

Modernization of Agriculture in Peru in the 1990s

March 2001

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PREFACE

This publication is an outcome of a research project “Modernization of Agriculture in Peru in 1990s” that was conducted in Lima, Peru, during the period from August 2000 to January 2001. This project is financed by the Institute of Developing Economies (IDE).

The participants in the project are Professor Carlos Amat y León and Professor Rosario Gomez of Centro de Investigación de la Universidad del Pacífico (CIUP), Dr. Jose Salaverry, consultant and former president of the state development financial corporation, COFIDE, and Tatsuya Shimizu, researcher at IDE and visiting researcher at CIUP.

Due to unforeseen developments in Peruvian politics, Professor Carlos Amat y León was appointed as the Minister of Agriculture at the end of November 2000. As a result, he was not able to continue participating in the project thereafter. I am deeply grateful for his contribution to this study.

On behalf of IDE, I would like to thank CIUP for its generous support. This research center accepted me as a visiting researcher for the twoyear period from April 2000 to March 2002.

Tatsuya Shimizu
Coordinator

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INTRODUCTION

Tatsuya Shimizu

The Peruvian economy has been transformed significantly in the 1990s through the withdrawal of the government from economic activities and liberalization of the economy. The purpose of this study is to examine changes of the agricultural sector in during the decade.

The intention of the government was to activate the economy through free market mechanisms. The agricultural investment promotion law (D.L. 653) in August 1991 eliminated the monopoly by state enterprise in the distribution of basic crops and agricultural inputs. At the same time, the government removed price controls and obstacles to exports and imports of agricultural products. In addition, the registration of personal property rights on land was promoted so that producers can gain access to credit from formal financial institutions by having their land titles as collateral. The law on restrictions on land property (Ley 26505) in August 1995 removed many restrictions on holdings and usage of agricultural land so that not only individual producers but also agricultural enterprises can invest in production. In addition, the government permitted agricultural cooperatives to formally divide the land into their individual members. The ministry of agriculture itself reduced its activities by reducing the number of its personnel to less than one fifth, especially reducing number and size of agricultural extensions. These reforms were intended to promote introduction of modernized and highly efficient agriculture by agricultural enterprises.

Despite these efforts by the government, it is not clear whether the agricultural sector has developed during the 1990s as it was intended by the government. Evaluating the performance of the agricultural sector, Escobal¹ argues that the average annual increase in agricultural GDP per capita of 3.1% was not achieved by an increase in productivity, but by the expansion of the agricultural frontier. The fact that imports of basic food such as wheat, maize and sugar are increasing shows the stagnation of the sector.

In this study, we tried to analyze the change in the Peru's agricultural sector in the 1990s by focusing on two topics: finance and export. In Chapter 1, José A. Salaverry Llosa explains the development of agricultural finance in the context of macro-economic development in the country. In Section 3, he demonstrates that credit for agricultural sector contracted significantly at the beginning of the 1990s after the closure of the Agrarian Bank. The figures in Table 14 clearly show the change of loan structure. Comparing in 1989 and 2000, loans have become more concentrated in large enterprises. He concludes that a reduction in the profitability of the agrarian sector in the 1990s can be attributed to neo-liberal economic policies that neglected to build and reinforce institutions in the rural sector.

¹ Escobal, Javier (2000). El gran ausente: el agro. In R. Abusada et al. eds. *La reforma incompleta*. Lima: Centro de Investigación de la Universidad del Pacífico and Instituto Peruano de Economía.

In Chapter 2, Rosario Gómez describes the development of the Peruvian export agribusiness sector. She points out the change in food consumption patterns in the international market can favor the growth of non-traditional agricultural exports. Taking the asparagus industry as an example, she finds that agribusiness companies started to integrate production in order to obtain high-quality raw material. However, facing the crisis of increasing competition in the international market and oversupply of the material in the domestic market, they shifted to obtain it through spot markets. She concludes that companies who make investments to improve competitiveness and quality of human resources can survive the crisis.

Tatsuya Shimizu also studies the asparagus industry in Chapter 3, but his concern is to find out if small-scale producers can keep participating in production despite increasing production by large-scale producers and agricultural enterprises. Theories on contract farming show that market conditions in rural areas support production by small-farmers for the agro-industry. However, asparagus production by small-scale farmers in the northern coastal area of Peru decreased after the entrance of large-scale producers in the area. Observing some examples of small-scale producers with help from NGOs, he believes that they can keep participating in asparagus production by reducing production and transaction cost by modernization of production and management, and organization among producers.

A decade after the introduction of neo-liberal economic policies, we only found a little agricultural development in the export sector. The major part of agricultural production is still stagnated. In this study, we can only examine a small part of agricultural development in the 1990s. It is important to examine the effects of liberalization of the economy in more traditional agricultural sectors of the country.

CHAPTER 1

CREDIT AND FINANCING FOR AGRICULTURE IN PERU

José A. Salaverry Llosa²

INTRODUCTION

Within the broader context of “the modernization of agriculture in the nineties”, the study presented herein refers to the subject of credit and financing for agriculture.

We consider that this subject cannot be properly reviewed or evaluated if we overlook the context in which the events took place, that is, without bearing in mind the main aspects that characterize the evolution of Peru’s economy in the real and financial fields. Section 1 describes the events that occurred at the end of the decade of the eighties in order to provide an adequate background of the characteristics and conditions of the crisis that cover the period of 1987 to 1990 for the purposes of this study.

1. The Scenario of Macroeconomic Policies and Rural Financing at the End of the Decade of the Eighties.

Therefore, we consider that there is a need to discuss two fundamental aspects of macro-economic policies that determined the behavior of the Peruvian economy and its financing.

1.1. The macro-economic background and rural financing.

By the end of the decade of the eighties the economy of Peru followed the trend of most Latin American economies which were characterized by :

- a scarcity of domestic savings that revealed a traditionally low rate of savings in relation to the growth of public and private investment proposed by development plans and programs;
- the effects of the recession generated by the inflationary process that lead to a fall in the level of income and purchasing power;
- a large flight of private capital;
- the application of foreign trade policies based on preferential and promotional quantitatively restrictive mechanisms, *inter alia*, exchange rate, tariffs, tax policy, and subsidized interest rates.

² The author claims intellectual property rights. No part may be used or reproduced in any manner whatsoever without written permission. The author wishes to thank visiting Professor Tatsuya Shimizu from the Institute of Developing Economies in Japan for having provided part of the funds for this study.

- a growing macro-economic unbalance in the fiscal field as well as an income deficit on tax expenditures and the accumulation of surplus earnings by public companies (low prices and public utility rates) and, the balance of payments deficit produced by internal clashes (the foreign debt, the recession of industrialized countries, a restricted access to technology and external financing in particular, direct foreign investments, etc.);
- a lack of technological and productive competitiveness in modern sectorial activities linked to manufacture and services, including their export capacity.
- according to proposals made by Ronald McKinnon (1973) and Edward Shaw (1973), financial repression is characterized by stopping foreign competition of domestic financial markets and applying oligopolic practices that restrict the competition of foreign banks in addition to insufficient banking regulations and interventions by monetary, credit and currency exchange authorities involving preferential interest rates, exchange rate controls, sectorial credit, *inter alia*.

Several experts have indicated that the greatest mistakes of governmental intervention have been made in the field of rural financing, usually characterized by :

- a) the application of concessionary interest rates, very often negative in real terms;
- b) more support for agricultural and livestock operations than rural activities *per se*;
- c) the practically total negligence of attracting rural savings in addition to mobilizing and the capitalization of such savings;
- d) the restricted application of the concept of rural financing to the sources of formal indirect credit granted by banks (commercial banks, financial development institutions, and non-banking entities (cooperatives, rural savings and loans and savings associations, etc.), overlooking other major financing sources described in Section 2.3;
- e) the establishment of expensive and inefficient financial and promotional loan mechanisms;
- f) the application of portfolio subsidies and losses by the Development Financial Institutions, the Development Banks for Agriculture and Livestock, Industries, Mining, Housing and, the Central Mortgage Bank, created since 1930.

1.2 Evolution of the Financial System and Rural Financing

The decade of the eighties was characterized by severe macro-economic imbalance and subsequent economic instability as well as a profound questioning of the old paradigm that dominated the design and proposals of Latin American development policies. In particular, the paradigm of an inward-looking sustainable development based on an industrialization strategy as well as policies that substituted imports and, the effects of the depletion of this “model”.

To this regard, the study carried out by the World Bank (1989) at the end of the decade of the eighties, reveals the main characteristics and problems of the evolution of the financial sector in developing countries covering three decades, from the 1950s to the 80s. The following are the most important characteristics stressed, since they can be applied in the analysis of the evolution of Peru’s financial sector:

- governmental control of finances as one of the most important intervention mechanisms and instruments of a country's financial systems in order to promote strategies to rapidly industrialize and modernize its agricultural sector;
- government intervention in the financial sector to channel cheap credit to the sector considered as priority;
- the inadequate capacity of the financial systems to grant credit resources for working capital and investment credit and other financial services needed to promote a rapid industrialization and modernization of the agricultural sector;
- few commercial banks in the formal financial system with a coverage of branch offices in the main cities of the country that could provide financing, mainly for corporate companies linked to foreign trade: the imports of inputs, spare parts and components for the manufacturing industries in addition to the import of capital goods that this sector needs to produce and export raw material;
- a growing difficulty of medium and small industrial companies to access credit in urban areas and the fact that small businesses in rural areas (rural-agriculture) hardly had any access to credit at all;
- the importance of the informal financial sector, comprised by individual money lenders, businessmen who helped to provide credit resources for small agriculture and livestock producers, small industries and businesses in general;
- a growing share of formal associations of financial institutions such as savings and loans cooperatives and Pro-Housing Mutual Funds, non-financial or quasi-financial institutions regulated by the government, subject to the inflationary impact produced by macro-economic policies and, in particular, an inadequate management and administration due to a lack of appropriate regulations and oversight.

On the other hand, the following are the main problems pointed out in the analysis of the evolution of the financial sector:

- The complexity, extension and high cost of the different government intervention regimes that resulted in a myriad of financial schemes for the distribution of credit resources, applying multiple eligibility criteria, credit guarantees, portfolio ratios, exemption percentages of mandatory cash reserves and a diversity of loans at preferential interest rates in addition to refinancing schemes.
- The Development Finance Companies were the main means of channeling direct credit programs focusing mainly on large and medium-large business sectors. Access to credit by small and medium industrial production units and by agriculture and livestock production units was limited to a few programs as concerns the number of borrowers and the amounts of credit allocated, despite a growing coverage of services through branch offices of the development banks located in the main cities of the country (capitals of departments and some capitals of provinces). (J.A. Salaverry , 1983, 1989).
- Risk of working capital and investment capital granted to medium and large entrepreneurial unit of production mostly related to the internal and external economic crisis cycles, involved increasing amounts of credit problems and losses for the Development Finance Institution.

- As concerns the internally-generated economic crisis, we can point out two types: i) those caused by governmental administrations based on foreign over-indebtedness accompanied by a poor design of financing policies and a worse tax administration, a lack of discipline of fiscal expenditures and resources due to inflationary financing, and ii) effects caused by Acts of God, such as the regular impacts of the El Niño phenomenon brought about by changes in the temperature of the ocean and in the weather.
- Distortions produced in resource distribution and the gradual weakening of financial discipline (including an insufficient control and banks supervision indispensable for the good performance of the entire financial system).
- Access concentrated on commercial bank credit to large and medium-large and medium production units and direct credit programs of development banks (with the influence of their preferential access due to economic and political importance of large corporate and family business units) have been mentioned as the main causes of the lesser need for these units to resort to other financing sources (resulting in a lower effective entrepreneurial savings, source of the flight of capital abroad and the hampering of the development of capital markets).
- The presence of private commercial banks in the national and regional scope and associated banks made up by a small number of institutions, with norms of ownership, limited capital and reserves, organized under the model of a traditional commercial bank, with a coverage of branch offices in the main cities, particularly in Metropolitan Lima, (competing against each other) in segmented and fragmented financial markets; based on the deposits and savings accounts (allowing the national commercial banks to consume the financial resources generated in the provinces); and, placing the resources that can be lent in self-liquidating operations to large and medium-large units, located basically in Metropolitan Lima.

1.3 The Double Financial Duality and Diversity of Rural Markets

Problems in the evolution of the Peruvian financial sector presented in the points mentioned above characterize the existence of what can be referred to as a double financial duality, that is related to fundamental aspects of the policies and practices of Financial Development: the creation of markets and the building up of institutions in under-developed economies.

- the duality in the development of the formal banking system in relation to the services provided in urban markets, characterized by the centralism of banks in Metropolitan Lima and the concentration of credit resources granted (basically in money markets or short term deposits) to the large, medium-large sectorial production units; and, in particular, foreign trade operations.
- the financial duality of rural markets characterized by highly segmented and fragmented local markets that practically have no access to credit or other financial institutional services by small producers and small land owners.

This double financial duality is the consequence of market characteristics that operate on a global, regional and sectorial level prevalent in the under-development of the Peruvian economy. These characteristics determine that the specification and analysis, both in real

and financial activities, to design and propose economic and social policies, are very complex and difficult for themselves and foreigners.

A financial development policy must take into account:

- a) the insufficient technical diagnosis of real local, regional, national and foreign markets that potentially needed to be developed in order to sustain the economic growth and development of the country's economic activities and those of its inhabitants;
- b) the need to develop differentiated policies according to heterogeneities of markets that require different degrees of intervention in the promotion and development of productive and social activities (gradual and orderly decentralization policies at an administrative, economic and financial levels) that will necessarily pass through a process of institutionalization and capitalization of activities on a local level (direct democratization policies).

1.4 Technical proposals concerning the reform of the financial system.

Lastly, we consider that in order to understand the financial reform applied in Peru in the decade of the 1990s, it is of utmost importance to point out that by the end of the decade of the eighties, the technical proposals of the financial system reform headed by the World Bank were based upon the experiences of financial liberalization and de-regulation since the seventies in some Latin American countries (Southern Cone economies) in addition to structural reforms in the real field of the economies:

- These proposals pointed towards eliminating controls on interest rates, applying free and more flexible interest rates; free exchange rates; reducing – or even eliminating – direct credit programs; generating a greater competition among the financial institutions by promoting the opening of domestic markets to foreign banks and authorizing the creation of new banks and non-banking financial intermediaries; improving the flow of information; enhancing banking managerial and administrative skills; promoting savings and financial discipline.
- The strategy proposed indicated the need to apply macro-economic reforms that would precede the gradual application of financial liberalization and de-regulation policies, in particular involving a timely re-structuring of insolvent banks, an improvement and strengthening of the regulation and control of financial systems and, in particular, special care in the opening of balance of payments capital accounts.
- The proposals for the financial reform acknowledged the tendency of the developed countries towards the “model” of a universal bank (entities that operate in commercial activities and investments) and, commercial banks or deposit banks made up by the few large banks in most developing countries would continue dominating the formal markets for many decades to come.

- Concerning the problem of the lack of access to financing by certain types of borrowers (small industrial urban companies and small agriculture and livestock producers and small rural agricultural landowners) the emphasis in the strategy proposed was based on strengthening the existent formal and informal institutions and building up financial institutions, that could adequately and appropriately provide financial services for such activities, in the so-called financial diversification policy.
- This policy stressed as prior actions or simultaneous solutions: i) legal aspects involving ownership rights that restrict access to credit; ii) the link or interrelationship between formal and informal financing through institutional arrangements or forms that are quasi-financial or Para-financial (involving credit granted under the modality of real guarantees or group guarantees, through the establishment of informal community money-lending schemes locally known as *juntas*, closed cooperatives, government credit programs and the development financial companies themselves.

2. Theories and Experiences in Rural Funding

In this part, we present the theoretical aspects, with reference to financing, in general, and the role of the institutions of the financial system, in particular, the financial resource mobilization in the money and credit markets. We stress in the analysis of financial capital resource mobilization – deposits of the public, allocation of credit and other financial services – needed for the growth and development of the productive activities of the agricultural and rural sector, in general.

2.1 The role and importance of finance in growth and development

In general terms, studies on the economic growth and development of an economy (the sectors of activity in different regions and localities) reveal that a country needs to mobilize its capital resources in the broadest and most efficient manner.

In an integrated, broad and general manner, the capital resources of an economy are: 1) physical capital resources, 2) human capital resources, 3) technological-entrepreneurial capital resources, and 4) internal and supplementary external financial capital resources necessary to facilitate the process of production, consumption and capital formation and accumulation (savings-investment) that the different economic agents conduct (the government, the entrepreneurial sector and families and their relationship with the rest of the world)³

³ The main aspects concerning capital resource mobilization, and among these, financial capital resources, can be found in the paper on “Integrated Financing for Agriculture”, the First Part: Conceptual and Theoretical Aspects (J.A. Salaverry, 1986:3-38) and in the paper “Integrated Development Policies and the Peruvian Agrarian Sector” (J.A. Salaverry 1989:63-71). Upon referring to capital resources we take into account the capital stock (at a particular moment in time) with its flows.

Experts, among these, R.W. Goldsmith (1969,1987), point out that in countries that are presently called developed, the process of capital formation and accumulation (savings-investment) that has resulted in their economic growth, are closely linked to the degree of financial development reached in their localities and regions.

The action of promotion and fostering that generates financial development on the growth of local, micro-regional and regional economies, and therefore a national economy in its entirety, depend upon:

- a) the degree of institutional construction and strengthening of the institutions that make up the financial system;
- b) the installation of institutional forms and arrangements of financial services adequate and appropriate for local conditions;
- c) their degree of specialization, geographic coverage and the technology of the services provided;
- d) but, fundamentally, the technical and administrative capacity of their human capital, members of the institutions and, the degree of normality, regulation and supervision that society has over them.

In the financial field, the financial assets are the counterpart of the real field of an economy, that are the physical, human, and technological entrepreneurial assets, and they are part of the capital stock of an economy that has been accumulated over the years in the process of capital formation and accumulation (savings-investments).⁴ The relationship of supplementation and interdependency among the assets (capital stock and their flows) that make up the real field and the financial field of an economy is possibly one of the most complex aspects, and perhaps this is why it is more difficult to understand this concept in the comparative studies on growth and development processes. Experts use the figure that both are two sides of the same coin for a better understanding, differentiation and summplementation between both fields.

This work is not appropriate to conduct an in-depth analysis about the factors and variables that determine a broad and massive mobilization of capital resources that are normally required in order to generate conditions for growth and development. However, we wish to point out that the conceptual and analytical differentiation between the real field and the financial field of an economy is fundamental to design proposals for adequate and appropriate policies adjusted to the conditions of the reality of developing countries.⁵

2.2 The structure of the financial system: Formal and informal financial intermediation markets

⁴ It would suffice to point out that through time, economies and societies have been organized with different degrees of efficiency and sustainability and, with different legal arrangements-institutional (the economic, political and social aspects) in order to satisfy their requirements for production, consumption and savings-investment (for capital formation and accumulation).

⁵ We refer to the deep conceptual and practical differences that exist between the proposals and implementation of policies based on the theories of <<financial development>> and the “modern” theories and practices of <<financial deepening>> upon which the application of financial liberalization and de-regulation policies are based.

The structure of the financial system is made up by a variety of financial institutions, instruments and markets that respond to, in their evolution over time and in their growth and development, increasingly complex and sophisticated requirements for financial services by the economic agents (governments, corporations and families and their relationship with the rest of the world) that for analytical purposes are considered as financing sources as well as users of these services, bearing in mind that the limits amongst each other have not always been clearly defined.

In the mobilization of financial capital resources for the growth and development of an economy in general, or of one of its sectors, such as rural agricultural activities, which is the object of our interest in this paper, the following aspects must be taken into account: the role accomplished by the institutions of the financial system as concerns their structure, the different financing sources and users of financial services.

- The financial institutions include money lenders and banks, pension funds, insurance companies, stock brokerages, investment funds and stock markets.
 - The financial instruments include money (currencies: coins and bills), checks, promissory notes and bonds, up to more sophisticated instruments that include futures and swaps, in addition to a growing paraphernalia of products used in finance.
 - The markets for said instruments are organized into formal and informal intermediation markets in which real and financial transactions are carried out.
2. Table 1 summarizes the main relationships between the formal and informal intermediation markets both in real and financial assets. The former relationships allow us to highlight the use and destination of the production/income surpluses that have not been consumed – the gross savings – generated by individuals and entrepreneurial units that make up the rural “world”. In these we can observe:
- the transactions of real assets (relationship between buyers and sellers, See 1.1 of Table 1) are the relationships between buyers and sellers (the purchase of fixed productive assets such as land and livestock or the purchase of non-productive assets such as precious metals) and,

Table 1

**Relationship between formal and informal intermediation markets
in real and financial assets:**

Destination of gross savings generated by the rural sector

MARKET	ASSETS
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	REAL ASSETS	FIANANCIAL ASSETS
1. FORMAL INTERMEDIATION MARKET	1.1 Purchaser of real productive assets (land, livestock, etc.), capital goods.	2.1 Deposits and savings, and other fixed and variable income (formal financial assets) resulting in transactions in the Financial System and Stock Market.
2. INFORMAL INTERMEDIATION MARKET	2.1 Expenditures in non-productive assets, the purchase of precious metals, art objects and jewelry, etc.	2.2 Third party credit (informal financial assets) including hoarding/saving money, etc.
	RELATIONSHIPS BETWEEN BUYERS/SELLERS	RELATIONSHIP BETWEEN MONEY LENDERS/BORROWERS

Source: J. A. Salaverry 1986: 21

- transactions of financial assets (the relationship between borrowers and lenders, see 1.2 and 2.2 of Table 1) are the relationships between formal borrowers and lenders (savings deposits and other variable and fixed income securities intermediated through formal financial entities that comprise the financial system and the securities market; or informally through third party loans, including hoarding-saving of coins and bills.

In a modern economy, one of the aspects underscored in literature on growth and economic development is the role accomplished by the institutions of the formal financial system in mobilizing financial capital resources (See 2.1 in Table 1) by facilitating (certain costs and risks) exchange, an efficient use of resources, savings and risk investment as fundamental operations for economic growth and development.⁶

In general, we wish to stress the mobilization of financial assets provided by financial services via institutions that belong to the formal financial system (banking and non-banking entities governed by normality, supervision and control by the State's financial authorities: the Central Bank, the Superintendence of Banks and Insurance Companies and the National Securities and Stocks Commission: (CONASEV). These formal financial institutions are important for the efficient use of deposits (in current accounts and savings account) in their financial form to use specialized mechanisms

⁶ However, we must point out that the conceptual and analytical treatment concerning the mobilization of financial capital resources for growth and development is, generally, insufficient, as concerns the extremely general aspects involving the financial sources that can be used, with special mention of the current restrictions of financial resources and the effective possibilities of their use referred to as insufficiency and deficiencies of the current institutional forms and arrangements and, the mechanisms and instruments used to reach the goals and objectives proposed in development plans and programs.

and instruments, with attractive yields, liquidity and acceptable risks that promote a process of exchange, production and savings-investment.

