when supplying fertilizer to farmers and distributors, which is repaid 120-180 days after harvest. Farmers could refuse to repay in case of a poor harvest, but they risk losing access to finance for fertilizer in the future. Misti also offers volume discounts to large producers and distributors.

**PESTICIDES.** Bayer is one of the primary suppliers of pesticides for artichokes. The company’s marketing channels include a combination of distributor and retail outlets. Bayer allows for delayed payment on inventory of up to 90 days. Bayer and Misti often cooperate by referring clients to one another.

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<sup>21</sup> This credit linkage was not shown in Exhibit III 1. Artichoke Value Chain Map on page 19 as it is credit from an input supply wholesaler to an input supply retailer, and it is further removed from the final artichoke value chain.

**PACKAGING MATERIALS.** Artichoke processors purchase packaging materials, including cans and bottles, from local suppliers, who allow delayed payments of up to 90 days.

**FARM EQUIPMENT.** No evidence of financing for farm equipment or machinery was observed within the value chain.

### **ROLE OF OTHER SERVICE PROVIDERS**

The section discusses some of the institutions and projects that have played a role in strengthening the value chain, through technical or research assistance.

**TRAINING AND TECHNICAL ASSISTANCE PROVIDERS** USAID/Peru has played a fundamental role in providing technical assistance to develop dynamic value chains, including processed artichokes, by first identifying potential buyers of products that are or could be produced in Peru and then working with local processors and farmers to satisfy buyer demands. USAID was instrumental in encouraging the owners of Agromantaro to invest in artichokes by demonstrating how artichokes could be grown for a longer season in the highlands and by providing technical specialists and local advisors, who had contacts and knew how to work with the Andean people. After a successful first harvest, Agromantaro began to hire these local advisors to fill permanent, full-time positions.

### **RESEARCH AND INFORMATION PROVIDERS**

There is a notable lack of producer associations in Peru, due primarily to distrust among farmers and their preference to operate under the radar of government authorities. Nonetheless, a non-profit, non-governmental organization, the Association of Exporters (ADEX), offers a variety of services to its members.<sup>22</sup> ADEX provides market and technical information, helps members access fee-based technical consultants, organizes fee-based demand-driven seminars and trainings, and assists in lobbying against tariffs and other policies that can have a negative impact on export sectors. While members pay annual membership fees based on their volume of exports (ranging from \$70 to \$430), the majority of ADEX's costs are covered by education centers that offer fee-based training courses.

### **FORMAL FINANCIAL INSTITUTIONS**

Despite banks' normal aversion to direct agricultural lending, some rural banks, including the Caja Municipal Huancayo, Caja Rural Los Libertadores and EDPYME Confianza, were willing to lend to artichoke farmers, due to the financial credibility of the processors and farmers' demonstration of profitability. Interest rates ranged from 2.5% to 3.5% per month (equivalent

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<sup>22</sup> ADEX provided extension services to the artichoke value chain, but since they were not embedded services in the value chain, ADEX is not represented in Exhibit III 1. Artichoke Value Chain Map.

to 30% to 42% annually), with loan terms of 6 to 8 months. As a risk mitigation strategy, non-bank financial institutions (NBFIs) request that farmers show legal land registration or at least a “certificate of possession” from the local municipality to verify the person has a history of living there and working the land. Most of the loans were paid out in tranches, linked to the need to pay for fertilizer or prepare the land, with interest accumulation based on the value of each disbursement, followed by one lump sum payment of principle and interest due after the harvest. Average loan sizes were small relative to the investment, ranging from \$746 to \$1,045 per hectare, representing 20-29% of the total investment (excluding land costs per hectare). This amount is sufficient to cover the cash needs of the investment and provide some income smoothing for the farmer.

**TABLE III.1: PROCESSED ARTICHOKE VALUE CHAINS  
FINANCE AND REMAINING NEEDS**

VALUE CHAIN LEVEL	FINANCE AND EMBEDDED SERVICES WITHIN THE VALUE CHAINS	FINANCE FROM FINANCIAL INSTITUTIONS	REMAINING FINANCE NEEDS
<b>Retail</b>	Receive supplier credit	Bank loans (outside Peru)	None
<b>Wholesale/ Export</b>	Offer supplier credit to retailers Offer contracts to processors	Bank loans (outside Peru)	None
<b>Processing</b>	Receive contracts and advances from wholesalers; Offer supplier finance and embedded technical services to producers	Short-term bank loans, 100%+ collateral required; cost: LIBOR + 2%, currently 12% p.a.	Medium and long-term investment finance for expanding to new areas
<b>Production</b>	Receive supplier finance from processor and input distributor, as well as embedded technical services; also receive assistance from processor in negotiating volume discounts for inputs and finance from NBFIs	Short-term NBFi loans, some facilitated by contracts; cost: 2.5% to 3.5% per month (30% to 42% annualized)	Medium to long-term credit or leasing for fixed assets, e.g. for tractors, irrigation systems, and land
<b>Input Distribution</b>	Offer supplier finance and embedded technical services to producers Receive supplier finance and volume discounts from input supplier	None	Short-term finance from financial institutions
<b>Input Supply</b>	Offer supplier finance and volume discounts to input distributors and large producers	Short-term bank loans, 100%+ collateral required; cost: LIBOR + 2%, currently 12% p.a.	None
<b>Extension Services</b>	Processors and input distributors offer embedded technical services to producers	None	None

**GAPS IN FINANCING THE ARTICHOKE VALUE CHAIN**

The vast majority of funding for the artichoke value chain still comes from retained earnings or personal savings and assets (i.e. self-financing) of value chain actors. While access to formal finance is limited, value chain

relationships and finance are gradually attracting the interest of financial institutions.

Table III.1 summarizes the types of finance currently supporting firm upgrading and expansion within the artichoke value chain and from financial institutions, and highlights the remaining gaps.

**Access to short-term finance is facilitating expansion of the artichoke value chain.** The various artichoke value chain participants have some access to short-term finance from other value chain actors and from formal financial institutions. Processors act as the primary or most significant connector firm, providing short-term supplier finance for seedlings, as well as technical assistance at no direct cost to farmers. These inputs both reduce risk for the processor and increase the amount of artichokes available for processing. The fertilizer supplier and its distributors see the potential to expand their businesses by facilitating the expansion of the processed artichoke value chain and so offer volume discounts, supplier finance and embedded services at no direct cost to farmers.

