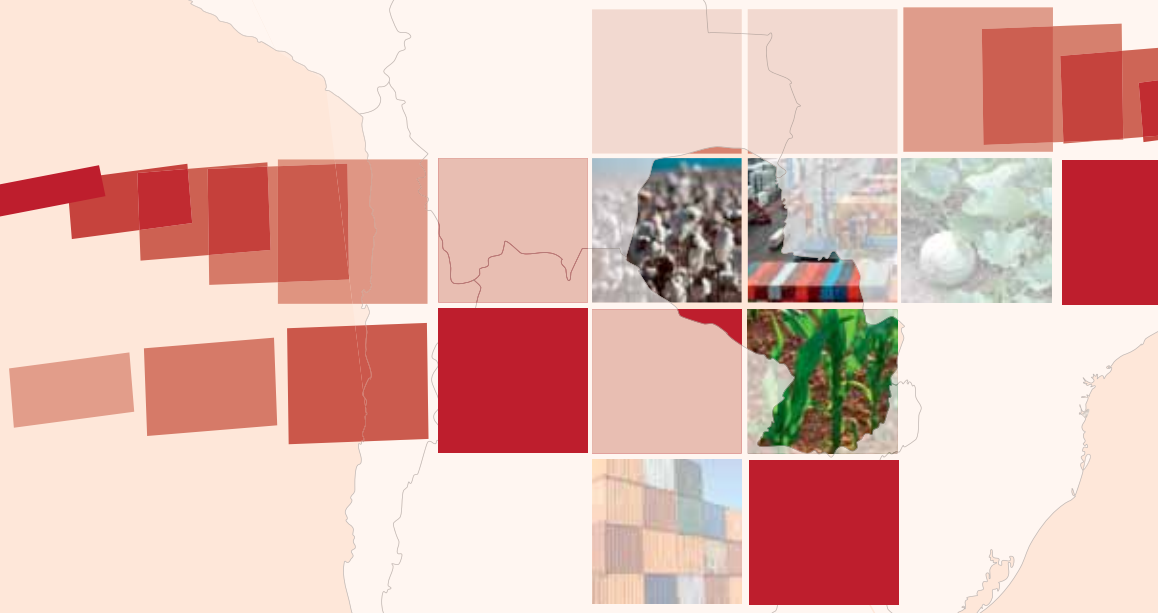
Study on inclusive development in Paraguay

International cooperation experiences



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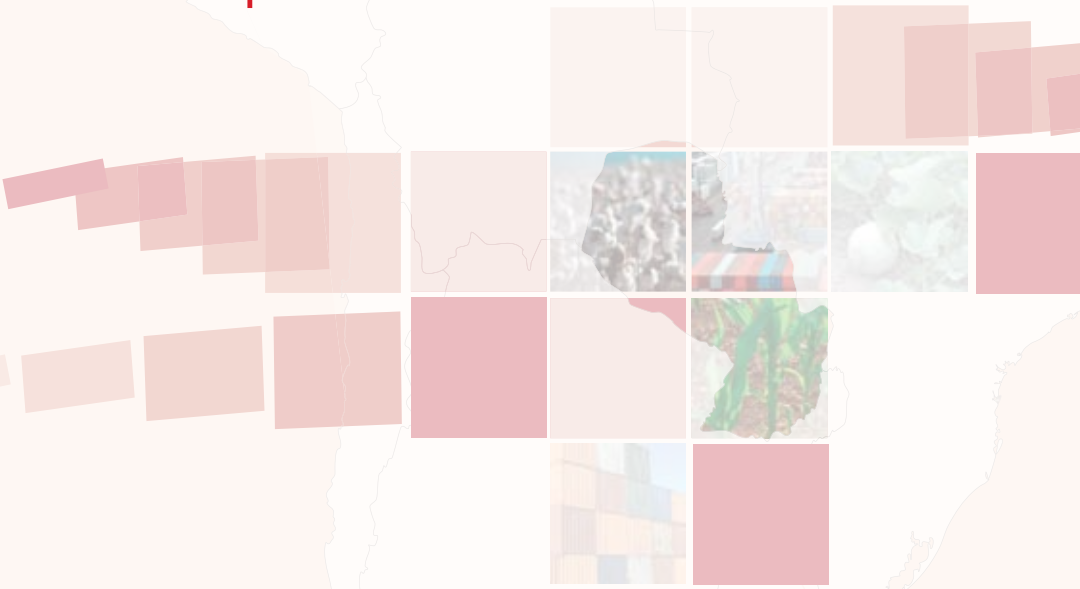

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This book was prepared under the supervision of Akio Hosono, Senior Research Advisor at the Research Institute of the Japan International Cooperation Agency (JICA); Kazuo Fujishiro, Director of the Division for Central America and the Caribbean in the Department for Latin America and the Caribbean of JICA; Rudolf Buitelaar, Chief of the Local and Regional Development Area at the Latin American and Caribbean Institute for Economic and Social Planning (ILPES) of the Economic Commission for Latin America and the Caribbean (ECLAC); Octavio Sotomayor, Economic Affairs Officer of the Division of Production, Productivity and Management of ECLAC; and Sergio González Catalán, ILPES staff member, in the framework of the activities conducted under the ECLAC/JICA project on inclusive dynamic development: a successful case of international cooperation in Paraguay (JPN/13/001).

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The authors would like to express their gratitude to Makoto Kitanaka, former Resident Representative of JICA in Paraguay, without whose leadership, support and valuable collaboration this work would not have even begun. Thanks are also due to Takeshi Takano and Naohiro Kitano, of JICA, and Makoto Taniguchi, Resident Representative of JICA in Paraguay, for their unwavering support. Lastly, the authors wish to thank Miuriel Vecca, Coordinator of Technical and Financial Cooperation of the JICA office in Paraguay, for her collaboration and support in drafting the texts.

LC/L.3711
2013-586

Printed at United Nations – Santiago, Chile

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Glossary

Acronyms and abbreviations

AECID: Spanish Agency for International Development Cooperation

CADEP: Centre for Analysis and Dissemination of Paraguayan Economy

CAPAINLAC: Paraguayan Chamber of Dairy Industries

CAPECO: Paraguayan Chamber of Producers and Exporters of Cereals and Oilseeds

CAPEXSE: Paraguayan Chamber of Sesame Exporters

CEMAP: Chamber of Maquila Companies of Paraguay

CEPPROCAL: Paraguayan Quality and Productivity Centre

CIMC: Counterpart inter-institutional and multisectoral coordination

CNIME: National Council of the Export Maquila Industry

CORFO: Production Development Corporation of Chile

CRIA: Regional Centre for Crops Research

CSV: Creating shared value

DEAg: Agricultural Extension Directorate

ECLAC: Economic Commission for Latin America and the Caribbean

EDEP: Study on the Economic Development of Paraguay

EDRIPP: Integrated rural development study for small-scale producers

EXPIDER: Pilot Projects on Local Rural Development in Latin America

FCA: Faculty of Agrarian Sciences (FCA) of the National University of Asunción

FECOPROD: Federation of Production Cooperatives

FOCOSEP: Project for development of export enterprises' competitiveness in Paraguay

GAP: good agricultural practices

GTZ: German Agency for Technical Cooperation

HACCP: Hazard analysis and critical control points

IAN: National Agricultural Institute

IDB: Inter-American Development Bank

FDI: Foreign direct investment

IICA: Inter-American Institute for Cooperation on Agriculture

INCOOP: National Cooperative Institute

INTN: National Institute of Technology, Standardization and Metrology

JBIC: Japan Bank for International Cooperation

JICA: Japan International Cooperation Agency

LEADER: Links between actions for the development of rural economy

MAG: Ministry of Agriculture and Livestock

MERCOSUR: Southern Common Market

NPB: National Productivity Board of Singapore

OECD: Organisation for Economic Co-operation and Development

ONPEC: National Organization for the Promotion of Market Competition

ORPEC: Regional Office to Promote Competiveness Strategy

PBQP: Brazilian Program for Quality and Productivity

PDP: Provider Development Programme

PIDERAL: Innovative policies for the development of rural territories in Latin America

PPCP: Promotion of Paraguayan Quality and Productivity Programme

PPP: Public-private partnership

PROFO: Associative Development Programmes

REDIEX: Investments and Exports Network

SENACSA: National Service for Animal Health and Quality

SIGEST: Integrated Management System for Agricultural and Rural Development

SNV: Netherlands Development Organisation

SPDP: Singapore Productivity Development Project

STP: Technical Secretariat for Planning (STP) of the Presidency

UIP: Industrial Union of Paraguay

UNA: National University of Asunción

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Foreword

During the early twenty-first century, Paraguay's economy experienced a period of relative dynamism, with annual GDP growth averaging almost 5% over a six-year spell between 2003 and 2009, followed by four years of ups and downs that were determined mainly by the effects of weather conditions on export crops. It also was a time of change for social structures and political organization. The experience of this decade underscores both the growth potential and the need for structural change and greater social inclusion to enhance long-term sustainable development.

The story of recent trends in the Paraguayan economy, with its successes, remaining challenges and lessons learned, has not been widely disseminated and is little known outside the country. This book sets out to tell part of this story, from several points of view.

The chapters of this volume concentrate on the process of strengthening production capacity with social inclusion, especially in agricultural export sectors, through cooperation among firms and between firms and public and private sector institutions. This process is often described as cluster development and is essential for understanding the recent evolution of Paraguay's economic structure.

One perspective is offered by Akio Hosono, Senior Research Adviser at the Japan International Cooperation Agency (JICA) Research Institute, who recalls that in the year 2000 he presented a bold strategy proposal for the future of Paraguay, as part of the Study on the Economic Development of Paraguay (EDEP). This visionary

approach, put forward at a time when few had high hopes about the future, emphasized the role clusters could play. History has shown that the JICA approach was on the right track, a message confirmed by the figures provided by Tetsuo Mizobe, Associate Professor at Nihon University, which also reveal that there is much still to be improved.

The Centre for Analysis and Diffusion of the Paraguayan Economy (CADEP), a Paraguayan think tank, relates how the government, private sector organizations and civil society in general worked with concepts and approaches similar to those proposed by JICA. Ultimately, it is the collective effort of Paraguayan society that is responsible for economic developments.

Researchers at the Economic Commission for Latin America and the Caribbean (ECLAC) provide a Latin American perspective on experiences with cluster development strategies, showing that the Paraguayan initiative is not unique and that other countries are discussing several issues related to industrial policy in order to promote structural change with social inclusion.

In the final chapter, JICA sets out an up-to-date vision of its proposal for Paraguay's economic development and an integrated approach to foster rural development with a territorial dimension, centred on the inclusion of small-scale agricultural producers.

The transformation of the Paraguayan economy and society is not the only narrative in this book. There is another: the story of an international development agency that engages in debate on national development strategy. This is also a story that is little told and barely known outside the agency. JICA is proud to share the experience.

For ECLAC, the case study on Paraguay presented in this volume provides original insights into the question of how to promote structural change for equality in Latin America and the Caribbean. It confirms the notion that the role of the State is crucial and that international development cooperation can also contribute greatly to this process.

Paraguay has made significant progress but urgent and pressing challenges remain. JICA and ECLAC are confident that this volume offers important contributions to the debate on future development strategies in Paraguay.

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Executive summary

Paraguay and the Inclusive Economic Development Study of Paraguay (EDEP)

Paraguay's economy has adapted to dramatic changes in the external environment. In the 1980s and 1990s, this took the form of financial market liberalization, privatization of State enterprises, development of agro-industry and entry of foreign direct investment (FDI). In this new context, national development needed to be driven by an internationally competitive export sector. The supply of relatively competitive exports was, however, restricted to cotton, soybeans and other crop products —which are all subject to well-known problems of price volatility, limited multiplier effects on the national economy and questionable social impacts.

During the 1990s, production and exports stagnated, the balance of payments went into crisis, the fiscal balance worsened and unemployment climbed. For all these reasons, it was vital to devise a national strategy to boost the economy based on greater competitiveness and improved quality.

The Government, through the Technical Secretariat for Planning (STP) of the Presidency, requested technical development cooperation from the Government of Japan, through the intermediary of the Japan

International Cooperation Agency (JICA). In collaboration with STP, the Ministry of Agriculture and Livestock (MAG), the Ministry of Foreign Affairs (MRE), the Ministry of Finance (MH), the Ministry of Industry and Trade (MIC) and the Ministry of Public Works and Communications (MOPC), JICA carried out the Inclusive Economic Development Study of Paraguay (EDEP) between October 1998 and November 2000. A JICA committee, chaired by Doctor Akio Hosono, was set up to oversee the report. There was also active private-sector involvement, including from private companies and production cooperatives. The final EDEP report was delivered to the President of Paraguay, Luis Ángel González Macchi, in November 2000.

The strategy proposed by EDEP in 2000 to promote national competitiveness in Paraguay was based on the creation of agri-food chains and clusters, owing to the availability of crops such as soybeans, cotton, maize and other commodities —as well as the development potential of the associated agro-industry chain that was then lacking intersectoral coordination (between agriculture and the processing industry) and intrasectoral coordination. Chains and clusters were emerging, but there were not enough linkages to take advantage of economies of scale at that time.

A strategy was also devised to strengthen the manufacturing industry through the maquila regime and obtain ISO 9000 certification to increase the industry's quality and productivity.

Although public infrastructure investment was not considered a priority, owing to the limited capacity observed at that time, a strategy was devised to increase the quantity and quality of transport infrastructure. More specifically, this involved export corridors and rural roads, with a view to promoting export mobility, improving internal mobility and strengthening information networks and service centres for freight transport.

Another interesting initiative driven by EDEP was the concept of "One village, one product", which was based on developing the endogenous potential of local areas. The agricultural development strategy had a territorial focus intended to promote a production system with regions specializing in certain products. At the same time, attempts were also made to diversify exports through the industrial processing of raw materials.

Through EDEP, JICA saw the potential to boost Paraguay's economy by industrializing agricultural production. A study of the production potential of 32 agricultural products resulted in prioritization of the following 13: soybeans, melon, wheat, tomatoes, maize, chinaberry (*melia azedarach*), sorghum, beef, cassava, pork, cotton, chicken and oranges. Six emerging clusters were also earmarked as needing a boost: feed, vegetables, fruit, cotton, wood and metal work.

Promoting the development of these clusters called for new institutions to coordinate State efforts, encourage involvement by territorial stakeholders in municipalities and local areas and promote public-private partnerships. The main tool for driving EDEP forward was provided by National Organization for the Promotion of Market Competition (ONPEC), set up in 2002 to serve as a public-private association with territorial hubs in order to promote the creation of clusters. The decade from 2000 also saw the emergence of various institutional initiatives and innovations such as the 2001 Strategic Economic and Social Plan, the Project for development of export enterprises' competitiveness in Paraguay (FOCOSEP), the Investments and Exports Network (REDIEX), competitiveness panels and Law 1.064/97 on the maquila export industry. Many of these initiatives remain active today, and form the basis for a new stage of increased institutional consolidation.

A. Lessons learned from EDEP

EDEP represented a fresh approach to efforts to boost the economy. Unlike sectoral plans or those that treated agriculture as an isolated production system, EDEP approached it as integrated or systemic.

Some of the contributions and effects of EDEP were as follows:

- Introduction of new ideas and concepts, including: the idea of clusters or production chains; the concept of "export corridors"; emphasis on the role of communications infrastructure; and public-private linkages as a tool for improving competitiveness.

- Creation of a new business climate through a fresh, positively-framed discourse aimed at implementing a new economic development model at a historically difficult time for Paraguay.
- Creation of new institutions, such as: by National Organization for the Promotion of Market Competition (ONPEC), Project for development of export enterprises' competitiveness in Paraguay-FOCOSEP, and the eight REDIEX sectoral panels (2000-2010).
- Strengthening the role of public institutions that have adopted policies aimed directly at promoting productivity, industrialization and competitiveness.
- Consolidation of private activity: as well as the obvious economic buoyancy in recent decades, various business chambers and associations have emerged —which is a sign of the private sector's determination and robustness in production matters.
- Change in the behaviour and learning experiences of the private sector: rethinking management models and strategies to tackle crises; extending production capacity in accordance with international markets; emergence of an enterprise spirit in the form of cooperatives and associations; capacity to innovate and incorporate new products into companies; capacity to adapt and emulate other companies; and geographical differentiation.

The past decade has also seen a number of positive structural developments, such as macroeconomic and political stability and improved communications networks, which have had a positive impact on Paraguay's economic growth.

Since the implementation of EDEP, lessons learned and aspects needing attention have been identified as follows:

- Driving a cross-cutting agenda to improve the global competitiveness of the Paraguayan economy
- Strengthening panels for production chains
- Focusing international cooperation programmes

- Linking national agendas with territorial agendas
- Formulating new development instruments

The new conditions in the international economy have benefited Latin America overall in terms of demand for commodities, whose prices have surged on the back of higher demand from countries such as China and India. The price rise has had uneven effects on Latin American economies, however, as several commodity exporters have benefited (especially Southern Cone countries), while net commodity importers such as Mexico and some countries in Central America and the Caribbean have been adversely affected.

B. Production linkage policies

Against the current international backdrop, countries are focusing their efforts on broadening their export base by adding value to primary production, incorporating innovation and knowledge in production, integrating small enterprises and mainstreaming a sustainability approach into the production model. Actions, instruments and initiatives to rise to these challenges come under the heading of "production linkage policies". ECLAC has been researching public policies on production linkages that are necessary in the agricultural, industrial and service sectors of Latin America and the Caribbean (Sotomayor and others, 2011; Ferraro and Estumpo, 2010). The main component of such policies is innovation, which is the result of a process involving various stakeolders integrated into institutional networks. Production linkage policies, which aim to facilitate the development of competitive advantages by interlinking enterprises and institutions, are based on the following factors and requirements:

- Coordination of many actors.
- High price volatility.
- Information asymmetries and limited fluidity in terms of product volumes, quality and price.
- Agriculture, industry and services require public goods, and this in turn calls for State intervention.

- In the modern marketplace, products must be differentiated on the basis of quality.
- Innovation requires linking various skills that are not always found in the same organization.
- There are many causes of uncertainty in agriculture (biological cycle, low mobility of production factors, price cycles and so forth).

The State has many mechanisms for implementing production linkage policies. First, the State can use different governance methods depending on the level of institutional hierarchy, autonomy, relationships within and among institutions, private-sector participation and so on. In addition, policies can be applied at the level of sectors (agriculture, services and industry), territorial production chains and business associations.

EDEP proposed a strategy aimed at strengthening emerging clusters and production chains in Paraguay. The correct definition of a cluster is the subject of debate, and the definition adopted here is a cluster of firms or enterprises with related economic activities that may or may not share a certain geographical area, but that have the essential characteristic of being linked by means of commercial channels, commercial or technological contracts, subcontracting or supply links or any other type of relationship that also produces collective advantages resulting from the link. The enterprises are specialized and there is a division of labour that results in advantages of scale and increased productivity. This relational characteristic is the main component that distinguishes clusters from a group of enterprises that are not necessarily linked.

Strategies designed to promote clusters aim to develop: vertical chains among enterprises throughout the chain (for instance between a large enterprise and smaller suppliers), horizontal chains (among associated enterprises from the same sector) and large-scale clusters that are horizontally and vertically integrated.

In Latin America, striking experiences of promoting production chains include the provider development programmes (PDP) implemented in Mexico by the Secretariat of the Economy and the

National Chamber of Industry, which are based on associating small suppliers so that they can make chains with larger enterprises. In Chile, the Production Development Agency (CORFO) created various instruments such as development projects (PROFO) aimed at promoting horizontal chains among companies, provider development programmes (PDP) to promote vertical chains and integrated territorial programmes (PTI) to link enterprises from different sectors located in the same territory.

Ecuador set up an "inclusive business" scheme, which was implemented by the Ministry of Agriculture, Livestock, Aquaculture and Fisheries to promote partnerships and contracts between agro-industry and small producers of raw materials, with a view to creating a more comprehensive chain than PDP (including the association of agro-industry with small producers).

Since 2004 in Brazil, Local Production Clusters (APL) have been implemented by the Ministry of Development, Industry and Trade (MDIC) and the Brazilian Support Service for Micro and Small Enterprises (SEBRAE), with a view to boosting production chains for agents from the same sector within a territory, by linking various support instruments for suppliers and public and private institutions in terms of production development, technical training and technical assistance for association activities and so on.

C. Paraguay: recent trends in exports, clusters and production chains

In Paraguay, the main agricultural export product is soybean and its subproducts (oil and expeller). Although cotton was a major export product in the 1990s, growth slowed and the product became less important in the decade from 2000. Products from the livestock sector, such as beef, have increased their share in the past decade. Maize and wheat are also significant export products. The area under soybean cultivation has expanded steadily over the past 15 years. Yields, however, remain at around 2 tons per hectare, with this relatively low figure suggesting that there is considerable potential to increase productivity.

By contrast, between 1997 and 2011 the area under maize production rose from 340,000 to 740,000 hectares, while productivity rose from 2.31 tons to 4.24 tons per hectare. On the international market, soybeans and maize prices have surged in recent years. One of the main factors is the low incorporation of added value in soybean-industry exports. Despite increased export volumes in products such as soybean oil and expeller, value added is relatively low (8% value added compared with unprocessed soybeans).

Although cotton exports have decreased in relative terms, cotton is still particularly important for Paraguay, as it is a labour-intensive crop that employs much of the workforce (1.5 million according to JICA estimates). Furthermore, the textile industry employs about 26,000 people, and the presence of clothing companies is greatly valued because of the employment they generate.

Below is a brief description of seven production chains in Paraguay and recent trends observed therein.

1. Soybean-feed-pig production chain

The Departments of Alto Paraná, Itapúa and Canindeyú are the growing areas for soybeans, which is the first link in the production chain. Some of the production is exported, while some is processed to obtain soybean oil and expeller. Soya expeller, maize and sorghum are used to produce feed that is sold for cattle, swine, dogs and birds. Meat processors use the feed for livestock, whose meat is sold on the domestic and external markets.

One key enterprise in this production chain is Cooperativa Colonias Unidas, which brings together soybean and feed producers, as well as influencing the management of the pork production system by providing fattening pigs and feed. Another major company is UPISA, which is responsible for pork production and commercialization.

2. Sesame production chain

The introduction of sesame crops is directly linked with the Shirosawa company, which has been developing production since 1990. The sesame production system went from being mechanized to

being labour-intensive, which has meant using farmers from family farms and changing production areas (Departments of Caazapá, Caaguazú and Itapúa). In 2009, the following stakeholders have come on board to provide technical assistance (Ministry of Agriculture and Livestock) and financial assistance (Crédito Agrícola de Habilitación, Financiera El Comercio, Interfisa and Banco Visión). Most of the production is exported to Japan. To date, there are limited linkages between stakeholders in the chain, despite large contributions in the form of Japanese and United States cooperation.

3. Cassava-starch production chain

Cassava is a traditional crop in Paraguay. It is grown in almost all regions thanks to its hardiness and tolerance to degraded land and drought. The crop is produced on family farms and then sold to intermediaries who sell it in Asunción and Ciudad del Este. Starch production enterprises are linked with local cassava producers. Almost 15% of cassava farmers are linked with starch production, while the rest either export or sell in cities. Exports have climbed significantly, with values rising from US$ 6.9 million in 2007 to US$ 12.3 million in 2010.

4. Cotton-textiles-clothing production chain

This chain has developed around the company Manufactura Textil del Pilar, which has a major impact on the local economy of the Department of Ñeembucú. The company carries out everything from cotton production to processing, employs 500 local producers and generates 20,000 jobs a year. The company has been adding links to the production chain, with spinning, weaving, dying, printing, finishing and garment-assembly activities.

Manufactura del Pilar exports have risen from US$ 7 million in 2004 to US$ 20 million in 2010. Companies which, like this one, export high value added products receive public sector support through local government, Ministry of Agriculture and Livestock, Ministry of Justice and Labour, Ministry of Industry and Trade and research institutions.

5. Fruit juice production chain

Citrus fruit production (mainly oranges) is a traditional activity in Paraguay, and remained very important until the 1960s when all production was exported to Argentina. Subsequently, production decreased due to phytosanitary problems and increasing quality requirements. In the late 1990s, the Frutika company began to export juice concentrates to Europe. Trociuk is another juice concentrate exporter that sells to the Netherlands, Uruguay and Israel. The production scheme is based on the companies' own production, supplemented by the production of family farms, with the support of the German Agency for International Cooperation, the World Bank, the Inter-American Development Bank and the Ministry of Agriculture and Livestock. This system has produced particularly positive results in the Department of Caazapá.

6. Sugar-alcohol production chain

Sugarcane production was traditionally used to obtain liquor. At the beginning of the nineteenth century, the focus turned to sugar production. In early 2000, much of the harvest was used for ethanol, following the worldwide trend for producing biofuels and the Brazilian ethanol production policy. Diversification has led to a wider area of production in the Departments of Paraguarí, Caazapá, Caaguazú and Canindeyú on the Brazilian border. There is limited involvement of institutions in the production chain, with contributions from only the Ministry of Agriculture and Livestock and Crédito Agrícola de Habilitación. There is a National Sugarcane Programme but it has not yet been fully implemented.

7. Dairy production chain

In the 1980s and 1990s, Paraguay's dairy industry experienced considerable expansion. Production is geared mainly towards the local market, and small family farms coexist with medium-sized and large enterprises that account for almost all production volumes. Cooperatives and private enterprises cater to a constant demand for raw milk, which has enabled producers to become well established thanks to a reliable income. Cooperatives also provide technical assistance to small-scale producers.

The dairy sector grew dramatically between 1996 and 2010, during which time it expanded by 78%. This growth was due mainly to improved production techniques (genetic improvements, enhanced infrastructure and feeding systems and more intensive fodder production). Processed milk production has experienced a similar expansion, with growth of 268% during the same period.

Although some companies are aiming at the international market, the domestic market remains the main consumer of dairy products.

D. A new approach for the future: Integrated rural development study for small-scale producers (EDRIPP)

The current development approach used in the United Nations includes a more integrated vision that incorporates equality as an ethical and guiding principle, and environmental sustainability as a requirement. Inclusive development involves distributing and disseminating capacity-building, labour opportunities and access to social protection benefits and networks throughout the entire social fabric. Inclusive development also establishes equal conditions for citizens, with standards set in terms of civil, political, social and environmental rights (*Structural Change for Equality: An integrated approach to development*, ECLAC, 2012).

More than a decade after the publication of the Inclusive Economic Development Study of Paraguay (EDEP), JICA is now thinking about the development approach, processes and models, and is putting forward a new concept based on the sustainable and inclusive development of rural territories, presented in the Integrated rural development study for small-scale producers (EDRIPP) published in 2011 by the Government of Paraguay with the assistance of JICA.

The main aim of the sustainable development of rural territories is to promote social cohesion in local areas, and between these areas and the rest of the country. The idea is thus to attempt to transform the rural environment using participatory territorial management

processes to improve democratic governance, citizen participation and institutional development, as a fundamental component of the National Development Plan.

Spanning the next 20 years, Vision 2030 proposes the following long-term goal:

"The quality of life of the inhabitants of rural territories has significantly improved, consolidating the sense of belonging, roots and local governance, thanks to the development of capacities and skills, the sustainable management of natural resources and the harnessing of the production potential of their territories."

The sustainable rural development strategy has a territorial focus in the eastern region, which is subdivided into groups of administrative Departments that constitute subregions in terms of their shared characteristics, and then again into territories that are smaller still.

The approach adopted for DSTR is based on Sepúlveda and others (2003) and the following four pillars put forward by them:

- Political and institutional: strengthening of governance.
- Economic and productive: strengthening general and integrated competitiveness of rural areas.
- Social and cultural: aimed at equality and social inclusion, as these have redistributive, material and cultural spillovers (depending on the work dedication of each rural inhabitant).
- Environmental: sustainable harnessing of natural resources for development purposes.

These pillars are based on the following three cross-cutting themes or strategic guidelines for strengthening institutional agents, social organizations and other individual social stakeholders: training; strengthening of civil society; and information and knowledge management.

In order to implement the EDRIPP proposal, JICA is prioritizing the Assistance programme for the self-management of small-scale producers, which is based on two pillars: strengthening the territorial management system as a new development platform

for rural territories; and strengthening value chains through strategic partnerships with the private sector.

With the new EDRIPP proposal, JICA is laying down a series of challenges aimed at strengthening institutions and providing continuity to the economic momentum generated by production chains through means such as public-private partnerships. These are based on new concepts such as the creation of shared value proposed by Porter and Kramer (2011).

Vision 2030 is accompanied by a series of specific proposals to strengthen the agricultural and agro-industry sector based on public-private partnerships and cooperation, association and learning that are taking shape in the area. If the aim is to achieve territorial competitiveness in rural Paraguay, the main challenge is to generate inclusive and sustainable development based on learning and on embedding knowledge in the production process.

Introduction

Two striking phenomena have come to the fore in the region in recent years, and they are directly related to this publication. First, the new appreciation for the role of natural resources and activities based on such resources as factors that may help to boost the economies of the region's countries. Second, the emergence of clusters of productive activity as tools for reducing productivity gaps between agroindustrial enterprises and farms.

The current buoyancy of the Paraguayan economy is testament to the first phenomenon. As analysed herein, in recent years agriculture and the economy have expanded considerably thanks to strong world demand for food —especially soybean and beef needed by Asian countries and other markets that have become major importers of Paraguayan products. However, international prices for food products are volatile by definition, and nobody can be certain that they will be maintained in the near future.

The only viable strategy for maintaining current buoyancy is to harness these favourable circumstances to improve sectoral competitiveness and tackle price volatility by adding value. This is why many countries are seeing the emergence of agroindustrial production clusters and other kinds of linkages that have helped to disseminate technical knowledge among producers, while improving the competitiveness of rural territories and enterprises and improving the national advantages in certain sectors or value chains.

This is the spirit of this publication, which aims to reflect on the effects of an idea that the Japan International Cooperation Agency (JICA) put to the Government of Paraguay over 10 years ago to tackle these very challenges. As we all know, the Economic Development Study of Paraguay (EDEP) began in 2000 to value Paraguay's natural resources by generating agroindustrial production clusters that could be used to implement collective strategies to resolve systemic failures and blockages in order to improve the sector's governance and competitiveness.

To what extent have these aims been achieved? This is difficult to answer as much has happened in the intervening time, with various factors having an effect on sectoral performance. As well as specific initiatives carried out by the sector's enterprises and producers, there have also been public policies introduced by the Government, international price trends, the country's political changes, patterns of the main macroeconomic variables and many other circumstances that have a bearing on the results of the sector. However, the studies presented in this publication suggest that there is now a denser institutional patchwork (made up of producers, agroindustrial enterprises, State bodies, technical agencies and universities) than when the EDEP was released. Is this patchwork the result of the EDEP? This question prompted the Government of Paraguay and JICA to evaluate the journey so far in the hope of learning from the cumulative experiences and identifying new challenges for the future.

It is up to the reader to judge the degree to which this question has been answered. This is an important issue, and it is useful and necessary for Paraguayan society to reflect on the scope of public policies relating to the EDEP that have been implemented in recent years. However, it also seems relevant to contextualize this experience within Latin America and spark a debate on what Paraguay's agriculture, industry and rural territories must face in the future.

In the light of these objectives, this publication begins with an analysis of basic concepts used to design the EDEP, as well as the main proposals for boosting Paraguay's economic development. The first chapter highlights the comprehensive nature of the economic proposal in the EDEP, which considered the general determining factors of the country's overall competitiveness (which went far beyond the

agricultural sector). Once this framework had been established, the EDEP considered a series of sectoral strategies to be developed through the formation of productive clusters and other initiatives.

This is the subject of the second chapter, which reflects on public development policies currently being implemented in Latin America to promote clusters and productive linkages. The analysis highlights the fact that all countries' sectoral problems are essentially the same (prevailing rural poverty, considerable structural heterogeneity, difficulties in innovating and adding value added —as well as major production potential), and that exchanging experiences is a powerful tool for identifying new ideas, making faster progress and avoiding the same mistakes made in other countries.

The third chapter tackles the main subject head on: the performance of Paraguayan agriculture and the analysis of strategies, operational arrangements and the contribution of the EDEP. The topic is broached from a macrosectoral perspective by describing the development of the public and private institutional fabric that provided the framework for promoting the competitiveness of production chains. In this context, the chapter analyses the trajectory of each production chain promoted by the EDEP, by identifying the main factors that determined their development. This same issue is dealt with in chapter four, although reflections are limited to the level of clusters formed in each selected chain. This is a mesoeconomic focus to understand how the clusters functioned during the period in question, in order to draw conclusions about their impact and formulate policy recommendations.

The fifth chapter discusses the various aspects of JICA work throughout the period. One aspect covered is the Japanese vision that gave rise to the idea of the EDEP (at the request of the Government of Paraguay). Another section analyses a series of additional projects promoted by JICA following the completion of the EDEP, that were aimed at facilitating the effective implementation of some of the ideas put forward in the study. The chapter ends with a look towards the future, and more specifically the transition from the national strategy proposed by the EDEP to a new JICA approach based on territorial projects (with a view to increasing social inclusivity). These are the objectives of a new initiative put forward by the Government of

Paraguay and JICA, in the form of the Integrated rural development study for small-scale producers (EDRIPP). This provides a new framework for action for implementing the Japanese Government's international cooperation programme with Paraguay over the next few years.

There are two final reflections to consider. The first refers to JICA work in Paraguay, which deserves to be highlighted as a benchmark cooperation programme for other Latin American countries. As well as JICA's permanent commitment to Paraguay (manifested through studies, field projects, visits from Paraguayan officials and professionals to Japan, missions to Paraguay by Japanese professionals, courses and technical tours of third countries), JICA has also shown an interest in implementing a national economic development strategy that harnesses all of Paraguay's economic potential. This is interesting because it reveals the Japanese intention to develop a cooperation programme with a high impact in the country that goes beyond specific projects.

The second reflection relates to the perspective of ECLAC and ILPES in terms of this work. Both institutions have found it extremely interesting to collaborate on this process. Beyond the problems and limitations, the emergence of agroindustrial clusters in Paraguay is a trend that needs continued support, as it forms the basis for a development strategy that should be followed by all of the region's countries. The strengthening of clusters and production chains should also be promoted alongside a territorial development strategy (as suggested by the EDRIPP for the next few years). Both strategies are complementary and have been promoted by ECLAC and ILPES in many publications and forums, as they have been shown to make an effective contribution to the economic development of many countries in the region and worldwide. The challenge is to project both processes into the future by taking advantage of the new political cycle in Paraguay, the economic potential of its agricultural, industrial and service sectors, and the growing demand for food and industrial products on the part of a growing world economy (despite its fluctuations and uncertainty).

The main challenge we are setting to readers is how to project into the future the achievements of the EDEP and many other initiatives

implemented in Paraguay over the past decade or more. We hope that our reflections will lead to joint work among agricultural producers, industrial and service enterprises, universities and technical institutes and government agencies that will benefit all Paraguayan society as it faces up to the challenges of the future.

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Chapter I

The Study on the Economic Development of the Republic of Paraguay (EDEP): Basic concepts focused on competitiveness and economic development

This chapter summarizes the basic concepts guiding the the Study on the Economic Development of the Republic of Paraguay, the main analyses involved and proposals based on the study, so that they can be used as a reference framework for the rest of the chapters. The chapter explains what the EDEP was aiming to analyse in the context of the beginning of the millennium, without the benefit of the relevant theoretical and empirical studies that have since been published (and that are referred to throughout the publication). At the time, the EDEP could not draw on the valuable experiences from the past decade in Paraguay and other Latin American countries.

However, it should be pointed out that the basic concepts of the EDEP are in basically in keeping with the main guidelines of the

various studies from ECLAC, ILPES and other institutions and authors on production chains, territorial development, competitiveness and so on.[1] It is also worth mentioning that most proposals in the EDEP based on theoretical and field studies were tangible and practical at the operational level. They were implemented by the Government of Paraguay, often with the support of the Japan International Cooperation Agency (JICA) —as described in chapter V. The summary of the EDEP in this chapter is not intended to be exhaustive.[2]

A. Two striking characteristics of the EDEP

The basic aim of the Study on the Economic Development of the Republic of Paraguay (EDEP) was to examine a strategy for strengthening competitiveness and exports. The EDEP has the following two striking characteristics. First, the EDEP proposed an integral approach. Second, it put forward a series of specific strategies that were considered essential for Paraguay.

In terms of the first point, the EDEP attempted to propose a far-reaching approach that would comprehensively help to strengthen the country's competitiveness. This certainly reflects the position of the Paraguayan Government, which was hoping that this study would be a kind of master plan for the country's economic development. The Japan International Cooperation Agency (JICA) took this on board fully, while also trying to take account of its own cooperation experiences in other countries.[3]

The EDEP suggests far-reaching competitiveness strategies for the country to become as competitive as it needs to be and to achieve economic growth and social development in three different but

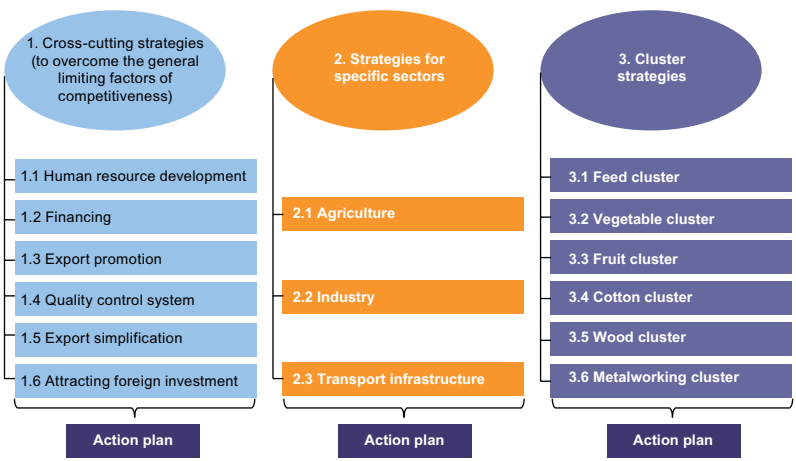
1 See, for instance, Sotomayor, Rodríguez and Rodrígues (2011).

2 See the JICA website for the complete original version of the EDEP: [online] http://libopac.jica.go.jp/images/report/11600350.pdf.

3 Including the Study on Economic Development in the Republic of Argentina, known as the Okita Report after the person responsible for the study: Dr. Saburo Okita (a Japanese economist recognized for his major contribution to the post-war economic reconstruction of Japan and its subsequent rapid growth —particularly thanks to the National Income Doubling Plan). Dr. Okita also worked as Japanese Minister for Foreign Affairs.

closely connected levels: general scope (or macro); sectoral/regional; and economic actors and/or groups (micro) —where the cluster is identified as the ideal mechanism for increasing competitiveness in Paraguay (see diagram I.1).

Diagram I.1
General strategy



Source: Prepared by the author.

There also needed to be regional strategies with priority actions aimed at achieving export competitiveness in each area or region in the light of availability of (natural, human and physical) resources, geographical and climatic conditions, location, means of transport and so forth.

In terms of the second point, the EDEP attempted to focus specifically on the particular aspects affecting Paraguay. In other words, while all aspects of the integral approach to competitiveness strategy were considered important, many of the factors were common to what most other developing countries were also facing.

Examples include strengthening of the financial sector, export promotion and an improved business climate to facilitate investment (mainly foreign direct investment). The EDEP analysed these aspects and placed them in the context of Paraguay to ensure that any measures taken were appropriate.

In addition to the above-mentioned examples, it was also considered essential to focus on the specific features of Paraguay. For instance, the country's economic structure is highly dependent on a few commodities such as soybean, maize and others. The EDEP considered it important to diversify the export structure based on these products with their comparative advantage and competitiveness on the international market. This led to the EDEP proposal for a cluster or agroindustrial chain strategy as one of the main axes of competitiveness.

In summary, the aim was to suggest increasing the country's competitiveness based on the externalities of the internationally competitive commodities such as soybean and others. Having well-linked production chains around these competitive products will enable them to benefit from the externality of the commodities' comparative advantages. Furthermore, the country can use production chains to produce products with greater value added that will also have other economic effects including stronger job creation.

It was also considered essential to identify strategies aimed at reducing the limitations resulting from the country being landlocked, including measures to strengthen export corridors and maquila systems. It was also a priority to increase productivity through human capital formation, with a view to overcoming the disadvantages in relation to other Southern Common Market (MERCOSUR) countries (Argentina, Brazil and Uruguay). The EDEP also considered it important to make development into a more inclusive concept.

The strategies prioritized therefore included the following: the cluster or agroindustrial chain strategy, export corridors, quality and productivity and the "One Village, One Product" Movement. These strategies were inextricably linked to the territorial approach within the integral competitiveness strategy.

This chapter attempts to summarize the EDEP strategies in terms of the above-mentioned aspects, with reference to theoretical and empirical background to the strategies and progress made following the EDEP.