In monetary exchange economies, the financial capital resources made up by flows of financial assets, money and credit (financing working capital and investment capital), facilitate the production, consumption and savings and investment processes of the multiple activities that their economic agents perform. The development of financial services facilitates the exchange of financial goods and services enabling the exchange of these at a lower cost and risk and the activities between lenders and borrowers by mobilizing deposits and savings from the units that produce surpluses towards the deficient units.

To the contrary, in an extreme, we can consider an economy – or parts of it at a sectorial level and/or its regions – that does not have financial services, that would be confined to self-sufficiency or barter trade, restricting the possibilities of specializing the productions, employment and income of their inhabitants, that is, restricting their possibilities for growth and development.

In this economy (a subsistence economy based on primarily agriculture) the separation over time between the process of consumption and production can only be possible through savings in kind of non-consumed stored products; the size of the production units is limited to the self-saving capacity of producers; employment and income reduced to the specific levels of self-sufficient production; and, transformation activities extremely limited.

The lack – or for that matter, the insufficiency – of financial services generates conditions that characterize the classical vicious circle of poverty: economic depression, financial depression, and a greater economic depression.⁷

For this economy or its sector, a subsistence economy based on primary agriculture, the self-financing of working capital and investment requirements would be an alternative. However the opportunities for production and profitable investments would exceed the self-generated resources of the family and business units. The net transfers of resources and public investments would be the other alternative that would require mobilizing resources through the tax system.

⁷ In the last analysis concerning the type of financial and real transactions that have characterized the performance of the Peruvian economy in the second half of the XX century, in its dual relationship between modern and traditional sectors, we discover that the generation of broad sectors of activities, the misnamed “informal sector” is in reality, the result of a growing urban and rural “economy of sub-employment”. The main explanation, on the one hand, in the bad use and worse distribution of capital resources by the Central Government at the level of the interior of the country (a lack of a territorial occupation policy expressed in policies, plans and programs to decentralize development) and, on the other hand, by the entrepreneurial groups and families that concentrate wealth and income generated in different places of their reproductive investments in non-productive expenditures, speculative and sterile “investments” and the flight of capital abroad (J. A. Salaverry 1986: 24 - 26).

Most developing countries have, in varying degrees of importance, an informal financial sector (see 2.2 of Table 1) that provides financial services to this sector but is not really entrepreneurial but rather made up by family units, small agrarian producers and small businesses in general. In this informal financial sector the most important financing sources are loans provided by relatives and friends, money lender intermediaries, businessmen who provide funds to their clients.

Hence, as expressed above concerning the financial system of an under-developed economy, this allowed us to stress, on the one hand, the problem of capital resource mobilization in the real field for activities of the agrarian and rural economy – of their physical, human and technological-entrepreneurial capital resources – and, on the other hand, the great importance of the formal and informal financing sources by facilitating production and capital formation and accumulation processes in the multiple activities of the rural agricultural complex (in practice, the interior of the country).

2.3 Financial sources for rural agricultural development

The second aspect that we have to deal with as concerns financial capital resource mobilization refers to financial sources for rural agricultural development, which undoubtedly, applies to the economy as a whole, to its sectors of activities, such as the case of the rural agricultural activities sector that is of interest to our work, and at the level of their production units.

Table 2 contains a list of financing sources for agricultural and rural development. We have included in the analysis all the internal and external sources that potentially should be considered within an active national promotion and development policy to increasingly integrate national markets. The purpose is to highlight all the financial relationships, at the level of a local community, needed to carry out promotion and development actions as the key elements for development and a decisive factor in the contribution of a growing integration of national markets. (See Section 3.4).

On the demand side, at the level of production/consumption units by family or business, small land owners, or small urban and agrarian individual producers (non-corporate) as well as the larger entrepreneurial units, individually, partially, or entirely apply the first three financing sources (self-financing, credit financing and direct financing) to production/consumption/investment processes.

The internal sources are:

A. Self-financing sources generated in the production/income processes, resulting in the surplus of the non-consumed product/income or gross savings, among which we must take into account:

Table 2

Financial Sources for Agriculture and Rural Development

INTERNAL SOURCE	A. Self finance	A.1 Voluntary family or corporate savings. A.2 Savings through voluntary work
	B. Credit finance	B.1 Formal (from banking and non-banking financial institutions) B.2 Semiformal (from quasi financial institutions) B.3 Informal (family, friends and moneylenders, etc.)
	C. Direct informal finance	Intermediaries, merchants, buyers, transpor companies, venders
	D. Tax	Property tax (land) sales tax, income tax
	E. Payment to services	Improvement of infrastructure irrigation, tolls, comunal services, etc.
EXTERNAL SOURCE	Financial and technical assistance from bilateral and multi-lateral cooperation agencies and private enterprises	

Source: J.A. Salaverry 1986:21.

Note: For the purpose of this study, in the following section, we only present description of first three souces of finance: sel-finance, credit finance and direct finance.

A.1 Family and entrepreneurial voluntary savings.

As has been pointed out in the paper (J. A.Salaverry 1986:20) a generalized assumption concerning the economy of Peru, and in general under-developed economies, is that the rural inhabitants and small rural productive activities, in particular, small agrarian producers and small landowners, have a low voluntary savings capacity due to their extremely low levels of income in addition to a lack of sophistication of the institutions and organizational apparatus that surround them. The real fact that stands out in the studies conducted on credit supply and demand is that even at the subsistence level, people save the surplus of their production/current income over current consumption, and they look for ways to use them best.

The study on the mobilization of deposits in Peru (COFIDE/IDB) Swisscontac, 2000: 7-9) proposes, theoretically, in relation to savings in micro finances, that “the economic agents located in the lower 10% of income group also save by sharing, in general, for the same reasons to create micro-credit with higher income bracket groups.” However, they behave in a differentiated way amongst each other that is closely linked to the reproductive consumption of their enterprises. The lower levels tend to save more out of necessity than opportunity and their savings is the amount associated to the reproductive consumption of production units related to the survival of the family and the foresight of their irregular income levels. In the higher savings levels it is associated with amounts that exceed their reproductive consumption and survival.

The survey of cases reveals that the comprehensive mobilization of mass savings services – in financial institutions and quasi-financial institutions, using adequate and appropriate technologies for small savers/borrowers, in small amounts and a large territorial coverage – helps the producers/consumers to manage their resources in three ways:

- a) To accumulate their savings in a safe place until having enough resources to pursue their objective;
- b) To obtain such resources through a forward payment or credit reimbursement through several types of savings;
- c) To accumulate in certain amounts through a continuous flow of savings in *juntas de ahorrista**, *panderos** and other manners of rotating saving and credit associations (ROSCA) obtaining them through tenders or other options.
(*Informal group savings and loans schemes).

The institutional financial services mentioned above place at the disposal of the micro-savers – individuals, family units, lower income groups and micro and small businesses – their savings, free from any cyclical or structural contingency that involves production and survival and thus allows the family or enterprise to accrue its net worth.

People in rural agricultural areas do generate gross savings that they use in many different ways as real and financial assets (J.A. Salaverry 1986:20-26), as shown specifically in Table 1. We are referring to savings in real assets by small producers and small landowners in the manner of productive assets such as seeds, tools, livestock, capital goods or, non-productive goods, such as, money spent on festivities celebrated by the entire community; and, savings in financial assets under the modality of hoarding or saving their money for unforeseen expenses or for future education expenses; ...and on to more sophisticated ways such as savings deposits in banking and non-banking financial institutions.

A.2 Savings – through voluntary work

One of the important forms of voluntary savings in community tradition and organization (exercising the basic principles of supplement and reciprocity of the Andean cosmo-vision), in particular in the Andean highlands (transferred to urban areas) is work-savings: the participation of the population in community labor in different stages of the agrarian production cycle as well as the maintenance, repair and construction of productive and social facilities owned by the community.

To the former source, we must add as a source of income/savings, the temporary or seasonal supply of labor for third parties (this includes, temporary migration of high Andean inhabitants to inter-Andean valleys, to the coast or the high jungle areas). This allows them, on the one hand, to obtain the necessary income for the family's consumption during periods of a low demand for labor or in between sowing and harvesting crops and, on the other hand, it provides them with the necessary cash to buy inputs or capital goods (i.e. tools, sewing machines, among other items).

Since the 1960s when rural inhabitants began to migrate massively to urban areas (difference in age, education, capital, family support) and the population growth of rural and urban localities increased, the link of seasonal jobs and temporary migration as a source of income/savings has been reduced, and in many cases has been totally eliminated. The de-capitalization of human resources followed a process of the deterioration of physical capital, in particular, in highland areas as step-terraces, irrigation ditches, water canals, and dams in reservoirs and lagoons that are labor intensive and had created through community labor.

We discovered in many rural agricultural communities older people in lesser numbers (insufficient to meet the seasonal demand for labor) needed for community work, and even for the maintenance and repair of their physical infrastructure. The human de-capitalization process is added to the process of the de-institutionalization of the community and local governments. On the one hand this is the result of the growing centralism and concentration of resources and decision making in Metropolitan Lima and a few capitals of departments while, on the other hand, their rural agricultural entrepreneurial activities lose links with the supply of food, clothing and tools produced with primary products at a local level because of imports at subsidized prices (basically through lagging exchange rates and food aids). The former elements explain, to a major degree, the loss of profitability and income by inhabitants dedicated to productive activities such as small landowners and small agriculture and livestock businesses in a broad range of local and sub-regional markets in Peru.

B. Credit financing sources (indirect financing)

These cover three means of development of activities that characterize the relationship between borrowers and lenders – in particular, legal, institutional and instrumental development, and financial services – related to the public interest in promotion and development, the mobilization of deposits, of credit services and other financial services needed to satisfy the production and savings-investment processes of the multiple productive and social sectorial activities that are carried out in rural and urban centers of territorial occupation.

B. 1 Formal financial intermediation sources

Comprised of the banking (commercial banks) financial institutions and non-banking (rural savings and loans associations, municipal and community credit associations and savings cooperatives) that are the Intermediary Financial Institutions (IFIs) governed by normality, regulation and oversight by financial authorities (the Ministry of Economy and Finance, the Central Bank and the Superintendence of Banks and Insurance Companies).

In these sources we must consider, additionally, two specialized public financing institutions: the Financial Development Corporation (COFIDE) as a second tier wholesale bank that provides funds to small scale producers; and, the *Banco de la Nación* (BN) or National Bank, as the financial agent of the Public Treasury and

the State, the latter due to its great importance in financial resource mobilization at the level of a government (central, regional and local governments).

B2. Quasi-financial institutions

These are also called bridge financial institutions among the formal financial intermediation sources (2.1) and the sources of informal credit financing (2.3), that cover a range of entities such as: close cooperatives (that mobilize family and business saving resources in the domestic market), Non-Governmental Organizations (NGOs) that conduct their affairs in the credit field with external funds and, the public rotating funds or similar funds.

The most important consideration concerning the potential role of the quasi-financial institutions in the supply of financial services (savings deposits and credit supply) is the financial development process of an economy. Informal financing activities promote the monetarization of an economy by permitting and fostering the maintenance of money and debt in monetary assets instead of real traditional assets constituting a previous stage, and possibly, a bridge necessary for a more advanced and modern institutional financial development (J.A. Salaverry, 1985:26).

B. 3 Informal credit financing sources

Comprised of several credit agents such as relatives and friends, money lenders, businessmen, pawnbrokers and associations or groups of “acquaintances” that do informal financial intermediation at a very small scale, on a very short term and in forms of access (proximity and knowledge of the client) and, the financial arrangements adjusted to the temporary needs of the micro and small units of production/consumption in rural and urban settings.

In the review of the financing sources and user of the financial services the study on Informal Financing in Peru (COFIDE/CEPE-IEP, 2000:17) stressed that in Peru there are several studies on informal credit, particularly those involving rural areas. These cases are studied in a community or group within a given geographical area. The research revealed:

- a) that in terms of geographic coverage informal credit is the most important source of credit for low income populations (acknowledging that the main source comes from self-financing);
- b) that these transactions are based on the intensive use of information as a result of economic and/or social relationships established before the credit;
- c) that these are short term loans and mostly used for commercial activities and/or consumer credit;
- d) that there are no barriers to access credit;
- e) that the activities of the borrower are interrelated to the activities of the lender in the real sector; and,
- f) that there is a broad range of financial and informal money lending activities in rural areas.

As has been pointed out in several studies in developing countries, and case studies in Peru⁸, the rural and urban non-corporate business sectors referred to as small and micro enterprises made up of extremely small scale producers and businesses – small businesses in the fields of industry, small businessmen and salesmen, landowners and agrarian producers – and they have a great importance in the production process, employment and income of a broad urban and rural population sector.

C. Direct informal financing sources

We distinguish between direct financing sources in the market of informal financial asset transactions due to their great importance in the supply of funds for agriculture and rural development (just like the rest of the productive activities of the other sectors). In particular, through the modalities of granting “credit” that may include from agreements of participation in the harvest, up to modern service modalities such as, supervised insurance systems for climatic and sanitary risks linked to formal financial services and the stock market, such as the producers stock exchange transactions.

In these sources we classify the financial suppliers – salesmen, gatherers and buyers – transport carriers, among others, that provide resources for the different types of agrarian reproductive cycle in money and kind (seed, fertilizers, agro-chemical products, etc.)

D. The function of informal credit in rural financing

In Table 3 we have summarized the possibilities of informal credit that are important in the diverse strata of size of agricultural and livestock production units, in particular, small landowner and small agrarian enterprise sector –and, micro and small businesses in general.

Table 3
Possibilities of Informal Credit:
Supply and Demand per Type of Market

Type of Market	Supply	Demand
Small savers	Individuals Small businessmen and shop owners	Families
Retail businessmen	Individuals businessmen and transport companies	Small production and business units
Wholesale businessmen	Owners of medium and large companies, wealthy	Intermediaries

⁸ This study is on Informal Financing in Peru (COFIDE/CEPES-IEP, 2000: 21-23) and contains a full list of the bibliographic references of these studies on local and regional economies of Peru based on surveys. The conceptual framework of the study provides important elements on credit and development and formal/informal credit relationships.

	merchants	
Commercial credit	Entrepreneurial groups Exporters and importers	Medium and large commercial agriculture
Informal financial intermediaries	Merchants, brokers, etc.	Large traders and businessmen
Savings and credit associations	Associated groups	Associated groups and third parties

Source: J.A. Salaverry, 1986:25

2.4 Rural agricultural financial markets in Peru

One of the most difficult aspects to specify and in which we encounter a considerable deficiency in most of the studies reviewed concerning the problem of agrarian credit in Peru, is the characterization of the elements and factors that determine the high fragmentation, heterogeneity and dispersion over agricultural areas and livestock production units.⁹

At the same time these elements and factors determine the high variability and fragmentation of their real markets and the potential demand for formal, quasi-formal and informal financial services needed to satisfy their requirements of working capital and investments for agriculture and rural development.

A. The Importance in Peru of small and micro businesses in the agriculture and livestock sector

The importance in Peru of small and micro businesses in the agriculture and livestock sector, versus the other rural and urban sectors, can be observed in Table 4. The estimates have been obtained based upon information of the Third Economic Census in 1993, the National Agriculture and Livestock Census of 1994 and, our own preparation based on the National Statistical and Census Office -INEI data base.¹⁰

These estimates point out that the sub-sector of the micro enterprise and small business at a national level both for agriculture and livestock companies as well as the rest of rural and urban companies, represent 91.6% at a national level (3,774,000 units out of 4,120,000 of national total). They employed 75% (4,873,000 of economically active population: EAP,

⁹ The studies reviewed use methodologies usually geared towards describing the supply of credit, placing an emphasis on the functioning, operability and results of the banking and non-banking financial institutions or groups of institutions present in the country and, the type and scope of financial services offered to the agricultural and livestock and rural sectors. J. Alvarado and F. Ugaz (1998), J. Alvarado and F. Ugaz (2000), W. Diaz Alejandro, JM Garizabal, B. Zuttler (1996), M. Reichmuth (1997), M. Reichmuth (2000).

¹⁰ The former study carried out for the Central Reserve Bank on agrarian credit in Peru (J.A. Salaverry, 1983) described the framework for the study on the credit markets and referred to the main characteristics of the agrarian structure, resource base at the level of the three natural regions, problems and main concerns or credit policy for agrarian production.

out of 6,497,000 of total), and, contributed with 42% (39,050 million soles out of 92,976 million soles in 1994) of gross domestic product: GDP.

B. The participation of the sub-sector of small and micro agriculture and livestock businesses

The information concerning the participation of the companies of the agriculture and livestock companies of the national total and of the sector, is contained in Table 4.

- a. The small and micro agriculture and livestock sector involve at a national level 35.8% (1,475,000 units) of the total number of production units; employed 23% (1,493,000 of the total EAP); and contributed with only 3.4% (3,138 million soles in 1994) of GDP. The participation of micro and small business of the agriculture and livestock sector reveals that it covers 84.1% of the total production units of the sector, sustains 65.5% of the population with 82.5% of the EAP, contributing with 44.5% of the GDP of the agriculture and livestock sector.
- b. The medium and large business of the agriculture and livestock sector covered at a national level 6.6% (271,000 units) of the total number of production units; employed 8.2% (583,000 of EAP); and contributed with barely 4.2% (3,913 million soles in 1994) of GDP. Furthermore, the participation of medium and large business of the agriculture and livestock sector covers 15.9% of the total production units of the sector, sustains 34.5% of the population with 17.1% of the EAP, contributing with 55.9% of the GDP of the agriculture and livestock sector.

C. Additional elements to specify the high fragmentation, heterogeneity and variability of the agriculture and livestock sector.

Two additional elements add to the enormously complex problem of the high fragmentation of real markets. At the same time they condition the potential demand and the effective supply of financial services for agriculture and rural development. The first is the number of production units in different forms of tenure/occupation (use and control) of the total surface, agricultural and non—agricultural (agricultural, natural graze lands, green areas and forests and other types of land in Peru). The second is determined by the territorial dispersion of the population in more than 90,000 rural agricultural localities that have less than 4,000 inhabitants.¹¹

C.1 The number of units of production in plots (*parcelas*) and surface per regime of tenure/occupation

¹¹ We consider that many of the theoretic aspects based on the agrarian reality of Peru (although they refer to the end of the decade of the seventies), supplemented with those explained in the work on the problem of financing for rural agricultural development (J.A. Salaverry, 1985) are still applicable, particularly in comparative terms with the present reality and undoubtedly, in the specification of the deepening of the real and financial problem of the agrarian sector.

Table 5 describes the number and surface of plots or *parcelas* per regime of tenure/occupation at a national level. In this information the total 5,766,113 plots in the different regimes of tenure/occupation stand out:

- Regime of ownership with 4,083,728 plots (70.8%) of which 971,669 plots or *parcelas* (16.9%) have registered land titles and 13.3% of the surface; and, 1,382,292 (24%) have land titles still pending registration and 8.1% of the surface.
- Regime of Community Ownership with 14,872 plots (0.3% of the total plots or *parcelas*) and one cultivated and non-cultivated surface of 19,423,841 hectares. (54.9% of total surface).

Estimates based on this information allow us to point out that there are approximately 380,000 agricultural production units (22% of the total 1,750,000 units) that have registered plots of land or are pending same – and this is the prime indicator of potential demand for formal financial services. The remainder 78% of the units, approximately 1,370,000 governed by different regimes of tenure/occupation, lack titles, and approximately 4,700,000 plots (82% of the total) have different types of “legal” problems that hamper their access to these formal financial services. We will apply these estimates to determine the potential demand for agricultural credit in Section 2.5.

Table 6 describes three average indicators of the degree of fragmentation of agrarian property in Peru for different types of businesses according to the size of agrarian production unit obtained from the III Agriculture and Livestock Census in 1994. The analysis has been conducted on a national level with reference to the situations at a regional level.

- At a national level: the number of plots is 3.3 per unit; the agricultural or non-agricultural surface of 6.2 hectares per plot; and, 20.3 hectares per unit. The indicators for:
 - 1) the cultivated land surface per plot is 1.0 hectares (16% of the agricultural and non-agricultural surface per plot of 6.2 hectares); the surface per unit of 3.1 hectares (15.3% of the surface per unit of 20.3 hectares);
 - 2) the cultivated and non-cultivated surface of 0.6 hectares per plot and 1.9 hectares per unit;
 - 3) the cultivated surface of 0.5 hectares per plot and 1.5 hectares per unit.

C.2 Territorial distribution of the rural agricultural localities.

The second element for the specification of the high fragmentation, heterogeneity and variability within which the agriculture and livestock activities are carried out and is determined by the territorial dispersion of the population in more than 90,000 rural agricultural localities that have less than 2,000 inhabitants (made up by small villages and

hamlets and more than 50% of the district capitals) with a population that amount to more than 45% of the country.

The territorial distribution of localities with inhabitants is directly related to the geographic, geological and hydrological reality of the Peruvian Andes that determine the severe scarcity of natural cultivated land (most of these lands are man-made such as step terraces) related to the hydrological contradiction (abundance of the water supply and the enormous difficulties to access water directly related to the construction of different irrigation systems).

To this regard, it is of utmost importance to point out that the population data from the census under estimates rural populations by defining urban population as those that have more than 2,000 inhabitants (INEI, 1993 National Population Census). We are aware of that most of the 90,000 localities that have less than 2,000 inhabitants are rural agricultural localities. Others might have more 2,000 inhabitants but less than 20,000 inhabitants, which is the case of the most rural capital districts and some provinces. In the reality of Peru these are rural agricultural localities, that due to their economic activities, depend directly or indirectly on the agriculture and livestock sector. In fact, the re-classification of urban and rural populations adhering to the previous criteria, reveals that Peru is a semi-urban economy (perhaps best specified as semi-rural in process of urbanization), as has been stated in previous works based on the 1961 and 1972 Census (J.A. Salaverry, 1985: 24-25; 1989: 36-52).

2.5 The determination of potential demand for agrarian credit

Based on information provided in Section 2.4, we can estimate the potential demand for agrarian credit for the four different strata of producers. For this purpose, we start with the universe of producers per size (amount of hectares), and using collateral information (pointed out in each case) we will determine for each group of businesses, the ranges of potential demand for agrarian credit in terms of: a) the number of producers; b) the surface of cultivated land; c) the cultivated surface, and d) the total amount in US dollars (using information on the amount of financing per average hectare for temporary crops). The estimates based on this information are contained in Table 7.