**Lack of access to longer-term finance impedes the processed artichoke value chain from achieving its full export potential.** There is little finance available to support medium to long-term firm upgrading at all levels of the value chain, but especially for farmers to purchase fixed assets, such as tractors and drip irrigation systems, which could improve product quality and increase production yields. Long-term financing for land would allow farmers to expand production and achieve greater economies of scale, however, financing for farm land purchases is unlikely to happen until rural land titling is complete. With additional investment finance, processors could reach farmers in other geographic regions and expand their processing potential.

# FRESH AND PROCESSED CITRUS VALUE CHAINS

## INTRODUCTION

Citrus, which includes a broad range of fruits, including lemons, limes, oranges, tangerines and grapefruits, has long been a traditional crop of Peru, primarily focused on domestic consumption. The majority of Peru's citrus production is in the form of fresh fruit as well as processed in juices, cans and preserves. Peru produces less than one million tons of citrus for export, representing 20<sup>th</sup> place on the world market.<sup>23</sup>

Recent changes in the US market, however, create a potential opportunity for Peru to expand its citrus exports, especially for navel and mandarin oranges.<sup>24</sup> The US Department of Agriculture recently amended its fruits and vegetables regulations to allow for the importation, under certain conditions, of fresh commercial citrus fruit (grapefruit, limes, mandarin oranges or tangerines, sweet oranges, and tangelos) from approved areas of Peru into the US. Consumption of fresh citrus has been stable in the US over the past five years, with the average person consuming 12 pounds of navel oranges and 2.6 pounds of mandarin oranges per year. Peru's greatest opportunity, vis-à-vis the US market, is to increase annual exports of navel oranges in July through September, when production is lowest in the US and prices are high (ranging from \$14 to \$16 per ton), and to increase

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<sup>23</sup> Brazil is the largest producer of citrus with almost 21 million tons produced in 2004, followed by the U.S., which produced almost 15 million tons.

<sup>24</sup> ProCitrus conference documents, "Exporting Citrus to the United States," December 13, 2005.

exports of mandarin oranges, from April to October when the US supply is less.<sup>25</sup> To respond to this market opportunity, Peru needs to improve its citrus quality through specialized technical assistance and access to finance to value chain participants.

## **CITRUS VALUE CHAIN PARTICIPANTS AND THEIR ACCESS TO FINANCE**

This section describes the fresh and processed citrus value chain(s) and highlights the governance roles between the various actors. Exhibit IV.1 maps the fresh citrus value chain and the related processed citrus value chain, and shows there is little finance flowing to citrus value chain actors from within the value chain or from formal financial institutions.

### **RETAILERS**

There are numerous retailers of fresh and processed citrus in Peru and abroad. Retailers are at a significant advantage in setting prices and terms for purchasing fresh fruit since it is highly perishable, with a shelf life of approximately 60 days from the harvest time. Most retailers try to buy only the amount of citrus that they know will be needed to satisfy their customers in the short-run, leaving no room for incentives to make bulk purchases. The responsibility is on the wholesaler to find multiple vendors interested in the product over the short-run. If there is a large supply of citrus on the market, lowering prices is one way to sell more. Box IV.1 describes how one citrus producer increased profits by selling directly to retailers.

Citrus can be processed to have a longer shelf-life and have a greater demand on the international market. Hence, one would expect processed citrus retailers to have less power over pricing and terms than fresh citrus retailers. The liquidity constraints of citrus juice and preserve processors, however, hinder their bargaining power with retailers as they can not afford to keep large quantities of processed citrus in stock.

Citrus retailers are primarily large, urban grocers, and generally have some access to finance from formal financial institutions in Peru, similar to other urban businesses. However, the citrus retailers did not provide any finance to other firms within the citrus value chain(s).

### **WHOLESALEERS**

There are generally two types of wholesalers of fresh citrus: 1) those that buy citrus from farmers or processors and transport it to a domestic market, primarily in Lima, and 2) export brokers who transport citrus to the export market and negotiate the sale for a commission of 8% of the sale price. When exporting, the broker does not sign a contract or assume any responsibility for losses. In the case of domestic sales to retailers, local wholesalers could benefit from credit to finance the inventory for the time

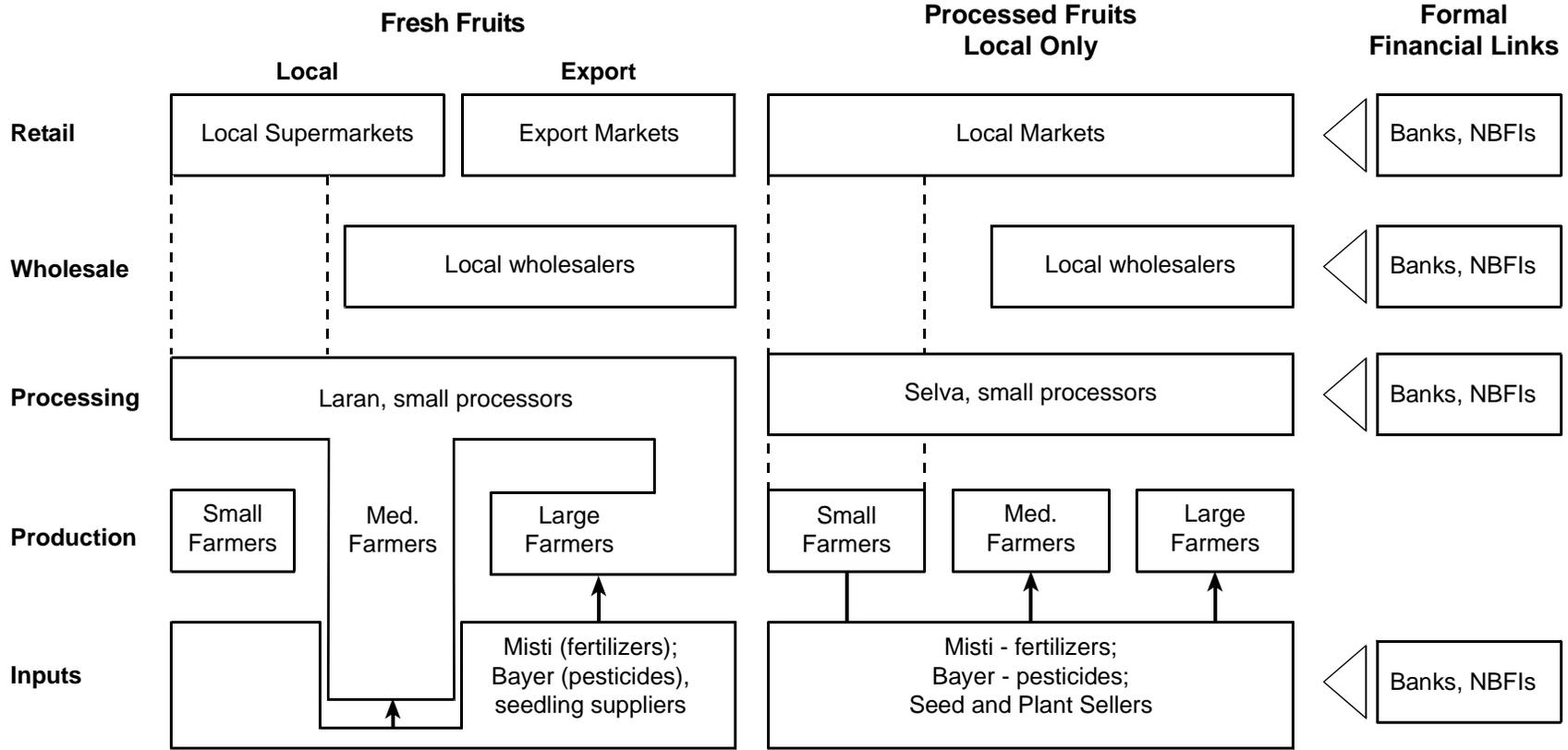
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<sup>25</sup> Ibid.