The EDEP was the result of more than two years of analysis, evaluation and dialogue involving the Government of Paraguay (through the Technical Secretariat of Planning (STP) of the Presidency

of the Republic, Ministries of Agriculture and Livestock, and Industry and Trade, among others); as well as JICA and other public and private entities specialized in economic and social research (such as universities), the Centre for analysis and Information on the Paraguayan Economy (CADEP); and other institutions. This process reflects the JICA practice of prioritizing mutual learning and the co-creation of innovative solutions based on the joint efforts of all those involved.

B. Cluster and agroindustrial chain strategy and its basis

It is well known that the comparative advantage theory is used to identify the products in which a country should specialize. According to this theory, a country can benefit from foreign trade when it specializes in products with lower opportunity costs and exchanges them for products with higher opportunity costs.[4] However, the opportunity cost can change because investment in infrastructure and education can alter the endowment of natural and human resources.[5] Changes can also occur if the regulatory and institutional framework becomes more conducive to the development of new technologies and encourages innovation, private investment and other initiatives.

Michael Porter expanded on the notion of competitiveness by taking account of other dynamic factors.[6] He identified the following determinants of competitiveness: agglomeration economy, demand conditions, company strategies and availability of resources (similar to resource endowment).

Porter emphasizes the importance of cluster formation for the agglomeration economy, which he believes can be boosted by strategic infrastructure investment. In terms of demand conditions, Porter points out that a strong local or regional market can help companies achieve economies of scale and therefore compete more effectively on the global market.

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4 For more information (particularly in the context of agricultural products), see —for instance— FAO/World Bank (2009), pp. 35-38.

5 These topics are widely covered in several recent studies, including: Cimoli, Dosi and Stiglitz (2009) and Lin (2012).

6 See FAO/World Bank (2009), p. 36.

The EDEP considered that the high percentage of soybean, maize and other commodities in Paraguay's exports reflected their comparative advantage for the country. Given the limited public investment capacity, it did not seem realistic to propose high and immediate investment in infrastructure —even though this could change the resource endowment. What was considered realistic and timely was to achieve competitiveness by forming clusters or production chains around the above-mentioned competitive commodities.

The EDEP used experiences in Central American countries from the mid-1990s onwards, where States had made efforts to strengthen competitiveness in the wake of armed conflicts. For instance, the National Competitiveness Programme in El Salvador was supported by Michael Porter and the World Bank, with strategies including one on clusters.

C. Cluster strategy in the EDEP: production clusters and chains

In the light of the above, the EDEP prioritized the formation of agroindustry clusters. Following an empirical analysis of various products, including in the field, the conclusion reached was that the processing industry for agricultural products (particularly soybean and cotton) was not using the full potential of the primary sector, due to a lack of intersectoral linkages (between agriculture and the processing industry) and intrasectoral linkages.

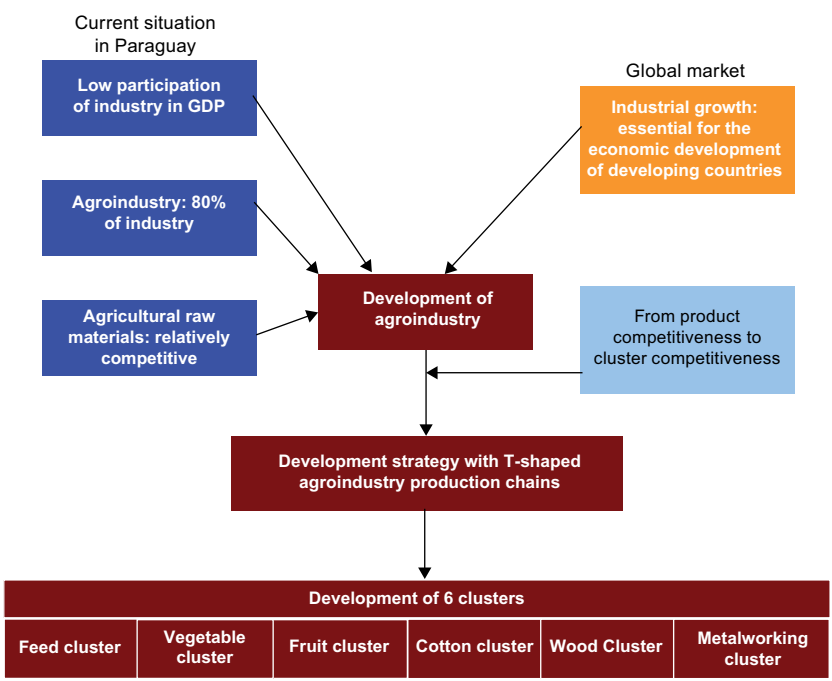
At least in the short to medium term, it therefore seemed more effective to harness the economic potential of the agricultural sector than the industrial or service sectors. This was because the commodity production sector has major comparative advantages, which would in turn enable industrial processing to increase the value added for soybean and other commodities that could be used as raw materials in a competitive way.

In addition, agroindustry had successful experiences and production bases in various parts of the country. They already had emerging clusters in the form of value chains that were still lacking

linkages or where enterprises were not well coordinated. The recommendation was therefore made to encourage vertical integration.

Owing to their small size, suppliers of raw materials found it difficult to achieve economies of scale. Another recommended mechanism for forming clusters is to facilitate the horizontal integration of related enterprises in each subsector to achieve economies of scale. In short, the proposal was to strengthen vertical and horizontal relations between companies, in other words in a T-shape. In this context, the EDEP also proposed regional strategies by identifying priority actions aimed at increasing the export competitiveness of each area or region, taking account of (natural, human and physical) resource availability, geographical and climatic conditions, location, means of transport and so on (see diagram I.2)

Diagram I.2
Cluster strategy



Source: Prepared by the author.

The series of actors involved in production, export and related activities (enterprises, cooperatives, trade associations, universities and other technological research and training institutions) have a special place in terms of regional conditions.

The cluster strategy was therefore considered the most suitable for increasing the competitiveness of economic actors, sectors and regions. Clusters or cluster formation refers to the concentration, agglomeration or geographical convergence of enterprises or other actors (universities, public or private development agencies and so on) that are linked. The cluster can be considered as a geographical convergence of enterprises making up a production chain. The cluster achieves competitiveness thanks to greater linkages between enterprises involved. These linkages encourage competition and cooperation, which in turn lead to companies enjoying mutual learning on best practices, innovation and raising productivity. The geographical concentration of enterprises makes it possible to achieve economies of scale and scope. The presence of related (supporting) enterprises also provides the advantages of externality economies. The existence of efficient input production enterprises near a processing company is an advantage of externality in relation to those that lack suppliers in their vicinity (as transportation and marketing costs and delivery times are significantly reduced for the former).

Proximity and contact among enterprises also facilitate technological learning, administrative management and improved market information, as well as increasing trust between linked business owners and reducing transaction costs. There are experiences in the region and the continent as a whole that could give rise to successful clusters, such as industrial and technology parks, free zones and export-processing zones.

The fundamental focus of the EDEP cluster strategy is based on three ideas. First, it is more effective to harness the potential of the primary sector than that of others such as the industrial or service sectors, as the former has greater comparative advantages in Paraguay (if the value added of products can be increased through processing). Plus, it is more realistic to promote industrialization based on agroindustry, as it already has competitive production bases.

At the end of the 1990s in Paraguay, the industrial sector represented a low percentage, and agroindustry accounted for 80% of the sector.

Second, given the scarcity of financial resources and the country's unskilled workforce, it is vital to prioritize and concentrate resources on strategic clusters. Third, although there are some emerging clusters, considering them as value or production chains as mentioned above shows that they lack linkages or have poorly coordinated linkages between enterprises (hence the need to strengthen vertical integration).

The EDEP selected possible strategic clusters for Paraguay based on the raw material's potential for processing. Having examined the production potential of over 30 agricultural raw materials, the following 13 were selected: soybean, melon, wheat, tomato, maize, chinaberry (melia azedarach), sorghum, beef, cassava, pork, cotton, chicken and oranges.

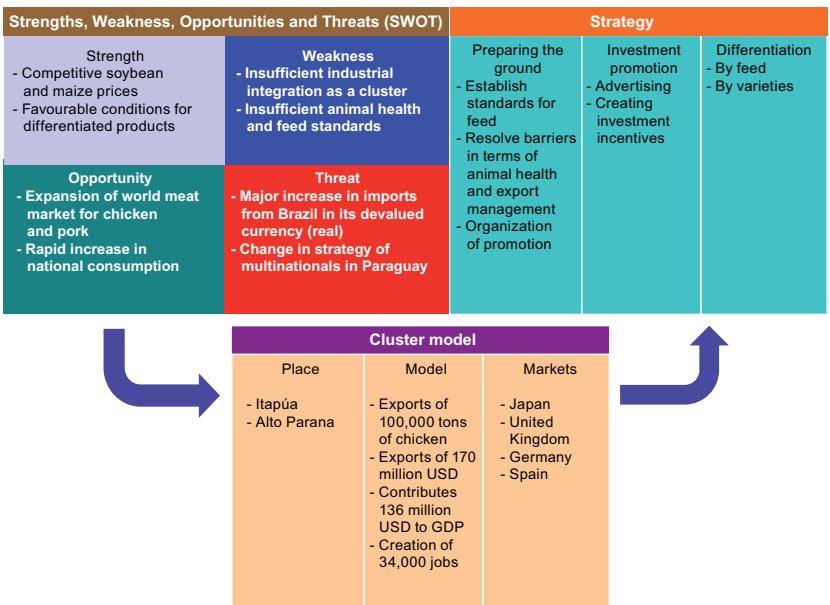
The processing potential of each raw material was analysed in terms of production (availability of technology, equipment and experience), export competitiveness and the generation of value added.

The possibility was also studied of forming clusters to support agroindustry, such as metalworking to produce agricultural machinery.

As an example, the EDEP presented some examples of strategic agroindustrial clusters. The feed cluster had the initial advantage of the price of raw materials: maize and soybean prices on the local market were 20% to 30% lower than on the Chicago Board of Trade (basically due to the high transport costs between Paraguay and Chicago). The concept for the feed cluster is presented in diagram I.3. By the end of the 1990s, soybean production in Paraguay stood at 2,860,000 tons, with maize at almost 870,000 tons and wheat at 230,000 tons per year, some of which was turned into feed used as an input for poultry and pig production (for more details on the raw materials for the feed cluster, see diagram I.4).[7]

[7] Some of these raw materials were used to make 570,000 tons of feed (with 16% sold on and 84% used locally as an input on poultry and livestock farms). These raw materials (the feed) and other inputs were transformed into 40,000 tons of poultry (chicken), 30,000 tons of pig and 390,000 tons of milk.

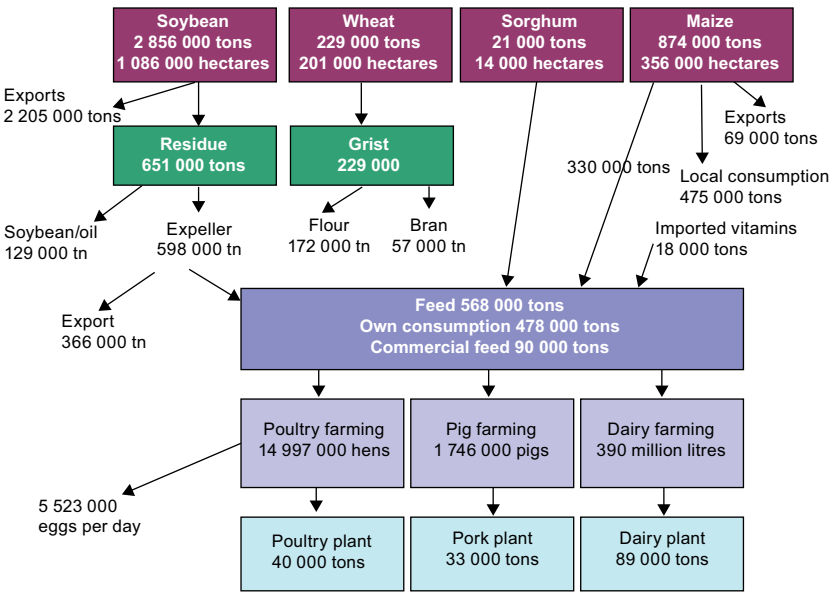
Diagram I.3
Feed cluster strategy



Source: Prepared by the author.

The feed cluster could be located in the Departments of Alto Paraná and Itapúa, where the raw materials are produced and there are several feed processing plants. These wheat and soybean production areas are close to Brazil, whose central-eastern region has increasing poultry demand and production (which shows the potential of the cluster in Paraguay). Exporting 100,000 tons of chicken and more of pork could raise GDP by 1.6% and 3.6 % respectively, while also creating around 114,000 jobs according to EDEP estimates at the time. The world markets for both products have grown more rapidly than the beef market since the 1990s.

Diagram I.4
Feed cluster structure (in around 2000)



Source: Prepared by the author.

Paraguay has two major advantages over Brazil: its wages are 30% lower (lower labour costs in labour-intensive industries) and European and Asian markets prefer chicken reared on feed rich in soybean protein (which is cheaper in Paraguay). The price of raw materials for feed (soybean and other grains) is lower in Paraguay than in other export countries due to the country's limited transport and logistics infrastructure.

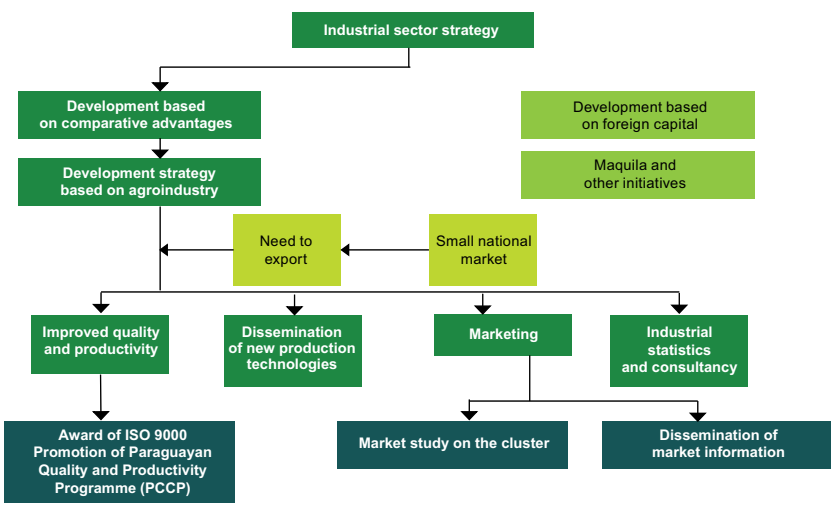
Strategies to strengthen this type of cluster included the establishment of feed standards, the removal of obstacles (livestock quarantine, export bureaucracy), eradication of pests affecting poultry

and pig production, the creation of promotion agencies such as feed cluster committees, advertising and incentives to attract investment and differentiation of products by feed and selection of breeds. See diagram I.3 for a summary of the main aspects of the feed cluster as a growth strategy.

D. Maquila system

Two strategies were considered promising for the manufacturing industry. One was to strengthen the maquila system, which could also be an effective tool for forming industrial value chains. The other was to introduce the quality and productivity initiative more proactively (see diagram I.5).

Diagram I.5
Export promotion strategy



Source: Prepared by the author.

Implementing a maquila system had a major economic impact on Mexico and some Central American countries. In Mexico, the income from maquila was much higher than revenues from oil and tourism. In the last few decades of the 20th century, maquila became the launchpad for export-based development in some Latin American

countries. This system does not, however, provide benefits if the import tariffs are very low or nonexistent (in which case there would be a need for income or asset tax exemptions). Countries that did introduce maquila systems had preferential access to the United States market, offered fiscal benefits for inputs and created the right conditions and institutions for attracting foreign direct investment (FDI).

In Paraguay, the benefits of maquila applied to any activity for export in the form of maquila, subcontracting, shelter operations or twin plants. Enterprises only had to pay 1% of value-added tax. Imports of raw materials, machinery and equipment were exempt from tariff payment (subject to prior payment of a bond). There was also a different accounting and customs regime for these operations. In simple terms, the maquila system is an improved regime for temporary admission into the country. Incentives to attract FDI included Investment Law No. 60/90, which establishes a five-year income tax exemption and tariff exemptions for machinery and equipment imports.

Paraguay also has a cheaper workforce[8] and a privileged geographical position as a distribution point within MERCOSUR. Although Brazil has a relatively cheap workforce in the north east, this region is far from the centres of consumption (which makes Paraguay's geographical location an advantage). The cost of interregional transport is also lower: the Asunción-São Paulo journey costs 60% of the cost between Buenos Aires and São Paulo (which is one of the region's main consumer markets).[9] Despite these advantages, the limited number and amounts of foreign direct investment (FDI) in Paraguay show that this potential is not being used.

The reasons point to factors including the country's poor image and low rating, the perception of limited legal certainty, restricted transparency in operations and unwieldy customs mechanisms. In any event, the tax advantages do not define the destination of FDI. A guaranteed supply of raw materials near to processing plants and a

8 Hiring a worker (including social contribution) costs USD 20,000 in Argentina, USD 12,000 in Brazil and just USD 6,000 in Paraguay.

9 The transport costs for Asunción-São Paulo was between USD 1,000 and 1,400, while the cost from Buenos Aires to São Paulo was USD 2,200-2,500.

skilled workforce are what attracts foreign investors. All of the above reinforced the urgency of implementing first-generation reforms in Paraguay. Once these have been implemented, the maquila system could be a major growth factor in Paraguay (as in Mexico and some Central American countries) if the first stage is used to harness the abundant workforce and then implement other processes aimed at increasing industrialization. Improving road structure and repealing inappropriate regulations on road freight transport were considered essential for boosting the maquila system.

It was also considered vital to strengthen the link between supply and demand of labour by areas and implement actions aimed at reaching new international markets. Most enterprises that signed up for the maquila system were medium-sized firms (between 11 and 100 employees) that had registered in preparation for possible future opportunities. A survey of these companies showed that most worked on garment activities (spinning, washing and garment making) and had idle capacity. Argentina is the main export market. According to companies surveyed, Paraguay's main advantage in implementing maquila was its relatively cheap workforce. This combines with a favourable export regime, the maquila law and fiscal incentives. Factors affecting production costs include poor infrastructure and the lack of credit. The EDEP considered that the low labour cost advantage could become a major source of competitiveness for Paraguay, if the workforce could be trained. As explained in the next section, the initiative to strengthen quality and productivity was considered very important in this regard.

E. "Quality and productivity" initiative

For producers in Paraguay, the domestic market is not large enough to generate economies of scale for production efficiency, and they must therefore seek out external markets. This requires achieving global standards of quality and productivity to compete in the global economy.

With this in mind, it is vital to support and strengthen the activities of enterprises making efforts to innovate and improve productivity and quality. One of the surest ways of increasing the credibility of Paraguayan products on the foreign market is to obtain ISO 9000, which refers to global quality-control standards. The EDEP therefore recommended that Paraguayan companies endeavour to acquire these standards.

In Uruguay, the Chamber of Industries provided technical assistance to introduce the ISO 9000 system from 1996. The number of companies to have acquired the ISO 9000 standards had increased from 7 to 30 in 1998, and to 99 by 1999. A similar assistance programme including technical guides and funds to cover the costs of applying for ISO 9000 was needed in Paraguay to increase the number of local companies with ISO 9000 status.

According to the National Quality Policy, the Promotion of Paraguayan Quality and Productivity Programme was expected to be created. The Brazilian Program for Quality and Productivity (PBQP) was introduced to strengthen the industry's competitiveness. JICA had been cooperating with one of the institutes created for this purpose in Curitiba, Brazil, by providing technical assistance for transferring quality and productivity techniques and promoting productivity improvement activities in the workplace.

In Paraguay, recommendations were made to cooperate from the initial stage of PPCP approval and to design future cooperation projects with JICA. The EDEP recommended the following projects to improve quality and productivity in Paraguayan industry:

- Industrial standards projects.
- Quality and productivity centre.
- Dissemination of quality controls.
- Information technology system.

This EDEP proposal took account of the above-mentioned cooperation experiences in Brazil, as well as some in some Asian countries such as Singapore.

Box I.1
Experiences in Singapore

According to former Prime Minister Lee Kuan Yew, changing to an international competitive and knowledge-intensive industrial structure is only possible by developing Singapore's only resource (its human resources of 2.6 million people).[a] Lee's concern was how to organize and motivate Singapore's workforce to make best use of the modernization of plants and capacity building.[b] In April 1981, the Committee on Productivity was set up by representatives of enterprises, worker organizations, Government officials and academics.

The Committee considered the productivity movements in Japan – another country with no natural resources but an abundant workforce -[c] before presenting a report to the National Productivity Board (NPB). The NPB was designated as the main body for promoting the development of productivity in the country. In June 1983, the Singapore Productivity Development Project (SPDP) was launched with the support of the Japanese Government.

About 15,000 engineers, managers and other professionals in Singapore took part in the project. 200 Singaporean engineers, managers and other professionals took part in training courses in Japan, while over 200 Japanese experts travelled to Singapore. Over 100 textbooks and other teaching materials were produced specifically for the project. During and after the implementation period, the workforce productivity of manufacturing industries improved by 5.7% (1981-1986), 3.0% (1986-1991) and 4.8% (1991-1996).

At the end of implementation in 1990, 90% of the country's workers were involved in productivity development activities (compared 54% in 1986).[d] In 2001, 13% of the total workforce was participating in the Quality Control circle (QC Circle), compared with 0.4% in 1983 (the launch date of the SPDP).[e] Quality Control circles are considered to be the most effective means of improving quality and productivity with the active involvement of workers. They use a participatory approach to incorporate workers' ideas into production processes using innovative solutions. The SPDP thus became one of the main drivers behind increased productivity in Singapore.

Source: Prepared by the author.
[a] Comments made by the Prime Minister during his visit to Mr. Kohei Goshi, honorary President of the Japan Productivity Centre (JPC) in June 1981. JPC (1990) p. 1.
[b] See JICA/IDCJ/IDJ(2010), p. 30.
[c] See, for instance, Hosono Akio (2009).
[d] See JICA/IDCJ/IDJ(2010), p. 16.
[e] Ibid, p. 22.

F. Transport sector and export corridor strategy

This sector's competitiveness strategy aimed to qualitatively and quantitatively expand transport infrastructure, improve maintenance of the current network and provide the necessary human

and financial resources for both tasks. This involved upgrading the export corridors and rural roads used to bring out agricultural production, improving internal mobility (of people and goods) and strengthening existing infrastructure (information network and service stations) for freight transport.

Based on the above-mentioned analysis, the EDEP proposed transport-sector strategies, including the main one of improving export corridors. Developing river transport is also vital for export promotion, hence the suggestion to broaden the operations of the ports of Pilar and Encarnación, while also improving access routes. As the river Paraguay tends to accumulate sediment, it was considered necessary to expand regular dredging arrangements. It was also vital to prepare Paraguayan grain transhipment bases in the free zones of the ports of Rosario (Argentina) and Palmira (Uruguay).

In terms of the land export corridor, the suggestion was to strengthen the road connections with Brazil by building a second Bridge of Friendship and the Carmelo Peralta bridge, facilitating connections with Argentina by building the Pilar bridge and improving the link with the Plurinational State of Bolivia using an entry route through Mariscal Estigarribia and Neuland.

Second, improvements to internal mobility were proposed. It is vital to improve the national and departmental roads that serve as the main domestic routes. National routes will basically following existing patterns, with new interconnecting routes proposed in the south. A road network was also added in Chaco. As well as road development, there was a proposal to improve river passenger transport between Asunción and Concepción, and between Puerto Olimpo and Bahía Negra, in order to improve internal mobility in the north. Third, there was a proposal to improve transport infrastructure to support physical distribution, for instance by building truck terminals in Ciudad de Este and Ypacaraí. Expanding collection and silo facilities in production sites would also support an increase in production volumes.

G. Inclusive development in the EDEP vision

While the EDEP did not explicitly propose an inclusive development approach benefiting all inhabitants, that vision was present in many of the strategies. The cluster strategy, for instance, included the possible participation of micro and small-scale producers, as well as job creation.

Along the same lines, the EDEP proposed an additional approach of the One Village, One Product initiative. According to the EDEP, this type of initiative could be considered as a potential model for incubating clusters. Paraguay's Ministry of Industry and Trade introduced this model with Japanese cooperation during the EDEP period. The initiative increased its scope in subsequent years.

According to the EDEP, the One Village, One Product movement began in the Japanese Prefecture of Oita (population 1.23 million), on the island of Kyushu far from Tokyo. The area was going through difficult economic times that caused many young people to leave. In the light of this, in 1979 the One Village, One Product movement was actively promoted for economic progress.

The original concept was to encourage local areas to create and sell special products in their communities. One Village, One Product is based on the idea of local initiative, which depends on the energy, creativity and desire of local citizens using local resources to restore their economies. In order to achieve global recognition, the quality of local products must meet internal and international market standards.

Thanks to the constant efforts of local communities, many new products from Oita have been brought to market and revitalized the economy there. Rather than awarding subsidies to local areas (which had reduced the spirit of independence in other parts of the country) the Prefecture's government encourages each community by providing technical assistance to improve production quality and for market research and advertising. This assistance is based on the Promotion Association for Oita's One Village One, Product (OVOP) movement. In order to increase sales, the Oita One Village, One Product corporation was set up to assist and recognize new distribution markets.

Given that the movement's ultimate goal is to develop human resources, the Prefecture has the Land of Abundance Training School, which trains young leaders in building an economically stronger society. Per capita income was USD 25,000 in 1996, and the Prefecture came 11th out of 48 prefectures in terms of People's Life Indicators according to the Economic Planning Agency (EPA) (based on 8 categories including "living", "spending", and "working" in 1999).

H. EDEP and its territorial approach

The territorial approach of the EDEP was clear from its agricultural development strategy. The strategy includes two components. The first seeks to promote a production system incorporating regional agricultural characteristics, with a view to improving productivity and strengthening competitiveness in the internal and export markets. This requires regions to specialize in suitable products with the lowest costs and the highest productivity, as well as promoting an effective agricultural financing system. For the region made up of the Departments of Concepción, San Pedro, Cordillera, Caaguazú, Guairá, Paraguarí, Caazapá, Misiones, Ñeembucú and Central, strategies were suggested to promote non-traditional agricultural products for export and the internal market. The suggestion for the Departments of Alto Paraguay, Boquerón and Presidente Hayes was a regional agricultural strategy aimed at the international market.

The second component of the strategy was to promote agricultural and rural development through the industrial processing of raw materials (in the interests of export diversification). This involves promoting the export of agricultural products by implementing a more effective system of plant and animal health inspections; encouraging the development of agricultural product processing; and diversifying exports through support for producer organizations and agricultural cooperatives. This strategy is closely linked to the above-mentioned cluster strategy (which requires a territorial approach for its implementation).

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Chapter II

Production-linkage policies: Chains and clusters in Latin America

A. Introduction

The economic situation of the region's countries has been extremely buoyant, resulting in almost a decade of continued growth that was only interrupted in 2009. Although growth slowed down in 2012, Latin America's economic prospects remain relatively positive, albeit subject to the uncertainty and volatility of the external environment resulting from the problems in Europe, United States and China.

According to ECLAC, the region's economy has had to face adverse external events, such as rising food and fuel prices in 2008, the world financial crisis (with the worst effects felt between September 2008 and the end of 2009) and the international uncertainty and the world economic slowdown from the second half of 2011. In order to tackle these problems, countries adopted various macroeconomic measures, consisting mainly in countercyclical fiscal policy and

monetary policies, combined with currency appreciation. Countries have also implemented labour and social policies aimed at moderating the negative impact of the external situation using measures such as temporary reductions in tax/employer contributions, higher minimum wages, part-time work and training programmes, food support programmes, social housing and vouchers/grants for heads of vulnerable households (ECLAC, 2012a).

However, these world trends have had differing impacts on the subregional level. Mainly due to high demand from China and other emerging economies, the region's commodity export prices have surged since the early 2000s, particularly in terms of minerals and metals. While both types of product have encouraged the growth of the region's countries that export them (especially in South America), they have also increased dependence on income from such exports. In contrast, Central American economies and most Caribbean countries —which are net importers of commodities— have been negatively affected by price rises in these products. In the agricultural sector, the rise in agricultural commodity prices has benefited the region's export countries (especially those in the Southern Cone), while causing problems for food importers (mainly Mexico, Central America and the Caribbean). Although it is difficult to predict, the situation will probably remain the same in the next few years: everything suggests that world population growth and the economic buoyancy of countries such as China and India will have a structural impact on the world market, making it essential to improve the region's policy mechanisms to take advantage of this opportunity and increase exports of more highly processed industrial products.

The region's countries generally need to develop the production of foodstuffs, industrial goods and services as a way of increasing their export base. This poses three major challenges: first, it is vital to add value to primary production and begin to move beyond the production of commodities. The economic reprimarization process must not be intensified, as it implies low incorporation of knowledge and value added, and generates few links with the rest

of the economy (thereby preventing the rest of the economic system from being boosted as a result). Second, the export process must be able to integrate small enterprises, in order to generate an efficient and inclusive development process that uses this sector's production capacities that are increasingly valuable in a context of scarce resources and raw materials. Thirdly, the challenge is to project these dynamics into the long term, which requires the implementation of environmentally sustainable production models.

To tackle these challenges, this document seeks to promote reflection based on the implementation of public policies aimed at promoting production chains in the region. The generic name of such initiatives is "production-linkage policies", which covers a range of actions and measures. In other studies, ECLAC has carried out a broader reflection on public policies needed for this new stage, in the agrifood sector (Sotomayor and Rodríguez and Rodrigues, 2011) and the industrial and service sectors (Ferraro and Stumpo, 2010). In the light of this framework, this document aims to fulfil a more limited remit, which can be summarized using the following three objectives:

- Reflecting on various national experiences in planning, coordination of actors and implementation of public policies for production chains.
- Analysing various arrangements for productive linkages (clusters) between large industrial enterprises and smaller ones.
- Analysing how to connect efforts made in terms of chains and clusters with public-private initiatives at the territorial level, to provide strategic guidance and greater potential impact to the latter.

This document has been produced in a context where exchanges between countries and institutions have become a systematic practice. As well as conceptual reflections, this document also analyses various case studies based on national experiences, in the belief that a comparative and therefore concrete approach can be used as a reference by public policymakers and private actors.

B. Industrial policy and agricultural policy: conceptual aspects

1. Technological innovation and institutions

In the modern world, the need to incorporate progress and innovation into production processes forces us to go beyond a simplistic analysis of innovation, viewed as the result of an individual decision process, towards a concept that sees innovation as the result of a process involving various interacting agents spread across various institutional networks.

These institutional networks involve a range of basic (social, productive and other) relations that vary depending on each country and era, and that are expressed in a system of market prices and also laws, rules or regulations, commitments negotiated by actors (in the form of agreements), as well as values and representations of a given community. These networks can include autonomous agencies that often have opposing interests, with no one actor having enough power to dominate, and where the decision-making process is based on negotiation and compromise. This view is different from a monorational governance model, which is characterized by the presence of one actor (such as the State) capable of adjusting or aligning various subsystems to achieve a collective aim. This approach does not fit in with the economic models that posit that all markets will find balance due to the full rationality of individual and enterprises, the full availability of information and the instantaneous coordination of actors thanks to simultaneous price and volume adjustments.

Using this approach, this document uses the concepts of evolutionary economies theories based on the work of Nelson and Winter (1982) questioning the general equilibrium models that have traditionally dominated the academic debate on the behaviour of firms. These ideas in turn come from the work of Commons (1932, 1934), who posited that transactions should be considered as the basic unit of analysis of economic activities. These ideas were picked up by Coase (1937), who stated that the market was not the only example of coordinated economic transactions (as held by the market theory itself), but rather firms played an important role in this task.

Decades later, these arguments were developed by Arrow (1974), who also recognized the validity of the market and firms as options for organizing economic activity. Another contributor was Williamson (1975, 1985), who suggested that the results of economic transactions are uncertain due to the limited rationality and opportunism of participating actors. These imperfect perceptions generate imperfect learning, which implies an ongoing heterogeneity among actors (even when they have the same information and opportunities).

To overcome these uncertainties and reduce transaction costs, actors implement governance structures, which were defined by Williamson (1981) as implicit or explicit contractual frameworks within which transactions are carried out. Economic decision-making is based on institutional foundations: this means that different institutional structures give rise to different behaviour among the actors (which in turn generates different economic results) (Smith, 1998).

This approach has spawned many studies on industrial dynamics and economic change processes generated by changes in product demand, supply conditions or the innovation processes implemented by private enterprises. This has given rise to the National Innovation System concept to explain why technical progress —and therefore economic development— is more rapid in some societies than in others (Freeman, 1987; Lundvall, 1992; ECLAC, 2002). This approach has connected innovation with the economy and society as a whole, going beyond a purely economistic vision that sees innovation as an exogenous process in which the enterprise buys technology on the spot market, and an individual process where innovation is the simple result of a particular investment by a business.

2. Production-linkage policies

Production-linkage policies seek to facilitate the generation of competitive advantages, mainly from the interrelationships created and developed between enterprises and institutions. This type of policy can come under what some authors call “industrial policy” or the implementation of public policies for specific sectors or industries to encourage industrialization processes based on set objectives in the national interest (Khan and Blankenburg, 2009).

There has been a long-running discussion on industrial policy in Latin America, and this has been revived in recent years, particularly since the stabilization of most of the region's economies. In this new context, the concept of "industrial policy" is used in a broad sense, either for encouraging the development of immature industries or to manage consolidated economic sectors using policies on trade, science and technology, public procurement, foreign direct investment, intellectual property rights or financial resource allocation (Cimoli, Dosi and Stiglitz, 2009b).

Within the wide range of policies and instruments to support SMEs, there are many rich experiences of production linkages in several of the region's countries. Some countries use the cluster as the conceptual framework, while others are based on horizontal or sectoral networks. Some have a strong territorial anchoring, while others have a sectoral or technological focus (Dini, Ferraro and Gasaly, 2007). They are all ultimately attempting to develop collective advantages, external or agglomeration economies or mutually beneficial group actions.

Implementing these policies is justified in all sectors of the economy: State intervention and interaction between enterprises and institutions are essential for speeding up the process of accumulating knowledge and adding value. This is based on the following foundations:

(a) Coordination of various actors

Every country has a high number of SMEs interacting with a series of large industrial and service enterprises, as well as with many other political and social agents. This is particularly true of the agricultural sector, which is highly fragmented and unevenly distributed across the territory. Out of all sectoral policies, agricultural policy is therefore the one that involves the greatest degree of co-management with producers and agroindustrial enterprises.

(b) High price volatility

Modern economies are very interlinked, which generates high variability in input and product prices. These changes arise due to macro and microeconomic factors. They are very difficult to control, which makes it necessary to seek coordination systems to moderate at least the effects of such changes.

(c) The uniformity criteria of many agricultural and industrial products do not satisfy the requirements of models based on general equilibrium theory

This also applies to flow and transparency conditions, or the free entry and exit of market operators and their perfect knowledge of product quantities, quality and price. Another disadvantage of the market system is the poor transmission of demand indications to SMEs, owing to complex distribution circuits, insufficient product standardization, geographical spread and limited training for managers and employees.

(d) Agriculture, industry and services require the provision of public goods, which makes State intervention indispensable

Developing these sectors of the economy requires statistical information, access to external markets, competition regulation in the internal market and many other public goods. These requirements are even more pressing in the agricultural sector, as the health conditions and greater consumer demand for safe food have become key factors of competitiveness.

(e) In modern markets, it is vital to differentiate products based on their quality attributes

Given increased consumer sensitivity to quality attributes, as well their difficulty in appreciating them directly, we need specific organizations responsible for enforcing technical standards and providing the evaluation tools needed for transactions. The definition of quality is therefore the result of a social process involving various actors, reputation, relations based on trust and the existence of social networks to facilitate coordination (Allaire and Boyer, 1995).

(f) Innovation requires linking various skills

Industrial activities are highly dependent on applied research. An organization that generates an idea often does not have all the skills needed to take the idea and develop a marketable product. This is one reason why clusters are key for developing complex innovations, such as those required in biotechnology (OECD, 2011). In addition,

the biological nature of agriculture lengthens the time that innovation processes take. This sector needs a steady chain of efforts on the part of various actors.

(g) Long-term biological cycles

This only applies to agriculture, which is a biological and economic system exposed to various factors of uncertainty, in which the limited mobility of production factors generates low supply elasticity. This inertia, combined with the instability of agricultural materials, generates recurring price cycles that impact the behaviour of actors and other systemic changes. That means that the price system does not effectively adjust supply and demand: the market makes an ex-post adjustment, once producers have already made their production decisions. This kind of adjustment causes turmoil and sub-optimization.

International competition has brought home to governments, private enterprises, social organizations and technical agencies the need to have policy mechanisms based on a systemic and long-term vision, to promote an ongoing process of improved productivity, environmental sustainability and social inclusion.

As the organization of actors is a key factor of competitiveness, each sector of the economy (agriculture, industry and services) is viewed as a set of structured relations between enterprises and supporting institutions. The region has understood this reality, and countries have therefore long implemented sectoral policies of varying scope, accompanied by systemic regulation mechanisms based on various coordination arrangements (market, contracts, working groups, agendas and other vertical integration mechanisms).

C. Governance and coordination of actors: operational models

1. Multi-level governance

The multi-level governance or coordination approach arose in Europe in the early 1990s to describe the structural policies that were implemented and then completely reformed in 1988 (Marks, 1992). The

concept spread rapidly throughout Europe and the United States in the next few years, as many academics found it useful for describing the process of decentralization and pluralization in modern societies, new power distribution among public authorities and the striking development of public-private partnerships (Marks and Hooghe, 2004).

These processes have led to a fragmentation of responsibilities and a multiplication of local, national and transnational networks as spaces to define public policies. There is now a clear trend towards a more interdependent world that is less structured by the Nation State, resulting in the rise of many authority structures at all levels to ensure the governance of economic, social and environmental processes.

This approach is based on the premise that spreading authority throughout various jurisdictions is more efficient and legally superior to the central State monopoly. These polycentric governance systems can operate on many levels to capture variations in territorial scope resulting from the externalities of public policies. There are also other benefits: when operating with decentralized jurisdictions citizen preferences are reflected better, political commitments are more credible and jurisdictional competition is encouraged (and therefore innovation and experimentation are also encouraged) (Marks and Hooghe, 2004).

This viewpoint covers two types of jurisdiction. First, those organized at the administrative level (local, meso, regional, national and international) and that have a general purpose. This means they have multiple functions, including political responsibilities, and in many cases they have courts and representative institutions. In such cases, there is a long-standing institutional architecture and citizen membership does not overlap with other jurisdictions as it is defined by territorial location. Federal governments are paradigmatic of such systems.

This approach also considers specialized jurisdictions, such as those providing a specific local service, resolving a shared problem or generating a standard product or a certain public good. There may be a great number of task-specific jurisdictions and their operating levels may be very different.[1] These jurisdictions tend to be light

[1] An example of this type of jurisdiction is presented in table II.3 below.

and flexible. They are not necessarily stable as they come and go in accordance with citizen demands and functional requirements (Marks and Hooghe, 2004).

This idea originates in what authors at the time called "collective consumption units", whereby groups of citizens band together to procure public goods by producing it themselves, hiring private producers, subsidizing local community groups or associating with other jurisdictions (Ostrom, Tiebout and Warren, 1961).

That is why this form of governance considers citizens' membership of various jurisdictions. Other authors talk of "issue areas" to refer to territories or entities defined by the problems faced by citizens (Balmer, 1996), or "coalition causes", based on a more or less unified sense that justifies the "reasons for acting" (Massardier, 2008).

Despite the fact that such literature has been mainly used to analyse decision-making processes in the European Union, the distinction between the two types of jurisdiction (administrative and specialized) is useful for improving public policy implementation related to regional economy issues. In a context characterized by State decentralization and the emergence of increasingly complex problems that can only be resolved through public-private coalitions, this concept of jurisdictions makes it easier to distribute tasks and coordinate actors.

2. Models of governance

Some authors have defined governance as "institutionalized modes of coordination through which collectively binding decisions are adopted and implemented to provide common goods" (Mayntz and Scharp, 1995, cited by Börzel, 2010). Other authors describe governance as "the totality of interactions in which government, other public bodies, and civil society participate, with the objective to solve societal problems or creating societal opportunities" (Meuleman, 2008).

Whichever definition is used, governance relates to institutions and constellations of actors. It expresses a new philosophy of public actions that involves making citizens into important actors in the development process. To the extent to which it calls on all actors,

its emergence into academic and policy debate is a response to the "governance crisis" now affecting many world countries and regions.

Governance systems operate through three types of coordination mechanism: hierarchy, the market (competition systems) and networks (bargaining systems). Hierarchies are based on the principle of authority, markets on prices and networks on trust. Coordination through hierarchical structures is passed down by unilateral decisions (such as government decrees, court sentences or internal instructions from company management) that must be obeyed by actors in a subordinated position. Non-hierarchical coordination is based on voluntary commitments undertaken in bargaining processes.