As regards the potential demand according to the legal situation of the owners who have registered land deeds or are pending the same, these estimates reveal:

- Approximately, 380,000 agricultural producers (21.8% of the total 1,750,000 units) with a legal situation of registered land deeds and those pending the registration of their plots (see Table 7) , that are the prime indicator of potential demand for credit.
- The total cultivable surface is 2,065,000 hectares (39.0% of the total) and the cultivated surface is 1,239,000 hectares (48.1% of the total).
- The amount of total demand for agricultural credit from formal sources would be about US\$798 million.

- The remainder 78% of units approximately 1,370,000 producers under different regimes of tenure/occupation, lack land titles of 4,700,000 plots (82% of the total) that have different types of “legal” problems, hampering them to access credit from formal financial sources.

The potential demand resulting from a legal deepening of the titles registered, to be registered, and without land deeds at all but that are trying to be registered, means, practically, doubling the potential demand for short-term credit resources (working capital) with the corresponding coverage:

- Approximately, 750,000 agricultural production units (42.8% of the total 1,750,000 units).
- With an estimated cultivated surface of approximately 3,500,000 hectares (66.9% of the total) and, a cultivated surface of 2,125,000 hectares (82.5% of the total).
- The amount of the total demand of agricultural credit from formal sources would be around US\$1,270,000 million.
- The remaining 57% of the units, approximately 1,000,000 in practice, conform of small landowners and very small and small producers that have a potential access to quasi-financial services, in particular, of the action of promotion and development in the real field: organizing producers, particularly communities at a district level (in the so-called development corporations or similar manners of organization in high watershed areas of the Andes); of the net transfer of technical and human resources for the production and organization of local and zonal markets to market the surplus production of self-consumption; through what we have called CAJAS TÉCNICAS of services such as quasi-financial entities within the financial system for agriculture and rural development.

Lastly, we include in Table 8 information concerning the credit sources for the agriculture and livestock sector by size and production units as well as cultivated surface.

3. The Financial Reform and the Supply of Agrarian Financing in the Decade of the Nineties

In this part of the study we present an analysis of the main macro-economic indicators and agrarian credit supply behavior indicators that have characterized the evolution of the economy of Peru over the past decade. Depending upon the availability of the information sources reviewed we will try to broaden the analysis of the formal institutional sources for agrarian credit supply to the quasi-formal and informal sources. The elements we use to analyze the main aspects that characterize the evolution of the Peruvian economy at the end of the eighties, in the real and financial fields, are contained in Section 1 and the conceptual framework is described in Section 2.

We consider that the methodology applied in addition to the process of ordering the facts are necessary since there have been deep changes in macro-economic policy and the reforms launched at the beginning of the nineties when the Government of Peru adopted a

series of economic measures, not only to stabilize the economy, but also to provide a new political-legal framework for the activities of its economic agents.

3.1 Background of the Peruvian economy and globalization process in the decade of the nineties.

As has been mentioned in the Introduction, we consider that the review and evaluation of the topic of credit and financing for agriculture in the decade of the nineties cannot be carried out without taking into account the main aspects that characterize the evolution in the real and financial field of the economy of Peru within the globalization process.

A. The globalization process and its internationalization in Latin American economies.

The main characteristic of the international economy has been the implementation of globalization policies during the decade of the nineties determined by the following: an opening of markets, financial insertion, an increase of productivity via a growing competition in international transactions (an increase of import and export flows, financial and technical-entrepreneurial flows) which, together with the technological breakthroughs (speed and low cost) in the field of telecommunications, create a system in which change has become a permanent phenomenon.

The application of economic policies in most Latin American countries during the nineties responded to the globalization challenge, supported by the so-called “cult of market economy and its practically unlimited operations” that have had positive and negative effects.¹²

The positive effects of globalization

We wish to point out the following positive effects: a) the technological progress made as concerns the speed and low cost of communications; b) the huge volumes of mobilized capital; c) the variety and options of the supply of goods and services transacted. This has helped to increase the productivity of labor and capital resources producing potential surpluses of savings-investment resources.

The negative effects of globalization

The following are the negative effects: a) an increase of entrepreneurial concentration in a reduced nucleus of large corporations whose investment decisions are linked to the

¹² The economic reforms and positive and negative effects in Latin American economies have been extracted from the Report of the XXX Regular Meeting of the General Assembly of the Latin American Association of Financial Development Institutions, Cartagena de Indias, Colombia, May 17 – 19, 2000.

objectives of high yield and short term recovery of invested capital; b) the volatility and insufficiency of capital flow guidance, supervision and control that has resulted in a deepening of the economic – financial cycles in developing countries, thereby aggravating the effects of the recession; c) the reduction of national production and investment options in medium and large companies giving rise to an increase of unemployment and a reduction of the real income of national economies.

The earnings derived from globalization have basically benefited developed countries and, in national economies, activities linked to the former, import and export companies of a high competitiveness at an international level, at the expense of production, employment and income of medium and small businesses that generate most of the national production, employment and income.

Experts have pointed out that one of the main cause-effect relationships that explains the negative effects of Latin American economies, is that the economic reforms that have taken place at the same time as the globalization process in the nineties ranked the solution of internal economic and social problems as a much lower priority.

In summary, experts have indicated that the dynamics of “market economies that operated with practically no restrictions at all” in the decade of the nineties have concentrated and centralized their benefits in favor of developed countries (industrialized countries), reducing the opportunities for production-investment, employment and income of a broad sector of economic activities in Latin America and, in particular, the less developed internal sectors of small and medium urban and rural agrarian industrial companies.

3.2 Macro-economic framework to analyze the evolution of the agrarian sector in the decade of the nineties

The deep crisis at the end of the decade of the eighties, generated by terrorism and a poor management of macro-economic factors by the government 1985-1990 (characterized by the mixture of popular and state policies that unleashed a process of hyper-inflation from 1987 to 1990) demanded a deep economic-financial readjustment process and the implementation of structural reforms between 1991-1994 (See Section 1).

- The economic-financial readjustment process (1991-1994) responded to a policy demanded by the International Monetary Fund of achieving, through the application of stabilization policies, the necessary internal and external macro-economic and financial balance, covering the fiscal, monetary-credit, currency exchange and commercial relationships of the so-called first generation structural reforms.
- The first generation structural reforms covered the following fields: a) commercial (a rapid opening of imports); b) fiscal (a strengthening of tax and customs institutions); c) financial (an opening of foreign commercial and investment banks, the disappearance of sectorial development banks, the privatization of commercial banks associated to the State) and, practically, the disappearance of all forms of

associations of financial entities such as savings and loans associations, and pro-housing mutual funds); d) the re-definition of the entrepreneurial role of the State (the privatization process, the reduction of its direct interventions, and the creation of regulating organizations of activities that involve public liability).

It is of a great importance to point out that at the beginning of the decade of the nineties the political and technical proposals to establish and re-structure the economy of Peru matched reaching objectives of an market economy. However, that fact remains that the neo-liberal economic model adopted in that decade focused on implementing economic liberalization and modernization policies of what we now recognize as “a cult for market economy and its practically unlimited operations” within the scope pointed out in the previous section.

We wish to mention the following main characteristics of the implementation stage of the economic-financial globalization process geared towards the internationalization of the economy of Peru at any cost:

- 1) A rapid and maximum opening of the national market to the competition of foreign imports added to the entrance of sub-valuated goods and a steep rise in smuggling;
- 2) The mismatch of lagging exchange rates, high interest rates, high energy and public utility costs, and the application of anti-technical taxes have been identified as the main factors for the loss of entrepreneurial profitability, a reduction of surplus savings-investments, a growing level of indebtedness, and eventually the fact that thousands of companies in Peru went bankrupt over the past years triggering the unemployment of half a million industrially-skilled workers;
- 3) An unlimited entrance of short-term foreign capital (speculation) and mass public indebtedness to finance deficits in the balance of payments resulting from a growing lag of the exchange rate (1991-1996) and subsequent jumps (1997-1999) that have hampered national companies to recover their levels of profitability;
- 4) The above mentioned situation has thrust Peru into an increasing process of de-capitalization of its companies – and, in the manufacturing field to a de-industrialization – a substantial loss in production, employment and income, managerial skills and investment opportunities. The negative effects have been become evident in the closing of companies, not only in the case of medium and small national companies that employ the largest portion of labor and support the real income of broad sectors of economic activities, but also, in the closing of branch offices of foreign companies that had made industrial investments to manufacture mass consumer goods.
- 5) Experts have pointed out that the elimination of development banks (particularly the Agrarian Bank) and the drastic downsizing of the private system’s savings and loans cooperatives and pro-housing mutual funds have been predominant factors

that lead to a reduction of financial intermediation in the interior of Peru and its concentration in commercial banks;

6) The scheme or model of financial institutions that sprouted from the definition of the role of private commercial banks as savings-investment intermediaries, with support from COFIDE as the only second tier development bank, is evidently insufficient as a substitute scheme or model for the functional specialization of the financial system in which the role of the commercial banks, the institutions that develop and foster savings-investments, are clearly defined;

7) Within the global evolution of the Peruvian economy in the decade of the nineties we can observe, once again, the recurrence of the traditional performance cycle of the balance of payments of a more or less accelerated economic growth period followed by a severe recession, this is explained: first, by the availability of currency (resulting from private and public indebtedness and resources generated through privatization) and, second, to the depletion of the import capacity (in which the important weight of foreign debt service payments is pointed out) and, the subsequent unbalance of the balance of payments.

3.3 Main macro economic and global financial indicators and the agrarian sector

A) Macro-economic indicators

Table 9 presents the main indicators that have supported the growth of the Gross Domestic Product (GDP) at an average accumulated annual rate of about 4.3% for the past decade. Upon analyzing the sector, this growth was mainly based on the growth of primary export sectors (mining and fish meal industries) and the growth of the agriculture and livestock GDP (See Table 11). In the analysis, the recovery of the gross investment and domestic savings to the levels of historic economic growth and a growing participation of external savings stand out thereby reflecting a growing deficit in the commercial balance as a result of increasing imports. During the decade, the economic result of the public non-financial sector also reveals a decreasing behavior due to improvements in tax collections.

The 1991 – 1995 sub-period reveals a more accelerated growth of 5.6% reaching the highest rate in 1994 (12.8%). Since 1996, growth has slowed down registering an average growth rate of 3.9% for the 1996-2000 sub-period. This sub-period was hit by the negative effects of the El Niño Phenomenon 1997/98 in addition to the Brazilian and Asian crisis. The international crisis is reflected, as of 1998 in lower costs of export products and the restriction of foreign credit lines, triggering the current recession. The greatest achievement of the period has been the control of inflation-economic stability – that, as of 1997, dropped to one digit with an average of 6.9% from 1996-2000.

B. Macro-financial indicators

The performance indicators of the financial counterpart of the economy are shown in Table 10. The restrictive management of the monetary base (issuance of money – primary multiplier) as components of the total liquidity of the system are striking. However, the growing participation of total liquidity in relation to the GDP attracts our attention. This leads us to think that its growth has been mainly due to the effect of less liquid assets (quasi-money) resulting from an increase in the income of the real sector of the economy, made evident by an increase in savings-deposits in general, of economic agents and, among these, the provisional sector such as private pension fund.

The former implies an accumulation by certain agents of the real sector. However, as has been shown through the analysis of the sub-periods, there is a contradiction between the financial and real performance of the economy 1996-2000. The GDP reveals a marked slow down while liquidity practically doubles its share of the GDP.

How can we explain such behavior? We know that the current recession, with the reduction of income and demand of consumer goods, the bankruptcy of thousands of national companies resulting in a reduction of employment and an increase of sub-employment, while on the other hand we observe that savings stocks have not only dropped in proportion but that they (stock and flows) have actually risen as a percentage of the GDP. We propose as a hypothesis that this behavior is the result of the “wealth effect” that occurred in the economy during the post-stabilization period of 1991-1994 that lead to a intense increase in consumption. This “wealth effect” reflects the concentration of income generated in a few corporations such as public utilities that were privatized, mining companies, importers, etc.; the own income generated by the sales of public entities not returned to the economy in investments in productive fixed assets; the increase of domestic indebtedness – and, in many cases, the over-indebtedness – both at the level of entrepreneurial agents as well as family agents (behavior of the new consumer banks and the commercial banks that triggered a crisis in the financial intermediation system with the liquidation and closing of banks).

C.Agriculture and livestock indicators

As we can observe in Table 11, the growth of the agriculture and livestock GDP of an annual average of 5.5% for the decade of 1991-2000 and, within this, the growth of the agricultural GDP, reveals that these growth rates are higher than the global GDP of the economy (4.3%).

- In the sub-period 1991-1995 the negative rate of the year 1992 of about -9.0% reflects the effects of an anti-inflationary adjustment process and the closing of the Agrarian Development Bank.
- In the sub-period of 1996-2000 the rate of 1.27% in the year 1998 reflects the negative effects of the El Niño Phenomenon on the harvesting campaign of 1997/98 and, the positive effects of the growth rate of about 12% for the year 1999 due to the expansion of the agricultural frontier and an increase in production. This behavior can be explained on the one hand, due to strong subsidies granted by the government through the Rotating Funds and FONCODES (National Fund for Compensation and Social Development), while on the other hand, there were favorable post El Niño hydrological and weather conditions. It is important to point

out that the overproductions of potato, rice and white maize resulted in severe fall of their prices and income of producers.

Despite the limitations of access to credit in the sub-period (1991-1995), the positive behavior of the agriculture and livestock sector during the decade of the nineties can be explained through the use of self-financing by agrarian entrepreneurs as a main source to finance their production, as well as informal and direct credit sources. Some experts explain that vis-à-vis the restriction of credit, the producers were obliged to increase their production and improve their income. The flexibility introduced by the Law on Land (Ley de Tierras No. 25505 promulgated in June, 1985) and the Land Titling (PETT-IDB Program) were factors that contributed to this behavior.

The information on credit for the agriculture and livestock sector by the financial system 1985-2000 shown in Table 12 allow us to appraise the annual credit on agriculture and livestock made by formal financial sources. The share of the Commercial Banks, that in 1985 was 9.6% of the total annual credit granted, soared to 28.2% in 1991 and to 100% due to the closing of the Agrarian Development Bank in 1992. Its share in the 1991-1995 period was 84.4% and for the 1996-2000 sub-period it was 90.1%. The Agrarian Development Bank had an average share of 85% of the total credit in the 1985-1990 sub-period and commercial banks had 15%.

In 1994 the Rural Savings and Loans Association (Cajas Rurales) were created and they rose their annual share of 1.2% in that year to 7.8% by 2000 with an average share of 7.3% in the 1996-2000 sub-period. On the other hand, in 1995 the Municipal Savings and Loans Associations (Cajas Municipales) extended their pawn services to granting credit to the agriculture and livestock portfolio by 1.2% in 1995 to 3.6% in the year 2000.

Table 12 presents an analysis of the total amount of credit granted by intermediary financial institutions. For the 1985-1990 sub-period US\$427 million were granted (12% or US\$376 million by development banks, basically the Agrarian Development Bank). When this bank was closed, the average of the total amount of credit dropped to US\$194 million, less than half (45.4%) of the average for the 1985-1990 period recovering the levels of the amount granted for the 1985-1990 period in the last 1996-2000 sub-period with an annual average of US\$442 million (103%).

We have not been able to obtain itemized information from the Superintendency of Banks and Insurance Companies (SBS) concerning the number of loans granted by the IFIs for the 1990-1999 period. However, in Table 13, we use the information provided by the SBS concerning the situation of the financial system portfolio in the agriculture and livestock sector up to October 2000 that contains the number and amounts of debtors per strata summarized below:

Agriculture and Livestock	Producers	Credit	Average Credit
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enterprises per rank					
Of credit	Number	%	Amount	%	Producer
(1) Micro and very small	18,645	78.4	24.4	5.0	\$1,309
(2) Small businesses	2,812	11.8	23.2	4.7	\$8,250
(3) Medium businesses	1,303	5.5	33.8	6.9	\$25,940
(4) Large businesses	1,019	4.3	409.2	83.4	\$81,845
	-----	-----	-----	-----	-----
Total	23,779	100.0	490.5	100.0	\$20,627
(1) Micro and very small companies: credit less than US\$5,000					
(2) Small companies: debts between US\$5,000 to US\$15,000					
(3) Medium companies: debts between US\$15,000 to US\$50,000					
(4) Large companies: debts more than US\$50,000					

Source: Table 13

- The concentration of credit in large companies is stressed; 1,019 producers (4.3% of the total) have 83.4% of the total amount of credits allocated by the system (US\$409.2 million of the total portfolio of US\$490.5 million). This total fully corresponds to commercial banks, however, we must point out that a major portion of this portfolio is used as investment credit which, in the current recession, is potentially a problematic credit or a delinquent portfolio.
- Expert in commercial banks state that their installed capacity and high costs per operating unit allows these banks to channel credit to medium and large companies; smaller credits demand a close supervision and technical assistance, an expansion of the territorial coverage of commercial banks far from their operative offices (basically located in urban areas) which is difficult and expensive; furthermore they operate with real mortgage collateral subject to legal problems; the absence of business accounting hampers the analysis of credit requirements, that demands a direct supervision of disbursements within the farming cycle of crops and breeds.

D. Comparative indicators with the Agrarian Development Bank

Additional indicators of the operation of the Agrarian Development Bank point out the degree of coverage of their credit services, of great importance in the evaluation of the behavior of the IFIs in the decade of the nineties.

Table 14 shows indicators of the number and amounts of credit granted by the Agrarian Bank for the years 1980 and 1989. The figures show a growth of 2.4 times the number of borrowers, of 97,030 to 230,000 in the decade of the eighties and, a duplication of the amount of current US\$101 million to US\$205 million. As regards the strata of producers, we have summarized the number and amount granted to very small and small agriculture versus medium and large producers.

Small landowners and very small and small agriculture and livestock producers	Medium and large agriculture and livestock producers
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Year	(1+2)				(3+4)			
	No of credit	%	Amount Millions US\$	%	No of credit	%	Amount Millions US\$	%
1980	92,770	95.6	44.0	43.4	4,260	4.4	57.2	56.6
1989	184,920	80.4	106.0	50.4	45,080	19.6	101.4	49.6
2000	21,457	90.2	47.6	9.7	2,322	9.8	443.0	90.3

Source: Table 14

Bearing in mind that the Rural and Municipal Savings and Loans Associations provided loans for the amount of US\$49.2 in the year 2000 (Table 12), we can affirm that the totality of their clients came mostly from the strata (1) and (2), while commercial banks focused mainly on strata (3) and (4).

The above reaffirms our understanding of the “new financial repression” that generated the anti-technical disappearance of the Agrarian Bank.

3.4 The deep crisis by the end of the decade of the nineties.

By the end of the nineties and the beginning of the new millennium, the Peruvian economy had fallen into a deep recession, which became worse due to the political instability.

Although it is true that at the beginning of the recessionary cycle (1997/98) there was a strong influence of the Asian financial crisis followed by the Brazilian crisis in addition to increase of military expenditures due to border clashes with Ecuador. The recurrence of the traditional cycle of the balance of payments in Peru has a cause-effect explanation in factors of a structural nature that have become deeper in the last decade, aggravated by a lack of national policies to promote and foster the internal and external integration of their productive activities.

Possibly, the reason why there is such a deep recessionary process in the economy of Peru is mostly because of the idea of the “economic model” itself adopted and implemented, proposes a divorce between “economic” and “political-social achievements,” and therefore, accepts the authoritarian conduct and actions of the government as a “necessary cost” to meet the desired levels of economic growth.

Political and economic analysts agree in pointing out that the severe crisis confronted by Peru today is the result and characteristics of the “political model” of an absolutist and authoritarian government, and therefore, an anti-democratic government that accompanies the “economic model” proposed by the extreme liberalism of the “cult for market economies and its practically unlimited operations”, adopted by the government in the decade of the nineties.

The notion itself of the neo-liberal “political-economic model” of Peru places emphasizes the primary export sector; does not recognize the dimension of the economic and political-social de-centralization as a national integrated development strategy; and therefore

overlooks the INTERNAL INTEGRATION policies and actions that encourage the creation and expansion of the entrepreneurial production and investment options generated by national employment and income.

In this scenario, all economic activity sectors have been severely affected by the deep de-institutionalization and de-capitalization structural crisis undergone by Peru's economy and society since the decade of the seventies.

We wish to firmly point out that one of the most affected sectors by the deep structural crisis of Peruvian economy and society are primary agrarian productive activities and rural activities that the latter depend upon either directly or indirectly.

Primary agrarian productive activities reveal that during the decade of the nineties there has been a reduction of its profitability of approximately forty percentage points from 1990 to 2000 measured in terms of the deterioration of the internal terms of trade between prices received by the agrarian producers and the prices paid for production inputs and factors.¹³

Experts point out the perverse combination of the following factors as the main cause-effect relationships that explain the reduction of profitability of the agrarian sector in the decade of the nineties:

- a) lagged exchange rate;
- b) rapid liberalization of food imports (commodities for the food industry and final processed goods);
- c) the application of social compensation programs during the prolonged adjustment process of the economy through the distribution of subsidized imported food to urban and rural low income populations competing in internal product markets through local, regional and national levels;
- d) to the above we must add the distancing of formal financial credit with the disappearance of development banks (in particular the Agrarian Bank) and, the private non substitutive, effective and efficient saving and loans associations for the amounts and modalities of credit granted by private commercial banks, Rural Savings and Loans Associations, Municipal Savings and Loans Associations and rotating funds granted by the government and some NGOs.

Unfortunately, in Peru in the nineties, the neo-liberal concepts that have dominated the political and economic reasoning has involved a growing neglect of the policies and practices to reinforce and build institutions in order to promote and foster organizations, both in the governmental administrative field as well as the private economic and social

¹³ We consider that it is of most importance to point out that the de-capitalization process of the decade of the nineties is added to the producers in the decades of the sixties and seventies by effect of the Agrarian Reform (due to the loss of entrepreneurial capital and a lack of investments in addition to the practice of freezing the market of land) and, in the decade of the eighties due to the effect of the "counter agrarian reform" (the fragmentation of plots of the land owned by large associations). The structural problems pointed out are aspects of a primary national interest that must be approached, with a political and technical will, and a greater priority and seriousness.

fields. In the diagnosis carried out we wish to highlight the neglect of the following aspects:

- the reforms to create a modern de-centralized, non-bureaucratic and efficient state, were proposed to be implemented during the last decade;
- resource transfers to the most needy were imbued in the social compensation programs or short-term subsidies designed to confront the stage of macro-economic adjustments and later, used in actions of political proselytism for the 1995-2000 government administration re-election process.
- The reform of the financial system was normalized by a Banking Law for multiple services that tend to concentrate in a few entities of the banking system, foreign trade and internal commercial exchange services and centralize resources and decisions in Metropolitan Lima producing what we can call, conditions for a “new financial repression” hampering the productive activities and services installed throughout the interior of Peru, in particular, the activities developed in favor of the small and medium agrarian and industrial companies.