between purchase and resale, which is typically seven days. Some wholesalers have been able to access fixed asset financing for the purchase of their transportation vehicles (albeit 100% collateralized and often based on personal assets), but most would like to have additional access to medium and long-term investment finance to expand their businesses.

Unlike local wholesalers of fresh citrus, local wholesalers of citrus, which is processed into juice and jams, generally do not buy the product directly, but negotiate its sale with local retail institutions, primarily in Lima, for 5% commission. Therefore, fruit juice and jam wholesalers have no need for inventory financing. Despite their own access to formal finance, none of the wholesalers offered finance to other firms within the citrus value chain.

**Exhibit IV-1: Citrus Value Chain Map**



### PROCESSORS

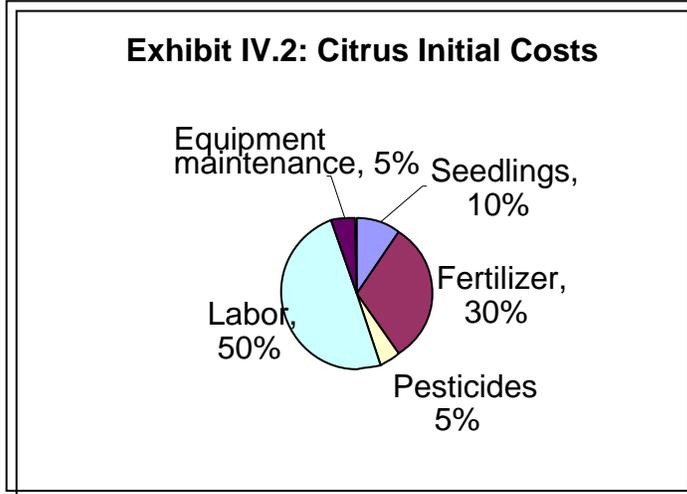
The four citrus processors interviewed stated that lack of access to quality product was the biggest constraint to their growth and more finance was needed, in addition to the formal finance they already had. Quality suffered due to irregular irrigation and the lack of pesticide used in citrus production. None of the processors offered finance to farmers, nor received any finance from wholesalers or retailers. Some citrus processors sold directly to large retail stores, while others worked with wholesalers.

While one juice processor actually purchased the citrus from farmers, basing the price on quality, most fresh fruit processors do not buy citrus from farmers, but simply charge them for processing. Processing fresh citrus typically includes washing, waxing, sorting and packaging, which costs approximately \$35/ton. Processing for export requires better packaging and cold storage, for a total cost to producers of \$210/ton.

### PRODUCERS

The majority of citrus farmers are small holders, with five hectares or less of land. Most export citrus comes from a few large producers/processors that understand the export market and know how to ensure quality control to yield high quality citrus. Small farmers' citrus production is usually low quality, resulting in lower prices and revenues. Some processors have offered technical assistance to help small farmers produce the top quality citrus needed for exports. One processor lent plastic bins to farmers to minimize the potential for the fruit to be damaged in transport. Others processors explained the risk of farmers selling the citrus to other buyers (i.e., side selling), which kept them from offering technical assistance. None of the processors offered finance to the farmers due to risks associated with side selling and the lack of quality control of the citrus.

Most farmers have been growing citrus for more than 10 years and could not recall their initial investment costs, which were their own personal funds.



**Large farmers.** Many large citrus producers are also processors, enabling them to maintain control over product quality to meet market demand.

**Small farmers.** Small farmers are often disadvantaged when negotiating the terms and prices for their citrus. A group of fifteen farmers, who work with fresh fruit processor Laran, have to pay for all of their fruit to be processed before knowing how much of the fruit will be of acceptable quality for export. In addition, farmers must wait 60 days after the final sale is made to receive payment for exported fruit to Europe. Payment can actually take up to four months after the fruit is transferred to the processor. Moreover, the final sale price is not guaranteed, as it is entirely dependent on what the market demand is at that particular time period. The only power small farmers retain is the right to sell their citrus on the domestic market. This will invariably result in a lower sale price, but will also be at lower processing and sales costs and will generate immediate cash flow. As expected, many small citrus farmers choose this option.

None of the small farmers had access to finance, which was especially needed to invest in improved irrigation, to ensure better quality citrus and higher prices. By self-financing drip irrigation, one small farmer was able to obtain the maximum price for top quality (\$0.24-\$0.26 per kilo) for 85% of his citrus yield. This contrasts with most citrus farmers who are without irrigation and unable to produce any top quality citrus. Other small farmers transported their citrus from the jungle to Lima only to find out that it was of inadequate quality for the market.