These three social coordination systems adopt various operational dynamics involving public and private agencies. Hierarchical systems are sometimes used to stimulate coordination through the market or networks. At other times, the network or market approach is used to lay the foundations for a hierarchical structure to make a given decision. Nevertheless, the presence of authority (or what some authors call the 'shadow of hierarchy') in the form of government always acts as a crucial incentive for commitment by governmental and non-governmental actors in non-hierarchical coordination processes (Börzel, 2010).

The hierarchical style of government was applied between the 1950s and 1980s, before the criticisms of public authority that are now the hallmark of modern society. The market system emerged in the 1980s, when an attempt was made to apply efficiency, competition, deregulation and performance contract criteria from private business to public management.

The application of the network approach has come to the fore in recent years as a result of the difficulties of State mechanisms in tackling complex modern societies and increasing citizen pressure to participate in finding solutions to public problems. The specific combination of these styles of governance is what Meuleman (2008) has termed metagovernance. While these three categories correspond to pure or ideal systems, the author has put forward six types of hybrid governance structures that are useful for interpreting reality.

(a) Oligopoly

This system is made up of a small number of organizations that realize their interdependence in terms of production and price policy. The number of organizations is small enough for each one to have a market share. This interdependence makes each actor's behaviour more empathic and moderate than in an open market.

This is therefore a form of market coordination that also incorporates a network component —and this is not restricted to the private sector. Relationships in oligopolies are usually bilateral. When there are formal relationships, this becomes a cartel. A system where there is just one seller is known as a monopoly.

This type of governance structure is found in all economic sectors, owing to the strong trend towards firm concentration —particularly in small markets protected from external competition. This has given rise to harsh disputes between companies, suppliers and consumers— thus prompting the intervention of free-competition authorities.

(b) Public-private partnerships

This is a non-hierarchical governance system in which public and private actors unite to achieve certain public policy objectives. This system also combines market and network elements. Some authors identify five types of public-private partnerships: consultation/cooptation, co-regulation/co-production, delegation, private self-regulation "in the shadow of hierarchy" and adoption of private regulations by the public sector (table II.1).

Table II.1
Models of governance by role of government

Government role	Type	Characteristics
Governance by the government	Public regulation	No private actors involved
	Lobbying of public actors by private actors	Private actors seek to influence public actors
Governance carried out with the government (public-private partnerships)	Consultation /cooptation of private actors	Participation of private actors in public decision-making processes (for instance, private members of State delegations, outsourcing)
	Co-regulation/ co-production by public and private actors	Joint decision-making processes by public and private actors (for instance, tripartite social partnerships or public-private partnerships)
	Delegation to private actors	Participation of public actors (for instance, contracting-out; standard setting)
	Private self-regulation in the "shadow of hierarchy"	Involvement of public actors (for example, voluntary agreements)
	Adoption of private regulations by the public sector	Output controlled by public actors (for instance, erga omnes —"towards all"— due to collective agreements of social allies)
Governance without government	Private self-regulation	No involvement of public actors (for instance, private regimes, independent social partnerships)

Source: T. Börzel, "Governance with/out government. False promises or flawed premises?", *SBF-Governance Working Paper Series*, No. 23, Berlin, Research Center (SFB), 2010.

This practice is also often used by governments and companies to generate synergies and increase competitiveness. Table II.2 shows the types of public-private partnership most commonly used in the agricultural sector.

Table II.2
Some examples of public-private partnerships
in the agricultural sector

N°	Type	Policies and instruments	Characteristics
1	Consultation, cooptation	Trade and sanitary negotiations	The private sector takes part in negotiations in what is known as the "side room". This means they advise authorities without sitting at the official negotiating table
2	Co-regulation and co-production	Provider development programmes, inclusive business, productive partnerships, local production clusters, technological consortia and integrated production cluster projects	These are different models of linkage between larger enterprises and SMEs, promoted by governments through incentives, subsidies and other regulations. In the agricultural sector, for instance, provider development programmes have helped small and medium-sized producers provide raw materials to agroindustry enterprises. They are models of association between enterprises to promote technological innovation and research processes. They are supported by governments through incentives, subsidies and other regulations
3	Delegation	Standard setting such as Hazard Analysis and Critical Control Point, good agricultural practices, organic farming or Forest Stewardship Council (FSC)	The private sector formulates voluntary quality standards that are sometimes more demanding than the compulsory standards (good agricultural practices, for instance), while others simply fill a space that was not regulated (such as organic farming)
4	Self-regulation in the "shadow of hierarchy"	Tripartite labour agreements	Representatives of various private actors reach agreements in areas of dispute thanks to direct negotiations encouraged by governments. Examples include agreements between temporary workers and fruit exporters
5	Adoption of private regulations by some of the public sector	Corporations	Private sector institutions tackle matters of public interest (for instance, corporations owned by business associations). These agreements are subsequently endorsed by government

Source: Prepared by the author.

(c) Chain management

This form of governance is similar to the network system. However, members of a chain are interdependent, with relations of a functional nature. Chain governance is different from network

governance: a network is defined by social relations, whereas a chain is defined by its functional relationships. As this system incorporates elements of the hierarchical system, it lends some order to the relationships among actors. However, keeping relationships at the purely functional level has some risk: the chain perspective only represents a part of the global scenario.

In terms of sectoral policy, chain management involves moving from a technology push approach to one of demand pull, which results in a radical conceptual change. The practice has now become relatively common —appearing in many countries under various names and arrangements.

Industrial policy examples include the production linkage programmes in Mexico (in the software, automotive, aerospace and electronics sectors) and the strategies for around 10 value chains identified in Argentina's Strategic Industrial Plan of 2020 (food; automotive and motor parts; capital goods; leather, footwear and leatherware; agricultural machinery; construction materials; medication; forestry-industrial; chemical and petrochemical; software and textiles).

As for agricultural policies, there are the experiences of the Product Systems Committees in Mexico, national sector commissions in Chile, the working groups in Argentina, the "Dairy Board" in Paraguay or the sectoral and thematic chambers in Brazil.

(d) Self-regulation and self-organization

This is a system that encourages actors to generate desired results for themselves, by identifying and formulating rules. This approach combines the market with hierarchy (as self-regulation is always regulated self-regulation) and mainly networks (as it is based on trust and voluntary cooperation). Examples include contracts, networks, chains and governance systems based on cooperation, such as cooperatives or trade unions.

(e) Open coordination methods

This is the governance method used in the European Union. It is a soft approach compared to the hierarchical system, insofar as it incorporates elements of the market approach (benchmarking, target

setting and peer evaluation) and the network approach (with public and private actors participating in policymaking). The approaches used by the World Trade Organization (WTO) and other multilateral agencies can also be considered part of this category. However, some authors are sceptical about this, given the highly technocratic nature of processes implemented by the EU or WTO to define their public policies.

(f) 'Bazaar' governance

This is mainly used to describe networks based on open-source software such as Linux, Mozilla, Moodle or Apache. The software has made it possible to create different types of projects, such as online groups or open educational communities, as well as generating governance structures to coordinate economic transactions. The system is characterized by a low level of control (hierarchy), low intensity incentives (market) and networks not based on trust: community members rarely know each other and can freely enter and leave the network. The chaotic nature of these interactions has led to the use of the term 'bazaar' to describe these networks (Demil and Lecoq, 2006).

The characteristics of bazaar governance systems bring down transaction costs for actors, which has given rise to many virtual communities that seek various objectives. It is worth mentioning that some of these communities have internal hierarchies or close links between participating actors, either because these arose during the origins of the community or because they were designed thus from the outset. There are various emerging experiences in this category, such as the electronic coordination of production chains, e-learning training systems or farmer-to-farmer technical assistance systems operated electronically (such as YoAgricultor in Chile) (FIA/IDB, 2011).

Box II.1
Chains and clusters in the agricultural sector

The concept of value chains comes from studies of agribusiness in the United States (Davis, 1956; Davis and Goldberg, 1957) and chains in France (Malassis, 1973). It has been used in many studies and projects in the region, and has impacted the way in which agricultural policies are designed and managed (Da Silva, 1994).

The concept explains all of a product's production, processing and commercialization processes, and is the sequence of technical operations needed to bring a product to market, based on a certain division of labour among enterprises. Chains can be broken down into units of production, processing, commercialization and service delivery, with all the interrelationships between them. It is thus possible to identify intermediate forms of organization between the micro unit (the enterprise) and the entire industrial sector.

The concept of agro-chains enabled rural economists to change their field of analysis towards the agrifood sector to understand agricultural trends. In the context of a gradually emerging industrial society, this option described the changes that were being generated between agricultural production structures and cities.

If we apply some aspects of Luhman's conceptualization of social differentiation processes to the agricultural sector, we could understand agro-chains as "functional subsystems that are differentiated and determine their own identity through semantics based on reflection and autonomy lending them their own meaning" (Luhman, 2007). While this varies according to country, such subsystems began to emerge in the last few decades of the 20th century, when modernization and integration in each country's agricultural system led to greater differentiation and productive specialization. Thanks to more recursive communications among agro-chains, they became structured, more self aware and increased their understanding of their own disadvantages and competitive advantages.

All agro-chains make up what is known as the agricultural sector, which can be defined as a broader functional subsystem, namely a space where the operations of a given country's agro-chains are synchronized and coordinated. The agricultural sector is part of an even larger functional subsystem —the economy. Following this rationale, each agro-chain generates new functional subsystems known as links (including producers, agroindustries, service laboratories, technical institutes, input providers or any other network of actors with a specific function). This usually means that chains have one or more centres of gravity, which can be described as a cluster.

The concepts of chains and clusters are not, however, synonymous. There can be two or more clusters of companies coexisting in defined territories within the same agro-chain. The same applies to a partnership of a subgroup of companies competing with one or more equivalent subgroups in the same agro-chain. These clusters emerge in areas where resources and capacities are concentrated. When they reach a critical size, they gain competitive advantages and can dominate a given economic activity (or agro-chain in this instance) (Porter, 1991).

Source: Octavio Sotomayor, Adrián Rodríguez and Mônica Rodrigues, "Competitividad, sostenibilidad e inclusión social en la agricultura: nuevas direcciones en el diseño de políticas en América Latina y el Caribe", *Libros de la CEPAL*, No. 113 (LC/G.2503-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), December, 2011.

D. Levels of analysis: sector, chains, territories, and enterprises

1. Sectoral level

The sector (agriculture, industry, services) that is part of economic production is the first level of analysis considered when improving policy mechanisms for productive linkages, as the sector is where the operations of all chains are synchronized and coordinated.

Recent experience suggests that governments have used three main types of methodology to improve sectoral governance:

(a) Long-term participatory arrangements aimed at cross-cutting political agreements

For agriculture, the most recent references are the processes under way in Argentina (2010-2016 Participatory and Federal Strategic Plan on Agrifood and Agroindustry) (MAGP, 2011) and Costa Rica (2010-2021 Costa Rican State Policy for the Agrifood Sector and Rural Development) (MAG, 2010). An example in the industrial sector is Argentina's Strategic Industrial Plan of 2020 (Ministry of Industry, no date) and the sectoral components of the Greater Brazil Plan (Brazil, Government of, no date). All of these cases have sought to define long-term sectoral objectives backed up by broad policy sectors, and carrying out a consultation process with the private sector is key to achieving this.

(b) Sectoral agendas or plans designed by ministerial cabinets

This is where the priorities of each administration are established without necessarily using a consultation process. These include the Sectoral Programme for Agricultural and Fisheries Development drafted by each new Government in Mexico (SAGARPA, 2007), the 2011-2014 Family Farming Plan in El Salvador (MAG, 2011) and Panama's 2010-2014 Strategic Action Plan for the Agricultural Sector (MIDA, 2010).

(c) Participatory arrangements seeking to integrate government programmes with international cooperation programmes

This approach is based on methodology known as the sector wide approach (SWAP), which many countries and sectors have implemented to improve the coherence and effectiveness of international cooperation funds. One example is Nicaragua's Sectoral Programme for Sustainable Productive Rural Development (PRORURAL), of which the first stage was implemented between 2006 and 2009.

This Plan was designed using a broad consultation process with the private sector and international cooperation, which has resulted in a second stage described in the 2010-2014 Sectoral Programme for Inclusive Rural Development (MAGFOR, 2009). This category also includes the 2006-2016 State Policies for the Ecuadorian Agricultural Sector (MAG, 2006), whereby international cooperation agencies (Inter-American Institute for Cooperation on Agriculture (IICA), SNV) and national institutions (CORPEI and the Foundation for Agricultural Development (FUNDAGRO)) worked with the Ministry of Agriculture to tackle the country's institutional instability at that time by means of a long-term agricultural policy (MAG, 2006).

Other interesting cases include the centres for the development of small enterprises in several Central American countries, which are based on experiences in the United States. In El Salvador, this has taken the form of the National Commission for Micro and Small Enterprises (CONAMYPE), which is supported by international cooperation (mainly from the United States), and is being replicated in other countries such as Mexico, with the Mexican Association of Centres for Small Business Development, plus a pilot project under way in Colombia (ECLAC/IDB/OAS, 2011).

This is a privileged level operated by sectoral authorities, and is the ideal context for understanding the dynamics of chains, territories and linkages among enterprises.

2. Production chains

Production chains refer to all the production, processing and commercialization processes of a product. This includes the sequence of technical operations from obtaining the raw materials and processing, to bringing the product to market.

The chain approach is based on a certain division of labour among enterprises. This identifies systemic imperfections, bottlenecks and opportunities for action in the links or production phases of a sector's chain, at the local, regional and national levels. Although such factors are often invisible for most actors (enterprises as well as support system institutions), they have a massive impact on company performance and the business climate (OECD, 1999).

Under this approach, technological and institutional setbacks, as well as blockages caused by inappropriate regulations become cross-cutting issues that can improve global competitiveness if they are resolved. Although this concept has been criticized for offering a linear view of the organization of production activities, and its limitations in terms of considering territorial dynamics (Fourcade, Muchnik and Treillon, 2010), the notion of production chains is key to defining and managing public policies, particularly when it is accompanied by a systemic vision in which institutions providing support technical assistance, extension and training see opportunities for action and strengthen the potential to improve competitiveness from the meso-economic sphere.

Experiences in the agricultural area include the Mexican Government's public policy to boost Product System Committees,[2] as well as Chile's national sector commissions (ODEPA, 2006), Colombia's production chains, Ecuador's advisory councils (SENPLADES/MAPAG, 2007; SICA/MAG, no date), Uruguay's tripartite sectoral councils and clusters and Brazil's sectoral and thematic chambers (MAPA, 2009).

Other countries have used para-Statal or semi-public legal figures for this purpose, such as the Colombian Coffee Growers Federation,[3] Costa Rica's sector corporations (National Banana Corporation

[2] See [online] http://siesp.conapesca.gob.mx/csp_csp.php.
[3] See [online] www.federaciondecafeteros.org.

(CORBANA), Sugarcane Industry Association (LAICA), Livestock Corporation (CORFOGA), National Rice Corporation (CONARROZ), Costa Rican Coffee Institute and the National Horticultural Corporation),[4] the Peruvian Institute for Asparagus and Vegetables and the Argentine Wine Corporation.[5]

This institutional model is boosted by producer and agroindustry organizations that have shared sectoral work agendas, and mainly have the relevant budgetary resources and professional capacities. When such agencies account for the entire chain, they operate systemically to facilitate interactions among actors and validate the relevance of all initiatives to be implemented in the chain.

The Argentine Technological Fund (FONTAR) launched the Productive Clusters Integrated Projects (PI-TEC) in 2006 to fund research, development and innovation activities involving groups of enterprises, research and higher education centres linked to a productive cluster. Beneficiary enterprises had to have a certain productive specialization in a value chain and have associative links with other enterprises or institutions.

The PI-TEC for agricultural machinery and agroparts in the Centre Region formed a large network partially run by business owners and government representatives. Also in 2006, the Secretariat for Small and Medium-Sized Enterprises and Regional Development (SEPYME) launched the Local Production Systems Programme to fund associative projects involving SMEs and link them with public and private institutions to strengthen various local production system and complexes.

In the Province of Buenos Aires, the Sub-Secretariat for Industry, Trade and Mining of the Ministry for Production, Science and Technology implemented the Production Districts Programme to boost groups of nearby SMEs with similar and complementary characteristics by boosting joint activities based around a production chain (Ferraro, 2010a).

This approach based on production chains identifies bottlenecks and opportunities to generate providers and new business in various

4 See: www.corbana.co.cr; www.laica.co.cr; www.corfoga.org; www.conarroz.com; www.icafe.go.cr.

5 See: www.ipeh.org and www.vitivinicultura2020.com.ar.

links of the chain at the local, regional and national levels. Technological and institutional backwardness, blockages due to inappropriate regulations, infrastructure failings and the need to develop innovative joint projects become key issues in this context.

These problems are tackled by defining functional jurisdictions, in which actors in a chain play a key role, either by partnering with other agents or by acting individually (table II.3). This methodology reflects governments' willingness to boost new mechanisms that bolster the governance and functioning of production system by implementing micro-economic reforms with the private sector, in order to increase productivity and competitiveness.

Table II.3
Work agenda for the chilean dairy sector:
highlights 2000-2010

Type of policy	Jurisdiction	Coordination	Remarks
Strategic orientation	Ordinary sessions of the National Milk Commission	Government	The chain's main coordination space. The frequency of meetings is not predetermined, and they are called by the Ministry of Agriculture or at the request of any member of the chain
	Technology tour of New Zealand (2001)	Government	A delegation of 30 people (representatives from main dairy industries, producer organizations, research agencies and government authorities) travelled to New Zealand. The trip had a major cognitive impact, as it was used to redefine the strategic direction of the chain (exports, pasture-based dairy farming and other guidelines)
	Punta de Tralca meeting (2003)	Government	Participation of all links of the chain. Work agenda was defined to include various concrete measures that have continued to be implemented in subsequent years
	Annual seminar	National Federation of Milk Producers (FEDELECHE)	Mass seminar held annually since 2002 for all actors in the sector
Organization	Each link of the chain is organized into different associations: -FEDELECHE (producers) -Association of Dairy Collection Centres (ACOLECHE) and other regional networks (peasant farmers) - Federation of Agricultural Dairy Cooperatives of Chile (FENALECHE). - Association of Dairy Industries (ASILAC) - ExporLac (export industries)		Each link has its own dynamics. Some organizations are better consolidated than others

Table II.3 (continued)

Type of policy	Jurisdiction	Coordination	Remarks
Participation in international forums and agencies	Participation in the International Dairy Federation (IDF)	FEDELECHE	The Chilean dairy sector has been participating in IDF since 2005. It is useful for finding out about sectoral trends at the worldwide level
	Participation in the Global Dairy Alliance, which represents milk producers from the Cairns Group	FEDELECHE	Since 2004, FEDELECHE has been regularly taking part in the annual meetings organized around the world. This is useful for finding out about sectoral trends in terms of public policy and trade negotiations
	Participation in the Pan American Dairy Federation (FEPALE)	Government	FEDELECHE and the dairy industries regularly take part in FEPALE meetings. This is useful for finding out what is happening in the region's countries
Information	Statistical data collection: Milk Bulletin (dairy reception and production)	Government	Monthly publication from the Ministry of Agriculture (Office for Agricultural Studies and Policies (ODEPA))
	Reception survey for smaller industrial facilities	Government	Quarterly publication from the National Institute of Statistics, aimed at cheese dairies and other small-scale industries. Provides an overview of sectoral dynamics
Access to external markets and trade promotion	Export promotion programme	Government	Considerations included a national waste control plan; implementation of certified export sites (PABCO –government-monitored dairies); signing of free-trade agreements with EU, USA, China and other countries; signing of sanitary agreements with other countries; upgrading of facilities, trade tours and so on
	Creation of ExporLac in mid-2004 as a private body to coordinate exports	ExporLac	The agency has taken part in trade negotiations (side room) and is responsible for trade promotion activities in external markets
Internal market	Working group (producers, industry, government) on the variables with the most impact on the price paid to producers for fresh milk, as well as on information sources and their regularity	Government	This group defined the variables (polynomial) with the most impact on the price paid to producers –which is a recurring point of conflict in the chain. This work has been extremely important, as it has generated a base of shared information to discuss producer prices. It was published on a specific ODEPA website between 2004 and 2010. This information is still published by ODEPA, but is spread throughout its various publications and databases
	Agreement of the "fresh milk sampling system for laboratory analysis of qualities and content"	Government, ASILAC-FEDELECHE	Private regulation approved in 2005 with Government coordination, to regulate sampling and quality analysis procedures when milk is received by facilities. This has made this stage of the process more transparent, and has regulated disputes between producers and industry
	Working group (producers and industry) aimed at simplifying and standardizing payment guidelines	ASILAC-FEDELECHE	The aim was to create a standard payment guideline to enable comparisons between industries and greater market transparency. Each industry adapted the guideline to its specific situation. The standardization of guidelines relates to their structure, not their monetary value, as each company independently assigns its own parameters

Table II.3 (concluded)

Type of policy	Jurisdiction	Coordination	Remarks
	PROMOLAC	ASILAC-FEDELECHE	Legal entity responsible for implementing a domestic marketing campaign to increase milk consumption. Created in 2001 and funded by the Government, industry and producers (until 2008). Now exclusively financed from private contributions.
	Labelling committee	ASILAC-FEDELECHE	Review of labelling rules for various technical matters
Innovation and transfer of technology	Milk Consortium	ASILAC-FEDELECHE-other private actors	The Milk Consortium is the technological branch of the chain. It acts as a systemic body, which means it is responsible for implementing and/or validating all research and development activities in the chain. Its first stage was planned to last 5 years and mobilize around USD 1 million from the private sector and USD 7 million from the public sector
Soil improvement and promoting irrigation	System of Incentives for the Recovery of Degraded Soils (SIRSD) and Law No.18.450 on irrigation	Government	Cross-cutting promotion instruments (implemented in all chains) to encourage fertilization and irrigation of pastures. Both programmes have an impact in terms of improving competitiveness
Health and biosecurity	Sanitary Plan (tuberculosis, brucellosis, foot and mouth and so on)	Government	Programmed aimed to keep the country free of diseases (foot and mouth) or eradicate diseases that affect dairy farming (tuberculosis, brucellosis)
Quality and safety	Implementation of hazard analysis and critical control points (HACCP) Implementation of Animal Identification Programme	ASILAC Government	Setting up hazard analysis and critical control points (HACCP) in industrial facilities, as well as traceability systems (animal identification)
Animal welfare	Implementation of slaughterhouse regulation	Government	Modernization of regulations on transport and slaughter of animals
Environment	Sector adaptation to Decree-Law 90 regulating industrial waste elimination in waterways	FEDELECHE	This regulation affects dairies in terms of eliminating slurry, and involved a process of technological research and development to adapt to these new rules
Human resources	Application of training subsidy from the National Training and Employment Service (SENCE) Application of system of employment skills	Government and private enterprises (farms and industry)	Enterprises receive a public subsidy (SENCE) for training workers. From 2008, the strategy was complicated by the introduction of a new training system based on employment skills (Law No. 20.267)

Source: Prepared by the author.

The methodology is implemented through work plans or agendas, which represent the authorities' choice to organize and plan public-private interventions. In some cases, the agendas are overarching and account for all blockages that may affect a chain, while other agendas focus on specific areas such as innovation and research.

In countries with federal governments, the product system committees in Mexico or Brazil's sectoral commissions exist in every state. This is unlike the national sector commission in Chile, where there is one national body that is specifically reproduced at the regional level (for instance, the Meat Corporation in the Lakes Region). This means that Mexico and Brazil have more opportunity to experiment with work arrangements and public policies, as there is more potential to connect these efforts with those under way at the territorial level.

3. Territories

We use the word territory to refer to a limited space, with more or less precise borders, used by a social group, where inhabitants have a sense of awareness of belonging, and where there are forms of political authority and organizational and operational rules (Brunet, Ferras and Théry, 1992). Territories are therefore more than the physical and administrative space, but rather become a social and historical construct featuring enterprises, civil-society organizations and public and private institutions with their own levels of representativity and leadership.

Many countries are currently restructuring and decentralizing their public services. Some have consolidated public structures seeking greater coordination and more rational use of resources, as well as opening up new forums for social participation. However, other countries barely have minimum institutions as a result of the dismantling of State machinery during the 1980s and 1990s. Overall, there is considerable interest in generating more modern and decentralized structures.

In some countries, municipalities have taken on new roles (for example, technical assistance or investment implementation), while leaving higher levels (the State, the region, the province or the department) as strategic spaces to formulate regional and subregional plans using a negotiation process among municipalities, states/regions and ministries. This eventually leads to various forms of contractual process, including: contracts between central government and subnational states, joint implementation of state-region projects, territorial guidelines and planning agreements between sectoral ministries and territories (Echeverri and Sotomayor, 2010).

To apply these new principles and approaches, the territory is used as a unit of planning and management, as it is a major lever for improving competitiveness. In the 1990s, international agencies, governments and academic bodies witnessed an intellectual current that reappraised rural areas as a unit of analysis and intervention (Sepúlveda et al, 2003; Schejtman and Berdegué, 2007).

This has led to countless local and territorial development experiences that have improved the management of resources invested to combat poverty and generate economic development processes. Brazil's Territories of Citizenship programme, created in 2008, is a benchmark in this area (Brazil, Government of, 2009), as are the institutions created in Mexico in 2001 with the approval of the law on Sustainable Rural Development.

The same applies to the Central American Strategy for Rural Territorial Development (ECADERT), approved in June 2010 by the Governments of Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and the Dominican Republic.

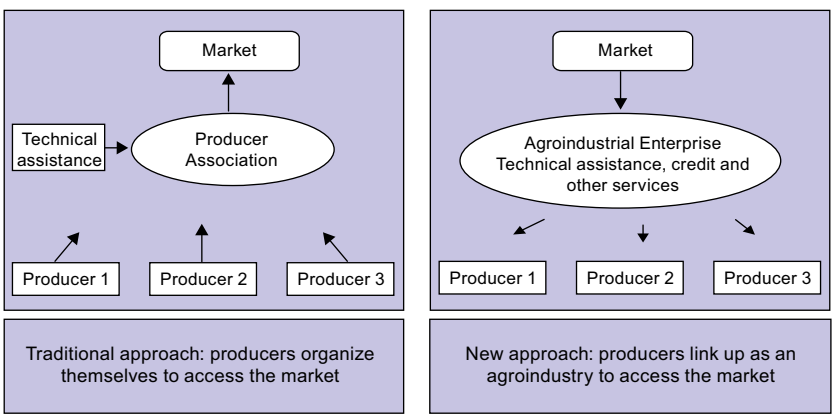
This strategy seeks to generate opportunities and strengthen the capacities of population in rural territories, so that they may significantly improve their quality of life there and build solid social institutions to boost and facilitate solidarity-based, inclusive and sustainable development (ECADERT, 2009).

4. Associative programmes and enterprise chains

For many years, governments have successfully organized producers to enable them to associate and arrange joint participation in markets (Diagram II.1). Although the 1960s saw the emergence of many urban and agricultural organizations and cooperatives, the region's difficult economic and political conditions during the 1980s and 1990s prevented the consolidation of a massive cooperative movement. Within agriculture, the notable exceptions are large dairy cooperatives Dos Pinos (Costa Rica), Liconsa (Mexico), CONAPROLE (Uruguay) or COLUN (Chile), the Colombian Coffee Growers Federation or the hundreds of agricultural cooperatives driven by the Landless Rural Workers Movement (MST) in Brazil. The same applies to the urban sphere, which has savings and credit cooperatives and housing cooperatives in many countries.

Despite these success stories, the failures have highlighted the limitations of this strategy. Some limitations are linked to the lack of capital in SMEs, while others relate to the difficulties of joint organization and facing the risks of competing on open and changing markets. Despite this, the approach remains valid given the right conditions. In the most isolated rural areas, this appears like the only possible option.

Diagram II.1
A new productive approach



Source: Prepared by the author.

To complement this approach, in recent years some countries have been implementing a cluster promotion strategy that seeks to increase interaction between enterprises. In order to better understand these strategies, it is useful to make a distinction between the following two concepts:

(a) Simple agglomeration

This is a group of firms in the same production or industrial sector within a defined geographical area (their territorial base), with no shared activities or links between firms. Enterprises happen to be concentrated in the same territory and carry out their activities independently, without considering the possibility of generating synergies through relations or activities with other local enterprises to undertake joint projects. The existence of such agglomerations with the possibility of generating joint activities and links is an essential work space for generating clusters through production linkage policies.

(b) Cluster

This is a group of firms in the same production or industrial sector or with related economic activities (sectoral value chain) that may or not be in the same geographical area (territorial base) but that do have established relations. This interdependence is reflected in commercial channels, commercial or technological contracts, subcontracting and supply relationships or other links (sharing of commercial and technological information, participation in joint strategies to improve quality or penetrate new markets and so on). Thanks to their way of interacting and complementing each other, they generate collective advantages as an unintended side-effect of the cooperative and competitive actions among enterprises.

Enterprises in clusters are specialized in a production process, which reflects their participation in the division of labour and results in advantages of scale and productivity. Generally speaking, enterprises have a similar technological base and are constantly adopting better production techniques (Enright, 1992). It is worth stating that a cluster is not a closed system of firms. On the contrary, enterprises come and go, and the cluster does not necessarily have a formal structure or hierarchy. Exposure to external and internal competition generates pressure that leads to innovation and also collaboration.

Both concepts can be used to identify three specific strategies to promote clusters, linked to their complexity.

(i) Promotion of vertical linkages between enterprises

These clusters link larger enterprises with supplier SMEs sharing the same productive specialization. This approach seeks to generate business that benefits the small and medium-sized suppliers and the larger enterprises at the same time, by setting up raw material supply programmes accompanied by technical assistance services (and in some cases credit support, contracts and other services).

Examples of public policies that illustrate this form of promotion are the Provider Development Programmes in Chile, Mexico and El Salvador, as well as the Inclusive Businesses of Ecuador. There are also examples of private enterprises using this as de facto methodology for provider development without using subsidies or public incentives. This applied to Argentina and British Petroleum,

or the early stages of the provider development programme of the mining company BHP Billiton in Chile (ECLAC/OECD, 2011).

(ii) Promotion of horizontal linkages between enterprises

These are agglomerations of enterprises that tend to be specialized in the same sector or sphere of production and that wish to undertake a joint initiative. The clearest experience of this model is the Associative Development Programmes (PROFO) by the Production Development Corporation (CORFO) in Chile. It should be stated that there are other experiences of horizontal cluster promotion in countries such as Argentina (Productive Clusters Integrated Projects, PI-TEC) and Chile (Technological Consortia), although the focus in both cases is on technological innovation.[6]

(iii) Promotion of large-scale, horizontally and vertically integrated production clusters

These are clusters of enterprises that tend to be specialized in a production sector or sphere —with links to technical support agencies— and that jointly or independently seek to generate shared activities to improve and boost the performance of companies and the support system. Although these types of clusters may have an overall objective, in practice each enterprise or entity has its own specific aims. The clearest expressions of this model are the Local Production Arrangements (APL) in Brazil (Ferraro, 2010a). Nevertheless, several countries have similar clusters that have emerged spontaneously without incentives or public subsidy.

E. Linkages and clusters: experiences in Latin America

1. Provider Programmes in Mexico and Chile

Provider Development Programmes (PDP) were created in Mexico in 1997 and in Chile in 1998, in order to provide technical assistance to small supply companies. Although these programmes

[6] For reasons of space, these experiences are not analysed herein. For more information, see the two ECLAC studies mentioned at the beginning of the chapter.

operate in all production sectors of both countries, they are particularly well suited to the agricultural sector, given the considerable fragmentation of producers and the supply requirements of the agroindustry sector.

In Mexico, PDPs are managed by the Secretariat for the Economy in conjunction with the National Chamber of Manufacturing Industries (CANACINTRA). The aim is to identify and increase the competitiveness of a wide range of micro, small and medium-sized enterprises to help them integrate value chains driven by agroindustries (known as 'driver enterprises'). Participants receive economic support to fund consultancy leading to the formulation and implementation of provider development programmes and business networks, as well as to obtain funding from guarantee funds run by development banks and CANACINTRA. In addition, participants receive support from the Secretariat for the Economy for carrying out government procedures. Between 2003 and 2008, the programme involved 1,600 supply companies.

The Mexican experience is beginning to be replicated in other countries such as El Salvador, where it is being coordinated by the Chamber of Commerce and Industry. Another interesting example is the NGO FINTRAC in Honduras and El Salvador, which has developed a chain with over 500 small-scale farmers to export high-value vegetables to the United States. The Support for Productive Partnerships project implemented by Colombia's Ministry of Agriculture and Rural Development has a similar aim: between 2010 and 2015, 300 Partnerships were co-funded, involving 23,300 families of small-scale farmers integrated in agroindustries (Sotomayor, Rodríguez and Rodrigues, 2011).

In Chile, PDPs are managed by CORFO —a public agency that provides a subsidy to industrial enterprises to fund the implementation of the PDP. CORFO functions through intermediate operative agents (AOIs), which are private entities funded by CORFO to act as second-tier entities (responsible for administration, operation and customer services, as well as paying for first-tier services that

refer to the operations of enterprises). As well as playing an active role in the technology transfer process, operating industries like markets that buy raw materials improves the competitiveness of production chains: the creation of stable contractual relations between companies and their providers generates trust that is conducive to mutually beneficial processes of productive specialization and complementarity. Between 2002 and 2007, CORFO financed 150 PDPs, which involved 3,800 medium and small sized suppliers linked to various types of industries (Martínez et al, 2008). This strategy has been picked up by another public agency working with family farming: the National Institute for Agricultural Development (INDAP) has promoted the linkage of 5,800 additional small-scale farmers, using an instrument similar to PDPs known as Productive Partnerships.

2. Development projects and integrated territorial programmes in Chile

It should be pointed out that the CORFO strategy has evolved over time to encompass various aims and issues. One initial focus was to consolidate horizontal relationships between industrial enterprises (especially SMEs) through Associative Development Programmes (PROFO), which aimed to link a small group of enterprises form the same production sector around a common objective.

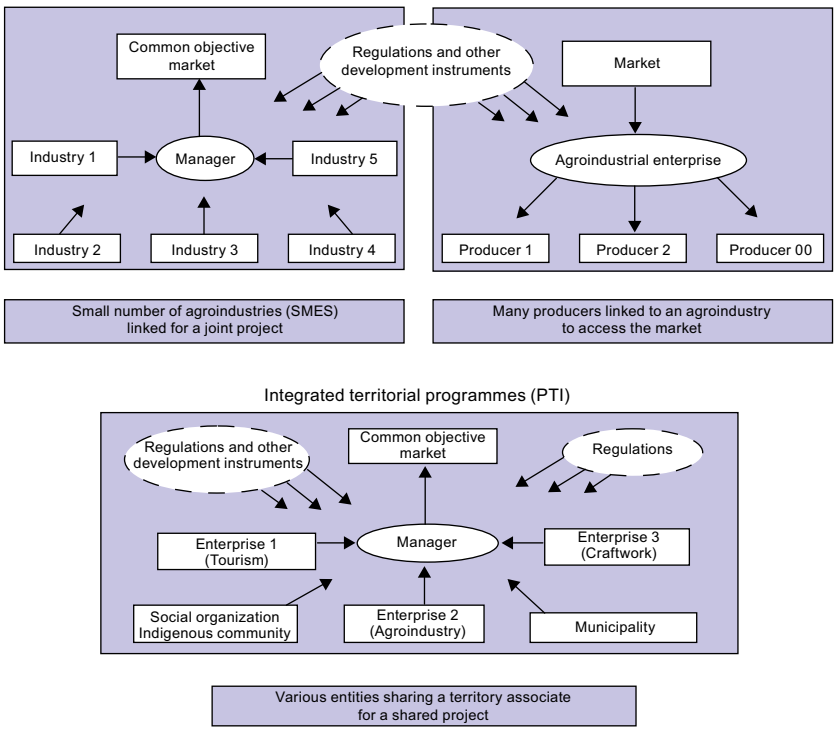
This was subsequently expanded to include linkages between large and many small enterprises in the same production sector, using PDPs. In recent years, these two instruments have been supplemented by Integrated Territorial Programmes (PTI), aimed at linking a number of enterprises (from different production sectors) that share a common territory (diagram II.2). This thus involves medium- and long-term efforts planned by the State to develop horizontal partnerships, then incorporate vertical linkages, before adding the territory and its institutions: decentralizing and creating public-private institutions that are validated by the ongoing participation of economic agents and the use of instruments requested and co-funded by them (Belmar and Maggi, 2010).

Table II.4
PROFO, PDP, PTI: main operating characteristics

Development programmes (PROFO)
Groups of at least 5 enterprises Enterprises with annual sales of between USD 96.000 and USD 4.0 million All production sectors Various purposes such as export, improved product distribution and cost reduction Up to 50% subsidy for consulting, assistance and other actions to: • Formulate the associative business project (USD 18,500 ceiling), up to one year • Implement the first phase (USD 85,000 ceiling), up to 2 years • Develop the business (USD 85,000 ceiling), up to 3 years. • Present through intermediate operative agents (AOI) throughout the year. AOIs formulate the project in conjunction with business owners and apply to the relevant CORFO Regional Directorate. Documentary requirements include photocopy of unique tax number (RUT), deeds, registrations, income, proxies and tax receipts. The application is responded to in one or two months (through the AOI). Associated lines: technological missions, individual business innovation, and quality development for certification.
Provider programmes (PDP)
Client enterprises classified as large by annual sales (above USD 4.0 million), with providers selling up to USD 4.0 million (usually no more than 22 providers). All production sectors. Various purposes such as export, improved product distribution and cost reduction. Up to 50% subsidy of the cost of additional and complementary activities to what the client enterprise usually carries out with providers, including specialized services, professional advice, training, dissemination, technical assistance and transfer of technology. Two stages: • Diagnostic, up to 6 months (USD 15,000 ceiling). • Development, renewed up to three years in a row (USD 100,000 ceiling per year, maximum USD 4,700 per provider). Present through intermediate operative agents (AOI) throughout the year. AOIs formulate the project in conjunction with business owners and apply to the relevant CORFO Regional Directorate. Documentary requirements include photocopy of unique tax number (RUT), deeds, registrations, income, proxies and tax receipts. The application is responded to in one or two months (through the AOI). Associated lines: quality development for certification of management systems.
Integrated territorial programmes (PTI)
CORFO and other public and private development institutions form a united working group using development, innovation and attraction of investment and funding. For one or more production sectors in a territory (not necessarily corresponding to administrative divisions but rather a unified production purpose). 100% subsidy to manage the necessary structure and prospective studies. Operates for three years, with evaluation of renewal of two additional years. Must generate: • A Development Strategy that includes a shared view between the public and private sector about the potential productivity of each region, mission, objectives, action lines, activities and achievements. Also the direct budget for implementation and the resources invested in the plan of activities. • Awareness of the strengths and weaknesses of related sector(s). • Forward linkage of enterprises: adding value. • Backward linkage of enterprises: improving access to inputs, equipment, machinery and specialized services. • Sideways linkage: improving communications, logistics, education and infrastructure. Linked through Regional CORFO and run through an AOI.

Source: I. Gutiérrez, "Análisis de las principales políticas de articulación productiva en Chile", *Clusters y políticas de articulación productiva en América Latina*, Project documents, No. 337 (LC/W.337), C. Ferraro (comp.), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC)/Foundation for Economic and Social Development (FUNDES), 2010.

Diagram II.2
Development programmes (PROFO)
provider programmes (PDP)



Source: Prepared by the author.

From the public perspective, CORFO has successfully established a pathway to learning, with tests and adjustments to instruments in a three-tier model, based on a network of private operators throughout the national territory —which has facilitated a decentralized final operation for almost two decades. The instruments have experienced many changes in terms of: their aims (PROFO), proportion of the business contribution (PDP) and mediation mechanisms (PTI)— without causing a break in operations.

Box II.2
Examples of development projects

- PROFO for "Viñas Premium" [Premium vineyards]. Creation of a new enterprise or legal entity to sell boutique vineyard wines.
- PROFO for "Ovinos del Biobío" [Biobío sheep]. Slaughter and marketing of certified high-quality lamb.
- PROFO for "Kiwi". Production and sale of pollen, with artificial pollination doubling productivity.
- PROFO for "Viños del Sur" [Wines of the south]. Development of a commercial unit to create opportunities for members and third parties to sell their products (processed and semi-processed bulk wines).
- PROFO for "Berrie Nativo Murtilla" [Murtilla native berry]. Marketing of products made with this native Chilean fruit.
- PROFO for "Comercial Tinguiririca" [Tinguiririca Commercial]. New Enterprise to sell fresh fruit for export to specific market niches.

Source: Consejo Nacional de Innovación para la Competitividad (CNIC), *Impacto de los instrumentos de transferencia tecnológica agropecuaria en Chile. Informe final*, Santiago, Chile, Fundación Chile, 2010.