Studies reviewed and proposed on financing policies for agricultural and livestock activities and rural development in the decade of the nineties differ substantially, not much as concerns its analysis on the negative effects generated by the restrictions to access formal financial credit, to working capital and investment resources, required by these activities, but rather particularly, in the conclusions and recommendations concerning the institutional arrangements and forms as considered necessary, to reinforce and create, to achieve the objectives desired and to confront the economic –financial crisis suffered by Peru, its companies and financial system.

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CHAPTER 2

PERUVIAN EXPORT AGRIBUSINESS SECTOR: Lessons from asparagus exports

Rosario Gómez¹⁴

INTRODUCTION

The purpose of this article is to analyze how important non-traditional agricultural exports are to Peru. The development of the asparagus export activity is explained under this context in order to identify the successful factors that enabled the development of this in a relatively adverse macroeconomic context as well as the risks of its future development.

This study is relevant because, on the one hand, it shows Peruvian opportunities to develop competitive advantages given the new consumption patterns used by developed countries' consumers who prefer fresh, natural and nutritive products as well as the natural advantage of Peru in producing different kinds of food at any time of the year. On the other hand, this study emphasises the importance of coordination mechanisms among enterprises to reduce transaction costs and to show the need of strategic alliances to consolidate a market competitive position. The asparagus case is an example of the success and crisis of an export activity that was considered consolidated. It is interesting to analyze the components behind such a crisis as well as the reaction of the business sector, a consideration that could be useful to develop other agricultural and industrial export activities.

In order to achieve the proposed objectives, the article has been organized in four sections. First, is a brief presentation of the new food consumption pattern, highlighting the most important characteristics of consumers. Section two shows the relative importance of the Peruvian export agricultural industry and its composition in order to reveal the existing diversification level. The third section summarizes the main concepts underlying the enterprises' growing process, emphasising the strategies of vertical coordination and integration as an alternative to facing competition and decreasing transaction costs. Finally, in the fourth section an explanation is given about the expansion and crisis of asparagus export activity, showing its economical importance, main markets, strengths and weaknesses of the sector, lessons learnt and perspectives. To develop this fourth section, the main asparagus exporters provided a valuable collaboration.

A. The new paradigm in food markets

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I would like to thank Alcira Bojorquez for her valuable collaboration.

Peruvian food products for export take part in increasingly competitive and demanding markets. Furthermore, the international trade is developed within a framework of liberalizing markets, reduction of obstacles to trade and consideration of the environmental dimension.

The international trade in food cannot be unaware of the trade system's basic principles: trade without discrimination, freer trade gradually and through negotiations, prevision by means of commitments, consolidation, promotion of fair competition, development and economical reform. Particularly for agriculture, the development of more fair markets for farmers is promoted, based on the improvement of methods aimed at removing distortions in agricultural products trade and promoting access to markets¹⁵.

On the other hand, several studies show that consumers are more concerned about the kind of products they purchase. Now, they demand more information about their origin and production methods. Albert Hijn, in Status Report 2000¹⁶ indicates the most important aspects required by consumers.

- Quality: this depends on the standards established by each destination market. The most demanding countries are: United Kingdom, The Netherlands and Germany.
- Consistency in physical characteristics of the product: shape, size, color, texture and steadiness.
- International certification that guarantees proper agricultural practices: proper use of chemical fertilizers and pesticides. This means the limited use of these only for strictly needed cases. Organic solutions are promoted.
- International certification that guarantees proper labor practices: well-treated employees, fair salaries, staff efficiency, proper training, among others.
- International certification guaranteeing that the producing company complies with quality processes, which implies that the elaboration of the products at the plant takes into account sanitation and environmental care.
- Ecological certification, that guarantees the ecological and organic nature of the product. This requirement is proposed by an increasing group of consumers.

These requirements are explained in a context where the demand for food has been modified as a result of demographic changes and lifestyles changes of the population from the most important destination markets. The main factors contributing to such modification are the following:

- *Increase of the high-income group in developed countries*, that has increased the demand of quality products. For instance, in U.S.A., in 1970, 23% population was considered in the high-income group and in 1990 this share increased to 31%.

¹⁵ OMC. *El Comercio hacia el Futuro*. (Trade towards the future) 1999. pp. 7 and 17.

¹⁶ www.ahold.com

- *Increase of per capita income in developed countries*, United States, The Netherlands, United Kingdom have registered annual average growth rates of 4%. Meanwhile the per capita income in Spain increased by 5% during the 1990-1998 period.
- *More concern about nutritional and health aspects*, which has changed demand towards fresh and natural products. Per capita consumption of fresh fruits and vegetables has increased. For instance, in USA, between 1970 and 1992, per capita consumption of fruit increased to an annual average rate of 7.2%. In England, consumption of fresh and processed fruit increased by 109% in 1994-1999. It should be noticed that while the consumption of citric fruits (i.e. oranges) decreased by 20%, consumption of grapes and bananas doubled. Canada also reported growth rates higher than 10% in 1999 in fruits and vegetables per capita consumption with respect to the previous year, for fruits such as cherries, strawberries, raspberries (40%) and melons, etc. Regarding vegetables, it should be noticed a 19% increase in asparagus per capita consumption¹⁷. In the North American market, 80% of the per capita consumption of fresh fruit is noncitric, such as: bilberries (22%), apricot (20%), avocado (14%) and mango (4%). Fruits with a positive growth during the nineties are: mango, papaya, sour cherries and melons which per capita consumption in 1999 increased by 4%, 24%, 19% and 5%, respectively, with respect to the previous year¹⁸.
- *Family unit size tends to decrease* which favors the access to quality products properly offered. For instance in USA, in 1970 the family unit was composed of 3.1 persons while in 1989 changed to 2.6.
- *Women increasing participation in the labor market increases the demand for products of consistent quality and with proper presentation (variety of sizes, products ready to be used)*. For instance, in USA between 1985 and 1989, the number of employed women increased by 12%. Furthermore, their participation increased from 42% in 1980 to 45% in 1990. The female economic activity rate has increased in developed countries¹⁹. For instance, in the United Kingdom, it increased from 34.2% in 1993 to 52.4% in 1998.

The most important fear of fresh products consumers is the health risk related to the use of pesticides and their chemical residuals that are one of the main causes of cancer. This concern corresponds both to American and European consumers as well as Asians (i.e. Taiwan). Experts have identified the consumers' willingness to pay for a decrease in health risks as an indicator of food security. Additionally, they confirm that there is a direct relationship between the willingness to pay and the level of concern about the

¹⁷ Ministry of Agricultural, Food and Rural Affairs. Canada-Ontario.

¹⁸ USDA-Economic Research Service. Statistics Bulletin No 965.

¹⁹ Annex 1 shows the Female Economical Activity Rate for some developed countries.

health risks. This means the greater concern about this issue, the greater willingness to pay for a decreased likelihood of getting cancer. Socio-economical variables to determine the willingness to pay to reduce the risks are the following: health conditions of the agents and the concern about the cost and quality of vegetables²⁰.

Distribution companies of fresh products as a response to consumer's preferences are increasingly caring more about food quality and security. For instance, Royal Ahold²¹, a leading transnational company in fresh products trading in Europe with subsidiaries and partners around the world, established the "Farm to Fork" strategy and in 1999 created the Global Food Safety Committee. Royal Ahold also owns Santa Isabel Supermarkets in Lima, Peru. This company created a set of requirements in terms of products food security and quality and based on these, they establish alliances with their suppliers in order to improve environmental care in fields, during crop production and in animals' welfare.

Giant-Carlisle²² (Royal Ahold partner) prefers to purchase organic products as a differentiation strategy with respect to their competitors. They sell 1,200 natural and organic products. 150 of these are organic products. Albert Heijn, a leader supermarket of organic products in The Netherlands introduced the first brand of organic products in 1998. Two years later, there were more than 210 organic products, in 15 categories and it is still growing.

Thus, there is a consumer whose food consumption preferences incorporate the health care issue and therefore his concern is to minimize the risk of consuming food with chemical residuals. Therefore, food companies as a response to these demands are incorporating in their quality standards the food security and environment care issue.

Finally, in some markets such as Japan's, some food is used as gifts due to cultural reasons. Fruits are among these. Fruits that are popular gifts are tangerines, apples, oranges, grapefruits, etc. while cantaloupes are considered a luxury fruit gift²³.

B. Export of agricultural products from Peru

Importance and composition of Agricultural Export

In 2000, agricultural exports represented 9% of Peru's total exports value. This showed a decrease with respect to the previous years. In 1997, it represented 11.6%. Agricultural exports are between the third and fourth position in generation of foreign currency (Graph 1). The value of agricultural exports increased at an average annual rate of 8% between

²⁰ Fu, Tsu-Tan, et.al. "Consumer Willingness to pay for low pesticide fresh produce in Taiwan". In: *Journal of Agricultural Economics*. Vol 50, No 2. May 1999. pp 220-233.

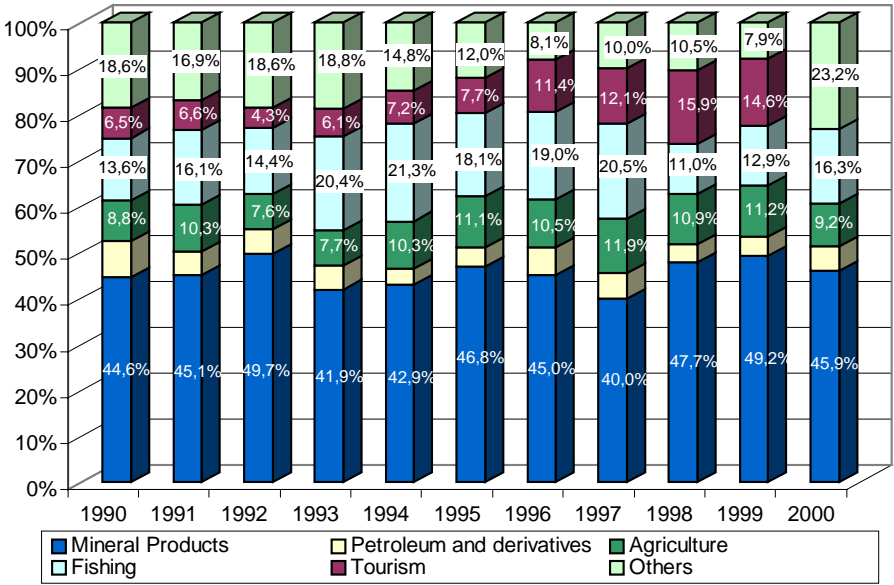
²¹ Annex 2 shows the Royal Ahold main stores in the world.

²² Royal Ahold. <http://www.ahold.nl/aholdstartpage.nfs/mainuk>. Giant Carlisle is the leader of food supermarkets in the American Market.

²³ Gehrt, Kenneth and Soyeon Shim. "The Role of Fruit in the Japanese Gift Market: situational defined markets". *Agribusiness*. Vol.14, No 5, 1998. pp. 338-339.

1990 and 2000. However, there is a big contrast in the average annual rate of growth between 1990-1994 and 1995-1999, in the first period it was 12.6% and in the second one it fell to 2.6%. The latter period was affected by El Niño (ENSO)²⁴ effects in 1997-1998 and in 1999 there was a lack of financial resources for production.

Graph 1
Main Export Activities Share



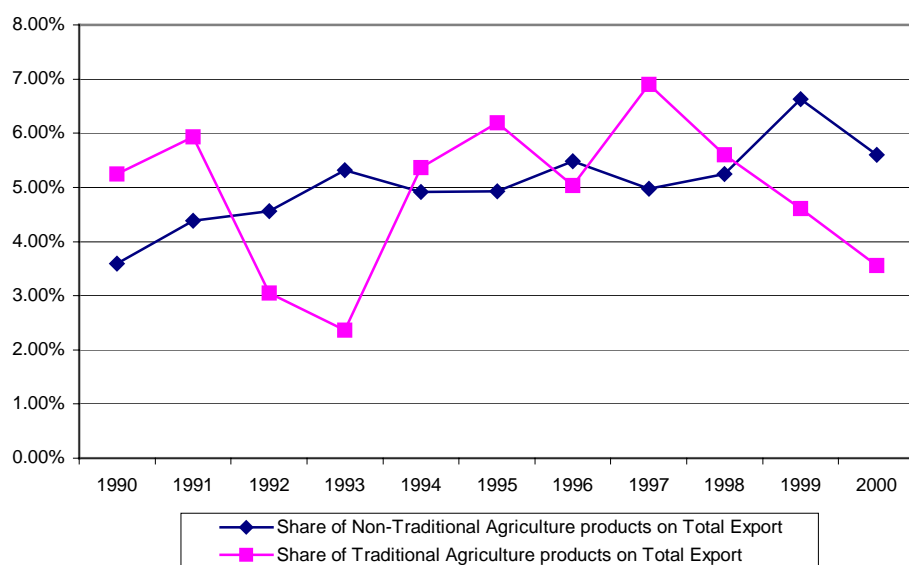
Source: Central Reserve Bank of Peru

The Peruvian agricultural export industry is composed of two groups of products. The first group is composed of commodities (i.e. coffee, sugar, cotton) and it is named the traditional agricultural export group. The second group is composed of a variety of products, many of these have a value added (i.e. canned and fresh asparagus, marigold flour, mangoes, cocoa butter, etc.) and it is named the non-traditional agricultural export group.

The first group shows a declining share in agricultural exports, decreasing from 64% in 1990 to 39% in 2000. On the other hand, non-traditional agricultural exports have increased their share from 36% in 1990 to 61% in 2000 (Graph 2).

²⁴ ENSO: El Niño Southern Oscillation

Graph 2
The Composition of Agricultural Exports



Source: Central Reserve Bank of Peru

Traditionally, agricultural exports are led by coffee, which, during 1998-2000 represented 90% of this group. Besides, coffee represented 35% of the total value of the agricultural exports in the year 2000 (US\$223 million dollars).

Other traditional export products are sugar and cotton, but are not significant. Sugar is scarcely exported, only to cover the sugar quota in the American market. Domestic sugar production is not enough to satisfy national demand. In the sugar industry the process of selling the sugar cooperatives to the private sector has yet to be completed. There is a national objective to become a leading sugar exporting country again in a competitive framework. For cotton, the national textile industry is the main purchaser of cotton fiber and cotton textiles are exported.

The declining share of traditional agricultural export is due to the steep reduction in the price of coffee during the nineties; between 1998-2000 this decreased at an annual average rate of 20%. Furthermore, given the drastic restrictions of the local financial sector, this production also decreased by 4% in 2000. The previous years, attempts were made to compensate this price reduction through increasing coffee export volumes.

The non traditional agricultural export group is composed of more than a dozen different products²⁵, which reduce the effects of price fluctuations of some of the products. However, asparagus exports (canned and fresh) represent 33% of the total value of non traditional agricultural exports. Asparagus exports were 134 million dollars in 2000, that represent almost half the value of coffee exports.

²⁵ Annex 2 presents the main Peruvian non traditional agriexports.

Diversification of non traditional agricultural exports involved different regions in the production process: coast, highlands and jungle (Table1). Besides, because of their nature, these are value added exports, they generate direct and indirect multiplier effects of production and employment in the local area of production. It is estimated by different studies that one field worker represents between two and three employees in other related activities.

Table 1
Non traditional export products by main producer area

Region	Products
Coast (0-500 m.a.s.l)	Asparagus, marigold flour, mangoes, dry beans,
Highlands (501-6,000 m.a.s.l.)	Yellow onions, cochineal, white corn, flowers
Jungle (2,000-80 m.a.s.l.)	Cocoa, palmitos,

m.a.s.l: meters above sea level.

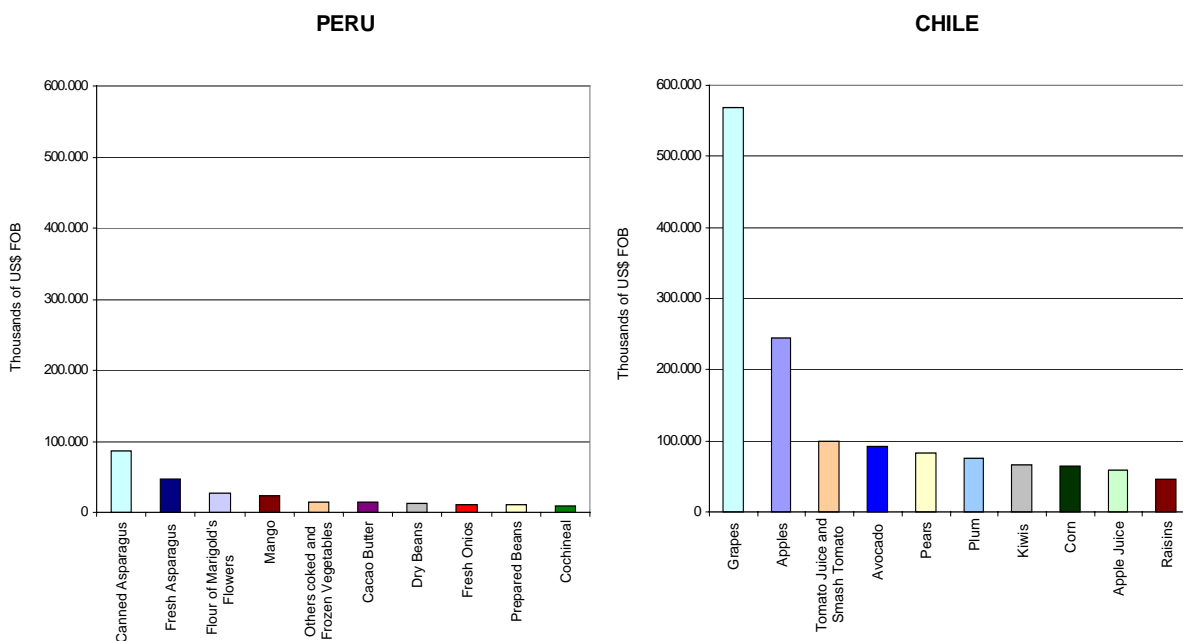
Because of Peru's natural conditions and the fact that it contains 80% of the total life zones in the world, it is possible to produce different products in different areas throughout the year. For instance, yellow onion can be grown in Nepeña valley-Ancash (144 m.a.s.l.) as well as in La Joya valley-Arequipa (1,200 m.a.s.l.).

The agribusiness sector is vulnerable to weather conditions because changes in temperature, humidity, solar radiation, and rainfall affect crop production by reducing yields, affecting blooming and/or flooding the fields. In Peru, El Niño drastically affects agricultural production, mainly in the coast area.

Access to technology in terms of seed adaptation and diffusion of irrigation techniques , allowed the development of new crop areas, especially for those products with market. For instance, when mango exports were initiated, the department of Piura was the only producer. Now, production has expanded towards the center coast (Casma – Ancash) given the growth of the main market – USA – and the favorable weather conditions.

However, Peruvian non traditional agricultural exports are still far from closer competitors such as Chile. For instance, the value of Chilean grapes and apple exports represents 18% more than the total value of the Peruvian agricultural exports. The value of Peru's main non traditional export products is very low compared to Chilean fruit exports (Graph 3).

Graph 3
High Added Value : Vegetables and fruits exports, 1999



Sources: Peru; Ministry of Agriculture. Office of Agrarian Information.
 National Superintendence of Customs.
 National Service of Customs of Chile. ODEPA.
 Central Bank of Chile.

Non traditional agricultural exports can be divided in four groups: The first one stands for those products that are established in the international market (i.e. asparagus). These products were continuously in the top four positions of non traditional agricultural exports throughout the 1990s. The second group stands for those products that are very sensitive to market conditions and shows high positive rates of growth for some years and then its rate of growth became negative (i.e. cochineal, dry beans). The third group stands for products that have a relative low export amount, they have a highly fluctuating growth (i.e. yellow onions, olives, fresh garlic)²⁶.

Agricultural exports, diversification and competitive advantages

Monitor's²⁷ study clearly stated that Peru has a comparative advantage to satisfy the requirements of a consumer who is concerned about food security and nutritional aspects. However, the key issue is to convert those advantages into competitive advantages.

To have a general idea about the development of Peruvian agribusiness sector during the nineties, it is necessary to recall that during mid eighties the government promoted the

²⁶ See Annex 3.

²⁷ Monitor. *Construyendo las Ventajas Competitivas: los agronegocios (Building competitive advantages: agribusiness)*. PROMPERU, Lima, July 1995.

agribusiness export sector providing different kinds of incentives such as tax reimbursement (CERTEX), reduced interest rate for export loans (FENT), etc.²⁸. As a result many agribusiness firms entered the market. However, there was great volatility in firms continuity, for instance in the case of asparagus exports, between 1983 and 1992 there were 125 firms that exported at some point, but hardly 15 firms exported regularly along that span. In the early nineties, given the new macroeconomic conditions and structural reforms, many agribusiness firms that entered in the eighties went out of business and others entered in the market based on the new economic bases: markets liberalization, exchange rate policy based on market conditions, development of a land market, simplification of tax structure, etc.

Many entrepreneurs who entered in the exporter agribusiness sector, in the last decade, had a different attitude to develop their business. They were aware of the importance of investing in the fields for efficient agricultural production of raw material, of establishing incentives for an efficient vertical coordination and/or following a process of backward integration. The importance of having stable and credible contractual relationships based on agreements where the rights and obligations for each party are clearly stated as well the sanctions in case of non-compliance was realized. Nowadays, the concepts of efficiency and competitiveness are used not only at the production level but also the administrative stage. Entrepreneurs are more aware of concepts such as market preferences, social responsibility and environment conservation.

There is a set of issues to be solved before the different agribusiness opportunities in different parts of the country can be exploited. It is important to enhance and develop a systemic vision about agribusiness development. This means to include the dynamics of the agricultural sector and to solve its structural problems in order to promote a modern and efficient agricultural sector that can operate together with the agribusiness sector. Some of the critical issues are: lack of complete and consistent legislation to promote agricultural investment, to complete the property certificates process to guarantee land property rights, to finish protocols that show adequate sanitation conditions for those vegetables and fruits that have international market restrictions, and lack of agricultural services (i.e. technical assistance, credit, etc.).

On the other hand, the agribusiness sector needs to continue its maturity process in order to have a better understanding of the market requirements, sharing information, and making strategic alliances among firms to improve Peru's position in the final markets. Main restrictions faced by the export agribusiness sector are as follows: lack of coordination in organizing the final market supply and avoiding price reductions because of excess supply, change production aversion that leads to a production concentration in some products such as asparagus.

Besides, a necessary condition to develop non traditional agricultural exports is properly trained human resources that can manage and develop strategic planning for the

²⁸ The history of the agribusiness sector is very tied to agricultural development, where the land reform had an important impact, breaking an agribusiness management system. That analysis is beyond the scope of this paper.

development of new products and the introduction of them to new markets. Nowadays, it is not enough to know consumers characteristics, it is critical to develop an efficient method to meet their requirements.