#### **INPUT DISTRIBUTORS AND SUPPLIERS**

The citrus value chain(s) includes input providers for seedlings, fertilizers and pesticides.

**Seedlings.** One large citrus farmer is also a seedling supplier. He provides technical assistance, including weekly visits by a technician at no additional price to client who buys bought several seedlings at a time. This farmer/seedling supplier found that technical assistance was necessary to ensure survival of the plant and the client's satisfaction. In addition, he sells processing services to other farmers. By supporting development of citrus groves in the area, he is essentially building his future processing business. He does not consider other producers as significant competitors to his citrus sales because he expects demand to expand, at least for high quality citrus.

**Fertilizer and pesticides.** Some of the same input suppliers to artichoke farmers sell fertilizer (Misti) and pesticides (Bayer) to citrus producers. Misti, offers credit to distributors, as well as to medium and large citrus farmers, usually by giving a 90 day grace period for payment. Even during citrus' productive years and after demonstrated profitability, almost no finance is offered to citrus producers, likely due to its longer production cycle and investment time frame. This lack of finance may be partially due

to the fact that citrus production does not require large volumes of fertilizer, which is a disincentive to input vendors and distributors to offer finance.

**Farm equipment.** Fixed asset lending and leasing were unavailable to farmer to finance irrigation, pumps or other farm equipment purchases, despite the positive impact that drip irrigation has on the amount of citrus grown, quality, and price received.

### **ROLE OF OTHER SERVICE PROVIDERS**

One institution that has played an indirect role in the development of the citrus value chain and access to finance is ProCitrus, a consortium of citrus producers joined together to purchase in bulk to reduce prices of inputs and supplies.<sup>26</sup> The consortium has effectively lobbied the government to allow new fertilizers and pesticides into the country. In addition, ProCitrus has helped some of its members negotiate credit lines to purchase packing boxes from Argentina and get certified to assure quality control of their products, as needed for export. Consortium members cover the costs of these services through annual dues ranging from \$430 to \$1,075, depending on the number of hectares of each member. ProCitrus occasionally organizes fee-based conferences to share information on market opportunities, such as the “Exporting Citrus to the United States” conference held in Lima in December 2005. The ProCitrus example shows how horizontal linkages (i.e., producers working together) through inter-firm cooperation can facilitate access to finance and strengthen value chain competitiveness.

### **GAPS IN FINANCING THE CITRUS VALUE CHAIN**

For all the Peruvian value chain actors, the vast majority of funding for the citrus value chain comes from retained earnings or personal savings and assets (i.e. self-financing). While access to formal finance is extremely limited, Table IV.1 summarizes the types of finance currently serving citrus from within and outside the value chain, and highlights the many remaining gaps.

**Lack of short-term finance leads to side selling.** Many citrus farmers can not wait two months for payment despite the potential to increase earnings by exporting citrus through a processor. Farmers’ lack of liquidity combined with the highly perishable nature of citrus leads them to sell much of their citrus on the local domestic market at lower prices than export market prices. Access to short-term finance to cover the two month waiting period between citrus harvest and payment by exporters would likely reduce citrus farmers’ side selling.

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<sup>26</sup> ProCitrus provided extension services to the citrus value chain, but since they were not embedded services in the value chain, ProCitrus is not represented in Exhibit IV 1. Citrus Value Chain Map.

**Lack of access to finance prevents citrus value chain development.** Substantially less finance flows to the citrus value chain than the processed artichoke value chain even with citrus' higher long-term profit potential. While there is some formal finance at the processor level, processors need longer-term investment financing to upgrade their facilities. With access to longer-term finance, citrus processors might be able to act as connector firms, offering finance and technical assistance to farmers to discourage side selling and expand their businesses. In addition to short-term working capital for inputs, farmers need financing to purchase medium to long-term assets, such as tractors and irrigation systems. With drip irrigation systems, more farmers would be able to produce export-quality citrus. Peruvian citrus value chain firms will not be able to fully benefit from the opportunity recently presented by the opening of US borders to foreign citrus without access to medium to long-term financing.

**TABLE IV.1: CITRUS VALUE CHAIN FINANCE AND REMAINING NEEDS**

VALUE CHAIN LEVEL	FINANCE AND EMBEDDED SERVICES WITHIN VALUE CHAIN	FINANCE FROM FINANCIAL INSTITUTIONS	REMAINING FINANCE NEEDS
Retail	None	Bank loans	None
Wholesale/Export	None	Bank loans w/ 100%+ collateral	Need for short-term inventory finance and longer term investment finance.
Processing	Some receive contracts from wholesalers; Some offer embedded technical services to producers	Short-term bank loans w/ 100%+ collateral; cost: 14%-17% p.a.	Medium and long-term finance for investment
Production	Some receive embedded technical services; some receive assistance in negotiating volume discounts for inputs and credit lines from ProCitrus Association of producers	None	Short-term finance for inputs; medium to long-term credit or leasing for fixed assets, such as for tractors irrigation systems, and to purchase land
Input Distribution	Receive supplier finance and volume discounts from input supplier	None	Short-term finance from financial institutions
Input Supply	Offer supplier finance and volume discounts to input distributors and large producers	Short-term bank loans, 100%+ collateral required; cost: LIBOR +2%, currently 12% p.a.	None
Extension Services	ProCitrus Association helps producers negotiate volume discounts and access to credit for inputs	None	None

# MAIN FINDINGS AND RECOMMEND- ATIONS

This section summarizes the key findings and lessons learned from this study. These findings and recommendations are only conclusive regarding the processed artichoke and fresh citrus value chains in Peru, and may or may not have broader application for other value chains in Peru and in other developing country environments.

## MAIN FINDINGS

There are a number of specific findings that result from the study of the artichoke value chain and its access to finance, as well as from its comparison with the citrus value chain's general lack of access to finance.

**Value chain actors have different drivers for supplying credit, most often the desire to increase production and efficiency, and/or to expand their markets.** As a result, they are more willing than financial institutions to accept the risks associated with rural and agricultural finance. In addition, value chain actors have more information on business activity, cash flows and firms within the value chain than financial institutions do, which lowers their transaction costs and reduces risk. The interdependence of value chain actors further reduces credit risks. In the case of value chain finance for a key input, such as seedlings or fertilizer, non-payment would likely result in losing access to the input as well as the related financing.