3. Inclusive businesses in Ecuador

Another variation on this approach is the inclusive businesses of Ecuador's Ministry of Agriculture, Livestock and Fisheries, in the context of the food sovereignty established in that country. This model is implemented through the National Programme for Rural Inclusive Business (PRONERI) —with six business experiences currently under way. There have been similar experiences developed in Peru, Colombia and Central America.

Unlike PDPs, which are exclusively based on technical assistance, Inclusive Businesses promote associativity and the signing of contracts by agroindustries to buy raw materials, as well as the provision of credit and technical assistance (table II.5). In the context of Corporate Social Responsibility, the most important aspect of this approach is that it explicitly seeks a win-win relationship between agroindustries ("anchor companies") and small-scale farmers, so that low-income peasant families become part of new production activities.

Table II.5
Comparison of provider programmes and productive partnerships (PDP-AP) in Chile, local production arrangements (APL) in Brazil and inclusive businesses (NI) in Ecuador

Aspects	PDP-AP	APL	NI
Commitment of anchor companies	Commitment to any type of provider (small, medium-sized or large) in the case of CORFO PDPs. INDAP AP only focused on small-scale farmers	Tends to be a group of enterprises horizontally and vertically associated with a production activity. There are APLs based around one or several anchor companies whose activities include those to develop providers seeking to develop local linkages	Idea of inclusivity implies a strong commitment of the anchor company to SMEs and/or consumers in the poorest groups (pyramid base)
Type of relationship	Providers, clients. Relationship defined according to the needs of the anchor company (although the aim is 'win-win'). Dyadic (one to one) Concept of "structural innovation" (Simanis and Hart, 2008): the relationship with the suppliers is on a transaction basis and only takes into account the current business model. Value proposition based on the product	Partners. Relationship defined according to the interest of the various actors, and these may be different as enterprises of various sizes and support institutions can take part. Concept of "structural innovation", although it is more open to "embedded innovation" (Simaris and Hart, 2008)	Partners, colleagues. Relationship defined according to both actors: anchor company and pyramid base. The win-win system makes it clear that both parties should gain something. The anchor company promotes associativity among its members (group/enterprise conversation). Concept of "embedded innovation" (Simanis and Hart, 2008): this is not limited to the transaction and takes into account the joint creation of new businesses. Value proposition based on the community
Sphere	Only providers. Limited sphere: supplying raw materials to the anchor company	Suppliers, service providers. Broader sphere defined by common production dynamics	Suppliers, service providers and consumers. NIs can even result in joint ventures. Broad sphere defined by business opportunities
Approach	Vertical (descending)	Horizontal, vertical, cross-cutting, territorial	Vertical (ascending/ descending)

Table II.5 (concluded)

Aspects	PDP-AP	APL	NI
Services	Only technical assistance (contracts and/or certification in some cases)	Technical assistance, service delivery, business services	Technical assistance, contracts, credit, certification, joint ventures, marketing and so on
Identifying the business	Obvious in the light of the needs of the anchor company	Defined by joint production activity, which may include various business opportunities	Not always easy to identify. Importance of valuing "hidden assets" Importance of dialogue with actors at the base of the pyramid to identify new business (co-creation)
New business	Static process. Actions only maintain or widen existing business	Actions based on the interests of partners. Much depends on the sectoral dynamic, as internationally competitive sectors co-exist with more artisanal ones	Dynamic process. New businesses must be found to continue NI
Number of actors	Two actors: anchor company and providers. Distant relationship with other actors (other enterprises, government, NGOs and so on)	Various actors (networks) defined in accordance with the requirements of the joint production activity: agroindustry enterprises, providers, universities, social organizations, public bodies	Various actors (networks) defined in accordance with the requirements of the business. Aims to create an ecosystem that makes the NI possible (enterprises, NGOs, government, municipalities, universities and so forth)
Sustainability	Mainly economic	Economic, social and environmental	Economic, social and environmental
Measurement standards	Yes, defined by CORFO or INDAP (baseline not always required)	Yes, joint creation of metrics to measure success (and failure)	Yes, joint creation of metrics to measure success (and failure)

Source: Prepared by the author on the basis of World Business Council for Sustainable Development/Netherlands Development Organisation (WBCSD/-SNV) (2008), "Inclusive business", 2008 [online] http://wbcsd.typepad.com/wbcsdsnv/wbcsd_snv_alliance_brochure_march_08_web.pdf, and Erik Simanis and Stuart Hart, *Beyond Selling to the Poor: Building Business Intimacy through. Embedded Innovation*, Cornell University, 2008.

Whereas PDPs were focused on the product, inclusive businesses seek a co-creation based on identifying opportunities in the community (Simanis and Hart, 2008) that may even include joint ventures. By recovering their initial costs and becoming self-funding

solutions, these business initiatives can grow and spread beyond the limited possibilities of corporate philanthropy or corporate social responsibility (that only seek to compensate local communities) (Van Haeringen and De Jongh, 2010).

This same philosophy has inspired the concept of creating shared value (Porter and Kramer, 2011), which is the equivalent of Inclusive Businesses as it responds to the perception that capitalist enterprises have lost legitimacy in the eyes of the government and the community.

In PDPs, the relationship is based on the needs of the anchor company (the supply of raw materials), while the Inclusive Business relationship is based on both actors (anchor company and providers). This results in a win-win system that makes it clearer that both parties can win. On a more operational level, PDPs are based exclusively on technical assistance (with a dyadic relationship between enterprises and producers), while inclusive businesses promote associativity by establishing a relationship between the group of producers and the enterprise. In addition, Inclusive Businesses include the signing of contracts for agroindustries to buy raw materials, as well as the provision of credit and technical assistance.

Following more than 10 years of operation, PDPs have proved themselves to be a useful tool for encouraging technical innovation and development processes on small-scale farms. Inclusive Businesses show promise, and there is great potential as they aim for a more integrated chain. However, price variations generate tensions between anchor companies and producers. More generally, these spaces generate relations of dependency and dominance among actors.

Insofar as they are part of the tradition of Social Corporate Responsibility, the value of the Inclusive Businesses Approach lies in the fact that both parties are seen as strategic partners, as well as the explicit commitment of anchor companies towards family farming. Even so, making these models work requires relationships of trust among actors and well-designed regulations such as (annual and multiyear) contracts, transparent quality analysis systems for raw materials and dispute resolution mechanisms.

4. Local production arrangements in Brazil

There are other regional experiences designed to support and boost productive linkages. One such example is the Brazilian project to develop "local production arrangements" (*arranjos produtivos locais* (APL)), which officially began in 2004 to encourage cooperation between enterprises and support institutions in the same area with related economic activities (Pessoa de Matos and Arroio, 2011).

APLs are territorial clusters of enterprises and institutions that carry out a series of specific production activities in an associative and coordinated way (Teixeira and Ferraro, 2009). They are characterized by a cluster of specialized enterprises from the same production sector, and may include providers of raw materials, other inputs and services, as well as public and private institutions that support productive development (for instance through human resource training, funding and technical assistance for associative activities).

These forms of productive linkages, with a strong presence of SMEs, can take different forms depending on the density of relations and links among enterprises, and between the latter and the support institutions. The coordination and complementarity of these ties will depend on the historical, cultural and institutional characteristics of each territory, as well as the leadership influencing the governance mechanisms.

The rationale behind the APL policy is to link the efforts of various actors and agents related by production in order to identify their needs and respond to them using existing support instruments or by generating revitalization projects that are part of a strategic development plan prepared in conjunction with the APL steering committee.

This policy began with the creation of the APL Standing Working Group led by the Ministry of Development, Industry and Foreign Trade (MDIC). This Group began its work by bringing together 23 SME-support institutions and creating a technical secretariat with an organizational structure. The aim was to develop and disseminate an integrated support methodology for APL that would be the basis for linking and coordinating the various activities and actions of ministries and government departments.

The first phase in 2004 was to identify almost 450 APLs in various economic activities. The main APL policy agent was the Brazilian Micro and Small Business Support Service (SEBRAE), which was active in over half of cases. In order to develop a methodology based on international best practice, the SEBRAE-PROMOS-IBD project (involving SEBRAE, the Milan Chamber of Commerce and the Inter-American Development Bank) worked on a pilot project in four areas and APLs, along with Italian technical staff who helped to build technical management and planning skills that later facilitated the dissemination of the methodology.[7]

The policy went on to identify 955 existing APLs, including consolidated experiences as well as emerging ones or those with potential. The sectors covered by the geographical range of APLs include agriculture, minerals, tourism and industrial activities —encompassing traditional, capital or labour-intensive or innovative/ high-technological intensity sectors. In other words, there is broad sectoral coverage and a diversity of activities with different levels of maturity and development.

The ongoing nature of this policy made it possible to extend the number of participating government institutions, which were joined by some commercial banks in addition to regional development banks (Banco do Brasil, Federal Savings Bank (CEF) and Brazilian bank Bradesco). The APL Standing Working Group coordinates the national policy and allows each State to incorporate 5 APLs to prioritize. The Ministry of Development, Industry and Foreign Trade (MDIC) and associated institutions have already held five national conferences to generate learning and disseminate best practices among the country's various APLs.[8]

In the first stage of implementation, authorities from the national SEBRAE recognized APLs as a useful tool for institutional development in the various regions of Brazil. In 2005, every APL agreement involving SEBRAE also had the participation of an

7 For further details, see Caporali and Volker (2004).

8 See [online] http://www.desenvolvimento.gov.br/sitio/interna/interna.php?area=2&menu=1083.

average of over 7 institutions. In addition, for every *real* that SEBRAE contributed to promote APLs, other partners involved gave 2.5 *reais*, which generated extra resources for productive development.

A critical view of APL policy focuses on the large number of objectives covered by this instrument, from the reduction of social and regional inequalities, to technological innovation, modernization of the production base, growth of employment and income, reduction in the mortality rate of micro and small enterprises, increased training, greater competitiveness and productivity and a rise in exports. It is difficult to quantitatively analyse the results obtained, as there are no data on the impact of these policies on enterprises —despite the time that has passed since implementation.

As previously stated, the Ministry of Development, Industry and Foreign Trade has organized five Brazilian APL Conferences to analyse their development in conjunction with institutions associated with the APL Standing Working Group. At the latest Conference in Brasilia in 2011, a decision was taken to make progress in the following four areas key for boosting and revitalizing the APL policy. The first area is to make progress in the territorialization of macro policies and national programmes (Brazil Without Poverty and the National Regional Development Policy), and how this relates to state and local policies through APLs.

Achieving this involves endowing the new generation with policy instruments that have the mechanisms to relate and link up with macro policies, state and municipal policies and private initiatives in the local context —where the needs and opportunities of production systems are reflected. In this context, it is crucial to test out models that, with an integrated vision of sustainable development, adapt interventions to the specific characteristics of each territory. This makes it vital to categorize situations (big-investment, dynamic, stagnant or weak production systems and so on) in order to apply the most appropriate instruments of intervention.

Secondly, the aim is to consolidate and increase the density of production chains, which involves testing various mechanisms

that use business opportunities offered by major investment and/or global value chains to achieve a sustainable generation of greater local value added with effects on employment, income, use of economies of scale, market access and so on. Designing new policy instruments must involve recognizing bottlenecks preventing the full participation of other economic actors in these value chains, so as to identify specific solutions.

The third area is to promote the public procurement system and its ripple effect on territory. There is a need to assist local and national governments to encourage the incorporation of micro and small enterprises in public tendering processes, as well as a more direct involvement of territorial businesses in the supply of goods and services.

The policymaking process needs public procurement practices to suit the characteristics of scale, quality supply capacity, credit, appetite for risk and liquidity, as well as the aggregate supply limitations of small-scale producers, that can lead to their exclusion from this market.

The final need is to promote the generation of collective businesses. The aim is to harness the advantages of collective action for production, distribution and sale among private economic agents. This involves the exchange of knowledge and practices to improve enterprise competitiveness. To make use of the advantages and economies that these arrangements offer to enterprises, Brazil needs to test different models to encourage collective actions and overcome the main stumbling blocks, such as coordination costs, lack of density in producer networks, among others.

The APL experience in Brazil is rich and diverse. Within the country's varied production situation, this has shown a strong capacity to design and implement convergent policies among various institutions, with emphasis on coordination to make use of synergies and generate greater benefits for enterprises. APLs are therefore a sphere for coordinating policies for sectoral productive development, technology and SME support.

Box II.3
Case study: integrated territorial programme —coast of poets

The CORFO Integrated Territorial Program (PTI) has involved a group of public and private actors spending the past four years formulating a productive and economic development plan based on developing the local tourist system. Business owners and entrepreneurs are developing capacities to support improvements in supply, while public agents are involved to create synergies by smoothing the processes that will place the area in a good position.

The PTI is currently organizing communal working groups in all communes of San Antonio province, in order to eventually create a provincial tourist board. The province is 100 km west of Santiago, on the Pacific coast. It is a traditional resort for the population of the capital. The name of the PTI is due to the fact that famous poets such as Pablo Neruda, Vicente Huidobro, Nicanor Parra and many more live or have lived in the area.

This effort involves many public and development services, municipalities, tourism entrepreneurs and micro entrepreneurs supported by a professional team jointly funded by CORFO (which acts as the PTI lead agent). The aim is to coordinate each commune's public and private agents involved in tourist activity to generate a working agenda of actions that have an impact on tourism development in each area: infrastructure, local product development (alcohol, crafts and so forth), destination promotion activities, folk fairs and associations between various tourism business owners and officials.

These efforts should culminate in a regional tourist board involving all communes and including tourism promotion activities. The board aims to define and implement activities to strengthen the tourism on offer on the Coast of Poets —including the creation of institutions to project the work agenda into the future for years to come.

This initiative has been supported by JICA, through initiatives including its One Village One Product (OVOP) movement and the application of Kaizen methodology to improve service quality.

Source: Programa Turismo de Intereses Especiales Litoral de los Poetas [online] www.ptilitoral.cl.

Box II.4
Case study: local production arrangements —acre state furniture

Most furniture-making enterprises in the state of Acre are located in the city of Rio Branco, which is home to 58.5% of the state's joineries, 51.4% of sawmills and 50% of rolling mills. Within Rio Branco, they are mainly concentrated in the recently built Industrial Park. The Furniture APL links together the Euvaldo Lodi Institute (IEL) and Cooper Móveis, with the following main allied institutions: Industry Social Service (SESI), SEBRAE, National Industrial Apprenticeship Service (SENAI), Banco de Brasil, Amazon Bank (BASA), Secretariat of State for Forestry (SEF), Brazilian Agricultural Research Enterprise (EMBRAPA), Business Association of Forest Management for the State of Acre (ASSIMMANEJO), State Service for Technical Assistance and Rural Extension (SEATER), Acre Secretariat for Agroforestry Extension and Family Farming (SEAPROF), Acre Technology Foundation (FUNTAC) and the Secretary of State for Development, Science and Technology (SDCT) —which all act to add value to products produced by the Rio Branco Furniture Hub.

Box II.4 (concluded)

Banco de Brasil and Amazon Bank (BASA) provide funding to the furniture enterprises, while SEBRAE supports small-scale business owners. The Federation of Industries of the State of Acre is involved in coordinating and supporting enterprises and training projects. The state government of Acre provides technical assistance through SEAPROF, SEF and FUNTAC, as well as the subsidy for joint infrastructure provided by the Rio Branco Furniture Hub for housing 60% of the sector's enterprises in the industrial park. In addition, the state government's policy strategy included a series of actions relating to support for community and business forest management, definition of criteria for rural loans for such activities, incentives for the environmental certification of forestry products, studies and research in strategic areas of the production chain and dissemination of furniture products at fairs and events.

As assessment of the results of the Furniture APL by IEL showed low levels of cooperation, governance and linkage among participating enterprises. The participation of enterprises with existing sectoral institutions was also found to be low. The main barriers identified were restrictions on what species to exploit and lack of familiarity with production planning among business owners, as well as technical and bureaucratic barriers. Another important issue was the lack of workforce with the right background and the high turnover of officials. The furniture industry in Acre is characterized by high technological heterogeneity relating to the specialization and modernization of various sectors (among enterprises in a given sector). The main problems identified by business owners relate to the lack of credit for manufacturing products, followed by training of the workforce. The expectation of strengthening the APL is based mainly on improving aspects relating to quality design and quality by improving sales and access to new markets. There is a major challenge here, as the sale of furniture made in Acre is mainly negotiated directly between manufacturer and clients. The destination market is limited to Acre for 80% of enterprises, with only 20% selling to other states in the country.

Source: V. Apolinario and M.L. da Silva, *Políticas para arranjos produtivos locais: análise em estados do Nordeste e Amazônia*, Natal, 2010.

Box II.5
Case study: inclusive businesses in PRONACA

PRONACA is one of Ecuador's largest food processing industries, has been operating for over 50 years, posts an annual turnover of about USD 500 million and directly employs more than 6,500 people. One of the PRONACA businesses is the export of palm hearts and artichoke —for which it has generated a chain mechanism that by 2010 included 239 small and medium-sized palm heart producers and 149 small and medium-sized artichoke producers (accounting for 1,300 and 888 hectares, respectively). Under these arrangements, producers access technical assistance, credit, input and marketing led by the company.

Another relevant part of the business is poultry production for the domestic market, using various vertical integration schemes. In this context, since 2008 PRONACA has been part of the Inclusive Businesses Programme implemented by the National Government, thereby generating a chain of 161 small-scale maize producers covering 1,386 hectares. This programme seeks to increase national production by complying with agricultural good practice, establishing serious agreements with farmers and generating wealth throughout the chain. The integration programme includes: transfer of technology, provision of good-quality inputs and seeds, technical support and contracts.

Source: PRONACA, *Memoria de sostenibilidad 2010* [online] http://www.pronaca.com/site/IRSP/2010/esp/index.html.

F. Conclusions

Reviewing all these experiences reveals the existence of various institutional formats that vary according to each country's traditions and the specific problems governments face in implementing public policies, as well as their application to production chains.

1. Chains

In terms of chain management, many countries clearly have various coordination mechanisms, although there are considerable differences between them. Some apply the approach on a large scale, such as Mexico and its coordination groups (in the form of Product System Committees) in all agricultural production chains. Other countries do this more selectively: like in Chile where they created dialogue and coordination groups (National Sector Commissions) in just a few production sectors. This same model has been used in Brazil, where the Sectoral and Thematic Chambers cover just 25 production sectors.

Another difference is the legal backing given to the strategy. Mexico's Production System Committees are regulated by law, whereas the mechanisms in Brazil and Chile operate through ministerial decree, or even de facto arrangements. Beyond this, however, a more significant difference is the institutional model used to carry out the work. While working groups are used in Mexico, Chile and Brazil, other countries have chosen to create public-private institutions that have their own operational capabilities. Examples include the Costa Rican model based on sector corporations, the Colombian Coffee Growers Federation, the Peruvian Institute for Asparagus and Vegetables, the Argentine Wine Corporation and the Argentina Meat Producers Corporation.

These agencies are institutionally strong, as they have legislation that enables them to receive parafiscal contributions per unit produced, exported or imported. This system provides each entity with its own budgetary resources for implementing projects and initiatives. These corporations tend to have established work agendas implemented by professional teams assigned to different projects aimed at improving competitiveness and increasing exports. They have linkage mechanisms with sectoral authorities —such as

the Ministry of Agriculture taking part in Management Boards—, which makes it possible to work on the agenda in conjunction with the authorities, thereby connecting their initiatives with ministerial policies. In this regard, corporations act as systemic intermediaries: in other words they define the relevance of any project implemented in their respective chains (Klerkx, Hall and Leeuwis, 2009).

Unlike this model, Chile's Sector Commission must obtain resources by entering their projects for competitive funds handed out by the Ministry of Agriculture (MINAGRI). This often hampers project implementation, as they can be rejected for various reasons because they operate with independent directories. The Mexican system, aside from its cross-cutting programmes, has a budgetary allocation for each Product System Committee that is defined at the discretion of SAGARPA. This facilitates project implementation, although there are internal conflicts between actors fighting over resources.

These different institutional formats used in the region's agricultural sector are similarly reproduced in the industry and services sectors. The implementation of industrial plan strategies such as the Greater Brazil Plan or Argentina's Strategic Industrial Plan of 2020 requires coordination bodies (sometimes called sectoral groups), whose forms of operation vary from chain to chain, but that always require a convergence between the public and private sectors.

(a) Chains and clusters

Creating chains between SMEs and larger enterprises is a trend emerging in response to at least two relevant phenomena. First, there is the growing questioning of large enterprises about their commitment to their communities and the need to find to ways of encouraging social inclusion. Second, it is increasingly difficult for industries to find efficient, reliable and regular supplies of raw materials in a highly competitive world context, with customers demanding ever more in terms of safety, the environment and social inclusion.

In addition, various types of business clusters have arisen naturally and spontaneously in many territories of the region's countries, and they are beginning to see the synergies that can be generated through joint action based on shared objectives. These situations are conducive to the implementation of industrial policies

that should consider applying the types of instruments used in later stages, focused on generating levels of confidence and the strategic vision needed to think up collective actions. These groups of enterprises therefore require simpler and cheaper instruments that should be implemented to generate more modest expectations that can serve as basic guidelines for moving onto more ambitious phases.

As well as improving productivity, PDPs and NIs have great potential to improve the income of SMEs, as they have moved beyond the traditional approach where producers organized themselves (with State support) to obtain new technology and sell their products. Even so, these models have limitations and problems: price variations generate tensions between anchor companies and providers, as the profitability of the latter determines the cost of supplying the raw materials for agroindustry. More generally, these spaces generate various forms of dependency and domination among actors.

Herein lies the value of the Inclusive Businesses approach (also known as the creation of shared value), as both parties are strategic partners, and the anchor companies make an explicit commitment to SMEs. These models therefore need well-designed regulations to function, including (annual and multiyear) contracts, transparent quality analysis systems and dispute settlement mechanisms —as well as trust between anchor companies and SMEs based on a systemic vision of economic activity and the achievement of long-term objectives.

These considerations also apply to more complex clusters with horizontal and vertical interactions between enterprises and other entities (such as the APLs in Brazil or the PTIs in Chile). This increased complexity makes it possible to aim for multiple objectives, and may even generate different types of synergies among enterprises by increasing the impact of such interactions. However, these experiences teach us the importance of having well-defined and coherent objectives to avoid inconsistencies that can give the impression that the instruments are not having a clear or measurable impact. The same can be said of the PROFOs implemented in Chile, where their small size and flexible operations have generated an associative model that has proved effective in improving SME competitiveness.

(b) Sectoral and territorial strategies

For a cluster policy to be impactful and be consolidated over time, it absolutely must be part of broader sectoral and territorial policies that boost the efforts made at the micro level. This is one of the main lessons from the various studies carried out by ECLAC (Ferraro, 2010a; Ferraro, 2010b; Sotomayor, Rodríguez and Rodrigues, 2011), as well as from the viewpoint of several government authorities involved in such matters (ECLAC, 2012b).

This is because national sectoral strategies are essential for providing strategic direction to private undertakings and solving the various bottlenecks faced by enterprises in their production and commercialization processes. Such strategies go beyond linkages and are fundamental for amending inadequate regulations or creating new ones to improve the business climate (free trade agreements, health, labelling, trade defence, quality seals, free competitions, macroeconomic variables and so on), while also providing enterprises with other development instruments essential for improving competitiveness (credit, technical assistance, irrigation investment subsidies, export promotion, climate insurance, technological innovation and many more). As for territorial strategies, these are key for channelling the participation of local actors and harnessing the resulting synergies, thus bringing decision-making power closer to the social base that is more familiar with each area's issues and improving the quality of those decisions.

Lastly, the experiences analysed have much to teach us, and these lessons can enrich the design and management of new initiatives. Evaluated experiences keenly show that these programmes need time to mature before their benefits become clear. The results often go beyond direct participants and can have a major impact on business and social behaviour, patterns and culture. For this to happen, it is vital to sustain programmes over time, broaden business participation, neutralize the potential negative effects of adverse macroeconomic or international situations and consolidate the context of institutional, technical and political support and supervision until they have their own self-sustaining dynamics. By then, productive linkage mechanisms will have successfully generated

new competitive capacities within enterprises and the results will go beyond participating firms to involve other companies, business associations, local associations, technical agencies and the entire institutional framework used to implement government policies.

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Chapter III

Development of the agricultural cluster and future challenges

The aim of this chapter is to analyse the situation of clusters in the agricultural sector, as well as the challenges for development, using the approach of strengthening the competitiveness of foreign trade, as put forward in the Economic Development Study of Paraguay (EDEP).

Following the completion of the EDEP in 2000, the literature on Paraguay has not identified the progress in forming clusters and developing existing ones.

However, the Colonias Unidas cooperative in the Department of Itapúa has formed a value chain with soybean as the main product, as well as developing projects aimed at strengthening the competitiveness of agricultural products. The management strategies of this leading cooperative are encouraging, to the extent that they could be used as a model for forming clusters in Paraguay.

This chapter analyses the current situation in terms of forming a cluster at the macro and territorial levels. First, recent changes to the agricultural export structure (including derivatives) are presented by comparing the situation before and after the EDEP using estimated

production and export volumes for the core products within clusters and based on usage (raw material or processing). The figures are then checked against the values of agricultural exports.

Consideration is then given to which indicators suitably determine the development of a cluster from a macro point of view, as the agroindustry sector plays a major role in forming agricultural clusters. Furthermore, case studies are used to examine the cluster formation situation and its viability at the territorial level.

A. Changes in the export structure of agricultural products —increased exports of processed agricultural products

This section analyses the structural change in Paraguayan exports by studying changes in the value of the 10 main agricultural products (including manufactures). Also presented are some of the macroeconomic aspects of clusters that confirm the real value of the main crops and their derivatives (agroindustrial products) with cluster potential.

Table III.3 shows that export sums for agricultural products in the 1990s averaged around USD 600 million to USD 700 million per year (nominal), while the last five years (2006 to 2010) have seen this increase to an average of around USD 2.7 billion per year.

Furthermore, 2008 saw a historical record of USD 3.8 billion. In terms of the export structure, since 1990 there has been no change in the situation of the 10 most valuable export products that make up 95% or more of total agricultural export values. Having said that, there have been significant changes in the list of exports by products.

Cotton, which is Paraguay's most traditional export product, was the main export from the 1970s to the mid-1990s: occupying the top position for over 20 years. However, in the mid-1990s exports began to decrease, and it was overtaken by soybean in the five years between 1996 and 2000. The average value of cotton exports

between 2001 and 2005 was USD 71 million, which was a third lower than during the first half of the 1990s.

The figures in table III.1 show the decreasing influence of cotton, with its export share gradually dropping from 33% in 1991-1995, to no longer featuring in the top 10 agricultural export products in the period 2006-2010. Soybean has replaced cotton and is currently in the top spot, with stable and increasing export growth. The average annual export value between 1991 and 1995 was USD 187 million, which rose to an annual average of USD 370 million in the following five years. In the period 2006-2010, this rose again to an annual average of USD 1.0 billion, which means the amount was 5.5 times larger in 2006-2010 than in 1991-1995. Since 2000, the proportion of soybean exports within total exports has remained at around 40%, which firmly maintains its position as the main export product.

Table III.1
Export values and ranking by agricultural product
(annual average over five years)
(USD thousands)

Order	1991-1995		1996-2000		2001-2005		2006-2010	
	List	Value	List	Value	List	Value	List	Value
1	Cotton	213 440	Soybean	370 226	Soybean	459 761	Soybean	1 018 358
2	Soybean	186 606	Cotton	95 314	Soybean expeller	120 445	Boneless meat	519 721
3	Essential oils	69 419	Soybean expeller	74 709	Boneless meat	110 319	Soybean expeller	322 039
4	Soybean expeller	39 198	Soybean oil	49 897	Soybean oil	71 452	Soybean oil	228 304
5	Soybean oil	34 531	Boneless meat	35 184	Cotton	71 265	Maize	209 201
6	Boneless meat	29 657	Maize	18 147	Maize	36 939	Wheat	114 962
7	Maize	19 255	Beef	16 740	Wheat	28 732	Sesame	58 164
8	Wheat	17 540	Cigarettes	15 120	Sesame	11 872	Sunflower oil	37 798
9	Tobacco	68 16	Wheat	13 725	Centrifuged raw sugar	11 780	Centrifuged raw sugar	36 984
10	Tung oil	5 248	Essential oils	8 638	Rapeseed oil	8 155	Rice	36 123
Total (Top 10)		621 711		697 700		930 719		2 581 654
Total export value		638 100		727 487		975 190		2 703 857

Source: Prepared by the author on the basis of information from the Corporate Database for Substantive Statistical Data (FAOSTAT) [online] http://faostat.fao.org/.

Since 2000, the export value of soybean has grown considerably within Paraguay's agricultural products. However, this is not the only major change to the agricultural export structure in recent years. Soybean derivatives (including soybean oil and expeller) have also become major export products since the late 1990s (and have grown significantly in relation to total export values since 2000).

In the livestock sector, the main export product was (fresh) beef, and there has been a significant increase in exports of boneless and packaged meat since 2000. Over the past 10 years, meat has been second or third in the export ranking. The production of maize, which is the essential raw material for producing animal feed, has also posted considerable growth in export values, with average annual sums of USD 209 million in the period 2006-2010, which is almost 11 times higher than in the 1990s and 5.7 times higher than in the first half of the decade from 2000.

The previous table shows that, in recent years, the country's main agricultural exports have been soybean, its derivatives and beef. Furthermore, the emerging manufactured products are different from those in the 1990s, and include sesame, organic sugar, sunflower (oil) and so forth. The proportion of these products in total exports was 14% in 1991-1995, 21% in 2001-2005 and 35% in 2006-2010, with figures showing a clear upward trend in the value of processed agricultural products.

1. Cluster formation and its challenges

(a) Feed cluster

Since the late 1990s, soybean has become Paraguay's main agricultural export. Crude soybean oil and soybean expeller are extracted, with the latter being an important raw material for feed as it is high in protein. If the crude oil from a unit of soybean has a value of 1, soybean expeller has a value of 2. Based on an economic analysis, the expeller would be the main product and the oil would be the by-product. On the basis of weight, oil is 1 while expeller is about 4.

The crude oil is refined to make it edible. Soybean is transformed from a primary product into many secondary products such as feed, flour, milk, concentrate and so forth. Beginning with feed, its importance is that it is the core crop that promotes the development of agroindustry for —inter alia— beef, pork, chicken and dairy. Within the EDEP framework, priority clusters have been selected according to the economic characteristics of soybean and the industrial development potential.

What was considered for the soybean and feed cluster was its formation and future development, from production of soybean, soybean oil and soybean expeller to feed —as well as the product's potential in an agroindustrial process relating to meat processing and the dairy industry.

Below is an examination of the production of soybean, which is the main product in feed, as well as its various processing applications.

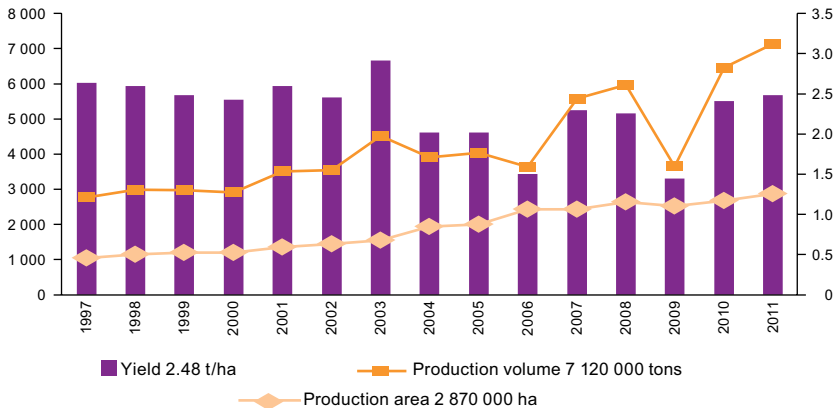
(b) Trends in the production of core crops for feed

This subsection analyses the dynamics of soybean and maize production, before presenting data on the export volumes of soybean oil and expeller and the annual volumes destined for the national market, in order to understand the reality of feed production.

The proportion of raw materials in feed is partly made up of maize and soybean expeller (55% and 25%, respectively). Although maize is present in feed composition in higher volumes than the soybean expeller, the supply of feed depends on soybean production volumes as the protein (which is the animal nutrition source) is contained in the soybean expeller.

Figure III.1 shows the change in the area farmed, production volumes and yield of soybean in the past 15 years (1997-2011). The soybean cultivation area has increased from 1.05 million hectares in 1997 to 2.87 million hectares 2011, which is 2.7 times more. The average annual growth rate in area for the period is 10%, with exceptional growth in the 9 years between 2003 and 2011, when the average annual rate was 17%. Annual production volumes are increasing year on year, with a record 7.13 million tons in 2011. This is 2.6 times higher than levels recorded in 1997.

Figure III.1
Area, volume and yield of soybean production, 1997-2011
(Thousands of tons)



Source: Prepared by the author on the basis of data from the Paraguayan Chamber of Exporters of Cereals and Oilseeds (CAPECO), "Estadísticas", 2012 [online] www.capeco.org.py.

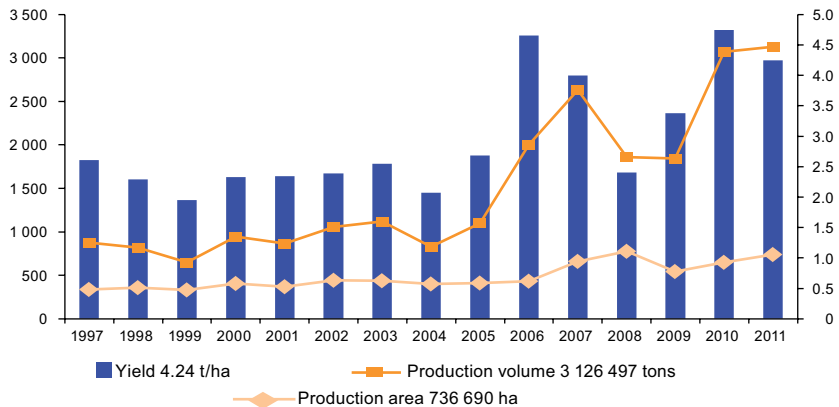
Soybean production yields, on the other hand, vary considerably over time. 2003 saw yields of 2.92 tn./ha., whereas this has subsequently dropped to 2.02 tons per hectare. The recent increase in soybean production was to the expansion in the cultivated area. However, low yields indicate that there is considerable room for technical improvements, which means an opportunity for a significant increase in production volumes.

Figure III.2 shows changes in the area, volumes and yield of maize production. The cultivated area of maize was 340,000 hectares in 1997, before more than doubling to stand at 740,000 hectares in 2011. In 2011, production volumes were 3.12 million tons, which is 3.6 times more than the 870,000 tons produced in 1997. Unlike soybean yield, maize has considerably increased its average annual yield from 2.31 tn./ha. in the 1990s to 4.24 tn./ha. in 2011.

In recent years, soybean and maize have commanded high prices on the international market. Their annual average between 1997 and 2002 was USD 181 per ton for soybean and USD 88 per ton for maize. Between, 2003 and 2011, the averages were USD 340 and USD 130, respectively (which were 1.9 times and 1.5 times higher).

These high international prices are becoming one of the main factors behind expanded production in both crops.

Figure III.2
Area, volume and yield of maize production, 1997-2011
(Thousands of tons)



Source: Prepared by the author on the basis of data from the Paraguayan Chamber of Exporters of Cereals and Oilseeds (CAPECO), "Estadísticas", 2012 [online] www.capeco.org.py.

(c) Changes in export volumes: uses and destinations

(i) Significant increase in soybean derivatives

Table III.2 was produced to analyse export volumes[1] and the volume destined for the internal market by use (soya oil, expeller or soybeans). The table shows major changes in exports of unprocessed grains. At the national level, until the 1990s, 80% of total soya production was exported as soybeans. From 2000 onwards, this fell to 70%.

[1] Soybean export volumes (bulk) are calculated to include seeds (2000-2005: annual average of 80,000 tons; 2006-2009: annual average of 120,000 tons; and 2011: 420,000 tons).

Table III. 2
Proportion of soybean export volumes by use, volume destined for internal market and total production volumes
(Tens of thousands of tons and percentages)

Year	A) Export volumes				B) Volume destined for internal market				A)+B)	Percentages	Soybean export		Total production	
	Oil	Expeller	Total	Percentages	Oil	Expeller	Total	Percentages			Volumes	Percentages	Volumes	Percentages
1997	8.6	39.1	47.4	17.2	1.5	5.0	6.5	2.3	54.2	19.6	222.9	80.4	277.1	100.0
1998	9.1	43.8	52.9	17.7	4.3	6.9	11.2	3.7	64.1	21.5	234.7	78.5	298.8	100.0
1999	9.6	41.4	51.0	17.1	3.3	5.2	8.5	2.9	59.5	20.0	238.5	80.8	298.0	100.0
2000	11.7	51.8	63.5	21.8	8.2	8.3	16.5	5.7	80.0	27.5	211.1	72.5	291.1	100.0
2001	12.8	67.0	79.8	22.8	1.7	10.1	11.8	3.4	91.6	26.2	258.6	73.8	350.2	100.0
2002	16.4	76.6	93.0	26.2	2.8	12.8	15.6	4.4	108.6	30.6	246.4	69.4	355.0	100.0
2003	20.1	86.9	107.0	23.7	3.5	15.5	19.1	4.2	126.1	27.9	325.9	72.1	452.0	100.0
2004	19.0	83.5	102.5	26.2	2.7	11.9	14.6	3.7	117.1	26.7	274.0	70.1	391.1	100.0
2005	19.1	75.9	95.0	23.5	2.3	10.5	12.8	3.2	107.8	32.5	296.2	73.3	404.0	100.0
2006	19.3	80.3	99.6	27.4	3.4	15.2	18.6	5.1	118.2	23.4	245.9	67.5	364.1	100.0
2007	21.6	91.3	112.9	20.2	3.5	14.1	17.6	3.2	130.5	23.3	427.6	76.6	558.1	100.0
2008	22.5	91.3	113.8	19.1	5.1	20.2	25.3	4.2	139.1	33.6	457.7	76.7	596.8	100.0
2009	19.4	80.9	100.3	27.5	4.4	17.7	22.1	6.1	122.4	31.1	242.3	66.4	364.7	100.0
2010	25.4	107.0	132.4	20.5	4.7	18.9	23.6	3.7	156.0	24.1	490.2	75.9	646.2	100.0
2011	24.1	92.6	116.7	16.4	8.1	32.2	40.3	5.7	157.0	22.0	555.8	78.0	712.8	100.0

Source: Prepared by the author on the basis of data from the Paraguayan Chamber of Exporters of Cereals and Oilseeds (CAPECO), "Estadísticas", 2012 [online] www.capeco.org.py.
Note: "%" indicates the percentage in relation to total soybean production volumes.

The supply volumes for the internal and external trade in soybean derivatives such as oil and expeller were around 600,000 tons until the end of the 1990s, representing 20% of the average annual production volumes for soybean. Since 2000, however, there has been a significant upward trend in the production of soybean derivatives. In 2002, the volume of products manufactured from soybean exceeded one million tons, reaching 1.57 million tons in 2011.

Compared with the figures from 1997 (when the EDEP was implemented), the scale of soybean industrialization has tripled. As a percentage of total production, products manufactured from soybean posted an average annual increase between 2000 and 2011 of almost 30%. With increased demand for feed to meet growing world demand for livestock, the rise in the production of soybean derivatives has had a massive effect on the expansion of internal demand for meat.

(ii) Low level of value added

Although the production volume of soybean derivatives (such as oil and expeller) has increased significantly in the past 15 years, analysis reveals that, in terms of value added, it is as if the volume of processed soybean products remained as low as it was during the implementation of the EDEP.

Soybean oil extraction from production in Paraguay yields 19% crude oil and 78% expeller. The FOB value per ton is USD 1,200 for oil and USD 534 for expeller (CAPECO, 2012). The export value per ton of processed soybean can therefore be estimated at USD 644 (USD 1,200 x 0.19 + USD 534 x 0.78). The difference between that amount and the soybean export value (USD 595 per ton in 2011), is the gross value added from soybean processing. The gross value of USD 49 represents just 8%.

Extracting oil and producing expeller as soybean by-products have been found to make a minimum contribution to expanding Paraguay's exports. In addition, the gross value added is not very different from that estimated in the EDEP in 1997.[2] This number shows that agroindustrial development needs a transition towards more highly processed products (with greater value added).