C. Theory of the firm: transaction costs and vertical coordination

Competition and diversification

Markets and firms are interacting institutions, which are mutually necessary for their existence. Their duty is *resource allocation*. The way this duty is fulfilled and the pattern of resource allocation in space and time depends on the way market forces impact on the firm. The latter depends not only on the size of an individual firm's supply of (or demand for) a given product in relation to the total supply of (or demand for) that product in the market but also on the kind and amount of productive services which is already operating within the firm²⁹.

Competition favors diversification into new areas, it is a strategy to soften competition and favors the firm's growth. Although it may be profitable for a firm to continue investing and even to expand on its existing fields, it does not follow that it will be profitable for the firm to attempt any significant improvement on its position when the improvement entails a significant additional commitment of resources³⁰.

There is an important difference between growth and firm size. While growth is a process, size is a status. The firm size will be determined by the process of growth and the factors that affect it. Any change in circumstances that widens the productive opportunity of firms or increases their managerial capacity for growth, in relation to the growth of demand for their existing products, will tend to increase diversification³¹.

A specialized firm is highly vulnerable in an environment of changing technology and tastes, and can often make more profitable use of its resources over a period of time by spreading production over a variety of products. However, the changing nature of the production opportunity of the firm continually presents new investment opportunities. The firm could take advantage of those opportunities while at the same time maintaining and expanding those production lines to which it has extensively committed its resources.

In summary, new opportunities are related not only to changes in prices, tastes and other market conditions, but also to the special kind of productive services and knowledge developed by the firm³².

The expected actions of the competitors are part of the external environment of an individual firm, and the techniques adopted by the firm, to maintain its position in the

²⁹ Penrose, Edith. The Theory of the Growth of the Firm. Oxford University Press, 1995. p. 197.

³⁰ *Ibíd*, p. 136.

³¹ *Ibíd*, pp. 151-152.

³² *Ibíd*, pp. 105-106.

market, have a significant influence on the kind of new productive services that are created within the firm. The relationship between competition and the internal supply of productive services is of particular significance wherever the individual firm must keep abreast of new technical developments to compete successfully. The continued profitability of the firm is likely to be associated with the possibilities for innovation.

In a competitive and technologically progressive industry a firm specialized in given products can maintain its position with respect to those products only if it is able to develop sufficient expertise in technology and marketing to enable to keep up with and to participate in the introduction of innovations affecting its products³³.

The firm and transaction costs

The company is generally an institution that contracts production factors and organizes these to produce and sell products and services. To organize the production, the company establishes relationships with a large number of individuals and other companies.

An important aspect to be considered is the decrease of costs related to the organization and execution of transactions. A transaction takes place when a product or service is transferred from one activity to another to participate in another process. Transactions are mainly described based on three dimensions: (a) frequency at which transactions take place, (b) level and kind of uncertainty and (c) specificity of assets.

Transaction frequency refers to periodicity of purchase-sale operations. Uncertainty refers to the insecurity of demand and supply which makes companies develop coordination methods outside the market. When transactions take place under an uncertainty context, it is very expensive to point out in advance all the contingencies. Specificity of assets refers to the level under which an asset can be re-used in alternative uses and by different users, without sacrificing its productive value. It is related to the concept of sunk cost. The importance of assets specificity is evident in a context where contracts are not complete.

The concept of specificity is very important in long-term relationships that are related to specific costs or investments. Tirole states that when the parties contract, each one knows that as a result of such transaction, there will be benefits. In order to achieve such benefits ex post, there should be an optimum volume of product to compromise. Thus, benefits will imply an efficient quantity of specific investments ex ante.

Specificity of assets is one dimension to describe transactions and the issue least considered by previous industrial organization studies. The key aspect is not how large investments are but how specialized these are for a particular transaction. Products that are not specialized among the users have less risk, due to the fact that buyers can easily have other alternative supplying sources and suppliers can sell a product committed to one buyer to another buyer very easily.

³³ Ibid, p. 132.

The specificity of assets could originate from any of these three situations: a) specificity of place (location), in such a way that we could save in inventories and transportation costs; b) physical specificity of assets and c) specificity of human resources which originates from the fact the labor is specialized during the process of *learning by doing*. The reason why the specificity of assets is important, is due to the fact that once the investment is made, the buyer and the seller are establishing a bilateral exchange relationship during a considerable period of time³⁴.

On the other hand, the criteria of cost saving is critical to organizing commercial transactions. This concept has two parts: a) to save in expenses related to production and b) to save in transaction costs. In general terms, the problem of saving includes the election between a product and service for a specific purpose or for a general purpose. A multiple purpose product has the advantage of being acquired through the market but the design value might be sacrificed. In the case of a specific purpose product or service, differences are valued but its availability could be limited and affected by contingencies.

If transactions costs are depreciable, supply will be performed through buyers in the open market instead of contracting in advance³⁵. Thus, economy of transaction costs provides elements about the determining factors for vertical co-ordination.

Different authors³⁶ state that the agents involved on an agribusiness activity have incentives for developing vertical coordination mechanisms, when they process perishable products. Vertical coordination through agreements contributes to reduce transaction costs associated to transactions made on the spot market.

Vertical coordination and vertical integration

Vertical coordination is a complete concept that takes into account the process consisting of the different production and distribution functions vertically interdependent. Vertical coordination implies the organization of the direction and control of the different parts that belong to the productive and commercial system. Vertical coordination could happen through vertical integration or formal agreements between independent firms³⁷.

Shaffer states that vertical coordination is a special aspect of the contractual relations among agents. The main issue is the effectiveness of coordinating supply and demand decisions. This concept uses the price as a key variable to provide information and incentives and it also shows the behavior of the agents who have a strategic position³⁸.

³⁴ Williamson, Oliver. "The Economics of Organization: The Transaction Cost Approach". In: *American Journal of Sociology*. Vol. 87, No 3. November 1981. p. 555.

³⁵ Williamson, Oliver. "Transaction Cost Economic..." *Op. cit.* p. 245.

³⁶ Sporleder, Thomas. "Managerial Economics of Vertically Coordinated Agricultural Firms". In: *American Journal of Agricultural Economics*. Vol 74, No 5. December 1992. p. 1229.

³⁷ King, Robert. "Management and Financing of Vertical Coordination in Agriculture: an overview". In: *American Journal of Agricultural Economics*. Vol 74, no 5. December 1992. p. 1217.

³⁸ Shaffer, James. "Food System Organization and Performance: Toward a Conceptual Framework". In: *American Journal of Agricultural Economics*. May 1980. p. 137.

In the case of agribusiness, vertical coordination can be developed by formal contracts between the firm and independent producers. In the contracts the quantity and the price are established. Depending on the type of the final product and its final market, the producers can receive technical assistance and money paid in advance. These disbursements allow the producers to develop the different agricultural activities (i.e. to buy fertilizers, pay labor, pay services, etc.). Because of the direct relationship between the producer and the agribusiness firm, there are two important effects for producers: a) reduction of price and income fluctuations, b) some degree of certainty in the production stage that favors production and investment planning decisions. The latter is important for the introduction of new technology. For many agricultural producers, to belong to an agribusiness chain means a change from a traditional way of production to entrepreneurial management. This is one of the main benefits of the contracting relationship.

In the absence of vertical coordination, the producers will be exposed to low prices because of the production disorganization that could generate excess of supply of the raw material. A coordinated and stable relationship between the agents allows availability of raw material fulfilling the quality standards imposed by the final market. Quality and homogeneity in the raw material are key issues. Those characteristics cannot be fulfilled by occasional producers who use traditional techniques and ignore agribusiness requirements. This fact prevents transactions on the spot market³⁹.

Backward integration will take place only if it is expected to reduce costs. The decision to integrate backwards evaluates the alternatives of buying the materials (i.e. raw materials) or producing them. The profitability of backward integration is measured by its effect on the net revenue of the firm. Hence, the opportunity to increase profits by integrating backwards is to be treated in the same way as other productive opportunities of the firm – the additional profit expected must be compared with the expected profit from alternative uses of the resources required. The relevant savings in production that backward integration may bring can be divided into two categories: those related to the firm's efficiency, and those related to the price that must be paid for supplies. In the first category, all problems associated to provision of supplies are taken into account, with proper quality, amounts and on time⁴⁰.

Vertical integration is a method by which a firm attempts to maintain its competitive position and to improve the profitability of its existing products. Much integration is directly traceable to the technical efficiency of conducting a sequence of operations in close proximity to the maintenance of a smooth flow of supplies⁴¹.

Backward integration in agribusiness means that the firm assumes the organization and management of the different stages of the production process. So the agribusiness firm

³⁹ Gómez, Rosario. *Relaciones Contractuales en la Agroexportación: el caso del mango fresco* (Contractual Relationships in Agricultural exports: the case of fresh mangoes). CIUP, Lima, 1995. p.27.

⁴⁰ *Ibid.* pp. 146-147.

⁴¹ *Ibid.* p. 149.

has fields in production, to satisfy its raw material requirements (partially or totally). In this case, the impact of the agribusiness company over the producers is limited because the firm will have little contact with them. This strategy is usually used for crops that are intensive in financial capital and technology, factors that are restricted for a large number of producers.

Monitor's study of the Peruvian agribusiness sector states that competitive advantages are obtained based on the selection of products that can better meet the customers requirements and have more supply of it than the competitors. Market segmentation helps to understand customers' needs and preferences. Markets can be segmented according to different criteria such as: location, volume, services requirements, etc.⁴². It is very different to compete with a Peruvian brand in a traditional market for processed products than to participate in a market niche with an innovative product. While in some market segments a Peruvian brand could have international recognition, competition in traditional segments could mean competing with internationally well known large corporations and brands⁴³.

Monitor's study points out that Peru's export agribusiness sector demands that agricultural production units be competitive based on explicit strategies and information in order to develop sustainable advantages. In 1995, the study states that the sector needs to be in more contact with the final markets and have a better understanding of them. By the end of the nineties this fact has improved and some agribusiness export firms have developed strategies and alliances in order to meet market requirements and obtain a competitive position.

Internal and external alliances are a means of developing a competitive advantage. Backward coordination guarantees a stable supply with consistency in quality and volume. Forward coordination produces better information about market behavior in terms of prices, competition and customer preferences.

A firm has two ways to compete: by costs or by differentiation. To compete costs is possible mainly when the prices are favorable, and the firm has competitive advantages and enough volume to supply the market. Peru, has mainly possibilities to compete based on differentiation by products, services, etc. The key issue is to understand that the market continuously changes so it is important to be flexible and able to offer permanent improvements and new ways of differentiation.

D. THE ASPARRAGUS EXPORT CASE

⁴² Monitor Company. *Construyendo las Ventajas Competitivas del Perú: Los Agronegocios*. (Building Competitive Advantages of Peru: Agribusiness) Promperú, Lima, 1995. p. 17.

⁴³ *Ibid.*

History

Asparagus was introduced in Peru in the late fifties. Its production was concentrated in Chao and Viru valleys (La Libertad). Only one variety, “Mary Washington”, was brought. This seed was used for approximately 25 years. In the mid eighties adaptation and adoption of new varieties began.

The “Mary Washington” variety was used during 20 years mostly to produce canned asparagus. During the second half of 1980 the development of fresh and frozen asparagus was developed.

Economic importance

Exports

Asparagus exports had an increasing share in the total value of agricultural exports. This share has increased from 10% in 1990 to 21% in 1999. Asparagus is the second largest agricultural export product and it is exported in three forms: canned, fresh and frozen. It should be noted that fresh asparagus exports have increased considerably throughout this decade, at an annual average rate of 30%, while canned asparagus exports had an annual average rate of growth of 14% during the 1990-2000 period.

Decentralized production

Asparagus production is distributed along the Peruvian coast. Although during the sixties, its production was concentrated in the Chao, Viru and Moche Valleys (La Libertad), since the mid eighties, asparagus production areas began to expand throughout the coast. To date it is produced on practically all the coast, from Piura to Arequipa (Map 1). Official information reports 18,600 hectares of harvested asparagus, representing 2% of the cropland in the Coast. The main producer departments are Ica and La Libertad concentrating 49% and 35% respectively of national asparagus production.

Employment

This expansion towards different zones has generated local production and employment multiplier effects. It should be noticed that agricultural production of asparagus is labor intensive, especially during harvest. Furthermore, to transport the asparagus from the field to the processing centers requires refrigerated transportation services. Additionally, there is an important chain with the glass industry for jar supply in the case of canned asparagus.

MAP 1

Main Production Areas and Localization of Main Asparagus's Processing Companies, according to type of Asparagus



Source: Peru: Ministry of Agriculture. Office of Agrarian Information.
 Peru: Ministry of Agriculture. 1st National Census of Asparagus Producers and Processing Factories, 1998

Markets

Asparagus exports, in their different forms, show a reduced market diversification. The most important markets of Peruvian asparagus exports are Spain (66%) for canned asparagus, the United States (75%) for fresh asparagus and the United States (42%) and Spain for frozen asparagus.

In 2000, canned asparagus volumes increased by 16% at the main destination market, Spain, showing a decrease in comparison with the annual average rate of 1994-1998 of 43%. In other markets such as the Netherlands, Germany and Denmark, the annual rate of growth was negative during the decade (Table 2). This reflects the larger competition that Peru has to face, especially due to the presence of China that competes through costs, limiting Peru's opportunity for selling asparagus.

Table 2
Canned Asparagus: Volume export rate of growth by final market

Years	2000	1999	1998	Average 98/94
<i>Countries</i>				
Spain	16.1%	9.0%	-2.7%	54.7%
France	-15.2%	14.3%	-0.2%	9.6%
Netherlands	-9.7%	-14.7%	-58.2%	-30.4%
United States	282.1%	-22.8%	-16.7%	192.0%
Denmark	-48.2%	13.0%	-29.7%	-6.3%
Germany	-17.7%	19.8%	-62.6%	-18.9%
Belgium	98.6%	-39.3%	18.3%	33.3%
Italy	-48.5%	70.4%	-46.6%	-3.6%
<i>Others</i>	-20.8%	44.2%	18.5%	38.3%
World	1.9%	9.9%	-18.5%	-8.2%

Source: Peru: Ministry of Agriculture. Office of Agrarian Information.

Fresh asparagus volumes showed positive annual growth rates at almost all destination markets except Italy and France. Fresh asparagus volume for the United States, the most important market, increased 37% with respect to the previous year, being higher than the annual average growth rate of 1994-1998 period (29%) (Table 3).

Table 3
Fresh Asparagus: Volume export rate of growth by final market

Years	2000	1999	1998	Average 98/94
<i>Countries</i>				
United States	37.3%	60.6%	9.7%	20.8%
Netherlands	30.9%	33.6%	8.0%	10.0%
Spain	24.0%	42.0%	38.7%	99.1%
United Kingdom	34.9%	34.9%	15.7%	15.2%
Belgium	400.8%	652.0%	885.8%	167.7%
France	-2.4%	120.7%	-13.2%	-10.4%
Germany	432.2%	-0.1%	-59.8%	52.6%
Italy	0.4%	48.1%	-40.1%	-24.6%
<i>Others</i>	106.5%	-7.8%	-2.8%	11.1%
World	37.2%	55.7%	10.6%	12.2%

Source: Peru: Ministry of Agriculture. Office of Agrarian Information.

Regarding frozen asparagus and its main market in the USA, the highest rate of growth of export volumes was reached in 1995 (129%) followed by the 43% reached in 1999. In Spain, the highest rate of growth of volume exports was reached in 1996 (381%). The export volume rate of growth in that market since 1994 was not higher than 30% and in many years it was negative, so the activity cannot follow the average rate of growth obtained in the 1990-1994 period. It is important to mention that Japan is a market for frozen asparagus and in 1999 export volumes grew in 43% (Table 4).

Table 4
Frozen Asparagus: Volume export rate of growth by final market

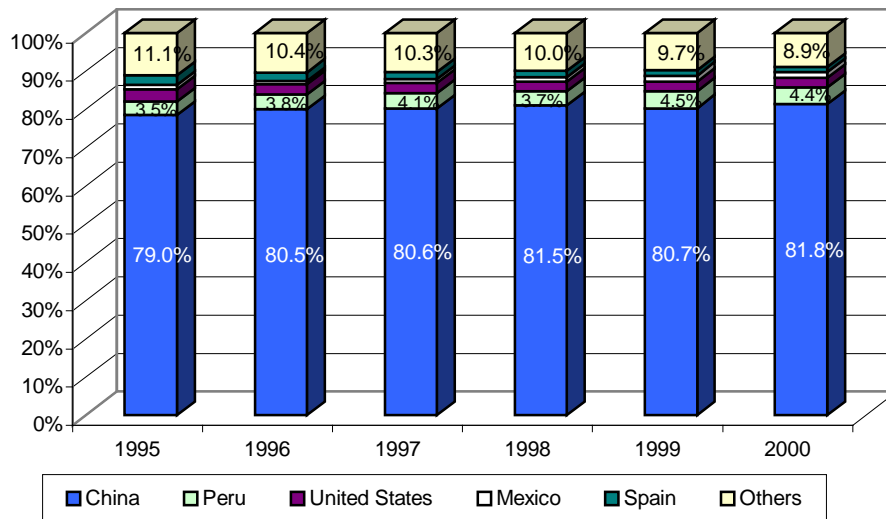
Years	2000	1999	1998	Average 98/94
<i>Countries</i>				
United States	13.4%	42.9%	17.7%	30.6%
Spain	29.8%	8.3%	22.6%	66.6%
Italy	27.4%	-11.5%	-15.2%	33.8%
United Kingdom	-40.6%	169.9%	-71.2%	34.2%
Japan	-58.7%	42.9%	-26.9%	7.3%
Germany	29.6%	-42.2%	-40.9%	-17.2%
<i>Others</i>	-47.0%	-36.3%	42.5%	2.0%
World	2.2%	11.1%	-4.7%	7.6%

Source: Peru: Ministry of Agriculture. Office of Agrarian Information.

Peru is the second largest producer of asparagus in the world. China is the first country and concentrates approximately 80% of worldwide production, followed by Peru with 4% (Graph 4). It should be also noticed that China's production increased by 7% during 1996-2000 period while Peru increased by 12%. Even though Mexico represents 1% of

worldwide production, it reported the highest annual average growth rate (15%) during the same period⁴⁴.

Graph 4
Asparagus World Producers



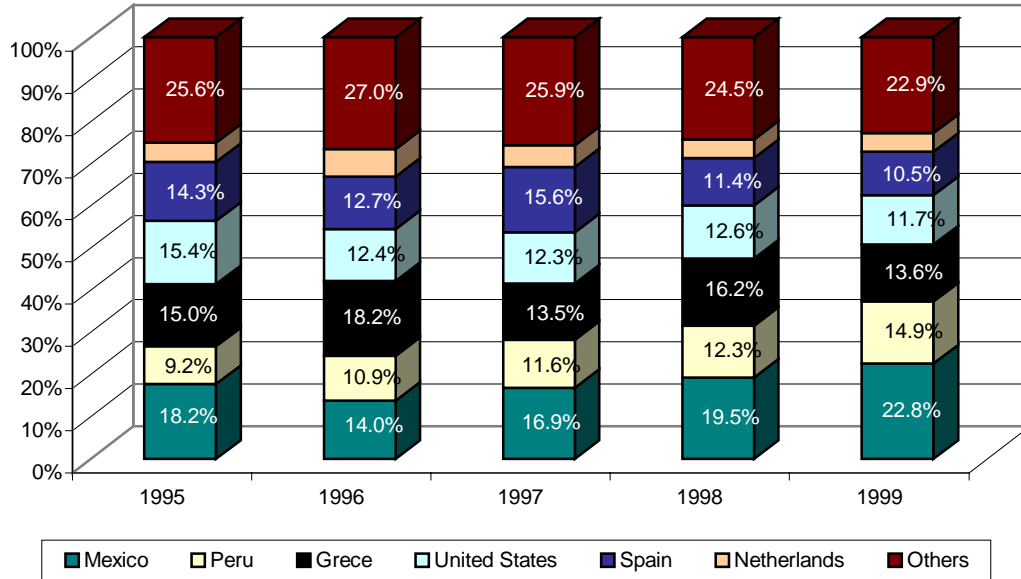
Source: Food and Agriculture Organization (FAO)

Although China is the first worldwide asparagus producer, Mexico is the first world exporter followed by Peru covering 23% and 15% of export volumes in the world, respectively (Graph 5)⁴⁵. Peruvian asparagus exports increased at an annual average rate of 20%, only surpassed by Australia (26%), which is the sixth largest exporting country with a 5% share. It is interesting to notice that, in spite of the increase in Peruvian asparagus exports, Peru is in fourth position in the distribution of the worldwide value of exported asparagus with 8% while Mexico and the United States represented 42% and 11% respectively in 1999. This reveals that Peruvian production is traded in highly competitive markets and reduced product differentiation.

Graph 5
Asparagus Main Exporter Countries

⁴⁴ See Annex 4

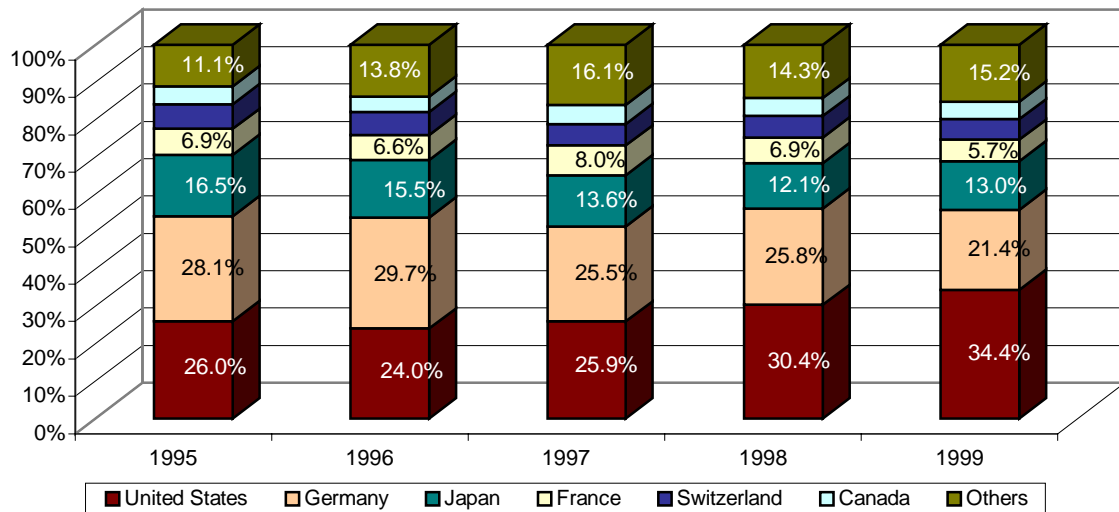
⁴⁵ According to FAO statistics China is the 9th exporter country, representing 1% of the worldwide asparagus volume exported.