**The cost of value chain finance is often embedded in the price of the product offered.** The cost of funds can be included in advance payments and delayed payments and can be disguised by volume discounts (e.g., Misti's fertilizer sales to distributors and large farmers). For these reasons, it is often difficult to assess the real cost of value chain finance.

**Value chain actors often lead the way in agricultural finance, with formal finance following only once viability has been demonstrated.**

This finding is not surprising given value chain actors' close relationships and in depth understanding of the market and related risks. In the case of artichokes, the processor, Agromantaro, leveraged its financial credibility and offered to sign contracts and manage loan collection and repayment from producers, thereby reducing the risk to the financial institutions. After successful repayment, rural banks were often willing to lend directly to producers affiliated with Agromantaro. In other Latin American countries, Rabobank of the Netherlands has found that by getting to know value chain actors and their businesses intimately, it can significantly reduce the risks involved in agricultural lending and can identify profitable connector firms for agricultural lending and investment opportunities.

**Contracts facilitate access to finance.** Despite the fact that contracts are legally hard to enforce in Peru, farmers with contracts that defined the terms for which they would be able to sell goods had significantly greater access to finance than those who did not.

In the artichoke value chain, the use of written contracts solidified the backward and forward linkages between the processors and wholesalers and processors and farmers, by clarifying prices per quality level. Some formal financial institutions were willing to lend to artichoke producers because they had defined sales terms and fixed market prices for their products. In these cases, the lender saw the contract as a risk mitigator, because it indicated a known buyer and stable market prices. Without a contract, most farmers said they would have no access to formal finance whatsoever.

**Peru's enabling environment for business development and finance hinders upgrading within the artichoke value chain.** Peru's history of poor agricultural repayment and government intervention presents an obstacle to financing the expansion of the artichoke value chain and upgrading its agricultural producers. In addition, past land reform efforts and the continued difficulties in accessing land titles make it difficult to expand investment in agricultural production and hinder the ability to achieve economies of scale. Due to past government intervention and poor repayment rates, Peruvian banks avoid direct agricultural lending, inhibiting farmers' access to longer-term fixed asset loans for tractors and irrigation systems. Nonetheless, non-bank financial institutions are still willing to offer short-term loans to artichoke farmers without clear land titles; and contracts continue to be respected despite the difficulty in enforcing them.

**Farmers who grow crops with shorter production cycles have greater access to finance than those who grow crops with longer cycles.**

Artichoke producers are able to quickly demonstrate profits for short-term crops and face less risk as a result. Despite citrus' higher profit potential, its longer production cycle and investment timeframe make it less attractive to financiers within and from outside the value chain. Consequently, financial institutions are more willing to invest in short-term crop production once profits are demonstrated or a producer is linked to a successful value chain through contracts and predefined sales terms.

## **RECOMMENDATIONS FOR SUPPORTING FINANCE TO VALUE CHAINS**

**Facilitate information flow from agricultural value chains to financial markets to reduce real and perceived risks of agricultural finance.** As consumer preferences become more refined and differentiated, agricultural markets become more segmented and specialized. For example, most of the citrus in Peru is grown without the use of fertilizer or pesticides, which could be an opportunity to serve the growing niche market for organic food. USAID can play a role in strengthening agricultural markets by supporting the creation of market information systems (e.g., radio, news bulletins, information databases) and the exchange of value chain contacts between value chain actors and financial institutions. Financial institutions can forge strategic relationships with dynamic agricultural value chain actors, such as large processing firms, to expand their loan portfolio by either lending directly to its related producers or by making larger loans for the processor to on-lend to producers. USAID can increase knowledge by documenting and disseminating more examples of value chain finance and linkages between growing value chains and financial institutions.

**Design donor interventions with connector firms to create integrated components that focus not only on increasing access to finance, but also provide technical knowledge in growing high value-added products that meet the demands of growing and dynamic markets.** Looking at forward and backward linkages, connector firms can identify opportunities to strengthen the value chain as a whole, including addressing financing gaps. By providing additional support at the smallholder level, such as in the negotiation of agreements and the design of win-win contracts, USAID can facilitate the flow of benefits to poor rural farmers, who often have less power to influence pricing and terms.

**Provide training and technical assistance on agricultural finance portfolio management to value chain connector firms.** As with other small and medium firms, agribusiness connector firms could use assistance in evaluating their approach to providing finance to make sure that all unit costs are adequately factored into the pricing and all risks are being cost-effectively managed. In addition, they could benefit from some of the knowledge that banks have in managing loan portfolios and handling collections.

**Introduce the concept of value chain connector firms to financial institutions and provide training and technical assistance on agricultural lending.** Formal financial institutions need assistance in understanding value chains and how to manage risks associated with lending to the agricultural sector. While most financial institutions are averse to lending directly to farmers, by introducing the mechanism of value chain “connector firms,” they can identify lending opportunities to facilitate the expansion of the entire value chain.

**Identify ways to improve access to longer-term agricultural finance.** Given that lack of access to medium and long-term finance is a common hindrance to agricultural value chain development, USAID and others donors should seek ways to overcome the obstacles and increase incentives for agricultural lending. There is especially a need for loans for drip irrigation, tractors and other agricultural equipment, as well as packing sheds, transportation and refrigeration to develop agribusinesses. Development practitioners should look to bond markets, insurance companies and pension funds, rather than banks alone, for sources of funds that match agricultural finance’s longer investment time frame. Additional incentives are still needed to develop agricultural markets and offer guarantees or other types of risk sharing to improve the attractiveness of agricultural investments as compared to other alternative long-term investments. For example, Development Credit Authority (DCA) guarantees could be combined with Export-Import (EXIM) Bank terms to facilitate purchase of agricultural equipment, such as drip irrigation and tractors, which are sorely needed to improve production quality and yields.

**Continue to study value chain finance to better understand its role in agriculture and financial sector development.** Since this study only examined a couple value chains in one country context, the findings are limited. Many more questions remain related to agricultural value chains and their access to finance, including:

- How and to what extent can value chain actors overcome the obstacles of low population density, high poverty and a combination of market and policy failures to deliver agricultural products?
- What types of agricultural products are more likely to have access to finance?
- What does it take to attract formal financial institutions to agricultural finance and how can it be done sustainably?
- What are the institutional or relational prerequisites and innovative delivery technologies that ensure success of a value chain?