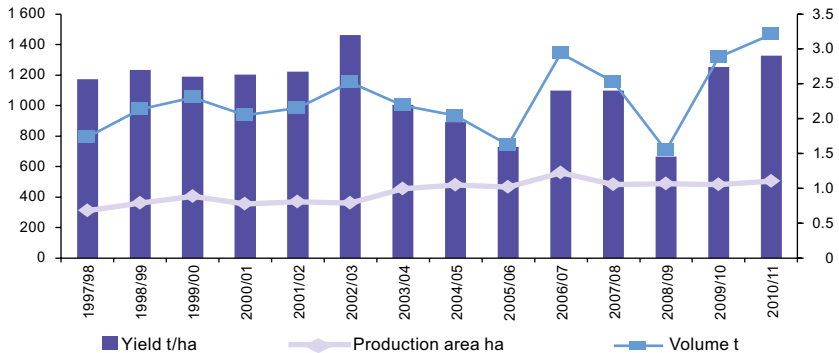
(d) Situation and challenges of feed cluster formation: case study of the Department of Itapúa

(i) Changes in soybean production volumes

As shown in figure III.3, average annual soybean production in the Department of Itapúa was 850,000 tons until the 1990s, and since 1999/2000 has been consistently over 1 million tons —except in years when yield is down due to climate change. 2010 saw record volumes of 1.5 million tons.

[2] The gross value added (USD/ton) of soybean derivatives in the EDEP implementation period (1994-1997) was calculated at 26, 14 and 42 USD/ton. The percentage of gross value added was 19%, 14%, 6% and 14%. Despite the large fluctuation in values, value added remains low.

Figure III.3
Area, production volume and yield of soybean
in Itapúa, 1997-2011
(Thousands of tons)



Source: Prepared by the author on the basis of data from the Paraguayan Chamber of Exporters of Cereals and Oilseeds (CAPECO), "Estadísticas", 2012 [online] www.capeco.org.py and Ministry of Agriculture and Livestock (MAG), "Estadísticas", 2012 [online] www.mag.gov.py.

(ii) Changes in value and supply chains

Diagram III.1 shows the feed cluster as the starting point for the soybean production process in the Department of Itapúa. Rising soybean production in recent years has changed the supply and value chains in the Department of Itapúa —one of the country's main soybean production areas.

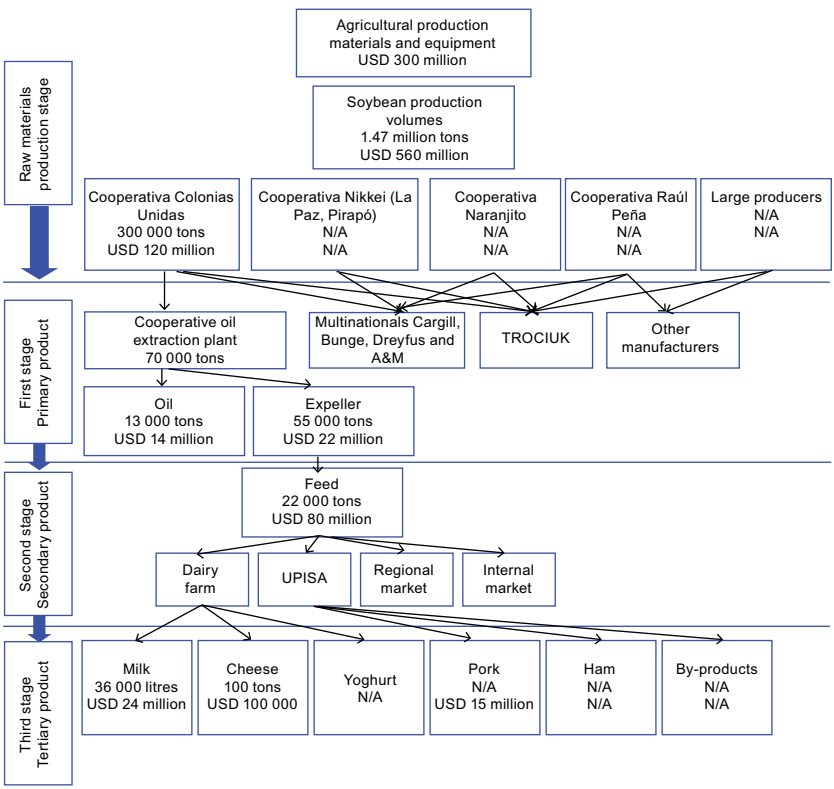
The supply sources in this Department are producers associated with the four large cooperatives (Colonias Unidas, La Paz, Pirapó and Raúl Peña), and the situation has not changed since the implementation of the EDEP.

However, there have been substantial changes in terms of the main buyers, with almost all soybean purchased by large grain multinationals (Bunge, Cargill, A&M and so on). From mid-2000s, soybean sales diversified to include Colonias Unidas, Trociuk (juice company), pig farms, poultry farms and other manufacturing companies.

This change is having a major impact on the supply chain, and Cooperativa Colonias Unidas has taken up the challenge of forming a feed cluster. As shown in the figure, this cooperative accounted for 20% of total soybean production in Itapúa in 2011. The background

to this situation is the significant share and high volume of soybean production in the region, which helped to form the value chain to increase production of soybean derivatives.

Disgram III.1
Estimates of soybean-feed value chain in Itapúa (2011)



Source: Prepared by the author.
Note:
(1) The cost of agricultural machinery is estimated on the basis of the cost of soybean production per hectare (USD 600).
(2) Milk sales (delivery) unit price 1,800 Gs/0.5 litres.
(3) Yoghurt sales (delivery) unit price 5,500 Gs/kg.
(4) Milk production volume 3,000 litres/month.
(5) Cheese production volume 300 kg/day.
(6) UPISA: Unión de Productores de Itapúa S.A.

The unit price, production volume, volume/sales price are the result of the interview carried out at the Cooeprativa de Colonias Unidas (March 2011).

In the initial processing of soybean, production is delivered to the oil extraction plant of the Cooperativa Colonias Unidas to yield 13,000 tons of crude oil and 55,000 tons of expeller. Total production value is estimated at USD 1.4 million and USD 22 million, respectively.

The second stage of processing produces the feed that is sold mainly to dairy farmers, cooperative members, UPISA (pig production company) and others. The next step in the value chain is that the fresh milk from dairy farms is taken to the dairy processing plant on the cooperative's premises to be made into milk, cheese and yoghurt that is then distributed and sold in wholesale and retail centres throughout the country.

The 230,000 tons (or 77% of soybean production volumes) are sold to grain companies. The remaining 23% (over 70,000 tons) are then processed. This cooperative began producing feed in 1993, with production increasing by more than 40 times in 18 years after starting off at a mere 5 tons.[3] These surprising changes were partly due to the formation of the soybean value chain.

The cooperative's total sales of soybean derivatives (such as soybean oil and expeller), as well as feed and dairy products, were estimated to be around USD 150 million in 2011. This is the result of feed produced from the above-mentioned 70,000 tons (23% of the 300,000 tons of the cooperative's total soybean production). This amount far exceeds the cooperative's total soybean sales of USD 92 million to grain companies.

(iii) Challenges of cluster formation

The Department of Itapúa is in the south east of Paraguay, where the feed cluster is gradually taking shape. Several cooperatives and a few companies are at the core of this formation. The Cooperativa Colonias Unidas is playing a particularly important role in forming the feed cluster in the Department.

In the future, it will be vital to strengthen links between soybean producers and agricultural companies (producing fertilizers, pesticides, agricultural machinery and so on) to promote the feed

[3] Information from interview carried out with the Cooperativa Colonias Unidas.

cluster in the region, as it is promoted by the Cooperativa Colonias Unidas in its area of influence. This will improve yields of soybean and maize as raw materials for producing feed.

Improving yield helps to ensure a low-cost supply of feed for processing companies, as well as contributing to the development of associated companies. Furthermore, driving the formation of the cluster requires promoting the participation of companies with considerable potential for increasing value added, as well as the processing of dairy and meat products (chicken and beef) in the intermediate stage of the value chain.

The Cooperativa Colonias Unidas is currently the only main actor in using feed to produce dairy products with high value added. The important issue is the capacity to coordinate and integrate other producers, enterprises and consumers (as demonstrated by this very Cooperative).

Cluster formation develops competitiveness and promotes cooperation and coordination in the Department of Itapúa, as well as contributing to the efficient and effective use of available resources in the area. In other words, cluster formation plays an important role in promoting development in such areas.

As a development model for the region, Section C presents a few examples of expansion of the feed cluster in the Cerrado region of the west of Bahía state in Brazil.

(iv) Situation and challenges of forming the cotton cluster

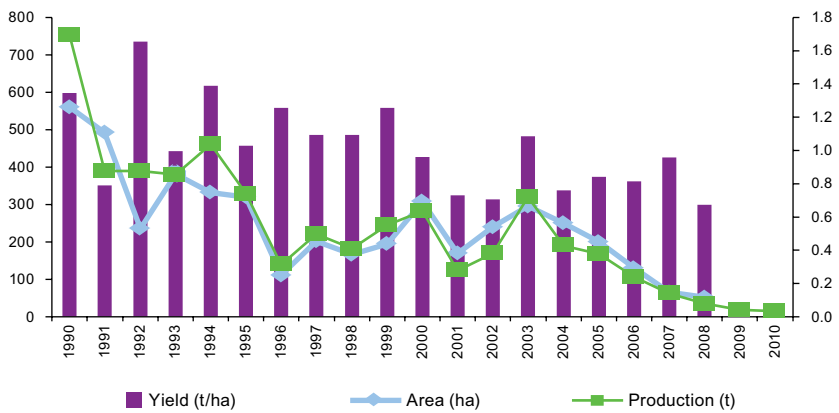
The cotton cluster has two major features that distinguish it from many other agricultural products: (i) the promotion of exports of cotton derivatives through the cotton cluster formation and, (ii) support for small-scale farmers in the fight against poverty. As mentioned previously, however, textile exports used to be number 1 or 2 in the top agricultural exports until 2000, before disappearing from the list of top 10 export products in 2006.

This subsection analyses cotton production and export trends, before studying the cluster's problems in the light of the changes in the value chain from production to manufacture (of the final product).

(v) Development and characteristics of cotton production

Figure III.4 shows changes in cotton production volumes between 1990 and 2010. There was record production of 753,000 tons in 1990, but by 2010 this had been reduced to about one fiftieth (15,000 tons). The farmed area has also shrunk from 560,000 tn./ha. (1990) to less than a tenth of this (52,000 tn./ha. in 2008).

Figure III.4
Cotton area, production volumes and yield, 1990-2010
(Thousands of tons)



Source: Prepared by the author on the basis of information from the Corporate Database for Substantive Statistical Data (FAOSTAT) [online] http://faostat.fao.org/.

The same period saw yield per hectare halve from 1.35 tons to 0.67 tons. The figure shows that Paraguay's cotton production volumes depend on expanding the production area, which is why the reduction throughout the period studied brought down production volumes (which in turn caused an even larger reduction in yield).

In addition, the number of cotton farms has also plummeted. As shown in table III.3, in 1991 there were 190,000 farms, which had dropped by 41% to 110,000 farms by 2002. The area farmed for cotton has also reduced in scale. In 1991, farms of between 2 and 5 hectares represented almost 40% of the total, but by 2002, farms of between 1 and 2 hectares accounted for almost 51% of the total (which indicates a downward trend in the scale of production).

Table III.3
Number of cotton producers by scale in the eastern region

Year	Number of farms	Area farmed (ha.)							
		<0.5	0.5-1	1-2	2-5	5-10	10-20	20-50	>50
2002	111 218	2 722	19 773	57 161	30 218	2 131	188	22	3
(Percentage)	100.0	2.4	17.6	50.9	26.9	1.9	0.2	0.0	0.0
1991	189 156	5 182	25 961	69 900	73 775	12 094	1 783	359	102
(Percentage)	100.0	3.0	14.0	37.0	39.0	6.0	1.0	0.0	0.0
Var. %	-40.7	-47.5	-47.5	-18.2	-59.0	-82.4	-89.5	-93.9	-97.1

Source: Prepared by the author on the basis of information from the Investments and Exports Network (REDIEX), Ministry of Industry and Trade, 2006.

Furthermore, the total number of cotton-crop workers is estimated to be around 1.5 million people (JICA, 2011). This is one fifth of Paraguay's population. In rural areas with more poor people, cotton farming creates jobs and represents a major source of income.

Another important characteristic of cotton production is that it is a labour-intensive product. Table III.4 shows 2004 and 2009 data from the Ministry of Agriculture and Livestock (MAG) comparing the production costs of agricultural products. Based on a yield of 1 ton per hectare, total production costs would be 2.57 million guaraníes in 2004 (of which 60% corresponds to direct labour costs). In 2009, this percentage reached 74% (in other words, a higher proportion spent on labour).

Table III.4
Comparison of production costs, 2004-2009
(Guaraníes)

Category	2004	Percentage	2009	Percentage
Inputs	991 743	39	388 937	17
Workforce	1 462 086	60	1 665 000	74
Financing	115 178	10	176 304	9
Total	2 569 007	100	2 247 899	100

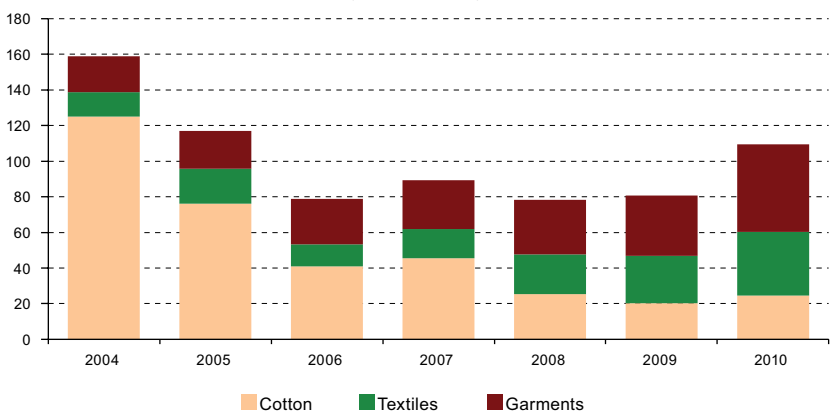
Source: Ministry of Agriculture and Livestock (MAG), "Costos de producción de rubros agrícolas. Programa Nacional de Algodón, 2006", Asunción, 2010.

Like cotton, maize and sugarcane are also labour intensive (with figures of 50% and 60%, respectively). The table also shows that the investment volume in production materials (inputs) such as seed, fertilizer and agrochemicals halved during the period. It could therefore be said that the situation is associated with a significant reduction in yield and production volumes —as described earlier.

(vi) Trends in cotton export and export companies

The recent performance (2004 to 2010) of Paraguayan cotton exports and manufactures (cotton, textiles and garments) is presented in figure III.5. Out of the total export value of the cotton sector (which amounted to USD 160 million in 2004), 80% was represented by cotton as a raw material for processing or industrialization.

Figure III.5
Paraguayan exports from the cotton-textiles-garment sector, 2004-2010
(USD millions)



Source: Investments and Exports Network (REDIEX), "Perspectiva de la industria textil y confeccionistas en el Paraguay", Asunción, Ministry of Industry and Trade (MAG), 2011.

The garment sector provides considerable value added to cotton, achieving export values of USD 20 million in 2004 (10% of the total). In 2010, however, the garment sector represented 45% of total cotton exports, while the percentage of exports of cotton as a raw material fell to 22% of the total. During the period of analysis, cotton

fibre exports were only a fifth of what they were in 2004, while the textile and garment sectors are both about 2.6 times larger.

In terms of cotton export companies, 70% of total cotton exports in Paraguay are handled by the multinational Louis & Dreyfuss. Other export companies include Cooperativa Chortitzer, Algodonera Guaraní, Florentín e Hijos S.A., CELTA S.R.L. International Trading and Prorganic S.A. Most of these enterprises are located in the Departments of Ñeembucú, Caaguazú and Caazapá.

Table III.5 provides a summary of the main garment export companies in Paraguay. In 2010, there were around 35 garment companies in the country, with 10 of them accounting for 90% of the sector's exports. Manufactura de Pilar is the only enterprise to carry out everything from cotton production to garment making (and is responsible for 37% of total exports).

Table III.5
Export values in garment sector, main companies, 2010
(USD millions and percentages)

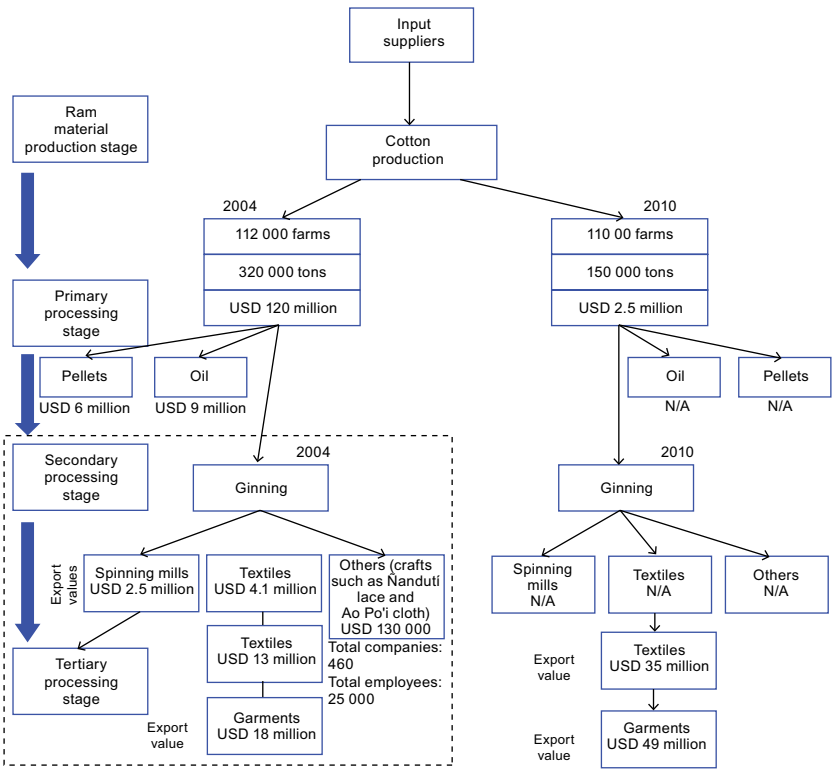
Export companies	Exports	Percentages
Manufactura de Pilar S.A	15.9	37
Blue Design S.A	8.2	18
Cortinerias del Paraguay	5.1	12
Confecciones del Paraguay	3.5	8
Robles S.A	3.3	8
Impar Paraguay S.A	2.5	6
Vantex Paraguay	1.9	4
Quality Cotton International	1.5	3
Kemsa Comercial Industrial	1.3	3
Gran Bahia	0.6	1
Total	43.8	100

Source: Investments and Exports Network (REDIEX), "Perspectiva de la industria textil y confeccionistas en el Paraguay", Asunción, Ministry of Industry and Trade (MAG), 2011.

(vii) Problems in the value chain and the cotton cluster formation

Diagram III.2 provides estimates on the value chain of the textile industry. The starting point, which is the cotton production cost, was USD 120 million in 2004. However, falling production volumes pushed down the cotton production value in 2010 to just USD 25 million.

Diagram III.2
Estimated value chain of the cotton industry



Source: Investments and Exports Network (REDIEX), "Perspectiva de la industria textil y confeccionistas en el Paraguay", Asunción, Ministry of Industry and Trade (MAG), 2011; "Perspectiva de la industria textil y confeccionistas en el Paraguay" and Japan International Cooperation Agency (JICA), "Estudio sobre nodo de la integración económica a nivel de territorio", Asunción, unpublished, 2011.

The textile and garment sectors tripled their value in relation to 2004. While raw material production continues to fall, Paraguay's textile industry is considered to be undergoing structural change as it is transitioning to the next stage of the value chain: processing or industrialization of the raw material to provide increased value added.

The companies backing this transition towards products with greater value added are: Manufactura de Pilar S.A., Blue Design S.A., Cortinerías del Paraguay, Confecciones del Paraguay, Robles S.A.

and Impar Paraguay S.A., among others. In 2004, the country had 2,460 enterprises relating to garment making (the final link in the value chain). Of these, 63% were microenterprises with fewer than 5 machines. There were about 800 enterprises with between 6 and 20 machines, and 100 enterprises with over 21 machines (REDIEX, 2004).

The presence of these enterprises is extremely valuable in terms of the jobs they create. The garment sector has employed around 26,000 people, with the hope of more to come on the back of steady production growth.

One example of a textile cluster that has had a major impact on the local economy is that of Manufactura de Pilar —a company operating in the Department of Ñeembucú. It is a large textile firm and carries out every stage from raw material production to the processing of textile products.

Under contract farming arrangements, the company works with 500 small-scale farmers in the Department to ensure a stable cotton supply. The capacity for creating industrial jobs is estimated at 20,000 workers per year (not including the company's employees involved in cotton farming).

The company's total exports have increased year on year from USD 7 million in 2004 to USD 20 million in 2010. To achieve this growth, the company buys the raw material not only from its own area but nationwide. As shown in table III.6, in 2010, 30% of the country's cotton was supplied to this company.

A company like Manufactura de Pilar successfully increases production and export growth for textile products with high value added (due to higher volumes of cotton purchased) thanks to the support of various organizations involved in the sector (CADEP, 2012).

In order to provide technical and financial assistance (at the various stages of production), these enterprises receive support from the public sector (including provincial governments, the Ministry of Agriculture and Livestock, the Ministry of Justice and Labour, the Ministry of Industry and Trade and research institutes).

Table III.6
Variation in the cotton volumes purchased by Manufactura de Pilar S.A.
(Tons and percentages)

Year	Ñeembucú	Other departments	Total	Percentage of total national production
2001	3 377	9 204	12 581	4
2002	2 369	2 255	4 624	3
2003	2 686	3 419	6 105	3
2004	4 692	6 574	11 266	3
2005	2 457	5 887	8 344	4
2006	2 579	6 402	8 981	5
2007	1 779	3 667	5 447	5
2008	1 627	3 189	4 816	7
2009	1 298	4 023	5 321	27
2010	410	3 510	3 920	27

Source: Paraguayan Economy Analysis Centre (CADEP), *La evolución y el crecimiento de la economía paraguaya actual: EDEP 10 años después*, Asunción, 2012.

In the textile industry, the Ministry of Industry and Trade and NGOs have contributed to the processing stage by providing systematic cooperation for the processes of production, marketing, industrialization and quality assurance for exports. This could be seen as a cluster model of the cotton industry.

Except in the city of Pilar (in the Department of Ñeembucú that is home to Manufactura Pilar), the country's cotton sector is not yet formed. The competitiveness of the cotton sector (which is Paraguay's traditional industry) is in decline. However, despite representing a limited area, the marketing and exports of the production cluster of the cotton chain have been strengthened by the cotton derivatives from the city of Pilar. It is hoped that the formation of a cluster similar to the one in the Department of Ñeembucú will benefit small-scale cotton farmers.

Unlike food, market cotton prices fluctuate considerably, which has a significant impact on farmers' income (due to the high commercialization index). Government and enterprise assistance to ensure a stable purchase price, minimum uncertainty and agricultural extension for pest control (especially boll weevil) are considered two important tools for improving productivity.

B. Formation of an agricultural cluster in the soybean sector: case study of the Cerrado region in Brazil

The Cerrado region in the west of Brazil has historically been considered an infertile area. In the late 1970s, however, Japanese technical cooperation (in the form of the PRODECER project) facilitated significant progress and made the region into one of the world's main grain areas.

The Luis Eduardo Magalhães region in the west of the state of Bahía was the focal point for the PRODECER project. In 1992, at the beginning of the pilot project PRODECER II, the region's total farmed area was just 470,000 hectares, which subsequently rose at an average annual growth rate of 8.4% to reach 1.84 million hectares in 2010. In addition, agricultural production volumes grew an average annual rate of more than 14.6%, rising from 840,000 tons in 1992 to 6.7 million tons in 2010. The crops introduced by the PRODECER project (soybean and maize) were the region's main agricultural products until the mid-2000s, when cotton and coffee were also introduced.

The total area covered by these four crops has now reached 1.62 million hectares, which represents 88% of the total farmed area. Soybean yield per hectare was 1.6 tons in 1995 and 3.4 tons in 2010. This figure is 0.8 tons higher than the national average yield (which is 2.6 tons). Maize is one of the grains that have increased its yield the most in the past five years. Although yields in 2005 fell to 4.0 ton./ha. due to climate factors, they picked up again in the following year to reach 7.2 ton./ha., before rising to 9.8 ton./ha in 2010. In relation to average national yields of 3.9 tons, the yield in the Cerrado region is 2.4 times higher. Cotton production also shows constant growth: yield per hectare in 1995 was 2.2 tons, which rose to 3.8 tons in 2000 and 4.2 tons in 2010.

These results are largely due to the gradually emerging network of research institutions and organizations that have given rise to a cluster of public-sector agricultural research institutions in the region, a private research foundation, local agricultural cooperatives, producer associations for various products, grain companies and agricultural

machinery firms. The Fundación Bahía has had a huge role to play. Since the late 1990s, this Foundation has transferred to producers the technology and improved seeds developed for soybean farming by the Brazilian Agricultural Research Enterprise (EMBRAPA).

This Foundation built the Research and Technology Centre of West Bahia (CPTO) on the outskirts of the Luis Eduardo Magalhães region in 2009, with an investment of 7 million *reais*. It is hoped that CPTO will play the main role in agricultural innovation throughout the state of Bahía. As well as ongoing soybean research, CPTO should carry out studies into pest-resistant varieties for maize, cotton and other main crops. The Centre is also responsible for promoting the introduction of centre-pivot irrigation systems, new products (such as sunflower) and the development of other technologies aimed at improving productivity.

Another key factor behind the achievements to date has been the creation of the following producer associations to disseminate the Foundation's results in terms of technological development: Association of Farmers and Irrigators of Bahia (AIBA), Bahia Association of Cotton Producers (ABAPA), State Agency for Agriculture and Livestock Defense (ADAB), Association of Coffee Growers of West Bahia (ABACAFE) and the Cotton Agribusiness Development Fund (FUNDEAGRO).

The Secretariat of Agriculture and Livestock of the State of Bahia (SEAGRI) and the Secretariat of the Environment (SEMA) are state government institutions that work together in the region, while the Municipal Government's Secretariat for Agriculture provides administrative support. In terms of research, the EMBRAPA regional office in Bahía provides the results of research into improving crop varieties and balanced fertilization based on soil characteristics to the Fundación Bahía and other organizations involved.

In addition, many producers request soil analysis from the Campo company or the Fundación Bahía. In private enterprises, the technical facilities provided by agricultural enterprises working with seeds, fertilizers, agrochemicals and agricultural funding by grain companies (contract farming) have been key in expanding production. Furthermore, the coordination of activities between

producers and these organizations, companies and the Agricultural Cooperative of West Bahia (COOPROESTE) as intermediary was another positive factor in increasing production.

This expansion has involved three major changes in the supply chain. First, until the decade from 2000, two large companies (Cargill and Bunge) bought 83% of soybean production through farmers and agricultural cooperatives. Recently, however, there has been an increase in the number of buyers with the entry of new grain companies such as the Archer Daniels Midland Company, Multigrain (since 2010, the Japanese company Mitsui has controlled 100% of the company's capital), Amaggi & LD Commodities (in 2009, Dreyfus and Amaggi associated to own 50% each of a grain company), as well as Ceagro (company with Argentine capital), Noble (Chinese company) and other small and medium-sized grain companies. In terms of feed production, in recent years the Chinese company (and major soybean importer) Chongqing Grain Group and an unidentified Korean company have shown interest in entering the region. Chongqing plans to invest around USD 300 million in buying around 100,000 hectares of agricultural land.

The second change is the presence of broiler companies (chicken firms) that aim for the vertical integration of all processes from production, marketing and processing to sales. The Mauricéa company is a poultry firm that set up operations in 2010, and now has an established and vertically integrated production and sales system that includes not only chicken-meat production but also fattening of hens on its own farms and/or breeding and fattening of hens by contract. The company also has a poultry slaughterhouse and carries out meat processing, dispatch and sales —as well as processing soybean bought from the region's farmers to extract oil and produce pellets (a by-product of soybean combined with maize).

The company has a daily processing capacity of 300,000 birds and the processing plant has a capacity of 100,000 tons of chicken per year (sent to the north east of Brazil and the São Paulo market). It also has a distribution centre 100 km from the port of Aratu, which is the largest export port in the state of Bahía. The third major change in the supply chain is that, in 2000, Japanese companies began to buy cotton directly. The region has seed-extraction plants and ginning machines,

which has strengthened the direct business link between the Japanese Kurashiki Textile Manufacturing Co. and cotton producers. Between 50% and 60% of the region's total production in 2010 was exported as raw materials, with the remaining 40% going to national spinning mills. In the case of cotton, it should be pointed out that there is an agricultural cooperative leading the supply chain.

C. Conclusions

Out of the six clusters initially proposed by the EDEP, three (cotton, soybean and fruit juice) were selected and analysed for this study, thanks to their great national production potential, ease of increasing exports and the capacity to generate more value added.

The three clusters involve several by-products from one raw material, and have the potential to broaden the range of products based on such derivatives. In other words, the proposed clusters aim to achieve a greater impact on socioeconomic development by strengthening cluster competitiveness, rather than just increasing the competitiveness of a specific export (using economies of scope).

Furthermore, in order to demonstrate their competitiveness, clusters must focus on a specific area of agricultural production and form supply and value chains from production to sale of raw materials, thereby improving their competitiveness and boosting the industrialization of the raw materials. In other words, expanding the business area (which also refers to the processing or industrialization sector) is a competitive advantage in addition to business cost savings, reduced risk and increased value added thanks to clustering.

However, since the completion of the EDEP, there has been a limited presence of the similar undertakings and human resources needed to form a cluster. There are also known difficulties in finding an actor or player to take on a main role, which is another main reason for the lack of cluster progress.

Cases of successful cluster formations in Paraguay are limited to those described in this chapter. One of the causes behind this is the weak performance of central and local governments in terms of effectively taking on the responsibilities involved.

Developing the agricultural cluster in the Cerrado region in the west of Bahía state (Brazil) was presented as an example. This was the result of coordinated interinstitutional work and the efforts of central, state and municipal governments through policies to promote and develop clusters. The public institutions of the state of Bahía have published the research carried out by the government and the agricultural research centre at the state level, in order to improve the technical production capacity of farmers and companies.

Furthermore, public institutions have accompanied cooperatives and SMEs in terms of knowledge of financial and business management, by working on the institutional strengthening of the financing and training system.

Fiscal incentives are not enough to promote integration and investment of the business sector. There is a need for technological and management support to achieve sustainable competitiveness through innovation. The distribution of research and development funds among public institutions and private enterprises, and the appropriate formation of the institutional system, are possible challenges to promoting cluster formation.

Another option for improving and strengthening cluster formation in Paraguay is through the participation of several strategic actors. The combined efforts of public institutions, companies, NGOs and other actors to achieve market recognition while boosting company production as a regional public brand (through business networks) is the way to generate clusters in many of the country's production sectors and regions. Building a brand provides an effective means of promoting industrial clusters that can in turn boost investment, participation and integration of the business sector.

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Chapter IV

EDEP and clusters

At the end of the 1990s, the Paraguayan economy was stagnant and the political system in crisis. Cotton and soybean were the country's main export products. Japanese cooperation through the EDEP saw the potential for boosting the economy through the industrialization of agricultural raw materials. The EDEP presented the main guidelines for Paraguay's economic development, with emphasis placed on clusters or productive chains as drivers of progress.

The EDEP presented clusters as a set of directly and indirectly related industries and companies that would make economic processes more efficient and competitive on a global scale with increasing flows. Clusters were the key not only to industrializing agricultural production, but also to increasing industrial competitiveness.

One of the main statements in the document was that developing agroindustry would not only increase the value added of the industrial sector in general, but would also broaden the market for the agricultural sector. At the same time, developing clusters creates a virtuous cycle of increased capital absorption —which will in turn further boost the development of clusters. In this sense, forming appropriate clusters and strengthening their competitiveness was an effective microeconomic strategy for the economic development of Paraguay (STP/JICA, 2000).

A study of the production potential of 32 agricultural products resulted in prioritization of the following 13: soybean, melon, wheat, tomato, maize, chinaberry (melia azedarach), sorghum, beef, cassava, pork, cotton, chicken and oranges. Following several analyses of the availability of technology, equipment and experience, the export potential and the capacity to generate value added in the 32 products, six high-priority clusters were selected: feed, vegetables, fruit, cotton, wood and metalworking.

In order to implement the EDEP proposal, the creation of a public body was recommended to systemically promote competitiveness. Several institutional scenarios were created where public leadership combined with the active participation of private bodies as chambers of commerce, as well as the participation of decentralized entities, provincial governments and municipalities. New institutional engineering was required to change the traditional pattern of managing economic development policies.

Just over 10 years after the EDEP, this chapter takes an analytical look back to understand and measure, where possible, the effects and results of the study of the Paraguayan economy, with emphasis on the productive linkages proposed in 2000, to which other dynamic production chains —such as sesame, cassava-starch and sugar-alcohol (sugarcane)— were subsequently added.

A. New institutions

The main tool for driving the EDEP forward was provided by the Paraguayan Organization for Competitiveness Strategy (ONPEC), set up in 2002 to serve as a public-private association to promote clusters with regional chains as a key strategy for increasing the competitiveness of Paraguayan exports.

The decade from 2000 saw the development of new institutions and initiatives that have impacted economic development in recent years. The main innovations were as follows:

- 2001 Strategic Economic and Social Plan, which picks up some of the EDEP concepts, especially those relating to chains or clusters.

- As part of the creation of the project for development of export enterprises' competitiveness in Paraguay (FOCOSEP),[1] component III to "strengthen private-sector clusters involved bolstering ONPEC", which did not operate fully but did focus international cooperation contributions on the following four production chains: cassava, software, chicken and pigs.
- Creation of the Investments and Exports Network (REDIEX), as part of the Ministry of Industry and Trade, to promote exports and attract investment to boost the country's economic and social development. This agency works with the main representatives from the public, private and education sectors. It has 8 sectoral chambers (biofuels, meat and leather, forestry, fruit and vegetables, stevia, textiles and garments, information and communications technologies (ICTs) and tourism).
- The creation by the Ministry of Agriculture and Livestock of product competitiveness chambers made up of working groups of representatives from the primary, secondary and educational sectors to promote specific products such as dairy, fruit and vegetables, beef, pork and mutton. These chambers are in some way an expression of the willingness to work under public-private partnership schemes.
- More recent developments include programmes and instruments to improve exports, competitiveness, productivity, quality, associativity, innovation and development of undertakings (including the Business Incubators Programme and the Business Development Programme for Small and Medium-Sized Enterprises (PR-100) of the Ministry of Industry and Trade).

[1] Implemented by the Technical Secretariat for Planning (STP), which is part of the Presidency of Paraguay, with funding from the European Union and the general State expenditure budget. FOCOSEP was approved by Law No. 2.669/2005 ratifying the Funding Agreement ALA/PY/2004/016- 713, signed by the European Union and Paraguay.

- In 2000, maquila was regulated by Law No. 1.064/97 on the maquila export industry, which aims to promote the establishment and regulation of industrial enterprises partly or totally dedicated to carrying out industrial or service processes that incorporate labour and other national resources. Maquila in Paraguay is now operational and expanding, thanks to the joint work of the public and private sectors through the National Council of the Export Maquila Industry (CNIME), Chamber of Maquila Companies of Paraguay (CEMAP) and other relevant associations.

Although all these public initiatives have aimed to promote industrialization, formation of production chains and the participation of SMEs in such chains, these efforts have not been carried out in a coordinated way —with some initiatives yielding better results than others. Beyond the specific dynamics of each institution, with its advances and setbacks, the development process is a positive contribution to laying the foundations for a new stage of institutional strengthening in the process of public support for industrialization.

B. Development of the seven clusters

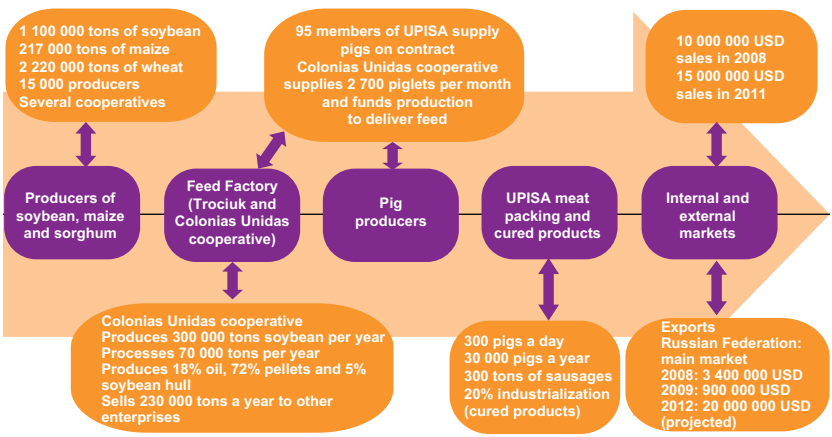
1. Soybean-feed-pig

The production system is made up of five main links, which begins with the agricultural production of soybean as the raw material for making feed. Paraguay's soybean production has been expanding since the late 1990s, rising from 2,911,423 tons in 2000 to 7,376,651 tons in 2010. The main farming areas are the Departments of Alto Paraná, Itapúa and Canindeyú. In the Department of Itapúa, average soybean production is 1,100,000 tons per year. Most of the production is for export, while some is industrialized to be sold as (soybean meal) pellets.

Within the Colonias Unidas cooperative (Itapúa), the 2,200 members produce between 280,000 and 300,000 tons per year, of which about 225,000 is sold abroad. The rest of the soybean produced by the cooperative members (just over 75,000 tons, or 25%

of total production) is industrialized within the cooperative. There are two large feed production units that buy soybean for industrial processing from producers associated with the soybean cooperatives or individual producers.

Diagram IV.1
Soybean-feed-pig production chain



Source: Prepared by the author.

Feed is sold in the various national markets, depending on whether it is for cattle, pigs, poultry or dogs. The emergence of the Unión de Productores de Itapúa S.A. (UPISA) and other meatpackers closed the circle by adding another industrial linkage to the productive chains. The soybean produced in the region therefore becomes feed for the meat production industry. Out of all the meatpackers in the Itapúa region, UPISA is the only production unit that has successfully exported and grown quickly in recent years —as a result of optimizing its production processes.

Since 2009, meat and sausage exports have stagnated. This is mainly because this year saw product prices improve on the domestic market, making it easier to sell at home than abroad. Exports fell from 3.4 million dollars in 2008 to just 0.9 million dollars in 2009. Despite efforts to export pork to emerging markets, the obstacle in the way of increasing such exports is that Paraguay does not yet have an internationally recognized health system for this kind of meat.

The participation of the Colonias Unidas cooperative is vital in this circuit as it is an integrator enterprise that not only produces feed but is also involved in the production logistics by running the pig production system (supplying fattening pigs) while also providing credit for production by funding feed. The vast majority of UPISA investors are also members of the Colonias Unidas cooperative, which makes for a dynamic, intense and fluid relationship.

Trociuk is another company involved in the soybean-feed-pig chain, while also being a member of UPISA and selling 150 tons a month of pig feed to breeders.

UPISA's marketing process involves seeking the best price conditions, as pork products tend to experience considerable price fluctuations depending on demand cycles. Developing the internal market means that the enterprise can diversify its sales and reduce the degree of uncertainty in a changeable world market.

The location of the soybean-feed-pig production chain has been economically buoyant thanks to the combination of agriculture, industrialization and exports. Almost all of the region's socioeconomic actors are descendants of German, Ukrainian, Polish and Japanese settlers who moved to the area in the early 20th century. They quickly set up production processes geared towards industrialization, generating prosperity and economic growth and differentiating the region from other areas with stagnated economies.

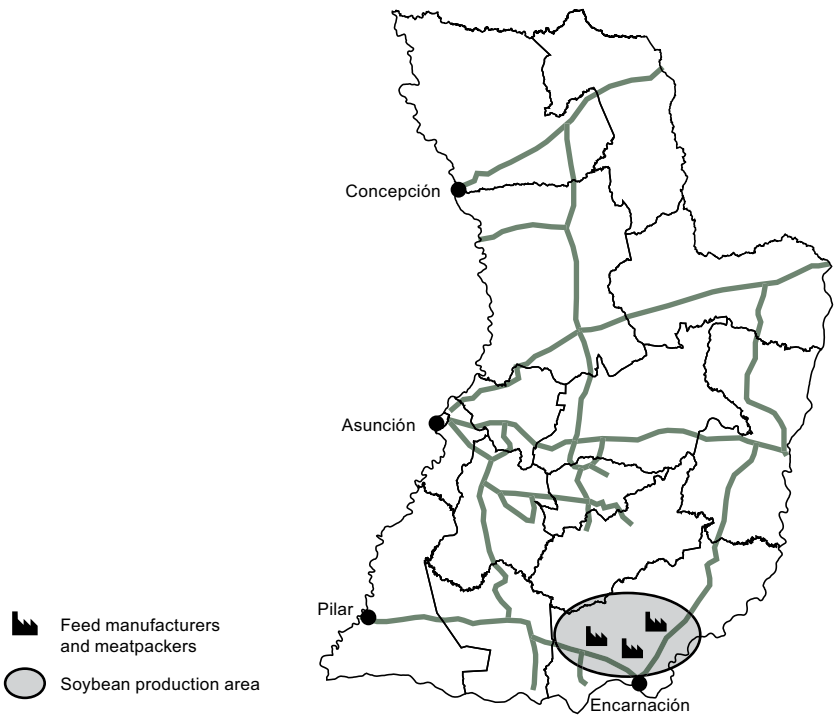
The public institutions involved in the chain are mainly from the livestock sector, such as the National Service for Animal Health and Quality (SENACSA), which regulates sanitary issues and carries out the appropriate checks.