Source: Food and Agriculture Organization (FAO)

The most important worldwide asparagus importers are the United States and Germany, which in 1999 represented 34% and 21% of worldwide imports. These countries are followed by Japan with 13% (Graph 6). American asparagus imports reported an annual average growth rate of 17% during 1995-1999 while other important markets reported negative annual rates, except the Netherlands (32%) and Canada (8%). An increase in American imports would be due to changes in American food consumption pattern in addition to a larger availability of this product at competitive prices throughout the year. It should be noticed that the Netherlands is an important re-exporter of food to the European market.

Graph 6
Asparagus World Importers



Industry Structure

In Peru, the asparagus industry is composed of 40 companies, 9 of which generate 30% of asparagus export value. Asparagus plants are mainly located in Ica and La Libertad (Map 1).

In this industry, competition is given under three production methods: canned, fresh and frozen asparagus. Fresh asparagus production and export presents a high volatility in the number of companies that enter and leave the market. On the other hand, the canned asparagus group has a stable number of companies. For the canned asparagus activity, during the second half of 1980, the number of companies increased and many of these left the industry during the first half of the nineties. This was due to the severe financial problems they faced during the new macroeconomic context, as previously mentioned.

Production structure of fresh asparagus is still being in a consolidation process. Companies wanted to enter to this market given the opportunity of the American market. However, competition in this market has increased not only due to the presence of a larger number of Peruvian companies but also the participation of other supplier countries has grown.

Therefore, Peruvian asparagus exports face higher competition in traditional markets. These markets not only demand product quality but also look for competitive prices.

The asparagus production system

This section presents the main characteristics of the asparagus production system in terms of raw material procurement, production, investment, trade strategies for the different products of asparagus export: canned, fresh and frozen. First, asparagus agricultural production characteristics are briefly explained, emphasising the number and size of producers and crop management in the main production areas.

Agricultural Production

In Peru, there are 1,764,666 agricultural units. 80% out of these are smaller than 5 hectares⁴⁶. The first National Census of Asparagus Producers and Plants carried out in 1998, reported 2,134 agricultural units cultivating asparagus with an area of 17,553 hectares. 69% of the producers have less than 10 hectares; 22% have between 10 and 50 hectares and 9% have more than 50 hectares. The latter have 56% of the total area of asparagus. In 1998, 76% reported that they used to cultivate asparagus because it was a profitable activity. 54% of producers are located in La Libertad. It is interesting to contrast that in La Libertad, 41% producers have less than 10 hectares and 35% have

⁴⁶ Information registered in III Agricultural Census, 1994. Peru: Ministry of Agriculture.

more than 50 hectares; while in Ica are located the largest producers who concentrate 72% of the total asparagus growing area.

Regarding the agricultural management, despite their size, 90% of the agricultural units use machinery; between 53% and 67% use improved seed, the highest percentage being among the largest units. Technical assistance is mainly used by agricultural units larger than 50 hectares (85%). With respect to the irrigation system, 88% use gravity irrigation while the large units (54%) use drip irrigation.

The national average asparagus yield is 8.64 MT/hectare, although there are fields that obtain between 15 MT/hectare and 18 MT/hectare. Experts state that in order to have a profitable crop, farmers must get a yield of at least 12 MT/hectare.

It should be mentioned that for asparagus cultivation, the concept of economies of scale is restricted. Economies of scale is the inverse relationship between production and average cost. Therefore, as production increases, the average cost of each unit decreases. However, experts explain that apparently 100 hectares is the largest area that can be properly handled. Larger areas could lead to higher costs as more labor is needed or the possibility of identifying and treating plagues may be slower, thus increasing the risk of losing the production.

Raw material procurement

Asparagus main exporters procure their raw material from self-production. Therefore they own or rent fields. Self-production provides between 50% and 98% of raw material requirements. However, in 2000, some firms reduced raw material procurement by self-production and used outsourcing, especially purchasing in the open market. This was due to an excess of asparagus supply that caused prices to decrease. Before asparagus production expansion (1997), agricultural asparagus producers used to receive US\$0.75 per kilogram of asparagus. Now, they receive between US\$0.50 and US\$0.40 per kilogram.

Furthermore, companies had to develop strategies to reduce costs due to price reductions of asparagus products in the final market. However, some companies where the concept of specificity of assets is used, as explained in the previous section, cannot reduce their supply from their own fields because such fields produce certified organic asparagus and therefore they do not have any substitute in the raw material market.

The main problem related to raw material procurement is the lack of homogenous quality that is due to the financial restrictions faced by producers. This limits the application of fertilizers and agrochemicals on time.

Therefore, certain changes should appear in the vertical coordination strategy through contracts and vertical integration. Raw material procurement through outsourcing has become important in company's behavior.

Production and investment

Canned asparagus production increased to an annual average rate of 7% between 1993–1999. Meanwhile, fresh asparagus production decreased 10% annually and frozen asparagus production increased 17%.

The main problem related to production of the different asparagus products is : access to financial resources is restricted. Some conservative companies have tried to finance their production with their own resources in order to reduce financial costs.

Some of the main exporters stated that, under a higher competitive context at destination markets, a way to develop a competitive advantage was investment in plant with the purpose of increasing production efficiency. This investment is expressed as follows: acquisition of environmental management systems (HACCP), increase of cold storage capacity, training programs for the staff about proper manufacturing practices. These investments, in some cases, were initiated in 1998 and in other cases were initiated in 1994 as a company's policy to strengthen its competitive position. IQF del Perú is an example of a firm that, despite the adverse conditions of the international market, could enter new demanding markets by developing products that meet the quality standards of such markets at competitive prices.

Trading strategies

Given the characteristics of each asparagus market: canned, fresh and frozen, companies had to develop strategies and alliances both internally and externally in order to reduce their vulnerability in highly competitive markets.

For canned asparagus, the main companies have guaranteed quality raw material procurement whether renting fields for production or signing contracts with a group of producers. We can clearly see a vertical integration strategy in the first case and a vertical coordination strategy in the second case. On the other hand, externally, they have alliances with important food distributors at destination markets (i.e. Navarra Food Industry in the Spanish market).

For fresh asparagus companies, some of these have developed alliances with their purchaser who invests in the field. Thus the client is involved from the production of raw material and periodically assesses that good practices of agricultural and manufacturing production are fulfilled. Another company based its investment on product differentiation, obtaining a certificated organic product that allowed it to take part in markets that pay a bonus for such products.

For frozen asparagus, one of the companies stated that based on the investment performed to offer a competitive quality product and the long-term relationships with their clients, they obtained the quality certification of their product at origin. Therefore, certification costs at destination market are reduced and their competitive position is improved, thus putting them a step ahead from their competitors.

Access to related services

Transport of raw material from the production areas to the factories requires the availability of refrigerated vehicles at competitive prices. Some companies even have their own trucks.

Particularly for fresh asparagus, companies agree that airplane capacity restrictions are reflected in high prices.

Opportunities, Risks, Strengths and Weaknesses of the sector

Peruvian asparagus exporting industry is completing a life span. It started with canned asparagus production and then diversified its production to frozen and fresh asparagus. A large number of companies have entered and left this industry during forty years of operation. Final destination markets have also changed, thus representing opportunities and risks for the sector.

Opportunities

- Consumers prefer fresh, natural, healthy and nutritional products.
- Purchasers and distributors at destination markets are interested in establishing long-term relationships with suppliers based on the provision of quality products, which production is carried out following good agricultural and manufacturing practices.
- Stable exchange currency policy.
- Favorable climate conditions.
- Mergers and consolidations of large food distributors demand significant volumes of quality products.
- Purchasers incorporate the concept of good agricultural practices within their quality product requirements.

Risks

- Increasing participation of competitors at destination markets.
- Changes in weather conditions affect asparagus production (i.e. El Niño)
- Capacity restrictions of airlines.
- Unorganized and poorly informed intervention of Peruvian public and private institutions that support the introduction of new participants in this activity.
- The trend among national investors to participate in activities that have sufficient participants with respect to the destination market size.
- Limited reaction of the corresponding authorities to develop an integral response to plagues.

Strengths

- Approximately 15 companies now better know their markets and have developed alliances and strategies to diversify their markets.

- Joint organization and investment of ten companies devoted to fresh asparagus export allowed the installation of a warehouse terminal for fresh products to maintain product quality. Additionally, this organization collects information for their members about quotations at destination markets, products export flow, etc.
- Investments carried out both in field infrastructure and factory, where some companies include environmental management issues.

Weaknesses

- The introduction of new participants to this market often does not correspond to a serious evaluation of the market. This causes distortions both in the raw material market as well as in the final market, creating inefficiencies in this sector.
- Limited diversification at destination markets of canned and fresh asparagus.
- Several companies in this sector are hardly concerned about the environmental issue.
- Delay in building effective spaces to exchange periodical commercial information allowing the improvement of competitive position at destination markets.
- Difficulties in obtaining commitments to joint action in the commercial phase.
- Scarce human resources for the agricultural management of raw material with an entrepreneurial perspective.

Learned lessons

The development of the asparagus industry is an example of the expansion and crisis of an activity that is considered the number one among non-traditional agricultural exports. This crisis is due to the decrease of prices at the most important destination markets as a consequence of greater competition between national and foreign producers. Additionally, asparagus products are exported to destination markets in a disorderly way.

Parallel to this, the expansion of cultivation areas without considering destination markets' size or their behavior through time, led to increase production based on the historical information, thus creating overproduction and causing the decrease of the purchase price of raw material. This situation affected small independent producers and large producers who faced a reduction in profitability. This fact also affected raw material quality as there were no resources nor incentives to produce high quality raw material.

The asparagus industry shows that companies that take decisions based not only on current, but future market conditions, can develop strengths allowing them to reduce the impact of crises on the firm. Therefore, investments not only depend on the market demand but on the development of strengths allowing them to improve their competitive position in the market. Investments oriented to improving product quality with competitive prices, to increase the capacity to offer larger volumes of products and to develop environmentally sustainable production systems, reveal a differentiated enterprise organization able to negotiate a strategic alliance under favorable conditions.

The main exporters state that the next two years will be years of adjustment. During this period, several companies will leave the industry - almost 50% of total enterprises is estimated. The most solid companies follow a conservative strategy of subsistence and minimized losses, waiting for a re-adjustment in the market where there will be a smaller number of companies.

The most important lesson of asparagus activity is that the expansion process of an exporting agricultural activity is temporary. There is always a crisis period that can be minimized by innovative companies. Such enterprises are those that allocate resources to introduce to new markets, to develop new products, to improve production efficiency, considering the compliance of good agricultural and manufacturing practices. Vulnerability will depend on the level of coordination, exchange of information and development of joint strategies. In a dynamic world of continuous changes, it is critical to establish strategic alliances.

From the interviews held with the most important exporters, we can conclude that the factors determining the operation of relatively successful enterprises in this market are basically internal. This means that the ability of a company's human capital to anticipate changes and to develop adequate strategies to properly react to such changes, helps its position in the market in spite of an adverse external environment.

Prospects

A decrease in agricultural prices will damage raw material quality, thus reducing raw material availability and hence the finished product. The gradual reduction of exported volume could allow the recovery of prices.

On the other hand, large companies do not plan to increase production given the reduced prices and some companies are planning to reduce the export volume to moderate market saturation.

Under unfavorable market conditions the asparagus activity becomes more vulnerable if some old problems remain unsolved such as airlines high tariffs that affect fresh asparagus costs, a sanitation issue is awaiting solution as, in most cases, the asparagus is fumigated at destination markets, thus raising costs, the need for an integrated control of plagues that includes reliable sanctions for infringers, it is critical not only for asparagus but also for different horticultural activities.

It is important that the government develop research as there is an important group of producers that have been left out of technological innovation, considering the adverse conditions that the raw material market has to face.

CONCLUSIONS

1. The new food consumption patterns show a consumer who is aware of health and nutritional issues. The consumer of fresh products is very concerned about health risks because of chemical residues due to fertilizers used on crops.
2. Peruvian agricultural exports represent 9% of total value of exports. The traditional group is lead by coffee that represents 35% of total agricultural exports. The product concentration on this group make agricultural exports very sensitive to international price fluctuations. On the other hand, the non traditional export group is composed of a variety of products that are produced in different regions of the country, however products from the coast area are the leading ones (i.e. asparagus, marigold). In 2,000, this group represents 61% of total agricultural exports. This product diversification is an opportunity to enhance market diversification based on the development of competitive advantages according to market requirements. As a result, the country could benefit from the multiplier production and employment effects in the local producer areas, contributing to a process of sustainable development.
3. A necessary condition for the development of non traditional agricultural exports is well prepared human capital , that can managed and develop strategic planning for the development of new products and the penetration to new markets.
4. The agribusiness companies, in a highly competitive framework, have as alternative to follow product diversification strategies to soften competition and make strategic alliances to help their growth process.
5. The asparagus export industry, based on canned, fresh and frozen shows a reduced market diversification. The principal markets are: USA (75%) for fresh, Spain (66%) for canned and USA (42%) and Spain (24%) for frozen. This situation makes the industry vulnerable to price fluctuations due to changes in demand or an increase in the number of competitors.
6. Peru is the second largest worldwide exporter of asparagus with 15% of the worldwide volume exported. However, Peru is fourth in the worldwide export value with 8%. That could mean that Peruvian asparagus exports are traded in markets with strong competition and reduced product differentiation.
7. Asparagus agricultural producers are mainly small, 69% have less than 10 hectares. Although most of the producers use improved seeds and machinery, technical assistance services are mainly contracted by big producers. In this sense, high quality raw material is limited.
8. The lack of high quality raw material make the companies follow a process of vertical integration. Besides, some companies establish vertical coordination with

the asparagus producers. However, due to the excess of raw material supply and price reduction in the destination markets, the exporters have decided to buy raw material in the spot market because there is plenty of raw material. The main problem is the lack of sufficient volume of high quality raw material because that production was raised under financial restrictions. It shows that adverse conditions in the destination markets tend to modify strategies that provide benefits in the long run.

9. The Peruvian asparagus export industry is in crisis, according to exporters, 50% of the companies will go out of business. So, those companies that made decisions to strengthen their competitiveness will survive this difficult time reducing benefits or minimizing losses, waiting for the industry to recover .
10. There is a challenge to become more competitive, and it applies to all the participants in the asparagus system. It involves the private and public sector. It is important to continue developing the cluster in order to be more efficient at all stages.
11. The evidence shows that those companies that make investments to improve their competitiveness through time and have human resources able to make adequate decisions under different contexts, will be the ones that overcome the crisis stage. So, one of the main factors of success of the companies is their well trained human capital committed to improving the performance of the firm.

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Royal Ahold. www.ahold.com

ANNEX 1

Female Economic Activity Rate (%)

Countries	Years		
	1988	1993	1998
United States	41,5	40,1	58,2
Netherlands	30,9	33,2	45,1
United Kingdom	38,7	34,2	52,4
Germany	45,6	34,7	61,9
Spain	24,3	28,4	36,9

Source: United Nations, Inform about Human Development 1990, 1996 and 2000.

ANNEX 2

Coverage of Royal Ahold in Food's Distribution⁴⁷

On May 27, 1887, Mr. Albert Heijn laid the foundations for what was to become a truly global food provider, Royal Ahold's. 113 years later this enterprise generates annualized sales of more than Euro 46 billion through institutional food service companies, increasingly through the internet as an e-commerce player and through more than 7,000 supermarkets, superstores, hypermarkets and other retail formats (including franchise stores) in 23 countries.

Nowadays, Ahold is a founding member of the WorldWide Retail Exchange, a web-based business-to-business marketplace established by 16 prominent US and European retailers to conduct a full range of e-commerce transactions, independently of each other, with individual vendors.

Main subsidiaries of the company by country:

United States

Ahold is the leading supermarket operator along the eastern seaboard based on sales with more than 1,000 stores in five operating companies:

Supermarkets Chain:

- Stop & Shop
- Giant-Landover
- Giant-Carlisle
- BI-LO
- Tops Markets

Sales: USD 20.3 billion in 1999, approximately 57% of worldwide sales.

Europe

Ahold is growing rapidly, with 5,500 stores (including franchise stores) in 10 countries:

Netherlands

Supermarkets Chain:

- Albert Heijn
- Schuitema

Sales: amounted to Euro 8.3 billion in 1999

Portugal

- Pingo Doce Supermarkets
- Feira Nova Hypermarkets

The Czech Republic

- Albert supermarkets (formerly Mana supermarkets and Sesam stores)
- Hypernova hypermarkets
- Prima mini-hypermarkets

⁴⁷ <http://www.ahold.com>

Poland

- Max Supermarkets
- Hypermarkets

Ahold entered into a partnership with the ICA Group, Scandinavia's leading food retailer with sales of approximately Euro 6.6 billion.

Ahold also runs wholly-owned operations in Spain and Poland.

Latin America

Ahold and local partners operate over 500 stores in nine countries.

Brazil

Bompreço (supermarkets and hypermarkets), the leading food retailer in the north-east of the country.

Argentina

Disco Supermarkets

Chile, Peru, Paraguay and Ecuador

Santa Isabel Supermarkets

Guatemala, El Salvador and Honduras

La Fragua, Central America's leading food retailer.

Asia

Thailand, Malaysia and Indonesia.

TOPS supermarkets

Sales: Euro 476 million in 1999, approximately 1% of worldwide sales.

Acquisitions 2000:

Royal Ahold's subsidiaries acquire 56 supermarkets and eight sites from Grand Union (recently filed for bankruptcy) in USA.

- Stop & Shop acquires 36 supermarkets and 8 sites for future store development.
- Tops acquires 20 supermarkets.

Ekono, supermarket chain in Argentina.

Kampio, supermarket chain in Spain.

Superdiplo S.A., Spanish food retailer.

U.S. Foodservice, America's second-largest distributor of food and related items to over 130,000 institutional customers with sales for calendar year 1999 of approximately USD 6.5 billion.

Mea-De Wilde-De Loore, prominent Belgian foodservice company.

Bompreço, Brazilian food retailer.

Source: Web page of Royal Ahold. <http://www.ahold.com>

ANNEX 3

Asparagus: Rate of growth of the world production by world producers

Asparagus Production	Year					Average 95-00
	1996	1997	1998	1999	2000	
<i>Countries</i>						
China	12,5%	5,5%	5,2%	5,0%	7,9%	7,2%
Peru	18,0%	13,4%	-4,6%	26,8%	4,9%	11,7%
United States	-7,8%	1,9%	-2,3%	10,7%	2,1%	0,9%
Mexico	-18,5%	34,6%	8,6%	49,4%	0,6%	14,9%
Spain	0,9%	-15,3%	-5,0%	-6,1%	3,9%	-4,3%
Chile	-0,1%	4,3%	8,1%	0,6%	0,0%	2,6%
<i>Others Countries</i>	2,8%	4,0%	1,6%	2,9%	-2,4%	1,8%
World	10,4%	5,3%	4,1%	6,1%	6,5%	6,5%

Source: Food and Agriculture Organization (FAO)

ANNEX 4

Rate of Growth of the Value of Main Non-Traditional Agricultural Exports

Products	1991	1992	1993	1994	1995	1996	1997	1998	1999
First Four Non-Traditional Food Products									
Canned Asparagus	67,9%	20,5%	11,6%	2,8%	24,9%	18,8%	-0,5%	-14,8%	12,2%
Fresh asparagus	-100,0%		68,0%	24,3%	28,5%	18,2%	20,4%	11,9%	32,1%
Marigold flour	16,3%	111,7%	20,2%	-1,0%	-28,2%	7,1%	36,0%	-47,5%	153,1%
Cocoa butter	34,5%	-32,6%	14,5%	59,0%	49,0%	-9,3%	-10,4%	-6,8%	-11,1%
Non-Traditional Food Products of fluctuating growth									
Cochineal-Carmin	-6,0%	10,8%	-8,5%	53,3%	56,0%	-57,0%	7,6%	-35,4%	-11,8%
Cochineal Bugs	-54,2%	31,9%	-32,5%	14,6%	379,9%	147,2%	-17,9%	-56,7%	-18,7%
Cooked frozen vegetables				18,9%	7,1%	24,0%	21,2%	-4,2%	6,8%
Mangoes	-25,4%	272,7%	-23,4%	33,7%	-4,2%	71,6%	-22,4%	41,3%	98,0%
Dry beans	24,2%	32,6%	274,6%	77,3%	20,1%	-30,1%	1,7%	-29,4%	103,8%
Lemon Oil	16,7%	-16,5%	32,4%	13,2%	1,6%	2,2%	-9,7%	-53,3%	31,1%
Potencial Non-Traditional Food Products									
Dry Onion				12,3%	16,6%	33,3%	-28,1%	-23,9%	-29,4%
Brazilian Nuts	-23,6%	-32,5%	15,5%	44,9%	23,0%	36,6%	50,5%	-62,3%	129,3%
Tara	184,2%	51,4%	9,3%	-49,1%	-34,5%	-1,7%	41,1%	-3,4%	-16,0%
Flowers	28,5%	-13,2%	-38,5%	5,3%	28,4%	6,2%	19,8%	-36,2%	18,4%
Cocoa Paste	-41,1%	-25,2%	-55,7%	-95,7%	2200,0%	-4,9%	2,4%	-57,3%	-81,2%
Fresh Garlic	-33,0%	-32,1%	-72,4%	7,3%	135,0%	64,9%	-66,1%	-90,0%	713,4%
Prepared beans				31600,0%	66,1%	-26,0%	86,5%	129,5%	106,8%
Tomato paste	-82,0%	-79,3%	46283,3%	137,7%	-26,6%	-12,4%	69,9%	-48,3%	-7,8%
Maracuya Juice	123,3%	2,1%	-27,9%	-37,9%	-1,4%	70,2%	-40,0%	54,1%	90,4%
Olives	586,6%	-49,0%	127,1%	18,0%	61,5%	84,1%	28,9%	-21,9%	-38,0%
Wheat Flour				147,2%	-46,8%	-86,5%	-97,0%	3503,3%	44,4%
Yellow onions	-100,0%			93,2%	636,4%	424,9%	-46,7%	134,8%	60,4%
Potencial Non-Traditional Food Products (not included in the group of main food exports)									
Palmitos	141,5%	-44,2%	47,2%	-18,1%	144,3%	25,8%	22,5%	-19,8%	-35,0%
White Corn	-4,3%	-13,2%	24,2%	115,2%	-32,0%	-46,4%	6,1%	71,8%	2,9%
Grapes	-43,8%	-4,5%	168,7%	-18,2%	151,8%	171,7%	-30,0%	-45,9%	166,1%
Fruit juice				-25,3%	113,7%	-26,0%	79,4%	-81,4%	401,0%
Others	6,5%	-39,6%	-10,9%	167,7%	44,1%	-16,1%	49,0%	-28,9%	-2,3%
First 20 Products	20,3%	21,1%	22,9%	17,3%	22,2%	16,8%	2,6%	-18,0%	28,9%
Total	11,3%	-16,9%	7,5%	74,1%	34,9%	-3,6%	27,7%	-24,9%	10,3%

Source: Peru: Ministry of Agriculture. Office of Agrarian Information.