- What other lessons can governments, donors, financial institutions, and practitioners in other developing countries learn from the failures and successes of various value chains?

While this case has shed light on many of these questions with regard to these two value chains in Peru, these questions deserve further research in other countries and for other value chains. In addition, these are just some of the questions that remain in rural and agricultural finance, so further research and investigation is needed.



# ANNEX A-SCOPE OF WORK

**CHEMONICS INTERNATIONAL, INC.  
AMAP-FS KNOWLEDGE GENERATION TASK ORDER #1  
RURAL AND AGRICULTURAL FINANCE (RAF)**

**SCOPE OF WORK (SOW) FOR A CASE STUDY ON  
INNOVATIONS IN EXPANDING ACCESS TO RAF IN PERU**

## **I. Overview and Objectives**

Access to RAF has been increased in Peru over the last decade through a variety of innovative approaches – some have built up and leveraged relationships in value chains while others have involved new products or delivery methodologies developed by different types of financial institutions. Some examples include:

### Value Chain Innovations

- The *Instituto Rural Valle Grande*, an NGO providing primarily agricultural extension, development, and marketing services is also providing important linkages for its small farmer client base to buyer and supplier credit in cooperation with local commercial banks. *Valle Grande* has helped over 1,000 clients to obtain (primarily in-kind) financing for working capital by organizing small farmers in solidarity groups of 7-25 members each to grow cotton, corn, or snow peas. The average loan size is just less than \$3,000. *Valle Grande's* model is particularly interesting; it has set up separate profitable corporations in which it is the principal shareholder (with the participation of private investors) to provide inputs and market products (in cooperation with local textile manufacturers) in addition to linking their clients with financing.

- The *Banco de Critecnia, S.A.* is a private firm playing an intermediary role in providing inputs, technical, and marketing services while also linking primarily small cotton farmers to financing sources. Basically, the farmers sign a management contract with *Critecnia*, which buys and markets their produce, and provides inputs relatively cheaply. As stated, *Critecnia* also links them to financing sources. Prior to its involvement, poor repayment by farmers was endemic, and financial institutions were wary of financing farmers. *Critecnia* now negotiates loans on behalf of the farmers, with the farmers providing loan guarantees in the form of land. *Critecnia* subtracts loan payments and fees for technical assistance and management at point of sale, and then splits net profits equally. Interest on loans is 24% from the bank, with a balloon payment at harvest. Total costs, including *Critecnia* services, raise the loan cost to an effective interest rate of 30%.

#### Financial Institution Innovations

- One of 13 municipal savings banks, *Cajas Municipales de Ahorro y Credito (CMAC) Arequipa*, has utilized non-traditional lending techniques to serve over 75,000 microentrepreneurs, a significant proportion of which are involved in agricultural-related enterprises in the southern part of Peru.
- A non-bank financial intermediary (EDPYME), *Confianza*, has become one of the most profitable microfinance providers in Peru by redesigning its agricultural lending methodology with flexible loan terms, disbursements, and payment schedules based on cash flows to reduce portfolio at risk (over 30 days) levels from over 50% in 2002 to less than 4% by 2003 (CGAP has recently written a short case on *Confianza* so it should not be heavily focused on here).

The objectives of this case study are to document as many of these innovations in RAF service provision as possible from the perspective of value chain upgrading and developing demand-driven RAF products and services. These efforts to expand access to RAF services are important because RAF is still considered both unprofitable and highly risky by mainstream financial sector institutions in Peru. As a result, only 3.2% of formal microfinance lending is for agricultural and livestock activities and agricultural lending by the commercial banking sector remains highly curtailed by a history of failed government programs and continued risk adverse treatment of potential RAF clients (including agricultural enterprises in rural and urban areas as well as rural, non-farm enterprises) by banks. Lessons from these innovative value chain and financial institution-based activities have the potential to facilitate further increases in

access to RAF not only in Peru but also throughout Latin America and in other regions.

Particular research questions include:

- How did these value chain actors or financial institutions overcome the obstacles of low population density, high poverty and a combination of market and policy failures to become leaders in the provision of demand-driven and sustainable RAF services to tens of thousands of rural and agricultural clients?
- What were the institutional or relational prerequisites and innovative delivery technologies that facilitated their success?
- Perhaps most importantly, what lessons can governments, donors, and practitioners in other developing countries learn from the failures and successes of these experiences?

Answers to these questions and more will be provided in a case study and a RAF technical note to be produced on Peruvian innovations in RAF. The objectives of these publications are to raise awareness of innovations that have led to increased rural outreach and how lessons from these experiences can be applied elsewhere to expand the frontier of RAF products and services in a meaningful and sustainable way.

## **II. Team**

This initiative will be led by Chemonics' Finance Specialist, Anita Campion, with field research assistance from a local Finance and Enterprise Development Specialist, and support from the AMAP-FS Knowledge Generation (KG) Task Order (TO) Director, Sherry Sposeep as well as the RAF Research Director, Stephanie Charitonenko.

As a Level I Research Specialist, Ms. Campion is a global finance specialist with 18 years of experience in micro, small and medium enterprise development and financial services. She has extensive experience working with a wide array of organizations and individuals, building information-sharing networks in competitiveness and enterprise development, microfinance and financial services, and establishing and disseminating best practices. For Chemonics, she currently supervises the USAID-funded Financial Services Indefinite Quantity Contract and most recently served as Chemonics' AMAP-FS KG TO Director. She is quite familiar with microfinance and RAF issues in Peru, having provided technical assistance for USAID/Peru previously to design governance oversight training for Banking Superintendents. She has also conducted institutional assessments on microfinance institutions in Peru as part of her previous work for the

Calvert Foundation, as well as documented the case of ACP's transformation into a private bank, Mibanco. She is also fluent in Spanish.

As Level I and Level II Research Specialists, respectively, Ms. Charitonenko and Ms. Sposeep will provide technical guidance and research oversight for the fieldwork and data analysis as well as assist in review the case study and RAF Technical Notes.