UPISA and the Colonias Unidas cooperative have previously collaborated on the Pig Health Plan, which was jointly implemented with SENACSA, with support from the European Community and the economic contribution of the two enterprises and other partner companies of UPISA (including Trociuk).

The Colonias Unidas cooperative has mainly worked with ONPEC. The most striking example was the study associated with the project for development of export enterprises' competitiveness

in Paraguay (FOCOSEP), and more specifically the consultation on devising a proposal for an integrated and profitable pig production unit —which helped the cooperative enhance production in this area.

Map IV.1
Area of influence of the soybean-feed-pig production chain



Source: Prepared by the author.

2. Sesame production chain

The systematic introduction of sesame crops is directly linked to the Shirosawa company that has been promoting the product since the 1990s. The company first experimented with mechanization before opting for the manual production system, given that grains were damaged during mechanization. This is a key factor in understanding the search for family farmers and the change of production regions (as enterprises prefer family farming areas).

The leading companies are Shirosawa, Kemasem, Arasy, Bioexport, Agrobiologico S.A, VM Trading S.R.L, Lpg Alimentos S.A. and Chung Bo Paraguay S.A.I.C.E.I. They share the same production space but are not really linked together. The Departments of Caazapá, Caaguazú and Itapúa are the new setting for sesame expansion, particularly the areas known for family farming, while Concepción and San Pedro are the areas traditionally used for this crop. The chain has changed considerably over time, in the following two stages:

- Previous system (2008): only leading companies led the production circuit, with support and participation from farmers and stockpilers that played a fundamental role as logistics multipliers for the companies.
- Current system (from 2009): appearance of new actors that, without substantially changing the production structure, make for a more complex system while facilitating agricultural production. This was mainly the financial sector and its formal association with leading companies. In addition, some NGOs strengthened the productive and organizational aspects of family farmers.

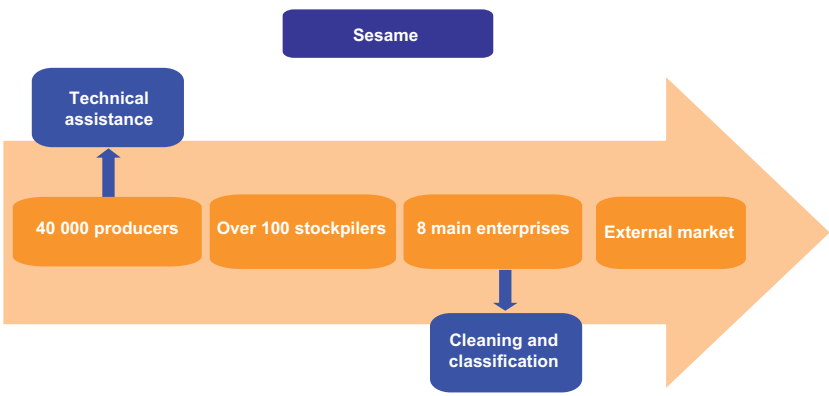
Following several years of experimentation, the most suitable varieties were successfully selected and —most importantly— all family farmers were incorporated into the production circuit. The crop expanded and spread in the decade from 2000, which coincided with the steady decline of the cotton sector, which until then had been the main product of the peasant economy.

In 2000, just under 10,000 hectares were used to grow sesame, and by 2006 this had risen to 50,000 hectares (with the sown area stabilizing at this level). The number of families growing sesame increased in direct proportion to the expanding land area, with an estimated 50,000 or more farming families currently producing, which represents a total population of around 200,000 people. Family farmers use on average one or two hectares to grow sesame.

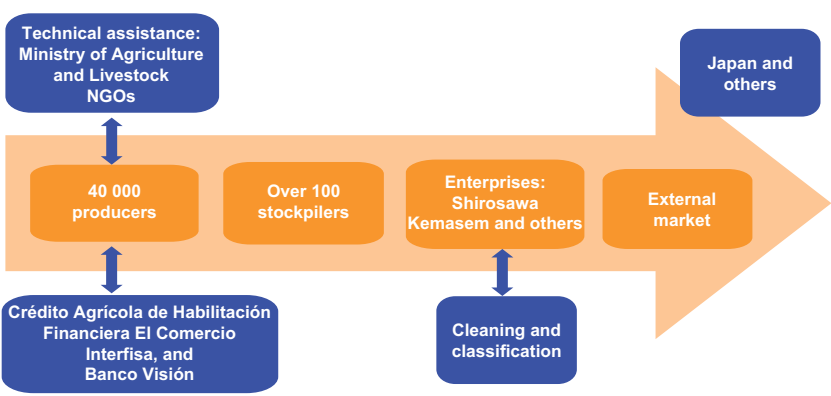
Production has undergone some dramatic changes, mainly due to climate conditions and soil fertility. Sesame crops, and the

sown area in particular, are decided on the basis of prices paid in the previous agricultural season. The link between sown area and prices paid is therefore vital for understanding how production works. In this sense, the global market is very sensitive —with price rises and falls between different harvests.

Diagram IV.2
A. Original system for sesame chain

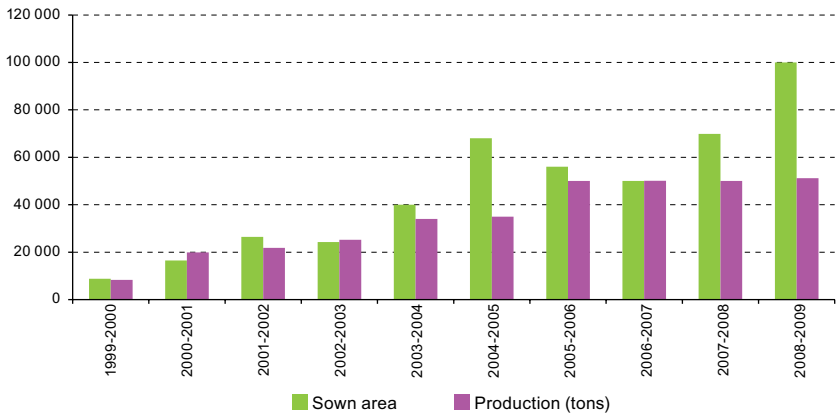


B. New system for sesame chain



Source: Prepared by the author.

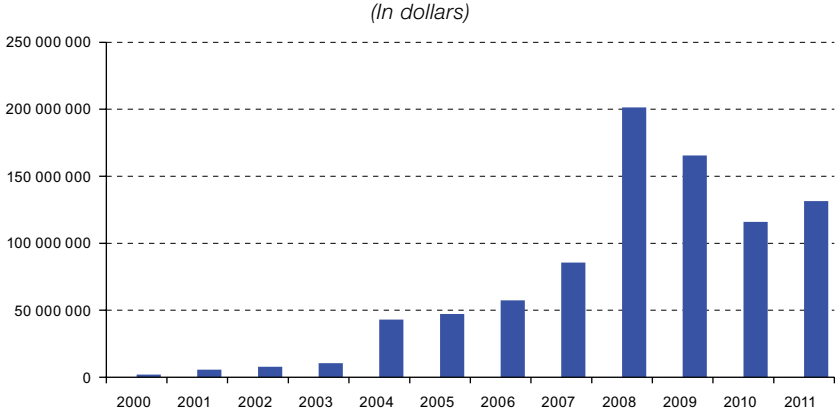
Figure IV.1
Changes in the sown area and sesame production between 1999 and 2009



Source: Paraguay Vende, *Sésamo, innovación en agronegocios*, Asunción, United States Agency for International Development (USAID), 2009.

In terms of sesame exports, they surged between 2003 and 2004 as the result of rising production but also higher sales prices. The boom in sesame exports came in 2008, totalling 100 million dollars —as a result of the unusual rise in international prices in the wake of low production in China, India and Ethiopia.

Figure IV.2
Sesame exports from 2000 to 2011
(In dollars)

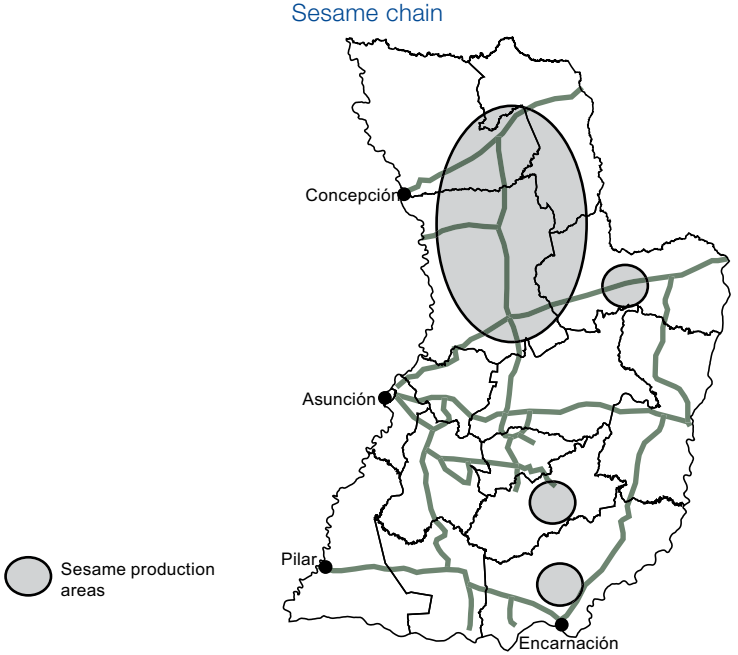


Source: Central Bank of Paraguay and TINWOR, 2012.

Sesame has had a very strong economic impact on the peasant communities of San Pedro and Concepción, thanks to the introduction of a production and commercial system with structural innovations. The monetary income of family farmers over the past decade has been high and growing, which has substantially increased their standard of living. Although this has not been enough to generate rural settlement patterns or desirable levels of integral development, there has been a clear change in the local socioeconomic context —from a stagnant and low-income environment to a more buoyant, complex and differently paced one that provides a higher income to family farmers.

The sesame production system has few links to public institutions. These are limited to some joint activities with the Ministry of Agriculture and Livestock, in which support for the production system is basically political. The National Service for Plant and Seed Quality and Health (SENAVE) is responsible for controlling the seeds, although the sphere of influence of these institutions is more in the form of institutional than practical support.

Map IV.2
Sesame chain



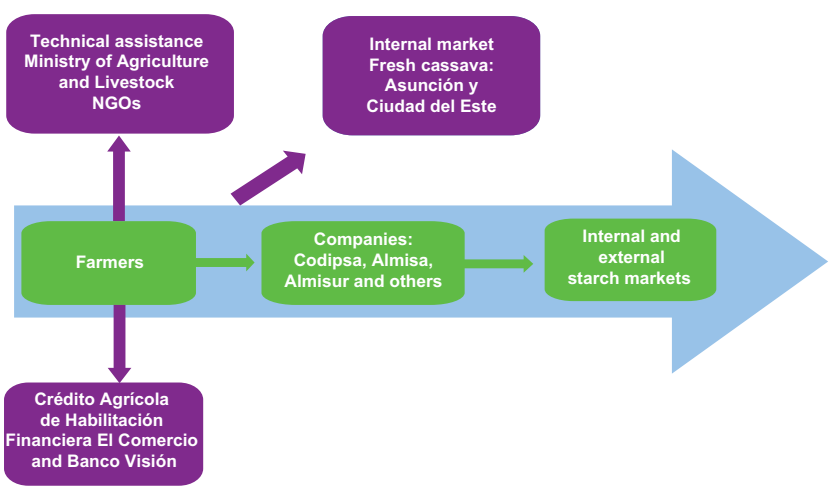
Source: Prepared by the author.

The most influential initiatives to link the various actors have been those involving international cooperation, mainly from Japan and North America. Japanese cooperation has taken place with the Faculty of Agrarian Sciences of the National University of Asunción for research studies into improving production quality, while North American cooperation relates to stockpiling enterprises to help optimize their production processes while improving the production conditions of family farmers.

3. Cassava-starch production chain

Cassava is one of Paraguay's traditional products, being a staple food for family farmers due to its production hardiness and its tolerance of degraded soil and drought. The cassava crop follows a long cycle of at least 10 months, and the harvest can be delayed (which gives family farmers more room for manoeuvre about how to use it). If there is a lack of markets or where necessary, the harvest can be delayed without any relevant changes in product quality.

Diagram IV.3
Cassava-starch production chain



Source: Prepared by the author.

The traditional production chain begins with planting by family farmers. Depending on the opportunities available, production is either consumed on the farm or sold to intermediaries that sell the produce on in the main urban centres of Asunción and Ciudad del Este. The new system for the cassava production chain —which until a year ago simply involved the sale of fresh products— now includes starch enterprises. The resulting buoyancy has also given rise to financial enterprises providing credit for production.

Rather than being concentrated in a few specific areas, cassava farming takes place in almost all of the country's regions. This provides a range of geographical locations in which industrial enterprises can base themselves. However, family farmers seem to be more numerous in the Departments of Caaguazú and San Pedro.

The enterprises that use cassava to produce starch buy their raw materials from farmers around the factories, which generates a robust mechanism of interdependency between enterprises and farmers. In order to build relationships based on trust and ensure the supply of raw materials, some enterprises pay a "premium" to farmers who meet the commitments for volumes sold.

Cassava farming is very labour intensive, which enables the family work force to be used, with extra labour hired in busy periods such as harvest time. According to the 2008 National Agricultural Census, over 220,000 farmers grow cassava, with at least 15% belonging to the starch chain, while the remaining farmers either sell fresh produce in urban markets or use their crops for consumption on the farm.

There has been a dramatic surge in cassava exports, with export values almost doubling in just five years (from 6.9 million dollars in 2007 to 12.3 million dollars in 2010). The Compañía de Desarrollo y de Industrialización de Productos Primarios S.A. (CODIPSA) posted the fastest growth, and has been the national leader in the sector for the past three years.

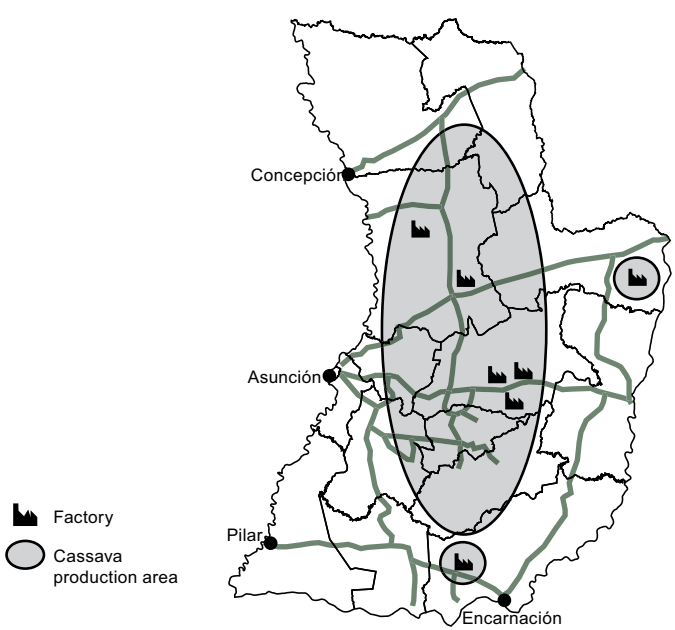
There are other significant actors in the starch cluster. Financial agencies provide credit to farmers so that the latter can facilitate and intensify production, The State credit system, Crédito Agrícola de Habilitación (CAH), was also involved in increasing the financial sector's contributions to cassava farming.

Table IV.1
Starch exports of the main enterprises
(In dollars)

Exporter	2007	2008	2009	2010	Jan-Aug 2011
CODIPSA	998 459	2 196 070	1 451 020	5 486 426	6 510 885
ALMIDONES SA (ALMISA)	2 018 195	2 351 179	774 647	2 954 155	1 845 320
FECULARIA SALTO PILAO SA	3 660 000	1 870 000	551 850	1 716 550	1 513 000
ALMISUR SOCIEDAD ANONIMA	-	-	336 974	1 885 290	1 126 884
FH S.A.	-	-	-	20 000	30 400
DYENA PARAGUAY S. R. L.	48 095	39 600	21 140	-	-
FECULAS PARAGUAYAS S.A. (FEPASA)	202 512	902 016	74 844	203 695	-
LAURO RAATZ SA	4 008	3 999	10 268	13 307	-
INDEGA SA	4 776	1 271	349	-	6 341
Total	6 936 045	7 364 135	3 221 092	12 279 423	11 032 830

Source: Investments and Exports Network (REDIEX), "Perspectiva de la industria textil y confeccionistas en el Paraguay", Asunción, Ministry of Industry and Trade (MIC), 2011.

Map IV.3
Cassava-starch chain



Source: Prepared by the author.

4. Cotton-textiles-clothing chain

The development of this production chain is based on the company Manufactura Textil de Pilar S.A., better known as "Manufacturas Pilar", which was set up in 1930 to produce textiles in the Department of Ñeembucú, Eastern Region.

The company has gradually been adding links to the productive chain, with spinning, weaving, dying, printing, finishing and garment activities. This vertically integrated enterprise carries out everything from cotton ginning to the marketing of textiles, clothing and household linen. Garment making has, however, been outsourced.

The company obtains some of its cotton from the crops of family farmers grouped into committees in the Department of Ñeembucú. Some of them produce cotton seeds as part of seed cooperatives that have a direct contractual relationship with the company due to the importance of the activity. There are also cotton providers from other parts of the country. In addition, Manufacturas Pilar has a cotton storage centre in the Department of Misiones.

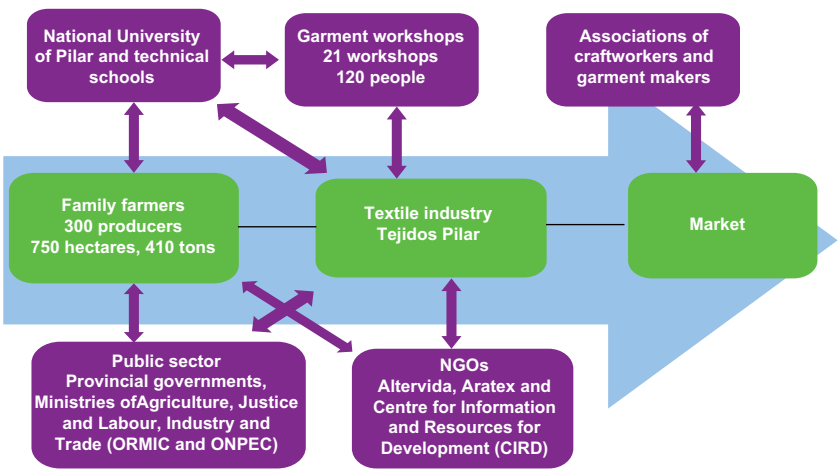
Although the proximity of small-scale cotton farmers to the factory gives the company a competitive advantage, their differing production capacities (which are often affected by exogenous factors such as climate and pests) can often affect the national and international competiveness of the enterprise. The company is not guaranteed to have the inputs (raw cotton) it needs at the right time, in the quantities, quality and homogeneity required. This means that it cannot rapidly adapt to fluctuations in demand, which forces the company to seek out other suppliers spread throughout the country.

In 2001, Manufacturas Pilar used 12,581 tons of cotton production, with 27% (3,377 tons) coming from family farmers in the Department of Ñeembucú, while 73% came from other Departments. In 2011, the cotton used by the company dropped to 5,468 tons, with 10% (568 tons) from Ñeembucú, and 90% (4,900 tons) coming from other Departments.

The company has a gin with a large capacity for producing cotton fibres. Where necessary, the company also buys cotton fibre from other ginning companies (in Brazil and the United States).

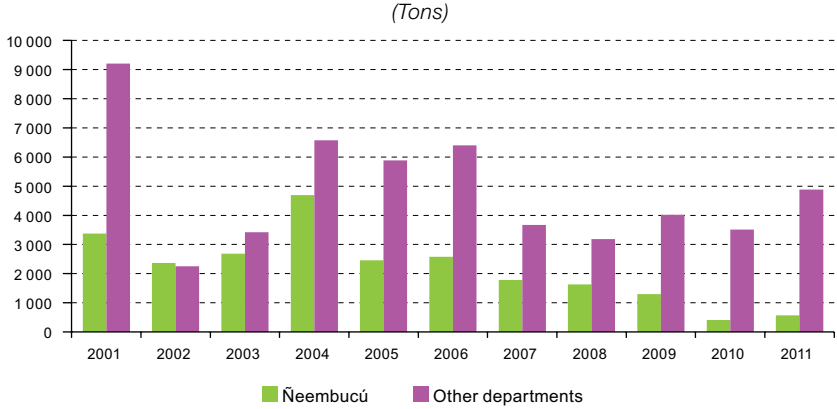
The cotton fibres are then transformed into threads. Of all thread production, between about 95% and 98% is made into textiles that are used to make cotton fabrics.

Diagram IV.4
Cotton-textiles-clothing production chain



Source: Prepared by the author.

Figure IV.3
Cotton production
(Tons)



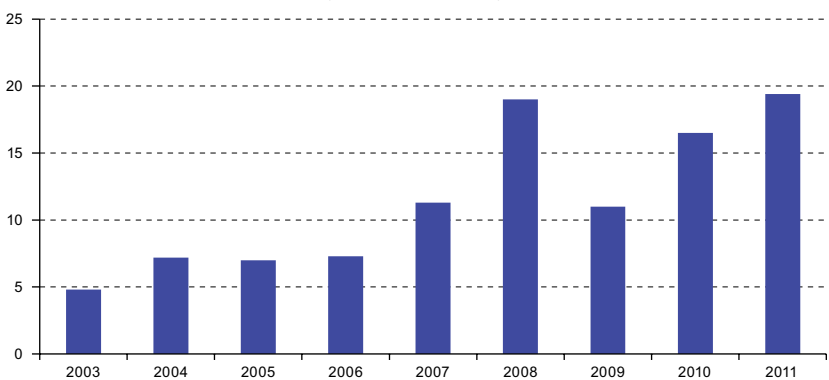
Source: Prepared by the author on the basis of data from Manufacturas Pilar, 2012.

In 2003, Manufacturas Pilar incorporated the outsourced garment workshops from near the factory into its production chain. In 2011, 8 garment workshops (71 clothes makers) produced 273,357 clothing and home accessory kits for the external market, while 12 garment workshops (50 clothes makers) produced 70,611 kits for the national market.

The export development of Manufacturas Pilar reflects the industry's focus on the export market: with about 50% of production sold abroad.

Between 2004 and 2007, total textile and household linen/clothing exports grew at an average annual rate of 26.4%. Between 2008 and 2011, exports posted an erratic pattern. 2009 saw total exports plummet (-42.2%), although they picked up significantly in the following year (2010).

Figure IV.4
Exports of textiles and household linen/clothing
(Millions of dollars)



Source: Prepared by the author on the basis of data from TINWOR, 2012.

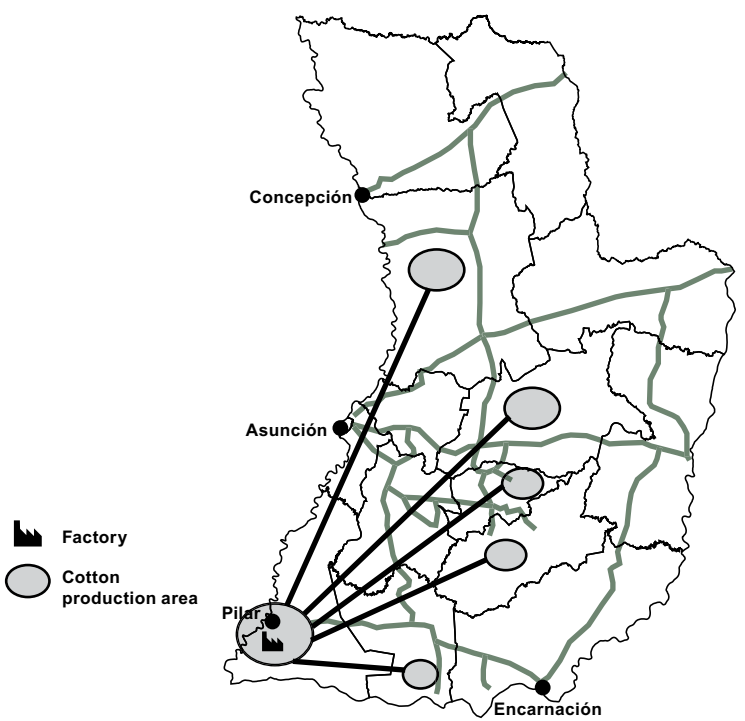
In 2003, 64.8% of the company's textile and household linen/clothing exports went to Argentina, followed by Brazil, Plurinational State of Bolivia and Chile (with shares of 14.8%, 6.8% and 5.9%, respectively). Eight years later in 2001, the ranking of the main export

destination countries changed as follows: 60.4% of sales went to Brazil, followed by Argentina (30.4%), Chile (4.3%) and Bolivia (2.4%).

Manufacturas Pilar has a strategic partnership with the National University of Pilar (UNP), which takes the form of a work placement plan for students, research aimed at improving crop yield and ecological practices, and an attempt to develop a fashion-design course in the Faculty of Applied Sciences.

In the context of the cotton-textile-clothing cluster, and to support the Ñeembucú Craftworkers' Association in partnership with the UNP Faculty of Accounting, Administrative and Economic Sciences, training is provided in micro-enterprise management, fairs and artisan fashion shows.

Map IV.4
Cotton-textile-clothing chain



Source: Prepared by the author.

Another strategic partnership between the UNP Faculty of Agricultural Sciences and Rural Development, the companies Aratex Orgánica and Manufacturas Pilar and the non-governmental organization (NGO) Altervida is the Organic Cotton Project in the Department of Ñeembucú, which involves the transfer of methodologies for organic crop management.

5. Fruit juices

Citrus fruit production (mainly oranges) is a traditional activity in Paraguay, and remained very important until the 1960s when all production was exported to Argentina. Subsequently, production of oranges and other citrus fruits plummeted due to phytosanitary problems and increasing quality requirements. In the late 1990s, the Frutika company (which was already involved in agriculture in the extreme north of the Itapúa) began producing fruit for industrialization and retail, as well as for exports of concentrated fruit juice to the European market (mainly Germany and the Netherlands).

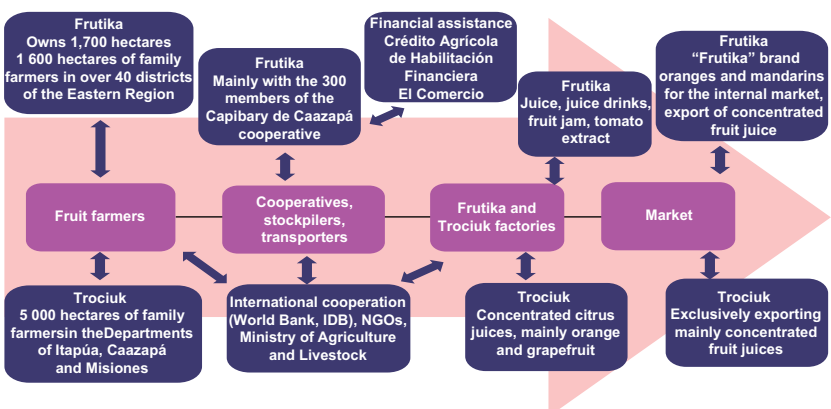
The company's operations underwent a dramatic transition in 2003, when management aimed for new horizons once they had reached their maximum industrial production and fresh fruit marketing capacities in the national market (based almost exclusively on their own orange production). The company therefore decided to include external suppliers of oranges, but also grapefruit and passion fruit. The area selected covers a few districts of the Department of Caazapá (next to Itapúa).

The other player in the fruit juice industry is the Trociuk company —a national reference point in soybean, wheat and rice production. In 2003, this company, situated in the south east of the Department of Itapúa, began a citrus production system gradually incorporating family farmers located no more than 80 kilometres from the industrial plant. Unlike Frutika, Trociuk is exclusively geared towards producing and exporting concentrated fruit juice, mainly to the Netherlands, Uruguay and Israel.

Peasant farming in association with these companies involves mediation from various actors that strengthen, support, expand and regulate crops and relations among stakeholders in the fruit

juice production chain. The companies provide inputs (virus-free seedlings), as well as technical or even logistical assistance. In recent years, international organizations such as the World Bank, Inter-American Development Bank (IDB) and the German Agency for International Cooperation (GTZ) —as well as programmes from the Ministry of Agriculture and Livestock— have developed support programmes for peasant family farming with suppliers that are part of the Frutika and Trociuk production networks.

Diagram IV.5
Fruit juice production chain



Source: Prepared by the author.

Working with cooperatives has been another Frutika arrangement for accessing more family farmers. Using the cooperative infrastructure, Frutika negotiates with farmers directly, as they seek the best conditions for their members by organizing production to sell to the cooperative. This system has been highly successful and has yielded excellent results in Caazapá.

The technical officer in charge of each district or area organizes the delivery logistics used by the Trociuk company. He/she organizes the product delivery quotas by specific dates. On that date, the technical officer contacts the transport enterprise, which then passes through each farm collecting production.

In 2011, Frutika produced around 2,000 tons of fruit juice, while Trociuk's average production was 1,466 tons. Although Frutika produces ready-to-drink juices, this product represents less than 10% of its production (as most of its exports are concentrated fruit juices).

The workforce directly employed by the factory stands at 80 workers for Frutika and 65 for Trociuk. In the same year, Frutika worked with about 4,000 small-scale suppliers, while Trociuk worked with about 2,000.

Table IV.2
Frutika and Trociuk production

	Annual juice production (tons)	Workforce	Number of producers
Frutika	2 000	80	4 000
Trociuk	1 466	65	2 000

Source: Prepared by the author on the basis of interviews.

Frutik's export performance was uneven between 2003 and 2007, with exports fluctuating considerably before stabilizing and then surging in 2011.

Table IV.3
Exports of Frutika and Trociuk
(USD FOB)

Year	Frutika	Trociuk	Total
2003	1 479 649	0	1 479 649
2004	743 650	0	743 650
2005	696 015	0	696 015
2006	1 353 902	0	1 353 902
2007	734 748	0	734 748
2008	1 855 530	0	1 855 530
2009	1 807 830	52 416	1 860 246
2010	1 757 866	390 364	2 148 230
2011	3 802 060	2 306 883	6 108 943

Source: Prepared by the author on the basis of data from TINWOR, 2012.

In the first three years of exports, Trociuk went from just over 50,000 dollars to more than 2,300,000 dollars, as a result of a production system planned and geared exclusively towards export.

The change in economic structures is reflected in the relationship between family farmers and companies. In previous years, several regions did not see the production of fruit such as grapefruit, orange and passion fruit as a profitable business. Traditionally, production of these fruits (particularly orange and grapefruit) was concentrated in the north of the country (San Pedro and Concepción) where they reproduced naturally. Much of the production went to the fresh fruit market. Most of the commercial process was carried out by stockpilers that purchased the produce at derisory prices but organized the harvest, transport and marketing.

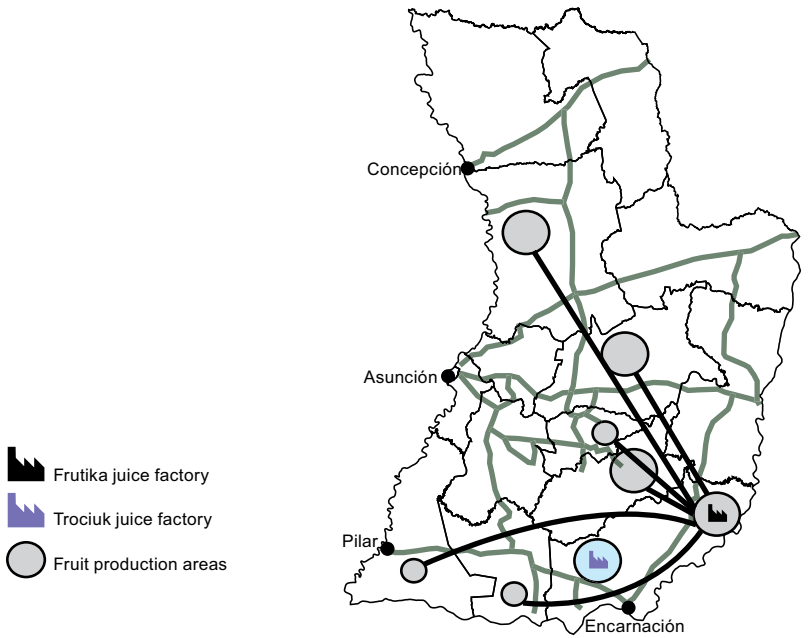
Thanks to the linkages in the juice production chain, family farmers began to understand the business and have applied the techniques needed to increase the productivity of fruit tress, including quality systems and good agricultural practices. The association system has also improved, with considerable progress in the organization and coordination of the various stages of the production process (particularly harvesting, storage and transport of products).

The commercial introduction of non-traditional fruits, such as passion fruit, is another indicator of change in the cultural patterns of family farmers. Production of this fruit is key for the development of other products, as its growth cycle and sales availability is just one year (while for orange and grapefruit it is three years —with maximum productivity at seven years). This means that farmers can easily diversify their production with this system.

It can therefore be inferred that these enterprises have had a major effect on family farmer suppliers, with benefits running throughout the supply system of family farmers and transporters.

Trociuk and Frutika have relationships with the municipalities of their suppliers, as organizations must have municipal recognition to begin business relationships. In terms of the financial sector, there has been an improvement to the Crédito Agrícola de Habilitación (CAH) system. In recent years, private entities such as banks, financing companies and cooperatives have provided loans to producers working with Frutika.

Map IV.5
Fruit juice chain



Source: Prepared by the author.

6. Sugar-alcohol production chain

Sugarcane has been cultivated since colonial times, and was mainly used for producing liquor (rather than for the sugar industry). At the end of the 19th century, systematic sugar production began thanks to the foundation of a few companies. However, it was only in the first few decades of the 20th century that sugar production took off with the emergence of a new production area —the Department of Guaira.

In the mid-1990s, the major innovation in sugar production was the takeover of organic markets, which made conventional sugarcane production less attractive but equality important within national industry. Contraband sugar from Brazil (where production is subsidized) was a major barrier for introducing innovation in the industry, as well as having a negative impact on the prices of raw materials.

In the early 2000s and as the result of global influences in terms of biofuel and particularly the Brazilian ethanol-production policy —sugar and liquor factories were converted into fuel-alcohol production units.

The diversification of sugarcane uses resulted in an expansion of the farmed area in traditional areas (in the Guairá and Central Departments) and the appearance of new production areas: one next to the traditional locations (the Departments of Paraguarí, Caazapá and Caaguazú) and another on the border with Brazil (Department of Canindeyú). Between 1991 and 2008, production thus increased by 80.3% and the farmed area by 46.4%. The following disaggregation shows the historical series of significant positive changes in sugarcane production.

Table IV.4
Sugarcane production —first link in the production chain

Year	Area (hectares)	Yield (tons/hectare)	Production (tons)
1988/89	56 800	50.5	2 868 700
.....	.....	.....	.....
2001/2002	52 399	56.8	2 976 290
2002/2003	62 255	52.4	3 260 475
2003/2004	69 942	52.0	3 637 000
2004/2005	74 000	40.8	3 020 000
2005/2006	75 000	42.7	3 200 000
2006/2007	82 000	50.0	4 100 000
2007/2008	81 830	62.1	5 079 612
2008/2009	105 000	48.0	5 040 000
2009/2010	105 000	49.9	5 241 600

Source: Agricultural Census and Statistics Division (DCEA), Ministry of Agriculture and Livestock of Paraguay.

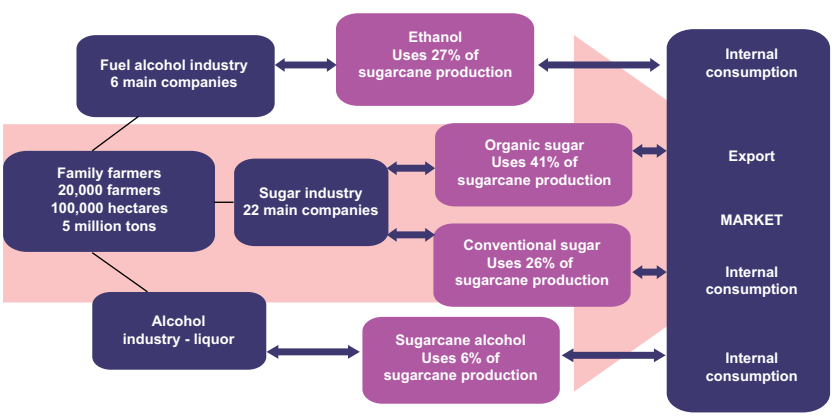
There are now more than 20,000 sugarcane farmers in Paraguay, covering just over 80,000 hectares and producing 5,000,000 tons. The main difficulty for this product's competitiveness is low productivity —with an average of 50 tons per hectare being much lower than the 80 tons per hectare produced in other countries of the region.

Family farmers produce sugarcane manually, with a large workforce during the harvest. The product is one of the most labour intensive, which is why it is highly significant in various regions. The production of family farmers is then sold to nearby factories. Owing to the cost of transporting raw materials, a factory works within a radius of around 50 to 80 kilometres.

Some sugar and alcohol factories have changed this production pattern to introduce mechanized production on their own land, which generates greater production volumes while removing the dependency on farmers who are always pressurizing factories to raise prices. About 27% of the area farmed for sugarcane belongs to sugar companies, while 72% of production comes from family farmers.

Industrial production is aimed at different markets. Organic sugar is almost exclusively for the external market, while conventional sugar is for the domestic market. Ethanol production is sold on the internal market, as it is a raw material for producing vehicle fuel. Lastly, alcohol for human consumption is aimed at the domestic market.

Diagram IV.6
Sugar-alcohol production chain



Source: Prepared by the author.

Sugar industrialization has grown steadily in recent years —affected only by climate conditions and a gradual specialization in organic sugar, which ensures higher incomes for farmers and companies.

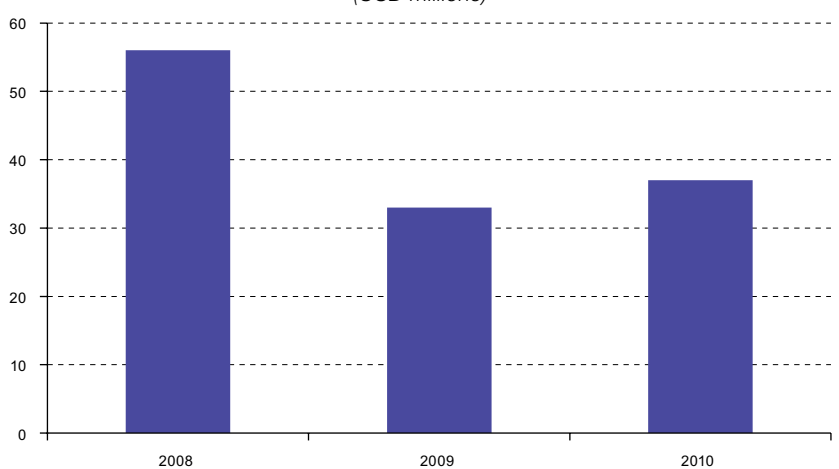
Table IV.5
Conventional and organic sugar production
between 2001 and 2008

	2004		2005		2006		2007		2008	
	Ton.	Percentages	Ton.	Percentages	Ton.	Percentages	Ton.	Percentages	Ton.	Percentages
Conventional	70 410	58	70 199	56	73 947	56	81 560	46	67 441	39
Organic	50 724	42	54 266	44	58 303	44	96 101	54	106 598	61
Total	121 134	100	124 465	100	132 250	100	177 661	100	174 039	100

Source: Ministry of Industry and Trade of Paraguay, 2009.

Conventional and organic sugar production is led by large and consolidated enterprises. Having said that, one emerging phenomenon is the appearance of farmers' cooperatives that only used to produce sugarcane. Improved knowledge of the production and commercial system prompted cooperatives to begin competing as sugar producers to secure a larger portion of the income by installing new agroindustrial units.