CHAPTER 3

Participation of small-scale farmers in the production of non-traditional agricultural exports

Tatsuya Shimizu

Introduction

Many Latin American countries have shifted their development strategies from import substitute industrialization to export-led development in the period between the 1970s and 90s. Under this strategy, it became important to decrease dependency on traditional export products such as minerals and traditional agricultural export products, and to diversify export products.

Some countries started to diversify their agricultural exports from traditional products like bananas, coffee, cotton and sugar, to new products such as fresh fruits and vegetables, flowers, seasoning, natural colorant, etc. These products are called non-traditional agricultural exports (NTAEs). The examples are: Chilean fresh fruits, Colombian cut flowers, fresh fruits and vegetables from Mexico, Central America and the Caribbean. In the case of Chilean grapes, exports have grown from US\$1.3 million in 1961 to US\$ 4.0 million in 1970, US\$ 51.8 million in 1980, US\$ 352.8 in 1990 and US\$605.2 million in 1999. The export of Colombian flowers also expanded significantly, from US\$ 976,000 in 1970 to US\$97 million in 1980, US\$ 229 million in 1990 and US\$ 556.2 million in 1998⁴⁸.

There are many reasons for the increase of NTAEs. Some factors are comparative advantages of Latin America in the production of these agricultural products, such as climate and cheap labor. The climate of Central Valley in Chile is similar to that of California. Since it is located in the Southern Hemisphere, Chile can produce fruits during the season in which the producers in the Northern Hemisphere cannot produce. In the case of Colombian flowers, a temperate climate and many hours of sunlight around Bogota favor flower production all through the year. In addition, fruits, vegetables and flowers are very labor intensive products, and cheap labor in Latin American countries helps to keep production costs low compared with the United States and Europe.

These comparative advantages were combined with development of transportation and distribution system in order to make the exports possible. Air traffic between countries of origin and markets increased. Development of cold storage permits fresh produce to be kept refrigerated from the moment of harvest until the products reach the final consumers. New packing technology also contributed to prolonging the life of perishable products.

Furthermore, change in consumer preference is one of the factors behind the expansion of NTAEs. Consumers with high income levels demand fresh products all through the year. They are willing to pay more if those products are available during the off-season. Also, many high-income consumers are seeking exotic produce that was unknown to them before. It is clear that NTAEs have increased in many Latin American countries. However, it is not clear whether small-scale producers, especially traditional family farmers, can participate in the production of NTAEs and receive their fair share of benefit. Some

⁴⁸ Data for Chile is from FAOSTAT (<http://apps.fao.org/>) and that for Colombia is ASOCOLFLORES (<http://www.colombianflowers.com/>).

existing studies argue that small-scale farmers can participate in the production through contract farming. Others demonstrate that production of capital intensive NTAEs is difficult for small-scale farmers.

The purpose of this study is to analyze whether small-scale farmers can participate in the production of NTAEs in Peru. First, existing studies on NTAEs and participation by small-scale producers are examined. Second, studies on small-scale farmers in Peru are presented to explain the current situation in Peru. Third, the result of a study on white asparagus production, one of the most important NTAEs from Peru, will be presented. The author conducted interviews with various types of asparagus producers in the northern coastal part of Peru. Finally, these studies are analyzed to examine the participation of small-scale farmers in NTAEs production.

Participation by small-scale farmers

Knowing the comparative advantages of Latin American countries in the production of NTAE crops, and growing demand for them in developed countries, multinational companies as well as national agro-industry and exporting firms became interested in producing these products. In this paper, the term “agro-industry firms” is used for all kinds of multinational and national companies that produce, process and export agricultural produce.

Theoretically, these firms have three ways to obtain raw material: purchasing on spot markets, purchasing through contract farming (vertical coordination) and producing within their own farms (vertical integration). Compared with traditional crops such as maize, potato, etc., NTAE crops are very demanding in terms of capital and technology. Only firms have enough capital to initiate production and link with markets in developed countries. However, many of these companies were reluctant to invest in production because of restrictions on agricultural markets. For example, corporations were prohibited from purchasing land; access to water was not guaranteed by law. Foreign companies were afraid of labor disputes. These factors prevented multinational companies and agro-industry firms from starting production of NTAE crops by themselves. The question was then: from where they could obtain materials so that they could process them and export them to markets in developed countries?

While firms were reluctant to produce NTAE crops by themselves, many small-scale family farmers had a difficult time producing basic crops. With the liberalization of the economy, many Latin American countries abandoned import restrictions and reduced tariff rates. This allowed cheap foreign crops such as corn and wheat to flow into domestic markets. Liberalization of trade lowered the prices of many agricultural products. Therefore, less efficient small-scale producers were not able to compete with imported crops. They needed crops that were more profitable, and high value NTAE crops attracted their attention.

Contract farming and factor markets

Under these circumstances, contract farming is considered as a solution for both agro-industry firms and small-scale farmers. The basic idea of contract farming is that the firms provide resources for farmers and farmers sell their harvest to the firms. Through contracts,

farmers can obtain necessary working capital and stable markets in which to sell their products, and firms can obtain raw materials in a more stable way than through a spot market.

According to Key and Rusten (1999), there are three types of contract between firms and farmers. The first is the purchasing contract; processing and exporting companies agree to purchase crops from farmers before the harvest. They agree on the types of crops the companies will purchase, price, quantity, quality, and date of delivery. Secondly, firms provide input, technology and sometimes working capital to the farmers from whom they purchase crops. The cost of inputs, credit and so on, will be deducted from sales of crops. Thirdly, firms control production by giving specific instructions such as the timing of seeding and application of fertilizers and chemicals. This is in order to control quality and harvest time of crops. Small-scale family farmers need the second or the third type of contract in order to participate in the production of high-value NTAE crops.

In order to better understand contract farming, it is necessary to understand the production factor markets in which small-scale farmers and firms operate and interact. If there were perfect markets for credit, insurance, labor, land, input and harvested crops, it would not be necessary to operate under contract. Even small-scale family farmers would be able to acquire the necessary capital and technology through the market at reasonable cost, and sell their crops through the market. However, in reality, markets for all goods often do not exist in rural areas. Depending on the characteristics of each market, contract farming can often be attractive and beneficial for small-scale farmers. The study by Key and Rusten (1999) analyzed the theory of each market in detail, and is briefly resumed below.

Credit

It is very difficult for small-scale farmers to obtain credit from commercial banks. Problems are: farmers often do not have formal property rights to provide collateral for a loan; small properties do not have enough collateral value for credit; loan periods are very short, etc. In addition, banks are reluctant to lend to farmers because many farmers are accustomed to having their debts forgiven by state banks, and there is a high degree of uncertainty. If agro-industry firms are the only sources of credit for small-scale farmers, they will borrow money from the firms even though the interest rate is high. In other words, firms have an incentive to contract with them and provide loans at high interest rates despite the high risk of losing their loan. Undeveloped credit markets in rural area work in favor of contract farming.

Insurance

A study by Binswanger and Rosenzweig (1986) gives the reasons why there is no insurance market for agricultural production except one for general crops subsidized by governments. One reason is asymmetric information between producers and insurance companies and the high cost of filling the gap. The other reason is moral hazard: producers may not look after crops so much when they are insured. Information on crops and producers is not very difficult to obtain at a village level, however insurance cannot be offered at a village level because of the probability of bad harvests in certain geographical areas, and insurance cannot cover all claims if the policyholders are all in the same area.

Contracts offered by companies sometimes work like insurance for farmers. Because companies can contract with many farmers from geographically dispersed areas, they can diversify risks associated with climate, plague, etc. From the farmers' point of view, contract prices protect them from market price fluctuations. Small-scale farmers who cannot afford to lose are more risk averse than large-scale farmers and they are willing to accept low guaranteed prices in order to reduce their risks. Therefore, companies have an incentive to contract with small-scale farmers.

Information and transactions

When transferring technology to farmers, it costs less for firms to contract with a small number of large-scale farmers than with a large number of small-scale farmers. Large farmers are relatively well educated, have some knowledge and equipment and understand better the instructions given by firms. On the other hand, small farmers are generally less educated, do not own equipment, which firms therefore have to provide. If firms have to visit farmers in order to give technical assistance and monitoring, it costs less to visit large farmers. For each contract, there is a fixed administration cost regardless of the size of the contract, therefore larger contracts cost less per unit of sales than small contracts, unless small farmers organize themselves and contract as a group.

Labor

For various cultural or social reasons, excess family labor might not be available in an open labor market. In this case, firms cannot hire them for their own operations, but buy crops in an open market or through contracts. In the case of labor intensive crops, small farmers have the advantage of utilizing abundant family labor whose opportunity cost is very low. In addition, hired labor sometimes has a so-called incentive problem. In the production of many NTAE crops, the quality of the produce greatly affects its price. Since produce quality does not usually reflect the wages of hired laborers, they do not have an incentive to work harder. In order to keep produce quality high with hired laborers, costly labor monitoring is necessary. Without monitoring, they might cheat and produce quality will deteriorate. On the other hand, family laborers often do not have this incentive problem because their income will be directly affected by the quality of labor they offer.

Criticism of contract farming

According to the analysis above, the agricultural markets in rural sectors favor the participation of small-scale farmers in production of NTAE crops through contract farming except for information and transaction. In order to fill the information gap and reduce the cost of transactions between agro-industry firms and small-scale farmers, international aid agencies such as United States Agency for International Development (USAID) started NTAE development projects in Latin American countries, especially in the Central America and Caribbean region. For example, between 1985 to 1992, the agency spent US\$ 1.53 million on an export promotion project called PROEXAG. It supported an agro-export diversification project in Honduras (PRODIVERSA), an NTAE project in Ecuador

(PROEXANT), etc. As a result, NTAEs from Central America had increased from US\$ 4.5 million in 1975 to US\$ 250 million in 1990 (Conroy, Murray and Rosset, 1996).

These projects aimed at promoting the participation of small-scale farmers in the production of NTAEs, however, many of them became subjects of criticism. Studies by Murray (1994), Conroy, Murray and Rosset (1996), Trupp (1995), etc. revealed problems of participation of small-scale farmers in these projects. They point out two major problems. One is that many small-scale farmers were not capable of managing production of NTAE crops that involve high cost and high risk. These crops are very different from traditional crops like maize or potato. They are vulnerable to plagues and are highly perishable. Deterioration of quality significantly reduces the value of crops. The farmers were not ready to deal with these kinds of crops.

The other problem is unequal negotiating power between firms and farmers. When a new crop is introduced in the area, a firm first offers favorable terms of contract to farmers because they are the only suppliers of material for its processing plant. It is important to obtain enough material to keep the plant operating. However, as the number of suppliers increases, the firm's negotiating power increases against farmers. The farmers whose only client is the firm do not have a choice but to accept terms favorable to the firm. Although the contract farming system appears to be beneficial for both firms and farmers in theory, it is not so in practice because of asymmetry between them. Firms have more capital and access to market information and thus more negotiating power over small farmers.

Conditions for the participation of small-scale farmers

Analyzing case studies from eight countries in Latin America, Schejtman (1998) determines specific socio-economic characteristics that are suited for contract farming for small-scale farmers. First, crops with the characteristics below would be favorable for small-scale farmers:

There are diseconomies of scale in production such as high labor monitoring costs;

Utilization of family labor with low opportunity cost;

Low production cost per unit weight of crops or per area cultivated for production;

Perishable and it is difficult for firms to purchase in an open market;

Possibility of adding values in post-harvest process;

Retrieval of cost in short period;

Growing demand with possible ties with production chain.

Besides these crop characteristics, there are other conditions that can facilitate ties between agro-industry firms and small-scale farmers. They are:

- Tight markets for land and labor;
- The existence of subsidized programs for small-scale producers;
- The existence of organizations that can act as intermediaries between firms and producers.

Schejtman argues that in order these conditions to be developed, public institutions need to intervene in several of the aspects listed the below:

Securing profitable market first;

Providing technical assistance and training;

Securing finance for production and processing;

Organizing farmers to reduce transaction cost;

Sharing risk among firms and farmers;
 Removing information asymmetry to avoid mismanagement of crops;
 Establishing a system of arbitration in case disagreement arises between farmers and agro-industries.

Participation of small-scale farmers in the production of NTAE crops depends on various market conditions. The next section describes the current situation of small-scale producers in Peruvian coastal areas in relation to the production of export crops and the relationship between small-scale farmers and agro-industry firms.

Small-scale farmers and NTAEs in Peru

The factors that have hindered modernization of agriculture and development of NTAEs in Peru can be attributed to the agricultural reforms during the military government at the end of the 1960s and the first part of the 1970s, and the import substitution industrialization policy carried on until the end of the 1980s. After the agricultural reforms, large farms were eventually divided into small parcels, and farmers with little experience in management took control of production. As a result, the productivity of the land reduced. In addition, the import substitution policy was biased against the agricultural sector, creating disincentives for agro-exports and incentives for food imports.

The stabilization and liberalization of economy in the 1990s built a foundation for the growth of NTAEs. In Peru, all agricultural exports other than traditional products (coffee, sugar cane, cotton and wool) are classified as NTAEs. Their share of agro-exports was around 20% in the 1980s. This figure increased significantly in the first half of 1990s, reaching to 74% in 1993, and stayed between 45 to 60% thereafter (Table 1). Still, compared with other countries in Latin America, the export value is small. For example, in 1998, Chile exported US\$ 403 million worth of fresh grapes. Exports of Colombian cut flowers were US\$ 556 million. On the other hand, the export value of preserved (canned or bottled) asparagus, which is the No. 1 NTAE in Peru, is US\$ 78 million. Added to fresh and frozen products, the value reaches US\$ 128 million. In this section, a few case studies on small-scale farmers are analyzed in order to examine the possibility of their participation in production for agro-export and agro-industry.

Table 1 Agro-export of Peru (US\$1000)

	traditional	non-traditional	total	share of non-traditional
1950	107160	586	107746	0.54%
1960	146094	2213	148307	1.49%
1970	161482	5766	167248	3.45%
1980	260368	48789	309157	15.78%
1990	195622	109397	305019	35.87%
1995	340912	316145	657057	48.12%
1999	275395	451602	726997	62.12%

Source: Oficina de Informacion Agraria, Ministerio de Agricultura (<http://www.minag.gob.pe/>)

Case studies on small-scale production

Figuroa (1995) studied links between agro-industry firms and small-scale farmers in the department of Ica, situated on the coast south of Lima. Farmers may be related to firms as suppliers of raw materials, as providers of agricultural land and as the labor force.

In this area, cotton and grapes for wine and liquor have been cultivated traditionally. In the middle of the 1980s, asparagus and tomatoes were introduced by medium and large-scale farmers and agro-industry firms, but not by small-scale farmers. The author examined the characteristics of the four crops (asparagus, tomatoes, cotton and grapes). Among the crops studied, asparagus and grapes for wine are the most capital intensive, followed by tomatoes, cotton and grapes of Creole variety for liquor. The main reason why small-scale farmers are not able to participate in the production of crops for agro-industry is that they lack the necessary capital for production.

Small-scale farmers participated in the production of crops for agro-industry as hired laborers. Through this activity, they learned new technology for irrigation and the use of fertilizers, which can be applied to production in their own fields. However, the improvement in efficiency is limited because the cost of inputs used in the new technology is high, and small-scale farmers cannot afford them. Only some practices, such as improvement of water management, are adapted. In a few cases, those farmers started to produce asparagus with little capital. This might be adapted by more small-scale farmers, but it would take long time.

For the modernization of small-scale farmers, the author suggests not the introduction of new crops, but an improvement of existing crops, which would be widely accepted and would yield better result. The success of barley production in Cusco for the beer industry was because the crop was traditionally cultivated in the area, and cultivation technology was not very different. The improvement required was mainly in harvesting such as choosing right harvest time and not mixing with other crops, etc. In the case of Ica, the improvement of cotton and grapes would be more profitable for small-scale farmers, though it has not proved to be so over the past ten years.

Fort (1999) studied the production of beans for export in Piura, the northern coastal department of Peru. In this area, several agro-industry firms offer contracts to farmers to produce beans (palo verde, castilla) for them. Some firms directly contract with farmers, providing seeds and technical assistance. Other firms contract with producers through NGOs that coordinate credit and provide technical assistance for production. The author concludes that the participation of NGOs and producers' associations in contract farming can make production by small-scale farmers more successful because these organizations help reduce transaction cost between producers and firms.

Procesadora S.A. is the largest exporter of beans in Peru, and one of the companies that obtain raw material from small-scale farmers in the area⁴⁹. When the company found a large and stable client in the U.S. market at the beginning of the 1990s, they expanded their beans operation. Today, it buys raw materials from 1500 farmers, directly and through NGOs and producers' associations. The contracts make it possible for the firm to obtain

⁴⁹ Based on interviews with company personnel (Alfonso Velásquez on Nov. 17, and Ruben Rios on Dec. 4, 2000)

raw material continuously for its processing plant. In the contract, the firm offers certified seeds, fertilizer, insecticide, technical assistance and agricultural machinery. In many cases, NGOs arrange loans for producers with commercial banks and provide technical assistance. During production, the firm's agronomists visit the fields to monitor production. In the contract, the firm guarantees a minimum purchase price, and offers more when the market price at harvest is higher than that price. Currently, the firm is working with more than 10 NGOs, and this helps to stabilize the supply of raw material.

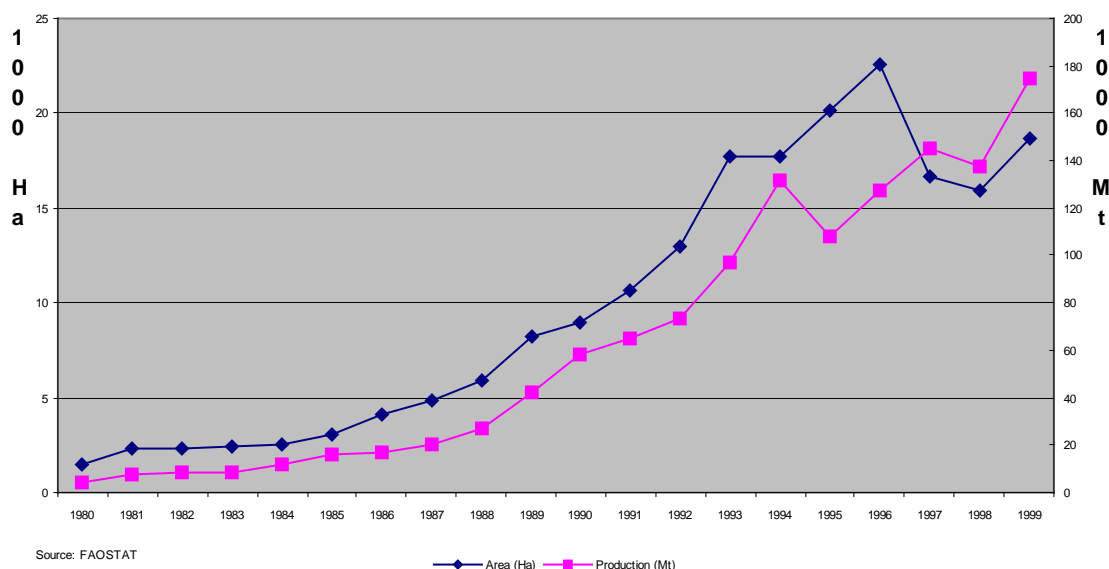
The participation of small-scale farmers in the production of NTAEs is still very small, though there are some cases as described in the studies above. In the next section, I will discuss the production of asparagus in Peru in detail.

Asparagus production

General characteristics

Asparagus is one of the most important agricultural products for export in Peru. In 1998, Peru exported US\$ 77.8 million of preserved asparagus, US\$ 35.7 million of fresh asparagus and US\$ 14.7 million of frozen asparagus⁵⁰. Their respective shares of agro-exports are 10.82%, 4.97% and 2.05%, and they were ranked as the second, the fourth and the eighth in the list of agro-export products. Production increased from 4,428 metric tons (Mt) on 1,512 hectare (Ha) of land in 1980 to 174,863 Mt on 18,653 Ha in 1999 (Figure 1).

Figure 1 Asparagus production in Peru



⁵⁰ Preliminary figures for 1999 is US\$87.3 million of conserved asparagus and US\$47.2 million of fresh asparagus. For 2000, the figures are US\$79.9 million for conserved asparagus and US\$53.4 million for fresh and frozen asparagus.

In general, there are two types of asparagus: white and green. White asparagus is mainly processed for canning and bottling, and most Peruvian white asparagus is exported to the European market, with Spain as the number one destination. Green asparagus is mainly exported as fresh produce to the U.S. market. It is also exported frozen.

According to the asparagus census taken by the Ministry of Agriculture in 1998⁵¹, asparagus is produced on a total area of 17,552 Ha in 34 valleys in the coastal area of Peru (Figure 2). The department of Ica has the largest area of asparagus production, 45% of national total, followed by La Libertad (30%) and Lima (16%). 58% of the area is used for white asparagus, half of which is located in La Libertad, and 42% is used for green asparagus, mainly located in Ica. In 1998, 101,900 Mt of asparagus, of which 56% was white asparagus and 44% was green asparagus⁵², was harvested from 13,874 Ha of land.



Figure 2 Major production areas of asparagus in Peru

⁵¹ Ministerio de Agricultura, Oficina de Información Agraria (1999).

⁵² IICA Centro Regional Andino (2000).

In Peru, white asparagus was first introduced in the 1950s in the northern coastal area of Virú valley, in the department of La Libertad. Production increased significantly after the 1980s as the price of asparagus went up in the international market when Taiwan, the principal producer at that time, withdrew from production⁵³. In La Libertad, the area of production increased from 752 Ha in 1980 to 8,249 Ha in 1992. Small-scale farmers were the main producers of the crop. During 1980-85, 70% of the producers in Virú-Chao, two major valleys in the department, farmed less than 10 Ha. However, the structure of production is changing with the completion of one of the country's largest irrigation projects called CHAVIMOCHIC⁵⁴. According to the 1998 asparagus census, in La Libertad small-scale farmers (less than 10 Ha) represent 80% in number and 41% of the area given over to asparagus cultivation. Large-scale producers (more than 50 Ha), many of which are corporations, represent 2% in number and 35% of the area. Although, large numbers of small producers are still cultivating white asparagus in the area, small number of large corporations are rapidly increasing production.