Anna Bantug-Herrera, the proposed Level II Research Specialist is currently the Deputy-Director for the AMAP-KG Task Order. She is a specialist in microfinance and microenterprise development, including rural and agricultural finance, DCA, savings mobilization and tsunami relief efforts. She has more than eight years of experience in international business and writing and research. She holds an MBA in international business from a leading university in Singapore and speaks fluent Filipino and French and basic Spanish

Selin McCurdy, the proposed Level III Research Specialist is the Associate on the AMAP-KG Task Order and provides project management back-stopping. She participated in a billable fieldwork planning session for three country case studies- the Philippines, Peru, and Uganda- for the Transitions to Private Capital. She provided scheduling management for supply, demand, and regulatory environment research component interviews and created a final list of interviews formatted for list of references in each component report. Prior to working at Chemonics she worked in Mexico for the National Institute of Public Health. She received her MS from the London School of Economics and Political Science in 2003 and is proficient in Spanish.

### **III. Activities**

The team will conduct the activities in three phases, as follows:

#### **Phase 1 – Preparation for Field Research (7 days total LOE)**

##### **Weeks 1-2:**

1. From October 21, 2005, the RAF Research Director will coordinate with the RAF Research Teams at DAI and ACIDI/VOCA as well as USAID/W to share SOWs (with the aim of developing more consistent research questions and technical approach/methodology sections) and to develop coordinated questionnaires for use in conducting the research (for government, donors, value chain actors, financial institutions, and clients to the extent possible).
2. Ms. Campion, Ms. Sposeep, and Ms. Charitonenko will meet with USAID/W (including Anicca Jansen, Jeanne Downing, among

others) and the DAI RAF Research Team during the week of October 31<sup>st</sup> to plan on how this and future RAF research deliverables can be better coordinated and follow a more similar methodology with regard to value chain and financial institution analyses.

3. Ms. Campion will compile and review all relevant literature. She will work with Ms. Sposeep and Ms. Charitonenko as well as USAID/W to develop and refine the case study outline and clarify any remaining issues to be addressed as part of the field research (2 days LOE).
4. Ms. Selin McCurdy, the AMAP-FS KG TO Associate will assist in gathering primary and secondary data to support the research by communicating with contacts at each of the enterprises and institutions to be studied. They will also aim to set up meetings by email with key donors in Peru in advance of Ms. Campion's fieldwork. These meetings will, to the extent possible, correlate to the types of stakeholders being met in the context of other ongoing RAF research (e.g. value chain actors, including producers, processors, exporters, etc. including financial and non-financial service providers).

**Phase 2 – Fieldwork: Data Collection and Analysis (26 days total LOE, including travel time)**

Weeks 3-7:

5. Ms. Campion and second Level I Research Specialist (TBD) will travel to Peru to meet relevant stakeholders, conduct interviews, and gather primary data. While in the field, the two researchers will share responsibilities for data analysis and drafting of the case study.

**Phase 3 – Finalization of the Case Study and Drafting of Two RAF Technical Notes (16 days total LOE)**

Weeks 8-12:

6. Upon completion of the Peru field research, Ms. Sposeep and Ms. Charitonenko will ensure that Chemonics participates in joint ACDI/VOCA-DAI-UASID/W meetings to develop a common research framework and set of deliverables.
7. Upon receiving initial feedback on the draft case study, Ms. Campion will complete her writing of the case study with support from the Research Specialist (TBD) in answering any follow-up questions that may arise after the fieldwork is completed. The case

study will highlight innovations and lessons learned in terms of how they expanded their provision of sustainable RAF services in a particularly challenging environment. It will also identify key questions and issues that merit additional research and/or pilot testing. The draft case study will be no longer than 20 pages and will be reviewed by Ms. Charitonenko before being sent to USAID for review. Based on USAID's feedback, Ms. Campion will make adjustments and final edits. Once USAID approves the content, Ms. McCurdy, will format the document according to USAID's specifications in preparation for publication, under Component 3, Knowledge Management. She will then submit the publication for posting on USAID's external website and distribute hard copies of the publication based on dissemination guidance provided by USAID.

8. Ms. Bantug-Herrera will draft a RAF MicroNote that will be reviewed by Ms. Campion and Ms. Charitonenko before being sent to USAID for review. Based on USAID's feedback, Ms. Bantug-Herrera will make adjustments and final edits. Once USAID approves the content, she will format the document according to USAID's specifications in preparation for publication. She will also submit the publication for posting on USAID's external website and distribute hard copies and soft copies of the publication based on dissemination guidance to be provided by USAID.

#### **IV. Deliverables**

The deliverables to be produced for USAID include the following:

- Agreements with ACDI/VOCA, DAI, and USAID/W on similar methodology sections, research questions, and research questionnaires to be included in future RAF case study SOWs.
- Agreements with ACDI/VOCA, DAI, and USAID/W on a common RAF research framework and set of deliverables.
- Case study of RAF innovations in Peru.
- A RAF MicroNote that highlight findings from that case study that are of wide interest to the field, including government, donors, and practitioners.

## V. Timeframe

Work will begin within one month of approval (we anticipate this SOW to be approved in October) and will be completed within three months thereafter.

LOE Summary Table		
Phase/Name	Functional Labor Code, Category	LOE (days)
PHASE 1:		
Stephanie Charitonenko	Research Specialist, Level I	4
Anita Campion	Research Specialist, Level I	2
Selin McCurdy	Research Specialist, Level III	1
<i>Subtotal Phase 1</i>		<i>7 days</i>
PHASE 2:		
Anita Campion	Research Specialist, Level I	14
TBD	Local Research Specialist, Level I	12
<i>Subtotal Phase 2</i>		<i>26 days</i>
PHASE 3:		
Anita Campion	Research Specialist, Level I	9
TBD	Local Research Specialist, Level I	2
Stephanie Charitonenko	Research Specialist, Level I	1
Anna Bantug-Herrera	Research Specialist, Level II	4
<i>Subtotal Phase 3</i>		<i>16 days</i>
<b>Total</b>		<b>49 days</b>

# ANNEX B-LIST OF INTERVIEW QUESTIONS

## QUESTIONS FOR PERU RAF VALUE CHAIN RESEARCH

### 1. Input Suppliers

- What are the key constraints to expanding your business?
- From where do you get finance for your business (inventory vs. fixed costs)?
  - What are the terms and conditions?
- Do you offer financing to your buyers?
  - What are the terms and conditions?
  - How many buyers do you have total? What percentage accepts the financing? How do the others get financing?
  - Get list of several small, medium and large buyers.