Figure IV.5
Sugar exports
(USD millions)

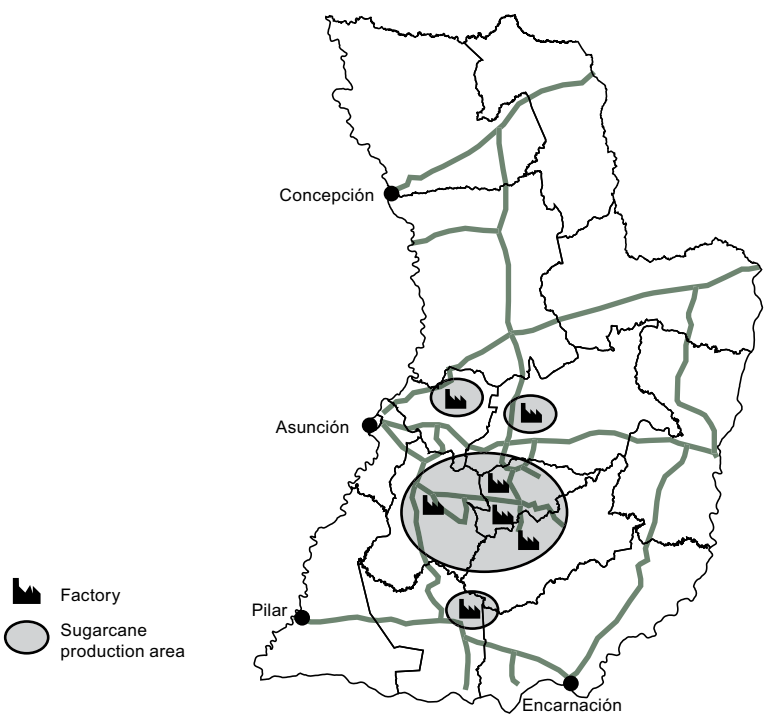


Source: Ministry of Industry and Trade of Paraguay, 2009.

Sugar export generated a relatively low income for the country, with a sharp drop between 2008 and 2009, and a recovery that began in 2010. However, this remains significant considering that much of production is sold on the internal market.

The sugar-alcohol chain is located in traditional farming areas dedicated to this crop. Given the limited possibilities for family farmers to improve their production conditions and productivity, the arrival of new enterprises widens the production capacity, with considerable impact in the areas of influence of the factories.

Map IV.6
Sugar-alcohol chain



Source: Prepared by the author.

There are very few public institutions involved in the chain. The Ministry of Agriculture and Livestock and the Crédito Agrícola de Habilitación are the only support institutions present in the various regions. The National Sugarcane Programme is a policy instrument

that boosts the development of the chain, but with limited practical applications. As with other chains, buoyancy is almost exclusively based on private initiatives.

7. Dairy chain

Dairy industrialization began in the 1960s, with the production of pasteurized milk and its derivatives. Between the 1980s and 1990s, the industry experienced strong growth —mainly driven by the production of ultra-high-temperature (UHT) milk.

Throughout the industry's history, Mennonite cooperatives have been set up to produce and sell dairy products (as well as private enterprises), with some specializing in dairy as their one and only leading product.

By the end of 2010, there were 49 dairy production and marketing enterprises. There is also a large number of small, family enterprises producing ice-cream, yoghurt, cheese, caramel (*dulce de leche*) and so on —although these have limited economic weight; as well as medium-sized and large enterprises responsible for most of the country's dairy production.

Cooperatives and private-capital enterprises tend to constantly invest in improving the quality control of production processes, and in obtaining and maintaining international quality certifications.

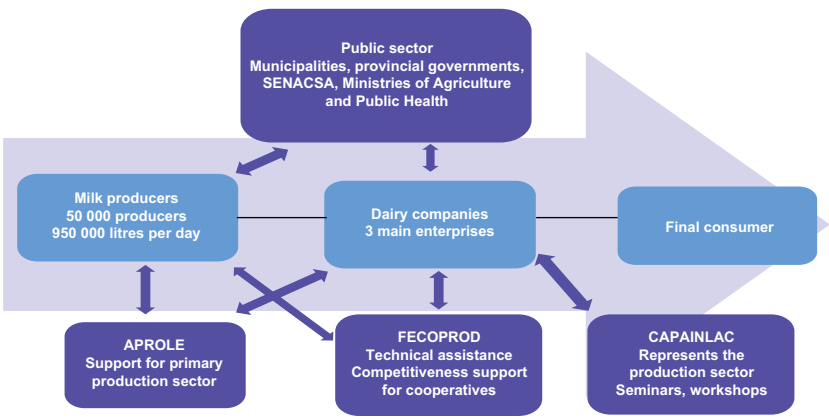
Dairy production is mainly aimed at the local market. Local demand determines the survival and profitability of enterprises in the production chain.

This industrial activity includes raw milk producers as suppliers to cooperatives and private enterprises. This results in safe marketing in the existing dairy industry, and ensures reliable income from milk sales. This has encouraged farmers to feel more settled and has provided more security for riding out the ups and downs of the national economy.

Primary producers have different characteristics depending on their production capacity, and can be grouped into small, medium-sized and large producers. One production area may have raw-milk

production systems that have the most advanced technology, genetic development and sophisticated computer systems alongside family production units characterized by unequal technological development.

Diagram IV.7
Dairy production chain



Source: Prepared by the author.

Cooperatives provide considerable technical assistance to small-scale producers. Larger producers generally have their own vets who provide ongoing technical assistance.

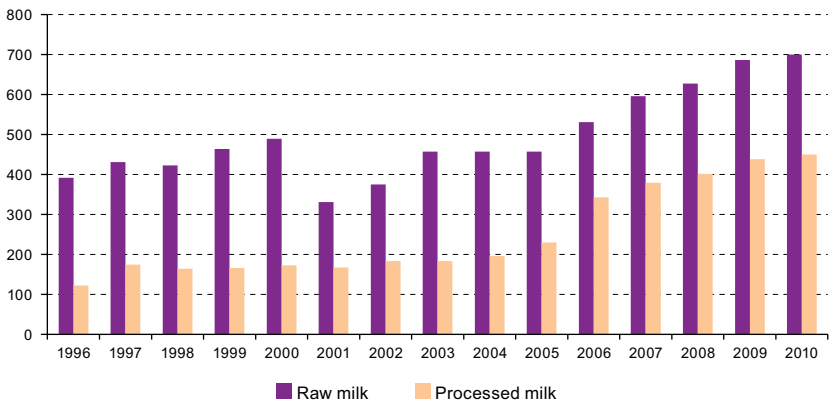
Between 1996 and 2010, the dairy sector expanded significantly. Primary production grew from 391.7 million litres of raw milk in 1996 to 700 million litres of raw milk in 2010. This represented a 78% rise in 14 years, and average annual growth of 5%. Such buoyant primary production was the result of growth in farms and improved products and processes: genetic improvement, better milking facilities, enhanced feeding systems and more intensive use of fodder.

There was also an increase in processed milk production, which went from 122.0 million litres in 1996 to 450.0 million litres in 2010, which represented growth of 268%, and average annual growth of 10%.

In 2010, there were estimated to be seven leading companies involved in producing processed milk (Lácteos Los Colonos, Lácteos Lactolanda, COOP, La Pradera, Lácteos Doña Ángela, Lácteos Trébol

and Parmalat), accounting for about 51% of the raw milk received in the country (or 360 million litres of milk). The largest stockpilers were Cooperativa La Holanda Ltda (36%) and Cooperativa Chortitzer Komitee (33%), which jointly represented 69%. These were followed by Cooperativa Colonias Unidas with 8%, Coop (7%), Parmalat (6%), La Pradera (5%) and Doña Ángela (5%). This structure has remained stable in recent years.

Figure IV.6
Production of raw milk and processed milk
(Millions of litres)



Source: Paraguayan Chamber of Dairy Industries (CAPAINLAC), 2012.

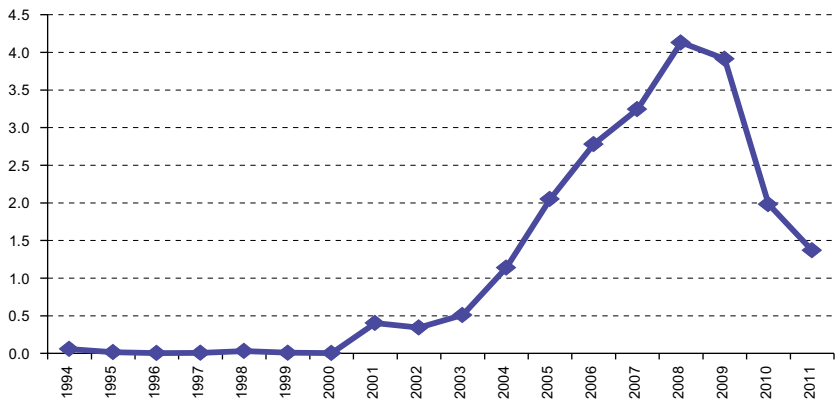
Other companies collected 13% of the country's total raw milk production, which represents 90 million litres of milk. The remaining 36% of raw milk production (250 million litres of milk) supplied the informal circuit.

Although the dairy chain is making an effort to enter the international market, the domestic market remains the main destination for its products. In the period 1996-2002, dairy exports turned in an erratic performance. Between 2003 and 2008, average annual growth in total exports was 55.2%, although the trend has been reversed since 2009.

In 1996, the main destination for Paraguayan exports was Brazil, which accounted for 100% of the country's external sales. Exports

have now moved from Brazil to the Plurinational State of Bolivia. Dairy exports are concentrated on few countries, a small number of products and a limited number of enterprises.

Figure IV.7
Exports of dairy products
(Millions of dollars)



Source: Central Bank of Paraguay, 2012.

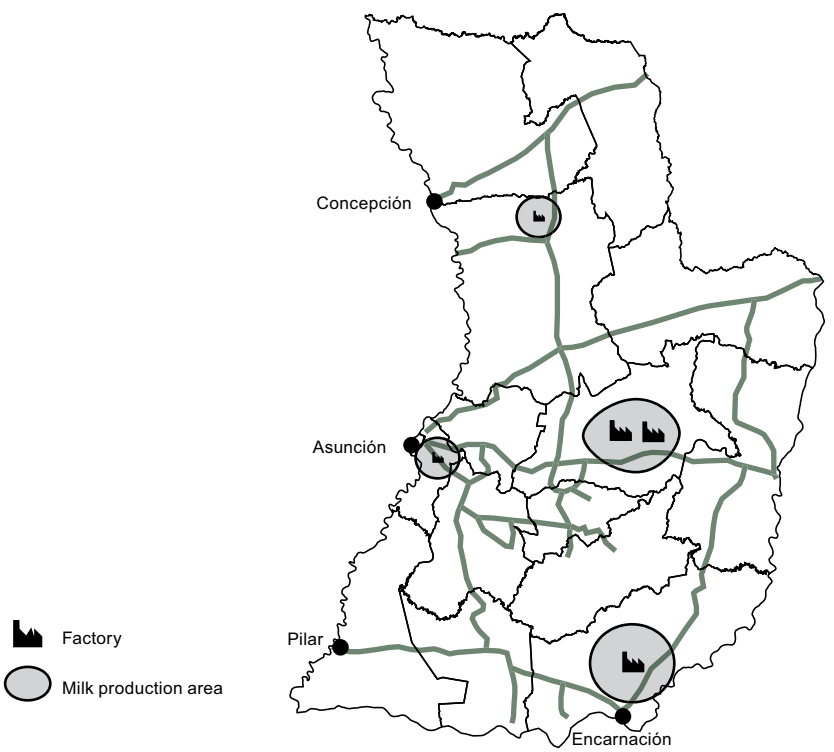
A striking feature of dairy production is the strong cooperative and organizational spirit that defines the industry, with the two main phases being fodder and feed production, and the industrialization and marketing of raw milk.

Other actors in the dairy industry include suppliers of inputs and services, public bodies, private organizations and international agencies that contribute to the operations of the dairy production chain, particularly by providing technical assistance, training, infrastructure and inputs.

These include the Paraguayan Chamber of Dairy Industrials (CAPAINLAC), Paraguay's Association of Milk Producers and Dairy Breeders (APROLE), the Federation of Production Cooperatives (FECOPROD), departmental governments, municipalities, Ministry of Agriculture and Livestock and its dairy board, Ministry of Education and Culture and Ministry of Public Health and Social Welfare.

The Government has a National Plan for the Sustainable Development of the Dairy Chain that includes issues related to the organization of small-scale raw-milk producers, technical assistance, the chain's competitiveness, financing, animal health, sectoral information, institutions and the legal framework governing the dairy sector.

Map IV.7
Dairy chain in the eastern region



Source: Prepared by the author.

C. Conclusions

The EDEP proposal had a significant impact on production systems, the formation and consolidation of production chains and the development of various public and private institutions. The EDEP was innovative in putting forward a new systemic integrated

model or paradigm of economic development that broke with the tradition of previous initiatives that had been sectoral, and that had presented agriculture as a factor of growth, in isolation from other processes and sectors.

Beyond the importance of expanding the area covered by crops and improving productivity, the main focus of the EDEP was to increase the value added of agricultural production through industrialization, using a broader and more integrated conceptual and multi-institutional framework than what had been seen and implemented previously.

The overall impact of the EDEP can be seen in three areas:

1. Introduction of new ideas and concepts

The EDEP introduced several innovations to the means of analysing and intervening in economic development processes by introducing (or helping to introduce) concepts that were new to Paraguay in the early 2000s, including: (1) the idea of the model of clusters or production chains, (2) the concept of export corridors, (3) highlighting the role of communications infrastructure, and (4) public-private linkages as a tool for improving competitiveness.

2. Creation of a new business environment

A highly important factor of the EDEP that goes beyond technical and conceptual considerations is the introduction of a positive discourse showing an achievable image of development that paved the way for overcoming the historical difficulties that the country was experiencing.

3. Creation of new institutions

Although this phenomenon was due to various causes, the decade from 2000 saw the development of new institutions that impacted on economic development in recent years. The main innovations were the creation of: ONPEC (2002), FOCOSEP, 8 REDIEX sectoral chambers (2000 -2010) and so on. Beyond the specific dynamics

of each institution —each with its own advances and setbacks— such institutional development is a positive contribution that lays the foundation for the next stage of increased institutional consolidation.

A review of the dynamics of each cluster promoted by the EDEP shows that, over 10 years, all of them became more complex and consolidated. The data collected point to the following general trends: (1) increased production levels in various agricultural production processes, (2) increased export value in most chains —indicating progress in terms of global competitiveness, (3) diversification of exports (products), (4) market diversification from MERCOSUR towards the global market, (5) gradual incorporation of family farmers into production chains, and (6) emergence of new actors operating within clusters, such as agroindustrial enterprises, banks/financing companies and producer associations.

It is vital to point out that other factors contributed to, influenced and even determined the success of production initiatives related to production chains, including the following.

(a) Role of public institutions

The activities implemented by various public institutions, particularly those directly related to the productive and industrial sectors, have disseminated, supported and strengthened the implementation of policies to promote production, industrialization and competitiveness. Institutions have created spaces for socialization, knowledge and recognition among enterprises, outside the traditional private spaces, by linking up with public bodies and associating with a broader and more far-reaching programme.

(b) Consolidation of private associations

The work of private institutions has been enriched by the economic buoyancy generated by productive diversification, intensification and growth. Recent years have seen the emergence of various chambers or business associations for the same product or sector. Several production chains therefore have institutional platforms for managing their interests through cooperation and competition, while also benefiting from new ways of interacting with public institutions. The creation and strengthening of chambers

is yet another sign of the productive determination and strength of enterprises. The main chambers linked to production chains are: the Paraguayan Chamber of Sesame Exporters (CAPEXSE), CAPAINLAC and the Paraguayan Sugar Centre (CAP).

(c) Private sector learning and behaviour

The leading enterprises in production chains have shown a range of new behaviour, learning and attitudes that have made them more competitive and efficient in leading such chains. Examples include: (1) capacity to tackle crises, which forced them to rethink and launch new actions to change the pattern of business functioning (enterprises from the cotton-textiles and cassava-starch chains), (2) capacity to expand production based on a deep understanding of the structure of international markets (Frutika), (3) emergence of business spirit in cooperatives, turning them from suppliers of raw materials to other enterprises to enterprises in their own right (Cooperativas Manduvira and Cnel. Oviedo), (4) capacity to innovate and incorporate products that are very different from the enterprise's activities (Trociuk, Cooperativa Colonias Unidas), and (5) capacity to emulate other enterprises, adapt and differentiate themselves geographically (Bioxeport and Almisur).

(d) Structural factors

The main structural factors to have facilitated, accelerated and motivated the positive performance of several production chains include: (1) macroeconomic stability in recent years, (2) ongoing and strengthened political stability, and (3) improvement, diversification and expansion of the road and mobile telephone networks.

4. Policy recommendations

(a) Driving a cross-cutting agenda to improve the economy's global competitiveness

This issue was mentioned in the initial EDEP document in terms of cross-cutting themes. Those themes applied to all sectors of Paraguay's economy and were focused on the following six strategic axes:

(i) Human resources

(ii) Financing

(iii) Export promotion

(iv) Quality control systems

(v) Simplification of export processes

(vi) Promotion of foreign investment

Many of the issues mentioned then remain fully relevant, and this is reflected in the emergence of various cross-cutting agendas currently being implemented in Paraguay (Agenda 2020 and others).

The recommendation is to carry out a comparative analysis of the various initiatives, as well as to develop broad consultations with public and private actors, in order to merge the various agendas together into one single agenda that summarizes various visions and contributions —with a view to contributing to the increased global competitiveness of Paraguay's economy.

(b) Strengthening chambers in chains

The public-private coordination implemented to date through the Paraguayan Organization for Competitiveness Strategy (ONPEC), REDIEX chambers, MAG chambers and other similar initiatives should help consolidate sectoral chambers in each production chain. This involves harnessing existing advances and incorporating the following new elements:

(i) Achieving more regular and institutionalized functioning of such chambers, adopting a flexible work system that includes associating with various institutions where appropriate (MIC, MAG, and so on).

(ii) Defining a work agenda for each chamber to implement systematically, in order to resolve bottlenecks in each production chain.

(iii) Broadening the technical issues from these agendas to tackle all problems affecting the development of chains.

(iv) Periodically evaluating the implementation of this work agenda.

(c) Focusing international cooperation programmes on these agendas

Developing a consultation process between the Government, private sector and international cooperation would neatly focus the latter's budget resources on those areas or technical issues of the agendas that are considered a priority. This initiative is considered vital for an effective implementation of public-private agendas.

(d) Linking national agendas with territorial agendas

Linking the national agendas of each agrochain to territorial agendas designed at the local or departmental levels or in agroecological or production areas.

This initiative should be accompanied by a process to strengthen ONPEC in departments, and is considered vital for encouraging social participation and adapting to each situation.

(e) Devising new instruments of development

Conducting a study of existing programmes and instruments to have an analysis of what needs to be improved.

Subsequently, this is used to assess the suitability of creating new instruments. It is deemed particularly important to formalize a new instrument for integrating family farmers with industrial enterprises (Inclusive Businesses or Production Partnerships) that values the practices already carried out by many of these industrial enterprises.

5. Strengthening the Integrated rural development study for small-scale producers (EDRIPP)

The Integrated rural development study for small-scale producers is a JICA contribution to intensifying Paraguay's rural development. The EDRIPP can incorporate several successful aspects in forming chains, and the productive intensification and expansion of existing ones.

The clustering of territories put forward in the EDRIPP must be combined with production chains within territories, as well as incorporating private actors from relevant chains into the analysis process and design of future actions for each territory.

Several of the chains studied function in the form of territorial production networks, or areas that are not necessarily next to each other but are more or less intensively or efficiently linked. It is therefore useful to recognize how the various areas, regions or territories of the Easter Region work, in order to boost existing production systems, link them with production chains in each area and perhaps even encourage the emergence of new production chains.

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Chapter V

JICA Vision for Dynamic and Inclusive Development: From the EDEP to the EDRIPP

A. Introduction: Paraguay in 2000

1. EDEP context in 2000

From the 1990s, Paraguay's economy was adapting to the new regional environment, with new phenomena such as financial market liberalization, privatization of State enterprises and the development of agro-industry and foreign direct investment (FDI). Following its entry into the Southern Common Market (MERCOSUR) in January 1995, Paraguay continued trade liberalization by eliminating tariff barriers to reduce its dependency on agriculture, diversify its economy, strengthen the competitiveness of export industries and promote small enterprises. The supply of relatively competitive exports was, however, restricted to cotton, soybean and other agricultural products.

As a result, production and exports stagnated; the balance of payments went into crisis, the fiscal balance worsened and

unemployment climbed. In 2000, the ECLAC *Economic Survey of Latin America and the Caribbean* described the Paraguayan economy as follows: "The Paraguayan economy shrank by half a percentage point in 2000, the third consecutive year of GDP stagnation and the fifth of declining per capita GDP. The country was again at the mercy of fluctuations in the agricultural sector and in external demand, which an expansionary economic policy was unable to counter" (ECLAC, 2000).

For all these reasons, it was necessary to formulate a national strategy to boost the economy based on greater competitiveness and improved quality.

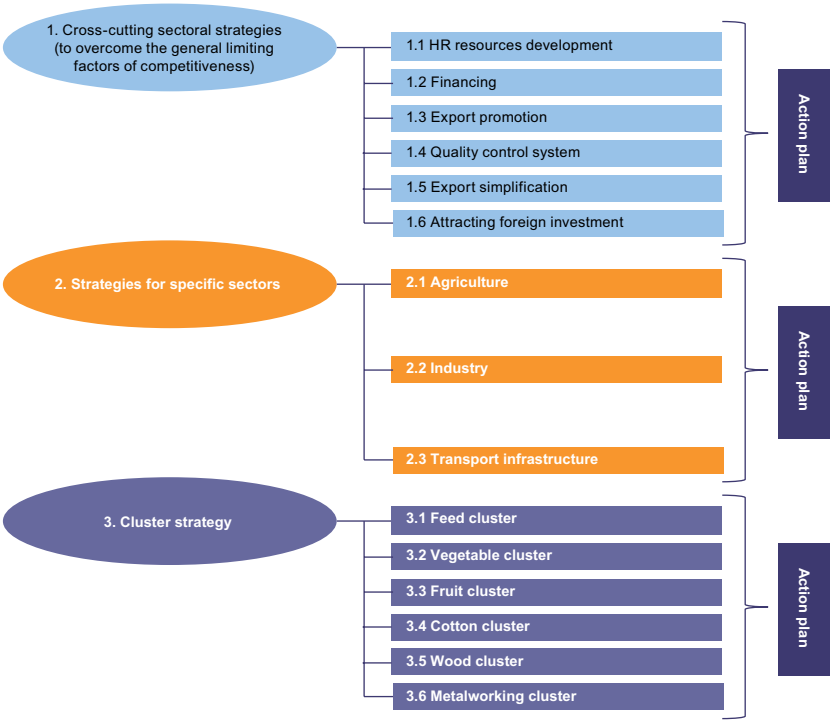
The Government, through the Technical Secretariat for Planning (STP) of the Presidency, requested technical cooperation from the Government of Japan, through the intermediary of the Japan International Cooperation Agency (JICA). In collaboration with STP, the Ministry of Agriculture and Livestock (MAG), the Ministry of Foreign Affairs (MRE), the Ministry of Finance (MH), the Ministry of Industry and Trade (MIC) and the Ministry of Public Works and Communications (MOPC), JICA carried out the Study on the Economic Development of Paraguay (hereinafter referred to as "EDEP") from October 1998 to November 2000. The EDEP was carried out with assistance from the JICA Research Institute (JICA-RI) —led by Dr. Akio Hosono— and involved the active participation of the private sector, including private enterprises and production cooperatives. The final EDEP report was delivered to the President of Paraguay, Luis Ángel González Macchi, in November 2000.

2. Summary of EDEP proposal

The final EDEP report (STP/JICA, 2000a) presented the following three basic types of strategy: (1) Cross-cutting sectoral strategies (to overcome the general limiting factors of competitiveness), (2) Strategies for specific sectors, and (3) Cluster strategy (see diagram V.1).

- Cross-cutting sectoral policies were proposed to resolve the main problems. They included human resource development, financing, export promotion, quality control systems, simplification of the export process and attracting foreign investment.

Diagram V.1
Three fundamental strategies proposed by the EDEP



Source: Prepared by the author on the basis of Technical Secretariat of Planning (STP)/Japan International Cooperation Agency (STP/JICA), *Estudio sobre el desarrollo económico de la República del Paraguay. Informe principal de la Comisión de Supervisión de JICA (ICS I). Estrategias de competitividad y desarrollo: una perspectiva global*, Asunción, 2000.

- Strategies for specific sectors covered agriculture, industry and transport infrastructure to ensure the competitiveness of exports in terms of quality, price and timely delivery, targeting production areas closely linked to exports.

The two above-mentioned strategies relate to the basic conditions needed to promote competitiveness through:

- Cluster strategies. Cluster strategies were designed to come up with specific measures to improve competitiveness and increase exports in certain pilot industries. Strategies were put forward for clusters involving feed, vegetables, fruit, cotton, wood and metalworking, in order to use private

sector initiatives to boost the national economy. This novel idea was introduced into the EDEP on the basis of the cluster strategy of Porter (1998).

3. Paraguayan implementation of the EDEP proposal

The EDEP final report backed up and boosted the various government and private-sector efforts in Paraguay. One example was the joint work between the Government and the private sector to create the National Organization for the Promotion of Market Competition (ONPEC) in late 2001, which arose as a result of the EDEP in order to promote national competiveness through the National Competitiveness Agenda, take part in various sustainable economic and social development initiatives, support the creation of Regional Offices to Promote Competiveness Strategy (ORPECs) to develop productive chains and clusters by promoting regional competitiveness, and to become established as a national benchmark in the promotion of production chains and clusters.[1]

ONPEC is a private nonprofit civil association made up of private-sector institutions and enterprises, and also involving government agencies. ONPEC and the Project for the development of export enterprises' competitiveness in Paraguay (FOCOSEP project), jointly funded by the European Union (EU) and the Government of Paraguay, supported the following clusters: cotton-textiles-garments in the Department of Ñeembucú; pig-raising in the Departments of Itapúa, Alto Paraná and Misiones; poultry-raising in the Central, Cordillera, Paraguarí and Caaguazú Departments; stevia in the Departments of San Pedro, Itapúa, Alto Paraná and Misiones; cassava-starch in the Central, Cordillera, Paraguarí and Caaguazú Departments; and fruit in San Pedro.

ONPEC and its ORPECs were the result of extraordinary efforts on the part of the private sector, the Government and international cooperation to drive the implementation of cluster strategies as an emblem of Paraguay's new economic development. It should be

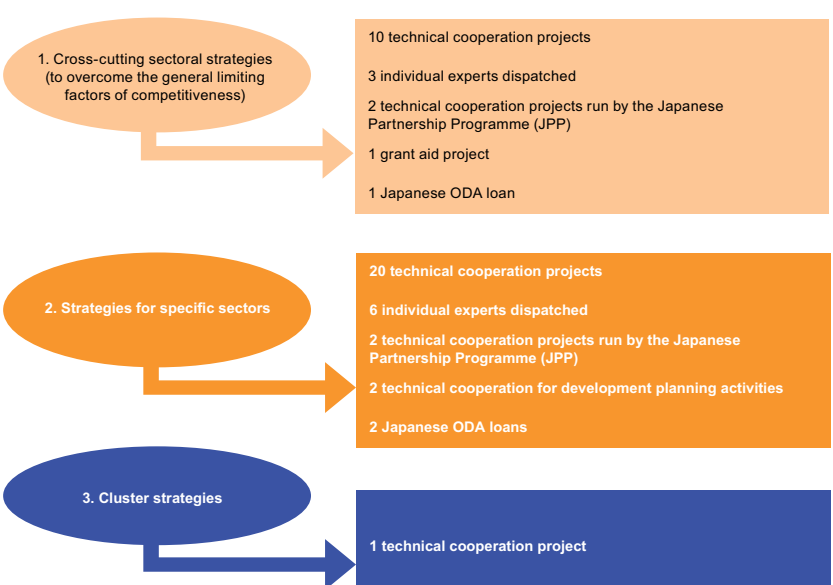
[1] See [online] http://www.onpec.org.py/, October 2012.

pointed out that processes to create ONPEC and implement cluster strategies also served to develop a new joint working platform between the public and private sectors.

4. JICA cooperation actions following the EDEP

JICA supported the formulation of the EDEP Master Plan up to 2000. Following the presentation of the final report, JICA continued working on boosting the Paraguayan economy, at the request of the Paraguayan Government. From 2000 to 2011, JICA worked on implementing the EDEP in various sectors, with 30 technical cooperation projects, 7 visits by individual experts, 4 technical cooperation projects run by the JICA Partnership Programme (JPP), 2 technical cooperation for development planning activities, 1 grant aid project and 2 Japanese ODA (official development assistance) loans (see diagram V.2).

Diagram V.2
Three basic strategies proposed in the EDEP and projects implemented by JICA



Source: Prepared by the author.

5. JICA cooperation for cross-cutting sectoral strategies (to overcome the general limiting factors of competitiveness)

To implement cross-cutting sectoral strategies (to overcome the general limiting factors of competitiveness) from 2000 to 2011, JICA provided support in the form of 10 technical cooperation projects, 3 visits by individual experts, 2 technical cooperation projects run by the JICA Partnership Programme (JPP), 1 grant aid project and 1 Japanese ODA loan.

For strategic line 1.1 "Human Resource Development", the projects implemented were the Japan-Paraguay Skill Development Promotion Centre project and The Project on extending and strengthening the training programme for senior technicians in rural areas of the Republic of Paraguay, with the National Service for Professional Promotion (SNPP), a dependency of the Ministry of Justice and Labour. These projects helped to train human resources by means of vocational training. For strategic line 1.2 "Financing", the projects implemented, in conjunction with the *Crédito Agrícola de Habilitación* (CAH), were the Agricultural sector strengthening project (II) and the Project for improvement in the agricultural extension and microfinance system for rural development based on the territorial approach which contributed to improving the financial system in the agricultural sector for small-scale farmers. For strategic line 1.3 "Export Promotion", the Advisor for industrial and trade policy was sent to advise the Ministry of Industry and Trade (MIC) on the promotion of exports. For strategic line 1.4 "Quality Control System", the National Institute of Technology, Standardization and Metrology (INTN) was strengthened through the technical cooperation project for the inspection and verification of weights and measurements, the project to strengthen the area of containers and packaging, and the project to strengthen microbiology and bromatology laboratories.

There was no cooperation activity for strategic line 1.5 "Simplification of the Export Process". Lastly, for strategic line 1.6 "Attracting Foreign Investment", the project implemented was to promote and strengthen the maquila industry in Paraguay with the National Council of the Export Maquila Industry (CNIME).

Box V.1
JICA cooperation in the maquila system

Foreign investment in Paraguay rose from USD 71.1 million (1.1% of GDP) in 1990 to USD 318.6 million (3.7% of GDP) in 1998 —although this was still lower than the percentages for countries such as the Plurinational State of Bolivia and Peru. In the EDEP, the promotion of foreign direct investment (FDI) spearheaded by maquila investment was therefore put forward as an important strategy for complementing local investment in the industrial sector as a way of boosting the Paraguayan economy. Law No. 1064 on the maquila export industry, promulgated on 13 May 1997, and regulated by Decree No. 9585 in 2000, entered into force in 2001. This Law created the National Council of the Export Maquila Industry (CNIME) as an advisory body to the Ministry of Industry and Trade (MIC) and the Ministry of Finance (MH). In 2001, 16 maquila programmes were approved. However, the requirement for between 30 and 120 formalities to be completed in 7 to 17 institutions to have a new maquila programme approved hampered the promotion of FDI.

The Project to promote and strengthen the maquila system in Paraguay was implemented with the CNIME between 2004 and 2007, in the framework of the Japan Mexico Partnership Programme (JMPP), with the cooperation of the Mexican Government's Secretariat for the Economy and Mexico's private sector. The project objective was to "provide the maquila system with smooth and transparent operations that are accessible to system users, in accordance with the requirements of international trade", which would attract more enterprises and increase the number of programmes for implementation. Several positive results were obtained in terms of establishing an integrated digital system (hardware, software, operating handbook, dissemination and administrator and user training), formulating a monitoring and control mechanism for transparency and reliability in the maquila system, and modernization and simplification of the legal framework.

The most noteworthy results were (1) improvement in the total time taken for formalities within CNIME to approve a maquila programme, (2) increase in the number of maquila programmes approved, and (3) export values. In the case of (1), prior to the project in 2004, the formalities took 86 days. By the end of the project in 2007, this had fallen to 28 days (or just a third of the original time scale). In the case of (2), 22 maquila programmes were approved between 2002 and 2004, compared with 31 approved between 2005 and 2007 (or 1.4 times more). In the case of (3), export values rose from USD 8.4 million in 2004 to USD 74.8 million in 2007.

CNIME continues to work on promoting the maquila system, and further results have been achieved following the end of the project. The total time frame for CNIME formalities for approving a maquila programme was reduced by 20 days. Since 2008, 43 maquila programmes have been approved, and the export value in 2011 was USD 142.5 million. These successes help not only to attract FDI but also to generate decent jobs in the country.

Source: Prepared by the author on the basis of Japan International Cooperation Agency (JICA), *Evaluación del Proyecto de promoción y fortalecimiento del sistema maquilador en el Paraguay. Informe final*, Asunción, 2007 and National Council of the Export Maquila Industry (CNIME), 2012.

6. JICA cooperation activities for strategies in specific sectors

To implement the strategies for the agriculture, industry and infrastructure sectors, JICA contributed with 20 technical cooperation projects, 6 visits by individual experts, 2 technical cooperation projects run by the JICA Partnership Programme (JPP), 2 technical cooperation for development planning activities, and 2 Japanese ODA loans between 2000 and 2011. The strategies for the three sectors received more JICA assistance than the two other fundamental strategies proposed in the EDEP.

(a) Agricultural sector

For strategic line 2.1 "the Agricultural sector", 25 cooperation activities were implemented. There were 3 focuses to the cooperation: agricultural policy advice, technological development of crops and livestock, and strengthening of production cooperatives. To strengthen and support agricultural policies, several Japanese experts were dispatched to the General Planning Directorate and the Agricultural Extension Directorate of the Ministry of Agriculture and Livestock (MAG).

JICA concentrated on the technological development of the production of soybean, vegetables, sesame, dairy, beekeeping and fish farming. Projects carried out included the Research project on soybean production in Paraguay; the Project for the identification of soybean germplasm with resistance to the soybean cyst nematode; the Project for the improvement of vegetable production techniques among small-scale farmers; the Project on strengthening the production of sesame seeds by small-scale farmers; the Improvement of small- and medium-scale dairy farm management project; the Project for the diversification of beekeeping; and the Strengthening of rural pisciculture in Paraguay project.

JICA transferred the experiences of production cooperatives from Japan through the Project on strengthening cooperatives in the south east of Paraguay, which boosted collaboration between large and small cooperatives. JICA support for the agricultural sector began in 1956, with the assistance that the institution provided to

Japanese immigrants. From that time, JICA closely cooperated with the technological development of mechanized agriculture until the 1990s. Since the tenure of President Nicanor Duarte Frutos (2003 to 2008), the Paraguayan Government's policy changed to place more emphasis on assistance to small-scale farmers.

As a result, JICA also began to prioritize cooperation to support small-scale farmers. The Government's need to have a medium- and long-term public policy for rural development prompted JICA to carry out the Study on Integrated Rural Development for Small-Scale Farmers (EDRIPP) between 2009 and 2011. This study resulted in the Guidelines for the formulation of the sustainable development strategy for rural territories, which was the driving force for changing the JICA assistance policy in Paraguay.

(b) Industrial sector

To implement strategies for the industrial sector, JICA assisted the Ministry of Industry and Trade (MIC) and the Paraguayan Industrial Union (UIP) in strengthening productivity and quality through the mini-project Leader training in small and medium-sized companies and the Project on strengthening the Paraguayan Quality and Productivity Centre (CEPPROCAL). These projects introduced the idea of productivity and quality control using the Japanese "5S" method. The five Japanese words that start with 'S' (Seiri, Seiton, Seiso, Seiketsu and Shitsuke) equate to: tidiness, orderliness, cleanliness, standardization and discipline. This also introduced a new culture of the private and public sectors working together in industry.

(c) Transport infrastructure sector

Implementing strategies for the transport infrastructure sector included the following 5 cooperation activities: individual experts on infrastructure improvement sent to the Ministry of Public Works and Communications (MOPC), a Japanese ODA loan for the Road improvement project (II) and the technical cooperation for development planning activities (such as the Study on improving the export corridor and grain port and the Preparatory study for the project to improve the export corridor of the Eastern Region).

Box V.2
JICA cooperation in the export corridor

In Paraguay, soybean, maize and wheat exports have been the main engine of the economy. Road infrastructure to transport these products in good conditions all year round is clearly essential. However, insufficient public investment, inadequate road maintenance and substandard design have all prevented the expected road improvements from being carried out.

In this context, the EDEP made suggestions including the improvement of public policies in the sector and the creation of new financial resources to develop transport infrastructure. The main projects were to: improve the export corridor, increase domestic mobility and enhance transport infrastructure to support physical distribution.

JICA carried out the Study to improve the export corridor and Grain Port in Paraguay between 2005 and 2006, and the Preparatory study for the project to improve the export corridor of the Eastern Region in 2011 to design future financial cooperation. The preparatory study confirmed the need for and importance of increasing agricultural production in the region (2.5 times for soybean, 4.8 times in maize and 6.07 times in wheat), and proposed USD 333 million for the roads on the banks of the Paraná river (147.0 km), the road connecting Route 6 with the regional road (54.4 km) and for port access roads (85.6 km). The Government is carrying out a series of internal procedures to request Japanese ODA loan, in the hope that this important undertaking can be implemented soon.

The Government of Japan also provided grant aid to the Project to improve rural roads in the Itapúa area, involving the donation of machinery and materials to build 125 km of road and 7 bridges.

The stretch between Carmen del Paraná, Fram, Capitán Miranda, La Paz and Pirapó that was tarmacked as part of the same project is now the Southern Grain Route, which not only streamlines the transportation of grains produced in the area for export, but also facilitates the transportation of raw materials that strengthen the feed cluster.

Dirt road in 1993

Southern Grain Route in 2012

Source: Prepared by the author on the basis of Japan International Cooperation Agency (JICA), *Estudio de diseño básico sobre el Proyecto de mejoramiento de caminos rurales en la zona Itapúa de la República del Paraguay, Informe final*, Asunción, 1994.

In October 2008, JICA and the Japan Bank for International Cooperation (JBIC) merged. JICA remained in charge of the Japanese Government's three forms of international cooperation: technical cooperation, grant aid, and Japanese ODA loans. More cooperation is therefore expected on road infrastructure in rural areas of Paraguay through a combination of Japanese ODA loans and technical cooperation.

7. JICA cooperation activities for the Cluster Strategies

One technical cooperation project was carried out to implement Cluster Strategies. This was the Project for the improvement of vegetable production techniques among small-scale farmers, aimed at supporting the vegetable cluster. As mentioned in "A.3 Paraguayan implementation of the EDEP proposal", Cluster Strategies were led by the Paraguayan private sector, which strengthened value chains in feed, fruit, cotton and other products.

Box V.3
JICA cooperation in the One Village, One Product Movement

The EDEP proposal presented an interesting Japanese experience known as One Village, One Product, as a success story in setting up clusters. To facilitate the Movement, experts were sent for the short- and long-term introduction of Japanese experiences to Paraguay, in collaboration with the Ministry of Industry and Trade (MIC).

In the short term, experts were sent with the cooperation of the Prefecture of Oita (birthplace of the Movement), and several seminars held between 2000 and 2001 enabled Paraguayan counterparts to understand the processes generated by the Movement in Japan, the form of collaboration between the public and private sectors and the successful case studies in Japan. Participating in the seminars made local government officials (from departmental and municipal governments), managers and members of production cooperatives (particularly those of Japanese descendants) interested in implementing this new undertaking in Paraguay.

A senior volunteer was then sent to the Ministry of Industry and Trade (MIC) to promote the Movement, study local products at the departmental and municipal level, train organizations producing local products, train human resources and draw up local product maps for each department. These activities resulted in the Department of Itapúa being selected as the model department. Also, the Departmental Board of Itapúa made the One Village, One Product Movement into a priority departmental programme in 2003 and created a Promotion Committee made up of members of the public and private sectors.

Box V.3 (concluded)

The senior volunteer also worked on promoting some local products such as mate, bamboo charcoal soap and soy milk soap, with the intention of using existing local resources. In the case of mate, the nutritional components were analysed to strengthen competitiveness with a view to making it into a possible export product.

These experiences are expected to be extended, so that One Village, One Product can become the initial phase for production linkages in rural areas.

Source: Governor's Office in Itapúa, official website, October 2012 [online] http://www.itapua.gov.py/portal/index.php?option=com_content&view=article&id=120:mapa-productivo&catid=64:mapas&Itemid=101.

B. Five examples of JICA cooperation activities

Five projects have been selected to describe the cooperation activities organized and their achievements. For this purpose, secondary data were collected from project reports and other bibliographies.

Interviews were then held with 30 former counterparts and project beneficiaries and officials from the production cooperatives sector and private enterprises. The results of the interviews were qualitatively analysed using the coding method.