Green asparagus was introduced for export as fresh produce only in the second half of the 1980s. In 1987, a group of farmers in the department of Ica established the Asparagus Producers Association of Ica (Asociación de Productores de Espárragos de Ica: APEI) with support from the USAID. It was founded to produce, process and export fresh green asparagus for the U.S. market. The association first started to produce asparagus on 13 Ha, and the operation had expanded to 1,118 Ha by 1992⁵⁵. The data from asparagus census shows that in Ica department, small-scale farmers represent 14% of the total number and 13% of the area under cultivation of asparagus while large-scale producers represent 46% of the total number and 50% of the area.

In summary, then, it can be said that in Peru white asparagus is produced by a large number of small producers and a small number of large producers in La Libertad, while green asparagus is produced by medium and large producers in Ica and Lima (See Table 2).

Table 2 National share of asparagus production in Ica and La Libertad

		Ica		La Libertad	
		white	green	white	green
Number of unit	small (-10ha)	0.32%	10.75%	49.24%	0.30%
	medium (10-50Ha)	2.27%	24.18%	11.12%	0.00%
	large (50Ha-)	3.08%	29.85%	1.35%	0.60%
	total	5.67%	64.78%	61.72%	0.90%
Area	small (-10ha)	0.29%	1.59%	21.28%	0.03%
	medium (10-50Ha)	7.25%	17.56%	12.53%	0.00%
	large (50Ha-)	19.56%	50.86%	17.26%	1.16%
	total	27.10%	70.00%	51.07%	1.19%

Source: Ministerio de Agricultura (1998). Elaborated by the author.

⁵³ Marañón (1993).

⁵⁴ CHAVIMOCHIC Special Project was initiated in 1967. The plan is to construct canal from Santa River, which has abundant water supply all through the year, to four valleys in the department of La Libertad: Chao, Virú, Moche and Chicama. To date, about 28000 Ha of agricultural land is newly created, out of which 20000 Ha was sold to private companies and individuals, and 9000 Ha is under production.

⁵⁵ Marañón (1993).

Cost, yield, price and profitability

According to FAO statistics, the yield of asparagus in Peru is one of the highest in the world. In 1999, the world average was 4,243 Kg/Ha, and Peru achieved 9,375Kg/Ha (per year), the world's highest, followed by the Philippines (8,333), Belgium-Luxembourg (7,500) and Italy (6,553)⁵⁶. Mild temperatures and long hours of sunshine in the coastal area of Peru make it possible to harvest the crop twice a year.

Although productivity varies within Peru, depending on climate, soil, year of plants, etc., it would be helpful to analyze the production according to the size of the producers. Table 3 presents average cost, yield and farm-gate price of green and white asparagus classified by small (less than 10 Ha), medium (between 10 to 50 Ha) and large-scale (more than 50 Ha) producers. In case of white asparagus, the larger the producer, the higher the production cost, yield and farm-gate price. The resulting internal rate of return and present net value demonstrate that large-scale capital intensive production is much more profitable than small-scale production. However, the situation is a little different for green asparagus production. The production cost for large-scale producers is much more than that for medium-scale producers, but neither yield nor farm-gate price are very different in each case.

Table 3 Cost, yield and price of asparagus production

	cost (US\$/Ha)		yield (Kg/Ha)		price (non-classified, US\$/Kg)	
	initial	each harvest	white	green	white	green
small (-10ha)	3680	1325	6251	5582	0.45	0.68
medium (10-50Ha)	4365	2056	6931	7978	0.56	0.97
large (50Ha-)	5195	2345	7578	7928	0.91	1.01

Source: IICA (2000)

Utilizing these data, IICA (2000) attempts to examine the profitability of asparagus production according to asparagus type (white or green) and producer size (small, medium or large). It calculates the internal rate of return and present net value of production per hectare. The results, presented in Table 4, shows that the larger the production, the higher the profitability. The net present values for white asparagus production by small and medium-scale producers are negative with an interest rate of 15%. In addition, green asparagus production is more profitable than white.

Table 4 Profitability of asparagus production

	Internal Rate of Return		Present Net Value (US\$, interest rate 15%)	
	white	green	white	green

⁵⁶ FAOSTAT. The data for Poland is 20000, however, it seems like a mistake of data entry.

small (<10ha)	7%	39%	2396.52	4743.30
medium (10-50Ha)		58%	4732.74	11520.96
large (50Ha-)	36%	59%	5240.88	11909.07

Source: IICA (2000)

Production in Northern Peru

In order to understand the production of asparagus, the author conducted field interviews with producers of asparagus over one week in the department of La Libertad. There are five major valleys in La Libertad: Chao, Virú, Moche, Chicama and Jequetepeque (Figure 3). The interviews were conducted with 12 producers in the first four valleys. Small, medium and large-scale producers are included so that they can be compared with each other.

Figure 3 Major valleys in the Department of La Libertad



The reason why La Libertad was chosen for the research is that the producers in that area are more heterogeneous compared with those in Ica. As described above, small-scale producers had been dominant in the area, but large-scale production started after the partial completion of the CHAVIMOCHIC project. According to a survey conducted by the local office of the Ministry of Agriculture in February 2000⁵⁷, out of 8,503 Ha of land used for asparagus production in the department, 43.96% is located in “valles viejos (old valleys)”, the original agricultural land in the valleys where small-scale producers are dominant. On the other hand, 56.04% is located in the area of influence of the CHAVIMOCHIC project.

⁵⁷ Ministerio de Agricultura, Dirección Regional Agraria La Libertad, Oficina de Información Agraria (2000).

In this irrigation project, almost all producers hold more than 50 Ha, though the land is not in full production yet.

Classification criteria

According to the study by IICA (2000), asparagus producers can be classified into three groups: agricultural businesses, medium-scale farmers and traditional small-scale farmers (Table 5). Agricultural businesses are large-scale producers and they take the form of a company or partnership. The average size of the producers is 49 Ha, and are mainly located in Ica department. They have permanent technicians and professional consultants and utilize sophisticated irrigation systems with hired laborers. Their production yield is much higher than the average. They have access to credit from commercial banks and make large investments in facilities, machinery, inputs, etc. They are highly integrated into markets. Some of them have processing plants and export their produce by themselves. On the other hand, traditional small-scale producers have 2.24 Ha on average and are individual farmers in La Libertad department. They use traditional irrigation system and utilize family members for their labor force. Their production yield is low. They do not have access to credit from commercial banks, and investment in production is small. They often sell their produce to intermediaries. The medium-scale farms, with 10 Ha of land on average, have more heterogeneous characteristics than large or small-scale producers.

Table 5 Type of producers and their characteristics

Type of producers	Agricultural business	Medium-scale farmers	Traditional small-scale family farmers
Location (department)	Ica and La Libertad	Ica and La Libertad	La Libertad
average size	49 HA	10 HA	2.24 HA
Type of asparagus	Ica: green (fresh and frozen) La Libertad: white (conserved)	Green and some white	White (conserved)
Forms of producers	Businesses, partnerships	Individuals	Individuals
Education of producers	Tertiary	Tertiary or secondary	Secondary
Integration into market	High, some with own processing plants	Medium, some with contracts	Weak
Employment	Administrative and technical professionals and permanent hired manual laborers	Hired manual laborers	Family members and seasonal hired manual laborers
Participation in associations	High participation	Some participation	Low participation
Technology	High with very sophisticated irrigation	High with sophisticated irrigation	Low with simple irrigation

	system	system	system
Yield (white asparagus)	20-30 Mt/Ha	10-20 Mt/Ha	6-10 Mt/Ha
Credit	Access to formal credit	Some access to formal credit	No access to formal credit
Profitability (rate of return)	Strongly positive	Strongly positive for green, but negative for white	Negative

Drawn up from IICA (2000) and field interviews.

Types of producers studied

Based on the criteria described above, the producers interviewed in La Libertad department can be classified into four groups. Besides the scale of production, small-scale producers are divided into two groups: traditional family farmers and producers with help from NGOs. The characteristics of each producer are described in detail.

Large-scale producers

Most of large-scale producers are companies and located in the CHAVIMOCHIC project area. Staff members from two companies, both of which have their own processing plants, were interviewed. One company has 1,300 Ha of land, of which 350 Ha is currently used for asparagus production. The other owns 450 Ha, of which 150 Ha is used for asparagus. One of the important characteristics of these companies is the technology they utilize in production. There are two kinds of irrigation systems used for asparagus production. One is the simple gravity irrigation system (riego por gravedad) and the other is a sophisticated system utilizing pumps and pipes (riego tecnificado o riego por goteo). The simple irrigation system brings water from a canal to the plant by gravity.

Almost all of the companies in the CHAVIMOCHI project area use the sophisticated irrigation system, introduced from Israel and England. With this system pipes are installed in the fields, water from a canal is first held in a tank and distributed to the pipes from which drops of water irrigate the field little by little. In the most sophisticated system, the water is filtered and cleaned, and fertilizers are added. Then, the water is distributed to the fields through pumps controlled by a computer. The optimum amount of water and fertilizers are applied depending on the different growing stages of the plant. The advantage of the sophisticated system is that yield is very high, it requires less water, soil degradation is minimal, fewer weeds grow, etc. The yield of both companies interviewed reached 30 to 35 Mt/Ha per year, as much as three times the national average.

These companies have professional managers for administration, and agronomists for production. Manual laborers are not temporary, but permanent employees. Therefore, the overhead cost is high. According to the study by the local office of Ministry of Agriculture⁵⁸, in order to begin white asparagus production on a farm of 60 Ha with modern technology and administration, initial investment is US\$ 543,000 (including purchase and preparation of land, installment of irrigation, machinery, etc.). In addition,

⁵⁸ Ministerio de Agricultura, Dirección Regional Agraria La Libertad, Oficina de Información Agraria (2000)

US\$ 193,000 of working capital is required (inputs, labor, administration, etc.) before the first harvest in 18 months. With other miscellaneous expenses the total cost will be US\$ 742,000 (US\$ 13,000/Ha).

Both of the companies have their own processing plants with 50 to 70 Mt/day of processing capacity. One company obtains around 95% of raw material from its own farm. The person in charge of production claims that contracts with small-scale farmers are not feasible because they are not serious about fulfilling them. The other purchases 30 to 40% of asparagus from individual large and medium-scale farmers. It signs contracts with farmers fixing the price before the harvest. After the harvest, farmers wash, classify and cut asparagus to the same size before shipping it to the processing plants. This year, the company is paying US\$ 0.4-0.5/Kg on an average for white asparagus. The price was US\$ 1.10 about two years ago, but dropped to the current level because of competition in the international market, especially with the growing presence of Chinese products in European markets. According to the manager of this company, only large-scale farmers and companies can survive because modern asparagus production is becoming highly capital intensive. In addition, as the production of asparagus in the CHAVIMOCHIC project area increases and there is more raw material than the processing plants in the area can purchase, the standard of quality the plants demand from producers is becoming higher. They prefer to purchase high and uniform quality product from large and medium-scale farmers.

The companies are now looking for alternative crops other than asparagus. They cultivate artichoke and pepper (pimiento), and export preserved products. They are also experimenting with traditional crops such as sweet potato (camote) and sugar cane. With sophisticated irrigation systems, it is expected that the yield will be much higher than traditional production and will be profitable.

Medium-scale producers

The medium-scale farmers that were interviewed produce white asparagus on 20 to 35 Ha of land. They can be classified into two types of producers. One has similar characteristics to the large-scale producers. An owner of a 35 Ha farm had a poultry farming business and expanded to asparagus production. On his farm, which is located in the CHAVIMOCHI project area, a sophisticated irrigation system is used and the yield reaches 24 Mt/Ha. The necessary capital was acquired from a commercial bank. The difference from the large-scale producers is the scale of production and the farmer does not have his own processing plant. He is selling his product to a nearby processing plant without a contract for US\$ 0.45/Kg this year.

The other classification covers producers originating as small-scale farmers. When the price of asparagus was high, until a few years ago, these producers accumulated capital and invested in land and agricultural machinery. Although their production practices are very similar to those of small-scale farmers, some of them started to introduce sophisticated irrigation systems.

Traditional small-scale producers

The small-scale farmers interviewed own four to 10 Ha of land situated in old valleys, where asparagus had been produced for a long time before the irrigation project. Some farmers obtained their land through the agricultural reforms in the 1970s. Common characteristics among small-scale farmers are: the use of family labor, use of simple irrigation system (riego por gravedad), low yield, inability to obtain formal credit, low farm-gate prices, etc.

Because there are few employment opportunities in the area, the cost of family labor is very low. Labor is hired on a temporary basis during certain periods of production such as harvest only. Simple irrigation does not require much additional investment because it is similar to the system used for any other crop. However, since it is difficult to control the precise amount of water in the same way as the sophisticated irrigation system, the yield is low compared with large-scale producers and is 6 to 13 Mt/Ha.

None of these producers received credit from commercial banks. Some said that they borrowed from the state-subsidized agricultural bank during the 1980s, though after its closure at the beginning of the 1990s, there were no financial institutions offering credit to small-scale farmers. Other farmers said that if they had a sales contract with a processing plant, they could borrow money from a bank. However, they do not want to borrow money from a commercial bank because of the fear of losing their land if they default. They prefer to work with their own limited capital.

One farmer explained that he adapted some measures to save capital for production. Asparagus is a permanent crop, and it requires more capital for planting. Large-scale farmers buy imported certified seeds or crowns from nursery farms, but this farmer uses crowns taken from his own farms, whose quality is very low. In addition, when working capital is not available, he reduces the amount of fertilizer applied to the crop. As a consequence, yield is much lower than other types of producers, at 6 Mt/Ha. This is an example of the reaction of small-scale farmers to a lack of capital.

The buyers of produce vary from producer to producer. Some sell directly to processing plants and others sell to intermediaries. However, most of them sell their produce unclassified and do not transport to buyers. Farm-gate prices are very low compared with large and medium-scale producers. One producer with 3 Ha said that he sold his produce to an intermediary at S/. 0.35 – 0.45/Kg (US\$ 0.10-0.13/Kg). The other producer had a price of \$ 0.45/Kg, but because of the low quality of his produce, 20% was discounted. Some producers said that until a few years ago, there was more demand for asparagus than supply and intermediaries as well as buyers from processing plants came to the fields looking for raw material. Some of them paid in advance to ensure the supply, and others offered purchase contracts before the harvest and provided working capital. Farmers could choose the buyer who offered the better price. However in recent years, the supply of asparagus from medium and large-scale farms in the CHAVIMOCHI project area has increased, and processing plants do not come to small-scale farmers anymore. Only one intermediary comes to buy produce, and there is no room to negotiate price.

Unlike large-scale farmers, many small-scale farmers do not have precise figures about production. When asked about yield, they did not have exact figure, but some figures such as daily harvest and number of days harvested from the last harvest. The same applies to production cost. One farmer, who introduced a sophisticated irrigation system on an experimental basis, knew that the yield increased, but not by exactly how much.

Small-scale producers with support from NGOs.

Although these producers work the same areas of land as the traditional small-scale farmers described above, or even less, production and management of producers who receive help from NGOs are more modern. In Trujillo, there is an NGO called CTTU (Centro de Transferencia Tecnológica a Universitario: center for technology transfer to university graduates) founded in 1990 by a Jesuit father (Huamán 1999)⁵⁹. The purpose of the organization is to help farmers develop their capacity to modernize production. It offers technical training for production of export crops, organizes producers and provides credit guarantees.

In one of its main programs, called UART (Unidades Agrícolas de Riego Tecnificado: agricultural unit with sophisticated irrigation), CTTU recruits university graduates who have not found jobs and are interested in becoming agricultural producers. After basic training for production, each member receives one hectare of land in the CHAVIMOCHIC project and US\$ 12,000 – 15,000 of credit from a commercial bank, which CTTU guarantees with its fund. They invest in asparagus production using sophisticated irrigation systems. Production is carried out individually with frequent technical assistance from CTTU, but the members of UART as a group own and operate agricultural machinery, wells and pumps, and a collecting and sorting post in the field. CTTU also helps them to find buyers that offer better prices. The members pay a certain percentage of sales to CTTU as commission, and pay back their debt to the bank. When they pay back all debts, they become owners of their farms. From the start of the program in 1994, the first group of 12 members paid back all debts and “graduated” from the program. The group newly invested in the production of a further 70 Ha. About 60 people are currently in the UART program.

One of the producers who graduated from a local national university with an industrial engineering degree explained that he joined this program six years ago because he could not find any other job. His production yield reached 14 Mt/Ha, which is twice the national average. He finished paying back his debts after the third year of production. Although the sale price of asparagus has fallen 30% in the last two years, his production is still profitable. Unlike traditional small-scale farmers, the producers in the project understand the financial aspect of production. They have precise figures for interest rates, cost of production, yield per hectare, profit, etc., and they understand the importance of management. According to the coordinator of the project, one of the reasons that the NGO sets the size of initial production as one hectare is that it is small enough for one person to oversee all the aspects of production and management. Since the participants of the program are university educated and it is not difficult for them to understand the management aspect of production, it is possible to convert them into efficient producers with some training in agricultural production.

Another difference between traditional small-scale farmers and those who participate in the program is access to credit and organization. As described above, it is very difficult for individual farmers to have access to credit from commercial banks. Even if they could obtain it, the interest rate would be very high because banks see the agricultural sector as

⁵⁹ Information is also based on interviews with an CTTU staff and one of its producers on Nov. 30, 2000.

highly uncertain, and do not have much information about borrowers. That makes the probability of default very high. In the case of CTTU, its intermediation solves these problems. First, since the NGO provides fund to guarantee the debt payment, the bank is certain it will not lose its money. Secondly, the NGO has more information about the producers, and promotes and monitors their production, so the probability of default is low. Another important role of CTTU is to organize producers. Investment in machinery, wells and pumps and a collecting and sorting post are too expensive for each producer if they invested individually, but becomes feasible when the cost is shared among several producers. Also, organizing is important when selling produce to processing plants. As a group, CTTU members can exercise their collective power as a medium-scale producer, and obtain favorable prices.

The purpose of this section was to demonstrate the characteristics of each type of white asparagus producer in the northern coastal area of Peru. In the next section, these characteristics are analyzed in the context of the participation of small-scale farmers in the production of agro-export crops.

Overcoming obstacles to small-scale producers

Until the middle of the 1990s, white asparagus production was attractive for small-scale farmers in the northern coastal area of Peru. The pioneers who invested in the production enjoyed high farm-gate prices because demand for raw material by processing plants was strong. Intermediaries and processing companies came down to farms to buy material. They did not care much about the quality of asparagus. Some of them offered inputs and working capital. Farmers could choose to whom they sold, based on price and other conditions.

However, the situation changed with the CHAVIMOCHI irrigation project. Through the project, large-scale agricultural land became available. Many agro-industry firms and large and medium-scale producers started capital intensive production on the newly acquired land. With sophisticated irrigation systems using pipes and professional agronomists in the field, these producers achieved very high yields – twice or three times than those of small-scale farmers – and high quality produce. As a consequence, the supply of white asparagus in the area increased. Processing plants demand higher quality standard than before, and pay lower prices for raw material. In addition, the growing presence of low-price Chinese products in the European market puts pressure on the prices of Peruvian products. Because small-scale farmers do not have the necessary capital to invest in yield and quality improvements, the profitability of asparagus production is deteriorating, and they will not be able to replace their plants in the future⁶⁰. Here, the question is whether there is still room for small-scale farmers in the production of NTAEs like white asparagus.

Although large-scale agricultural land has become available through the irrigation project, most agro-industry firms depend on the supply of large amounts of raw material from third party producers because integrating production into their operation requires large amounts of capital. Besides, it seems that large-scale capital intensive production is not necessarily

⁶⁰ Asparagus is a permanent crop, and commercial production can last up to ten years. More capital is required for renewing the crops.

efficient in terms of cost and benefit. The analysis by IICA (2000) on Table 3 shows that in case of green asparagus, the yields of medium and large-scale producers are almost the same even though the cost is significantly higher for large-scale producers. In other words, additional investment for inputs and production technology significantly increases the yield of asparagus for small and medium-scale producers. However, for large-scale producers, additional investment does not improve the yield very much. In addition, economies of scale do not always work. For example, large-scale intensive production might exploit soil excessively and requires more fertilizer. Also, it can induce outbreaks of pests and disease. Therefore, there is a room for small-scale farmers to participate in NTAEs production. Their disadvantages, such as lack of access to credit, low quality produce and low farm-gate prices, can be overcome by modernizing production technology, management and organization. The additional investment in these three fields will significantly improve yield and efficiency. Modernization of production technology means introducing sophisticated irrigation systems, application of fertilizer and improving knowledge of crops. As far as knowledge is concerned, followers like small-scale farmers can obtain it from leaders like large-scale farmers at a relatively low cost. Modernization of management means formalizing property rights that can make access to credit possible, keeping track of costs and benefits to determine the optimum level of investment, respecting contracts and fulfilling them, etc. Organization means purchasing inputs and selling produce collectively to utilize economies of scale and to increase bargaining power.

Some of the existing studies emphasize the role of contracts in uniting traditional small-scale farmers with agro-industry firms. They argue that through contracts, small-scale farmers are able to participate in the production of NTAEs. However, there is a large gap between agro-industry firms and traditional small-scale farmers. NTAE production is highly sophisticated in many respects, and it is difficult for small-scale farmers who are not yet modernized to participate in production by themselves. Contracts alone cannot modernize farmers. However, it is possible to do so with help from NGOs. The case of a small-scale producer with support from an NGO described above is a successful example of how to overcome obstacles facing traditional small-scale producers.

Conclusion

In many countries in Latin America, exports of fresh fruits and vegetables, so called Non-Traditional Agricultural Exports (NTAEs) are increasing because of their comparative advantages: climate, geographical location, cheap labor, etc. Not only large-scale agro-industry firms, but also small-scale producers participated in the production of these crops and enjoyed profits. However, the easy phase of development of NTAE production did not last very long. As more producers become involved in these crops, the competition among them became fierce. When the price of the crops fell and the quality standards demanded by the agro-industry firms were raised, small-scale farmers, especially traditional family farmers, were not able to compete with large-scale producers.

The purpose of this study is to see if small-scale producers can continue to participate in the production of NTAEs. Existing studies on theories in rural markets demonstrate that small-scale producers can participate in such production through contract farming with agro-industry firms. By linking with agro-industry firms, small-scale producers can obtain the necessary capital and technology and sell their products to the firms. However, asymmetry between firms and farmers lead to failed contracts. The gap between firms and farmers is

too big to be filled only with contract arrangements. The study on white asparagus production shows that small-scale producers can benefit by producing NTAEs with help from intermediary organizations such as NGOs, in such aspects as seeking finance, transferring technology, selling produce as a group. These organizations can help to modernize farmers and fill the gap between them and agro-industry firms. However, the study is largely based on existing studies and a small number of interviews in the field. In order to demonstrate the feasibility of production by small-scale farmers with help from intermediary organizations, more cases of this nature need to be closely examined.

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