### 2. Producers/Small Farmers

- What are the key constraints to expanding your business?

— From where do you get finance for your business (inputs vs. fixed costs)?

- What are the terms and conditions?

— Do you offer financing to your buyers?

- What are the terms and conditions?
- How many buyers do you have total? What percentage accepts the financing? How do the others get financing?
- Get list of input suppliers, as well as several small, medium and large buyers, associations, processors and traders.

### 3. Producers/Large Farmers

— What are the key constraints to expanding your business?

— From where do you get finance for your business (inputs vs. fixed costs)?

- What are the terms and conditions?

— Do you offer financing to your buyers?

- What are the terms and conditions?
- How many buyers do you have total? What percentage accepts the financing? How do the others get financing?
- Get list of input suppliers, as well as several small, medium and large buyers, associations, processors and traders.

### 4. Ag Associations

### 5. Processors

— What are the key constraints to expanding your business?

— From where do you get finance for your business (inputs vs. fixed costs)?

- What are the terms and conditions?

- Do you offer financing to your buyers?
  - What are the terms and conditions?
  - How many buyers do you have total? What percentage accepts the financing? How do the others get financing?
  - Get list of input suppliers, as well as several small, medium and large buyers, associations, and traders.

#### 6. Traders

- What are the key constraints to expanding your business?
- From where do you get finance for your business?
  - What are the terms and conditions?
- Do you offer financing to your buyers?
  - What are the terms and conditions?
  - How many buyers do you have total? What percentage accepts the financing? How do the others get financing?
  - Get list of producers and processors, as well as several buyers, and associations.

#### 7. Formal Financial Institutions

- To whom do you make loans? How do you identify clients?
- What is your decision criteria? How do you assess risk?
- How do you manage risks of agricultural lending?
- What do you see as the key constraints in agricultural lending?
- What type of background do you look for in your loan officers? Is it different for rural and agricultural loans?

#### 8. Informal Financiers

- To whom do you make loans? How do you identify clients?

- What is your decision criteria? How do you assess risk?
- How do you manage risks of agricultural lending?
- What do you see as the key constraints in agricultural lending?
- What type of background do you look for in your loan officers? Is it different for rural and agricultural loans?

# ANNEX C- REFERENCES

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# ANNEX D-LIST OF CONTACTS

CONTACT PERSON	POSITION	COMPANY	ACTIVITY	LOCATION
Davy Palomino Ramírez	Representante Técnico Comercial - Región Junín	Corporación Misti S.A.	Input supplier	Huancayo
Alvaro Combina Cresto	Gerente Comercial	Inversiones Marzala SAC	Citrus wholesaler	Lima
Godfrey Hemmerde C.	Gerente General	Selva Industrial S.A.	Fruit Processor	Lima
Sandra Del Solar Bardelli	Gerente	Procesadora Laran SAC	Fruit Processor	Chincha
Miguel Alayza de Losada	Gerente	Emapac S.A.	Fruit Processor	Lima
CPC. Jaime Quesada Guillén	Gerente General	Caja Rural de Ahorro y Crédito Señor de Lurén	Financial Institution	Ica
Henri Camayo Montalván	Gerente Comercial	Edpyme Confianza	Financial Institution	Huancayo
Giovana Medrano Guerra	Jefa de Créditos	Caja Municipal de Huancayo	Financial Institution	Huancayo
Douglas Monroe Avellaneda	Analista de Créditos	Caja Municipal de Huancayo	Financial Institution	Huancayo
Mario Acosta Dávila	Director Ejecutivo	Valle Grande Instito Rural	Technical advice	Cañete
Armando Pillado-Matheu Herrero	Gerente - Iniciativa Microfinanzas	Copeme	Financial Institution	Lima
Ana Jiménez de Sotomayor	Gerente Adjunta	Copeme	Financial Institution	Lima
Luis Alfonso Carrera S.	Región Norte y Sur Chico	Banco de Crédito	Financial Institution	Lima
Gino Dodero Ortíz de Zevallos	Región Centro Oriente	Banco de Crédito	Financial Institution	Lima
Armando Bohórquez Carpio	Gerencia de Agro Exportaciones	ADEX	Producer Asociation	Lima
Miton Von Hesse	Director General	Ministerio de Economía y Finanzas	Government	Lima
Carolina Trivelli	Investigadora Principal	IEP - Instituto de Estudios Peruanos	RAF Research	Lima
Marvin Dreyer	Oficina de Desarrollo Alternativo	USAID PERU	Donor	Lima
Juan Manuel Rodo	Gerente Comercial	Talsa	Artichoke processor	Lima
Augusto Fernandini	Gerente General	Agromantaro	Artichoke processor	Lima
Jesús Munive	Artichoke Farmer	Independent	Artichoke producer	Huancayo

Veramendi Castañeda	Artichoke Farmer	Independent	Artichoke producer	Huancayo
Manuel Orellana	Artichoke Farmer	Independent	Artichoke producer	Huancayo
Jorge Chara	Citrus Farmer	Independent	Citrus producer	La Merced
Javier Bocanegra Laguna	Citrus Farmer	Independent	Citrus producer	La Merced
Mario Jerí Kuriyama	Citrus Farmer	Independent	Citrus producer	La Merced
Piter Baldeón Huari	Technical Agent	Selva Industrial S.A.	Technical advice	La Merced
Sara Ancieta Alvarez	Sub-gerente de la planta	Selva Industrial S.A.	Citrus processor	La Merced
Zulma Jeri	Technical Agent	PRA Project	Technical advice	Huancayo
Miguel Angel Zegarra	Technical Agent	PRA Project	Technical advice	Huancayo
Felipe Urbina	Technical Agent	PRA Project	Technical advice	La Merced
Mario Bringas	Technical Agent	PRA Project	Technical advice	La Merced
Jose Iturrios	Technical Agent	PRA Project	Technical advice	Lima
Mauricio Moscoso	Technical Agent	PRA Project	Technical advice	Lima
Carlos Pinzas	Technical Agent	PRA Project	Technical advice	Lima