1. Project for the identification of soybean germplasm with resistance to the soybean cyst nematode

(a) Project background

The EDEP confirmed the high importance of soybean for the Paraguayan economy, thanks to its competitive advantage compared with other MERCOSUR countries —resulting from technological renewal and the potential competitive advantage of processed products (soybean oil and soybean meal).

In the light of this situation, several projects were proposed. One was to increase production of the main grains in the regional production assistance programme (to boost the strategy to promote a production region) —with a view to reducing production costs and improve productivity in the agricultural sector.

JICA had already assisted the Ministry of Agriculture and Livestock (MAG) with a grant aid project, three technical cooperation projects and a technical cooperation for development planning activity (1980-2002) to set up the Regional Centre for Crops Research (CRIA) and improve soybean and wheat production.

The projects implemented were: the Project for agricultural development in the south of Paraguay, the Project to strengthen the production of main grains in Paraguay and the Research project on soybean production in Paraguay. These JICA cooperation activities helped to consolidate the Regional Centre for Crops Research (CRIA) as a reference point for agricultural research in the country, with trained staff and highly developed technologies for genetic improvement, crop management, production of improved seed varieties and so forth. As a result, the area of intervention has become a grain zone, with three times as much farmed area and 4.6 times more soybean production.

Following the detection of soybean rust caused by *Phakopsora pachyrhizi* in South America in 2001, and the confirmation of soybean cyst nematodes (*Heterodera glycines*) in Paraguay in 2003, MAG applied to the Japanese Government (through JICA) for a project to train CRIA technical staff in genetic improvement and the selection of varieties resistant to soybean rust and soybean cyst nematodes —as this had not been addressed in previous projects.

(b) Project summary

The project is summarized in table V.1.

Table V.1
Project for the identification of soybean germplasm with resistance to the soybean cyst nematode: summary

Overall goal	Development of varieties resistant to soybean diseases and pests in the Regional Centre for Crops Research (CRIA)
Project objective	Strengthening of CRIA's research capacity to develop varieties resistant to soybean diseases and pests
Expected outcomes	(1) Stronger capacity to develop varieties resistant to soybean cyst nematodes (2) Stronger basic capacity to develop varieties resistant to soybean rust
Duration	February 2006 to February 2008 (2 years)
Target area	Department of Itapúa
Target group	Researchers from the Regional Centre for Crops Research (CRIA)
Counterpart organization	Ministry of Agriculture and Livestock (MAG), Agricultural Research Directorate (DIA) and CRIA

Source: T. Tsuchiya, *Informe final del experto del Proyecto del desarrollo de variedades resistentes a la roya de la soja y nematodo de quiste de la soja*, Japan International Cooperation Agency (JICA)/Regional Centre for Crops Research (CRIA), 2008.

(c) Important achievements

The project achieved various results, including: strengthening of capacity to develop varieties resistant to soybean cyst nematodes through the comparative evaluation of resistant varieties, line selection, development of resistant varieties and eventually —in March 2008— release of a new variety (LCM 167) as the first variety

resistant to soybean cyst nematodes. The project also achieved results in strengthening the basic capacity for developing varieties resistant to soybean rust, thanks to the introduction and evaluation of the seven resistant genetic materials and the artificial cross-breeding of nine combinations. In addition, new nine reports were published containing the results from essays, four books and seven technical reports produced by the expert.

The four reports in Spanish were on the following subjects: *Why is the genetic improvement of soybean being carried out in Paraguay* (Tsuchiya, 2006); *Genetic improvement for resistance to soybean cyst nematodes in Paraguay* (Tsuchiya, 2007); *Soybean varieties developed by CRIA* (Morel and Tsuchiya, 2007) and *Soybeans: tasty, nutritious and healthy* (Tsuchiya, 2008). One of the former counterparts interviewed stated that "CRIA is the only institution to have provided considerable research information into the main crops". Lastly, the project's most important result was the strengthening of human resources employed to develop resistant soybean varieties, so that they may continue this work once the project has ended.

(d) Challenges

Although the project achieved its agreed target, it is vitally important to sustain research into the genetic improvement of soybean to obtain national varieties resistant to diseases and pests such as soybean rust, charcoal root rot, stem canker and soybean cyst nematodes. Considering the vital importance of soybean for the Paraguayan economy, the Government should also continue to support this research in coordination with multinational enterprises, production cooperatives and other relevant stakeholders.

In conclusion, the project made a contribution to the productive improvement of the country's main export crop, in order to boost the Paraguayan economy. This does not only apply to the production sector, but also to the processing and service sectors of the soybean value chain. It is hoped that these chains will expand even further to generate more jobs opportunities and thus achieve more inclusive development.

2. Project for the improvement of vegetable production techniques among small-scale farmers

(a) Project background

In Paraguay, small-scale farmers were in a difficult situation following a fall in income due to lower international cotton prices and the delayed introduction of advanced technology. This combined with the creation of MERCOSUR (which aimed to a promote free trade in the region), with its potentially negative impact on small-scale Paraguayan farmers.

According to the EDEP, one of the characteristics of Paraguay's agricultural sector is that "almost 80% of farms are small-scale operations with very low market competitiveness". To overcome this situation, the EDEP proposed several projects. One was to increase the production of new export products (vegetables) within the regional production assistance programme, in order to drive forward the strategy of promoting a production region to reduce production costs and improve productivity in the agricultural sector.

For the above-mentioned reasons, the Ministry of Agriculture and Livestock (MAG) considered it vital to introduce vegetables with relatively high yield expectations for small-scale farmers, as part of the agricultural diversification policy. To boost the initiative, MAG requested technical cooperation from the Japanese Government (through JICA) to improve vegetable production technology for small-scale farmers.

(b) Project summary

The project is summarized in table V.2.

Table V.2
Project for the improvement of vegetable production techniques among small-scale farmers: summary

Overall goal	Help to improve living standards and strengthen production infrastructure by achieving the stable production of high-quality vegetables, through the development of adequate farming techniques in Paraguay and their dissemination to small-scale farmers
Project objective	The National Agronomy Institute (IAN) improves vegetable production techniques for small-scale farmers and these are then used by the leaders of small-scale farmers
Expected outcomes	(1) Selection and improvement of superior vegetable varieties (2) Development of vegetable cultivation techniques (3) Identification of conditions for occurrence of the main vegetable diseases and pests, and development of control methods (4) Dissemination of techniques and knowledge developed by the Agricultural Extension Directorate (DEAg) and leaders of small-scale farmers
Duration	April 1997 to March 2002 (5 years)
Target area	IAN and the Agricultural Extension Directorate (DEAg) of the Ministry of Agriculture and Livestock (MAG) and Paraguay's Agricultural Technology Centre (CETAPAR)
Target group	IAN researchers, DEAg extension officers and leaders of small-scale farmers
Counterpart organization	National Agronomy Institute (IAN) and the Agricultural Extension Directorate (DEAg) of the Ministry of Agriculture and Livestock (MAG)

Source: Ministry of Agriculture and Livestock/Japan International Cooperation Agency (MAG/JICA), *Compendio del Proyecto de mejoramiento de la tecnología de producción de hortalizas para pequeños productores*, Asunción, 1999.

(c) Important achievements

The project successfully developed new varieties, new production techniques, phytopathological and entomological research for tomato, melon and strawberry —thanks to the demonstration plot, validation, seminars, field days and the issue of bulletins. To disseminate the results, the 240-page Handbook on fruit vegetable cultivation techniques (tomato, melon and strawberry) was produced and is still being used by researchers, extension officers and farmers.

The project published 23 bulletins on fruit/vegetable growing techniques, including 7 on phytopathology, 9 on entomology and 7 on crop management, which proved extremely useful for extension work. The project also established a link between IAN and DEAg. In an interview, one counterpart described it as follows: "The first study in a large framework that strengthened the link between research and extension that remains to this day". For this project, IAN and DEAg counterparts worked very closely with Japanese experts to develop their professional capacities in the technical improvement of fruit/vegetables.

(d) Challenges

Although much of the project time was used to develop new fruit/vegetable production techniques, the selection and improvement of superior varieties was never completed due to the cycles needed to produce fruit/vegetables. As a result, the dissemination of the results to small-scale farmers was also limited.

This was confirmed by former counterparts who stated that "80% of activities were developed at IAN, and the other 20% with DEAg". In addition, the project design did not envisage working on the organizational strengthening of small-scale farmers or on marketing the fruit/vegetables produced. This made it difficult for small-scale farmers to continue to work with the techniques developed by the project in a self-sustaining way.

Leaders of small-scale farmers interviewed declared that "There are good farmers, but they work individually", "We find it difficult to get organized", "The project taught me how to treat the plants, but the marketing aspect was missing".

Strengthening the organization and product marketing of small-scale farmers are difficult tasks that would take years, depending on previous experiences and certain external factors. It is therefore vital to have clear objectives and incentives to manage and help strengthen organizations of small-scale farmers.

The participation of private enterprises and/or large-scale cooperatives in the value chains is also highly important. International cooperation projects always have a given duration, but the daily lives

of small-scale farmers carry on once the projects are over. It would therefore be advisable for the design stage of future projects to consider the possibility of collaborating with private enterprises and/or large-scale cooperatives on marketing in order to be part of value chains.

3. Project on strengthening the Paraguayan Quality and Productivity Centre (CEPPROCAL)

(a) Project background

According to the EDEP, Paraguay's industrial sector represented 14.1% of GDP in 1998 (based on data from the Central Bank of Paraguay), as part of a gradual decline from 16% to 14% in the 1990s. The industrial sector also posted negative real growth rates in 1996 and 1997, before displaying a 1% positive rate in 1998.

The sector's average growth rate from 1991 to 1998 was 0.8%, which was lower than the overall GDP growth rate of 2.5%.

Industry was playing a secondary role in the Paraguayan economy, and it became even less important after the launch of MERCOSUR. The problems and obstacles faced by industrial development included low levels of investment, expensive credit that was difficult to access, lack of an internationally recognized certification system, problems in obtaining raw materials, high labour costs, lack of skilled human resources, limited efforts to improve quality and introduce new technologies and absence of a marketing strategy.

The EDEP proposed various strategies and projects in this sector to overcome these difficulties, one of which was to create a quality and productivity centre to boost the strategy to improve quality and productivity in the industrial sector.

At the same time, the EDEP highlighted the need to strengthen human resources that could lead small and medium-sized enterprises (SMEs) into boosting the Paraguayan economy. In this connection, JICA assisted the Ministry of Industry and Trade (MIC) and the Paraguayan Industrial Union (UIP) in strengthening productivity and quality through the mini-project Leader Training for Small and Medium-sized Companies between 2001 and 2004.

The project was successful and generated the motivation to make the UIP training department independent and create a Quality and Productivity Centre. To boost this initiative, the MIC requested technical cooperation from the Japanese Government (through JICA) to set up a centre providing consultancy and training services related to quality and productivity.

(b) Project summary

The project is summarized in table V.3.

Table V.3
Project on strengthening the Paraguayan Quality and Productivity Centre (CEPPROCAL): summary

Overall goal	The competitiveness of industries in Paraguay (and particularly small and medium-sized enterprises) will be strengthened by using consultancy services provided by the Paraguayan Quality and Productivity Centre (CEPPROCAL)
Project objective	CEPPROCAL is responsible for providing consultancy and training services relating to productivity, quality and high-quality consultancy services
Expected outcomes	(1) Strengthened implementation capacity of CEPPROCAL (2) Improved consultancy services of CEPPROCAL
Duration	January 2007 to February 2010 (3 years)
Target area	Asunción, Central Department
Target group	Officials and consultants of CEPPROCAL, Paraguayan SMEs
Counterpart organization	Ministry of Industry and Trade (MIC) and the Paraguayan Industrial Union (UIP)

Source: Japan International Cooperation Agency (JICA), *Informe final del Proyecto de fortalecimiento del Centro Paraguayo de Productividad y Calidad (CEPPROCAL)*, Asunción, 2009.

(c) Important achievements

The project achieved its proposed objective with successful results. CEPPROCAL became self-managing and self-innovating by offering consultancy services and training to improve the competitiveness of SMEs. One of the reasons behind the success was that the agency implementing the project was a private sector one formed by UIP with the help of the MIC.

This structure forced CEPPROCAL to be aware of sustainability by developing activities for survival and adopting measures flexibly to adapt to changing situations and the needs of SMEs. CEPPROCAL also

received support from its umbrella body UIP, to promote services for SMEs. This successful experience has been the first model of a strategic partnership between the industrial public and private sectors.

Paraguayan counterparts were trained in various areas through daily activities with Japanese experts, on courses carried out in Japan and other Latin American countries. The Kaizen method —meaning small and low-investment changes for the better— and the "5S" methodology were adapted to the Paraguayan reality and applied efficiently by the counterparts.

The considerable above-mentioned achievements were the result of the EDEP. Counterparts interviewed confirmed the relationship between CEPPROCAL and EDEP by stating: "The EDEP provided a guiding light and a vision. CEPPROCAL is implementing a part of the EDEP: the quest for competitiveness" and "The effects of the landmark EDEP have not yet been felt, but anyone using the EDEP recommendations would be successful".

(d) Challenges

The project was successfully completed, and CEPPROCAL continues to function. However, the project did have the following limitations: (1) area of coverage restricted to the capital, (2) limited participation of small and micro enterprises, and (3) poor integration of services for the agricultural sector. The restricted coverage is the result of focusing the project only on Asunción and Greater Asunción. There was no critical industrial mass in the rest of the country at that time. As for case (2), the limited participation of small and micro enterprises demonstrated the lack of interest and awareness of the importance of enterprises improving their own productivity and quality. Former counterparts interviewed stated "Inclusive [development] is more difficult because there is no culture of consultancy or training", which explains the basic difficulty of implementing inclusive development in the industrial sector.

In case (3), the poor integration of services for the agricultural sector corresponded to a limited use of the project's positive results in the agricultural sector (owing to intersectoral linkage difficulties in the Paraguayan Government and JICA).

More recognition should be given to the importance of work to link the primary sector (agriculture) and the secondary sector (industry), promoting strategic public-private partnerships to improve the competitiveness and quality of the country's agroindustry.

4. Project on strengthening the production of sesame seeds by small-scale farmers

(a) Project background

According to the EDEP, one of the characteristics of Paraguay's agricultural sector is that "almost 80% of farms are small-scale operations with very low market competitiveness". To overcome this situation, the EDEP proposed several projects. One was to increase the production of new export products within the regional production assistance programme, in order to drive forward the strategy of "promoting a production region —thereby reducing production costs and improving productivity" in the agricultural sector.

In Paraguay, small-scale farmers earn low incomes from their agricultural activities. Cotton was the most profitable crop for small-scale Paraguayan farmers between the 1970s and the mid-1990s, when it covered an area of 560,000 hectares. Unfortunately, falling international cotton prices and weakened public policy (the National Cotton Programme was abandoned in 1972) had a negative impact on the incomes of small-scale farmers, and indirectly on Paraguayan society —causing social insecurity in the north of the country's Eastern Region.

This prompted the search for alternative cash crops for small-scale farmers, with the private sector beginning to work on its own sesame crops since the late 1990s. According to the 2008 National Agricultural Census, sesame had already become an export sector for small-scale farmers, with about 40,869 sesame farms covering 69,857 hectares sown and producing 50,049 tons (INBIO/UGP, 2011, and Vásquez, 2011).

The importance of the crop meant that sesame was considered a "seed of change" (UNDP, 2008). However, sesame has suffered from low

yields in recent years, due to factors including the genetic degeneration of varieties and the lack of an improved seed production programme.

For the above-mentioned reasons, the Faculty of Agrarian Sciences (FCA) of the National University of Asunción (UNA) has been working on improving sesame seeds, and considered it important to develop more capacity in this area. To boost the initiative, the FCA requested technical cooperation from Japanese Government, through JICA, in the form of a project to improve sesame seeds for small-scale farmers.

(b) Project summary

The project is summarized in table V.4.

Table V.4
Project on strengthening the production of sesame seeds by small-scale farmers: summary

Overall goal	Small-scale sesame farmers improve the productivity and quality of their production through the use of appropriate technology and improved seed varieties
Project objective	Seed producers are trained and produce improved sesame seed using appropriate technology to meet demand from small-scale farmers
Expected outcomes	(1) Strategic partnership between the public, private and academic sectors for the production of improved sesame seeds (2) Purification and classification of traditional local sesame varieties (3) Identification of new improved sesame varieties (4) Sesame seed producers trained in techniques for growing and producing controlled seeds (5) Lead producers and sesame technicians are familiar with the appropriate technology and the importance of using controlled seeds
Duration	October 2009 to October 2012 (3 years)
Target area	Departments of San Pedro, Concepción and Amambay
Target group	Researchers from the Faculty of Agrarian Sciences (FCA) of the National University of Asunción (UNA), sesame seed producers and field-level extension technicians
Counterpart organization	Faculty of Agrarian Sciences (FCA) of the National University of Asunción (UNA)
Cooperating organization	Mexico's National Institute of Forestry, Agriculture and Livestock Research (INIFAP), Mexico's Ministry of Foreign Affairs

Source: Faculty of Agrarian Sciences of the National University of Asunción/Japan International Cooperation Agency (FCA/UNA/JICA), *Informe final del Proyecto de mejoramiento de semillas de sésamo para los pequeños productores*, Asunción, 2012.

(c) Important achievements

The project achieved the expected results with the support of professionals from Mexico's National Institute of Forestry, Agriculture and Livestock Research (INIFAP) and Ministry of Foreign Affairs (SER) in the framework of the Japan-Mexico Partnership Programme (JMPP). One of the main successes was purifying traditional sesame seeds (*Escoba Blanca* variety) and introducing germplasms of 66 varieties from Mexico.

At the same time, the Seed Quality Analysis Laboratory was equipped to work with sesame, and the Faculty's experimental fields were strengthened to continue work on improving seeds. Paraguayan counterparts also strengthened their capacities in joint work with Mexican experts sent to Paraguay, as well as in training held in Mexico. These results show that the FCA now has the professional capacity and infrastructure to provide purified white sesame seeds with no mix of varieties.

From the outset, the project took account of the importance of establishing a strategic partnership between the public, private and academic sectors, as all sectors have a different function in sesame production. The National Service for Plant and Seed Quality and Health (SENAVE), which is a State body, is responsible for inspecting seeds and seed producers; private enterprises provide seeds, technical assistance, marketing and financing where necessary; and the academic sector's FCA is responsible for developing and disseminating the relevant techniques.

In order for those farmers who are the most in need to be able to use the results of the project in the best way, it was necessary to set up a strategic alliance between the three sectors.

The counterparts confirmed the importance of this partnership of sectors by stating "[the project was successful] because it was well designed through a participatory workshop where all actors became involved. In other words, the project arose out of need, and had a good foundation".

Some of the small-scale farmers who worked with the project to produce sesame seeds saw an improvement in seed quality in terms of higher yields, and they also began to learn new crop management

and soil improvement techniques. It is hoped that the above-mentioned strategic partnership will continue to improve, so that small-scale farmers can be included in the value chains of private enterprises. This structure of strategic alliances among the three sectors could be a development model to promote higher incomes for small-scale farmers.

(d) Challenges

Although the project was successful, there remain several future challenges. The first is international competition with African countries that are trying to export fresh sesame. This implies international price competition, and Paraguayan sesame will need to be more competitive. Product quality and productivity must be improved if their competitiveness is to be improved.

One of the most important tasks in this regard is improving the farming methods and the soil condition, aspects that have not been considered to date because the sesame crop is well suited to Paraguay, as it had good weather conditions, fertile soil and few diseases or pests.

Those interviewed confirmed this situation by stating "When sesame started off in Paraguay, it sold well", and the fact that sesame did not need much fertilizer had an impact on soil loss; "We thought that sesame was God's gift to small-scale Paraguayan farmers, but it is not so simple and it requires work".

In addition, it is also important to work with black sesame, as this could become an alternative income source for small-scale farmers in the south of the country's Eastern Region.

5. Project on strengthening small-scale cooperatives in the South East (Phases I and II)

(a) Project background

In the light of the large number of small farms in Paraguay, the EDEP proposed various additional projects. One was to support agricultural cooperatives as part of the Programme to strengthen agricultural producers and the cooperatives programme, in order

to boost the strategy for "Diversifying agricultural products and promoting the agricultural processing industry —by supporting producer organizations and agricultural cooperatives" in the sector.

In Paraguay, the cooperative sector plays a very important role in the country's development. According to data from the National Cooperative Institute (INCOOP), in 2011 there were 982 active cooperatives, of which a quarter (248 cooperatives) were operating in the production sector. Data from the 2008 National Agricultural Census clearly confirmed that production cooperatives held a very important position in the agricultural sector. The total number of associated farmers was 85,710 (with 34.1% being members of cooperatives).

There were 74,064 small-scale farmers working less than 50 hectares (and 29.1% of them belonged to production cooperatives). There were 51,289 farms that received loans, of which 30.6% were provided by cooperatives. A total of 42,089 small-scale farmers working less than 50 hectares had access to credit, with 26.9% of such credit provided by production cooperatives. There were 44,206 farms that received technical assistance, of which 24.6% were assisted by cooperatives.

There were 35,178 small-scale farmers working less than 50 hectares who accessed technical assistance, and 17.4% of them received technical assistance from production cooperatives. These data confirm the important role of cooperatives for small-scale farmers, in terms of credit and technical assistance.

In the same period, large-scale cooperatives were becoming aware of the importance of building a stable society and seeking harmonious coexistence and mutual prosperity with small-scale farmers, as a consensus began to emerge that all of this was a necessary social security measure in rural areas.

Large-scale cooperatives therefore actively promoted support initiatives for small-scale farmers. However, the need to systematize these activities and expand their scale, prompted the Government of Paraguay to request that the Japanese Government run a technical cooperation project to promote and strengthen the organization of small-scale farmers in the South East of the country —with the National Cooperative Institute (INCOOP) and the Federation of Production Cooperatives (FECOPROD) as counterparts.

(b) Project summary

The project is summarized in Table V.5.

Table V.5
Project on strengthening small-scale cooperatives in the South East (Phases I and II): summary

Overall goal	Improving the quality of life of the members of beneficiary cooperatives.
Project objective	Improving the administrative management capacity of beneficiary cooperatives.
Expected outcomes	Increased interrelations between beneficiary cooperatives and partners, as well as among beneficiaries themselves. Increased member confidence in their cooperative and increased member participation. Greater member capital and a more robust cooperative. Collective purchase of agricultural inputs by the cooperatives involved. Increased production volumes and sales markets for beneficiary cooperatives. Members carry out farm planning and work in a better-organized and motivated way.
Duration	(Phase I) January 2007 to January 2010 (3 years) (Phase II) January 2010 to January 2012 (2 years)
Target area	Departments of Itapúa and Alto Paraná
Target group	Members of cooperatives in the South East of Paraguay
Counterpart organization	National Cooperative Institute (INCOOP) and the Federation of Production Cooperatives (FECOPROD)

Source: *National Cooperative Institute/Federation of Production Cooperatives*/Japan International Cooperation Agency (INCOOP/FECOPROD/JICA), *Estudio comparativo 2007-2009 del Proyecto de fortalecimiento de las cooperativas de pequeños productores de la zona sureste del Paraguay. Informe final*, Asunción, 2009.

(c) Important achievements

The project achieved the proposed goal by strengthening the management capacity of small-scale beneficiary cooperatives. In the final evaluation of the project, positive results were observed in the organizational strengthening of small cooperatives, with eight out of ten members reporting increased hope of receiving help from the cooperative and 80% of members observing an improvement in the cooperative's treatment of members. One of the reasons for the successful organizational strengthening was the support provided by partner cooperatives. These cooperatives offered on-the-job-training (OJT), training courses, technical assistance, financial assistance and so forth.

In the case of OJT, it was very useful and important for managers and officials from beneficiary cooperatives to find out about the successful experiences of partner cooperatives. OJT also served to

forge links between partner and beneficiary cooperatives, as stated by one of the former counterparts of the project: "The implementation of OJT in partner cooperatives was very beneficial because it formed a link between the partner and beneficiary cooperatives".

In the cooperatives sector in Paraguay, there is the compulsory Education Development Fund set up by Article 42 of Law No. 438/94 (INCOOP, 2010) regulating Paraguayan cooperatives. According to this Article, every cooperative must give the Fund a minimum of 10% of each year's surplus. This important Fund and the awareness of partner cooperatives were, as mentioned previously, the driving force behind partner support for beneficiaries.

There were also positive results in terms of the economic inclusion of beneficiary cooperatives. This economic inclusion was thanks to local fair activities, farm planning and family accounting. These three main activities acted as a chain, such that: (1) members were interested in selling their products at local fairs, (2) members attending fairs had to plan farm production to be able to sell at fairs and at important times such as Christmas, Easter and so on, and (3) members attending fairs had to control their income and expenditure to reduce costs, save and use earnings in the best possible way.

It should be pointed out that these three successful activities did not require high investment, but rather could begin on a small scale, so that members attending fairs with good results could gradually extend their activities.

This chain of successes enabled members attending fairs to change their dependence mentality and no longer rely on 'handouts'. An important role was played by JICA volunteers in these improvement processes —not in the form of financial or material support, but by accompanying the small-scale farmers day to day.

The interviews with members attending fairs show a change in their awareness: "Doing what you can with what you have"; "Realising that where there's a will, there's a way"; "It is only by keeping a record that one realizes what the income and outgoings are"; "In two years, I was able to pay off a debt of 8,150,000 guaraníes (about USD 1,900) by reducing unnecessary expenditure".

(d) Challenges

Although the project did achieve the above-mentioned positive results, there were some limitations. The first was the advanced age of members in beneficiary cooperatives. Over 85% of members were aged 40 or more, with the largest age group being those aged 50 to 64. It is vital to increase the participation of young people as cooperative members for self-management, innovation and the achievement of future transformations in beneficiary cooperatives.

Another limitation relates to local fairs. Although the local fairs worked well initially, competition with other local fairs and private enterprises —combined with the small populations of intermediate cities— forced members to attend fairs in more populated cities and to process agricultural products to incorporate value added.

Lastly, much of the partnership between partner and beneficiary cooperatives depends on the good will of the former. There is a need to design a kind of "win-win" situation that benefits both parties. For this to happen, there should be a territorial approach to rural development (Sepúlveda et al, 2003) and inclusion of beneficiary cooperatives in the value chains of partner cooperatives.

C. Lessons learned from the analysis of the five projects

The following conclusions were reached, based on an analysis of the background, summaries, important achievements and challenges of the five projects supported by JICA. The first conclusion is that JICA cooperation activities were based on the EDEP proposal. In other words, the EDEP was an important guideline for JICA cooperation from 2000.

One good example is the CEPPROCAL project, and counterparts showed their awareness of this by stating: "The EDEP provided a guiding light and a vision. CEPPROCAL is implementing a part of the EDEP: the quest for competitiveness and quality". The second conclusion is that JICA cooperation in Paraguay has achieved strikingly positive results in technology transfer and strengthening of

human resources. JICA has always prioritized technical aspects, not only in Paraguay but also other countries, by bringing and adapting Japanese technologies while working with counterparts in offices and in the field. This work culture has been one of the strengths of JICA, enabling it to develop human resources in the technological sphere.

However, one of the weaknesses of JICA has been the work on public policies and institution building. The lack of determination in institutional matters has been one of the reasons for the unstable human resources developed as part of JICA assistance.

With this in mind, JICA has begun to work on capacity development to enhance institutional awareness in the hope of overcoming this weakness (JICA, 2008; Hosono et al, 2011). JICA assistance projects have also been confirmed to be sectoral, with a lack of coordination among various sectors to generate greater synergy. In the case of CEPPROCAL, there was a lack of linkage with the primary sector —particularly in terms of agricultural production activities. The hope is to introduce a new approach to move beyond traditional sectoral development.

Cooperation activities carried out contributed to the dynamic development of medium-sized and large producers, either thanks to higher commodity exports (for large producers) or increased quality and competitiveness (for medium-sized producers). However, there is a need to work on increasing social and economic inclusion. It is therefore important to work on a new approach to strengthening self-management among actors, to move past reliance on 'social handouts' in Paraguay.

The positive results of the Project on strengthening small-scale cooperatives in the south east helped to promote a change in attitude towards: "Realising that where there's a will, there's a way", and "Doing what you can with what you have". It is also necessary to establish a new mechanism for strengthening commerce with a view to improving self-sustainability following the end of the project.

Given that commercial crops are undeniably dynamic and changeable, it is vital to work on developing actors' capacities for innovation and self-management. For this to happen, there should

be a new development platform for Paraguay, in order to increase and improve participation by the private sector (private enterprises and cooperatives).

In summary, there is a need for JICA to find a new approach to cooperation to facilitate the development of political and institutional capacities, intersectoral linkages and a new strategic partnership with the private sector. This new development approach is expected to achieve dynamic development with more inclusion for the relevant population of Paraguay (small-scale framers and micro and small enterprises), along with a mentality based on self-management.

D. Paraguay in 2011: Transformation of the JICA cooperation policy —from the EDEP to the study on Integrated rural development for small-scale farmers (EDRIPP)

1. Inclusive development and development of rural territories as a landing approach

(a) Discussion of inclusive development

The United Nations initiatives related to the Millennium Development Goals (MDGs) have raised awareness that achieving the Goals requires working with inclusive development (Chibba, 2011 and Cook, 2006). Rauniyar and Kanbur (2010) point out that inclusive development relates to the distribution of improvements —unlike exclusive growth. Infante (2011) described the current inclusive development situation in Latin America and the Caribbean, and analysed inclusive development from various viewpoints such as level of structural heterogeneity, capacity building and new social sectors. The study also highlighted the importance of working with territorial convergence in order to achieve inclusive development. In this sense, it would be useful to study the territorial approach to inclusive development as a landing approach in rural territories.

(b) Discussion on the sustainable development of rural territories as a landing approach

The concept and method of the territorial approach have been developed through the cumulative experience of implementing projects and programmes, and also through the analysis of lessons learned. In other words, the territorial approach has not emerged from development theories, but rather from the systematization of real experiences (the successes and the failures). The territorial approach appeared in European countries between 1968 and 1988, and was formalized by the European Union's LEADER Programme (Links between actions for the development of rural economy) from 1991 (Esparcia, 2000 and Saraceno, 1999).

The LEADER Programme raised awareness among politicians and professionals about the dynamism of rural territories, acknowledged the importance of citizen participation, promoted private-sector investment and generated some job opportunities. However, the LEADER Programme had some limitations for developing innovation capacity in terms of self-management once the Programme ended.

De Janvry and Sadoulet (2007) stated that the Programme lacked "a big push approach" to expand its scope. In 2002, a trip was organized for policymakers and rural development programme leaders from Latin America to find out about the experiences of the LEADER Programme *in situ*.

During the trip, the decision was taken to apply the LEADER experiences in Latin America, with some adjustments. This resulted in the Pilot Projects on Local Rural Development in Latin America (EXPIDER) in 2003, which aimed to promote and facilitate three pilot rural development experiences with a territorial approach in various parts of Latin America, in order to evaluate the interest and viability of a territorial approach to rural development in the region and help respond to questions about how to implement this approach.

According to Sumpsi (2006), the main lessons learned for implementing the rural territorial approach included: criteria for defining target rural territories, construction and/or strengthening of

new institutions to promote and manage rural territorial development, instruments to promote rural territorial development, vertical coordination between development institutions and programmes at various territorial levels and synergy between technical cooperation programmes and investment programmes.

Several programmes and projects have been implemented to manage sustainable development in rural territories in many Latin American countries. For example, there are documented experiences and lessons learned from Mexico (Echeverri and Moscardi, 2005, and Network for the Territorial Management of Rural Development, 2011), Central American countries (CAC/SICA, 2010), Costa Rica (RED CAM-drp, 2012), Brazil (Sepúlveda and Guimarães, 2008), and Andean countries (CAN, 2011).

In terms of theory, Sepúlveda et al (2003) unified the criteria for driving a territorial approach to rural development in Latin America. They posited that the territorial approach was guided by an inclusive and holistic vision based on the multidimensional, intertemporal, intergenerational and multisectoral, as well as the linkage of territorial economies. Fujita, Krugman and Venables (2000) also guided the spatial economy towards the territorial approach, as seen in the *2009 World Development Report: Reshaping Economic Geography* (World Bank, 2008). This was an important step in international cooperation agencies recognizing the sustainable development of rural territories based on proven theoretical approaches.

At the same time, the methodology was mainly developed by IICA. For instance, Sepúlveda 2008a and 2008b presented a biogram to estimate the level of development of rural territories, while Adib (2010) put forward a guide for formulating and management development plans for rural territories.

Bebbington, Abramovay and Chiriboga (2008) mentioned that IDB, the World Bank, IFAD and other international agencies had already used the term "territorial rural development". It should be stated that IICA and the Spanish Agency for International Development Cooperation (AECID) have also been working hard on territorial rural development in Latin America.

There is therefore a shared understanding among international cooperation agencies that territorial rural development is important in seeking a functional approach to the sustainable development of rural territories. ILPES (2010) insisted on the importance of producing regional statistics for the purposes of national policymaking. Alarcón and Ruz (2011) recommended developing a joint strategy for the region.

In 2012, AECID and IICA launched a regional project known as: Innovative policies for the development of rural territories: the PIDERAL project —to support the design of a new generation of public policies to develop rural territories.[2]

2. Formulating strategies for inclusive development in rural territories

Paraguay has made changes to Government policy on rural development, particularly in the era of then President, Nicanor Duarte Frutos (2003-2008). The policy changes placed greater emphasis on assistance for small-scale farmers, based on the vision of more inclusive rural development.

However, there was no medium- or long-term strategy for implementing government programmes for inclusive rural development. The Paraguayan Government therefore requested technical cooperation from the Japanese Government in the form of a study into a public policy based on the territorial approach.

The various activities that were part of the Study on Integrated Rural Development for Small-Scale Farmers (EDRIPP) was implemented by the Paraguayan Government's Counterpart Inter-institutional and multisectoral coordination (CIMC)[3] with JICA assistance, between 2009 and 2011 (see diagram V.3).

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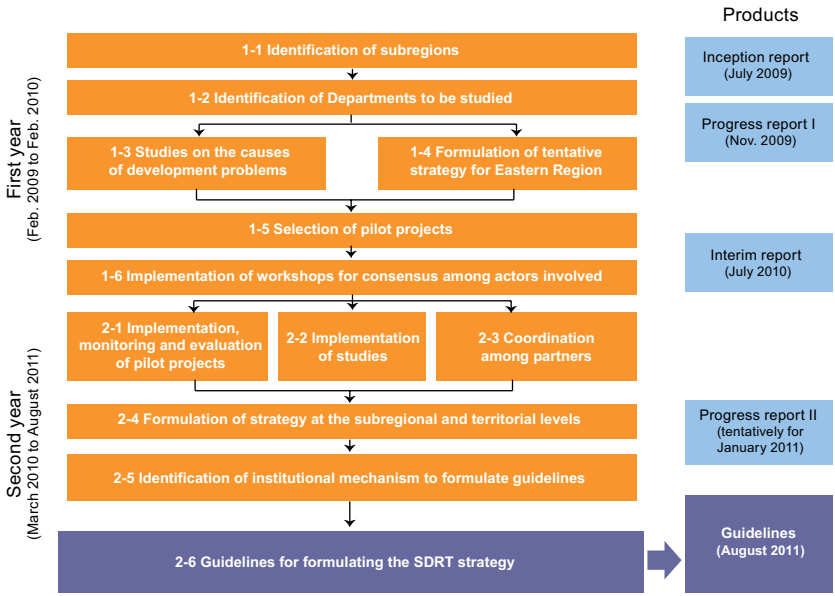
2 See [online] http://www.iica.int/esp/programas/territorios/Paginas/default.aspx.

3 Based on Decree No. 648/08, made up of representatives of the Presidency (PR), Ministry of Finance, Ministry of Agriculture and Livestock (MAG), Technical Secretariat for Planning (STP), Secretariat for the Environment (SEAM), National Institute of Rural and Land Development (INDERT), while policy coordination is the responsibility of the General Secretariat and Cabinet of the Presidency and technical coordination comes under the Head of the National Economic Team and the Ministry of Finance.

Diagram V.3
Flow chart of EDRIPP activities



Source: Coordinación Interinstitucional y Multisectorial de Contraparte/Japan International Cooperation Agency (CIMC/JICA), *Lineamientos para formular la Estrategia de Desarrollo Sostenible de los Territorios Rurales. Informe final*, Asunción, 2011.

The approach adopted for the Sustainable Development of Rural Territories (SDRT) was based on the document by Sepúlveda et al (2003) and covered the following four dimensions:

- Policies and institutions:

  Good governance as a result of the efficient and transparent functioning of institutions.
- Economy and production:

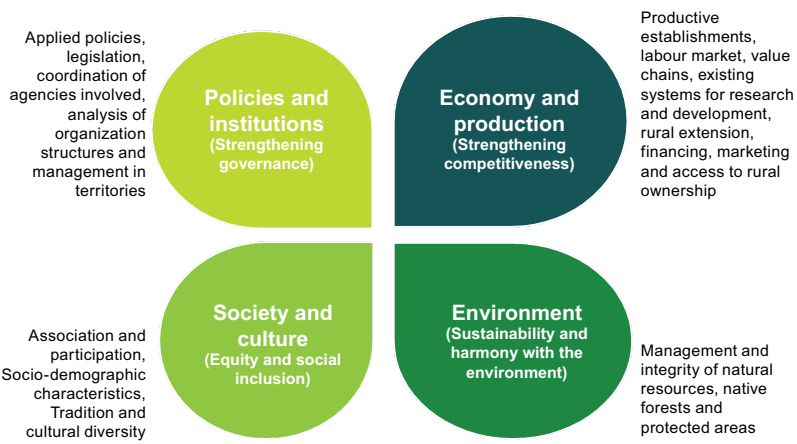
  Competitiveness arising from using and integrating the full potential of the rural economy and rural production.
- Society and culture:

  Social equity that ensures redistribution to rural inhabitants according to their respective efforts.
- Environment:

  Growth and development without sacrificing the environment.

The main aim of SDRT is to promote social cohesion in rural territories, and between these territories and the rest of national society. This means transforming the rural environment through participatory territorial management processes that improve democratic governance, citizen participation and institutional development —as a fundamental part of the National Development Plan. Good government and participation are the foundations for territorial management. When participation has a genuine impact on decision-making, the decisions become more effective in terms of quality of life and social cohesion.

Diagram V.4
Four dimensions of the EDRIPP



Source: Coordinación Interinstitucional y Multisectorial de Contraparte/Japan International Cooperation Agency (CIMC/JICA), *Lineamientos para formular la Estrategia de Desarrollo Sostenible de los Territorios Rurales. Informe final*, Asunción, 2011.

(a) Vision 2030

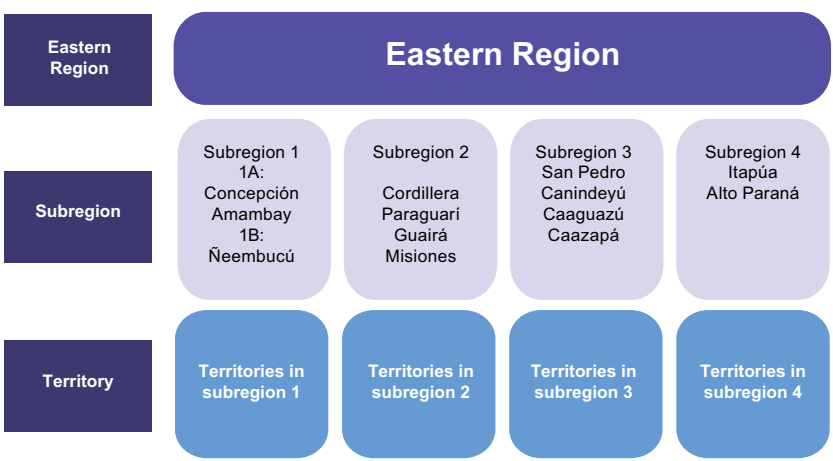
The EDRIPP Vision in 2030 proposes the following long-term or final objective over 20 years:

"The quality of life of inhabitants of Rural Territories has improved significantly, consolidating the sense of belonging, roots and local governance —thanks to the development of their capacities and skills, the sustainable management of natural resources and the harnessing of the productive potential of their territories."

(b) Levels of the strategy

The proposed sustainable development strategy is structured around three levels: Eastern Region, Subregions and Territories. The guidelines for the SDRT strategy provide a useful conceptual, methodological and operational framework for the entire national territory that also considers different time frames for a gradual implementation. The Strategy formulation phase is expected to incorporate the Central Department and the Western Region. Futhermore, it becomes vital to make special efforts to include explicit proposals to use the development potential of urban-rural relations in practice, as potential drivers of territorial dynamics.

Diagram V.5
Levels of the EDRIPP strategy



Source: Coordinación Interinstitucional y Multisectorial de Contraparte/Japan International Cooperation Agency (CIMC/JICA), *Lineamientos para formular la Estrategia de Desarrollo Sostenible de los Territorios Rurales. Informe final*, Asunción, 2011.

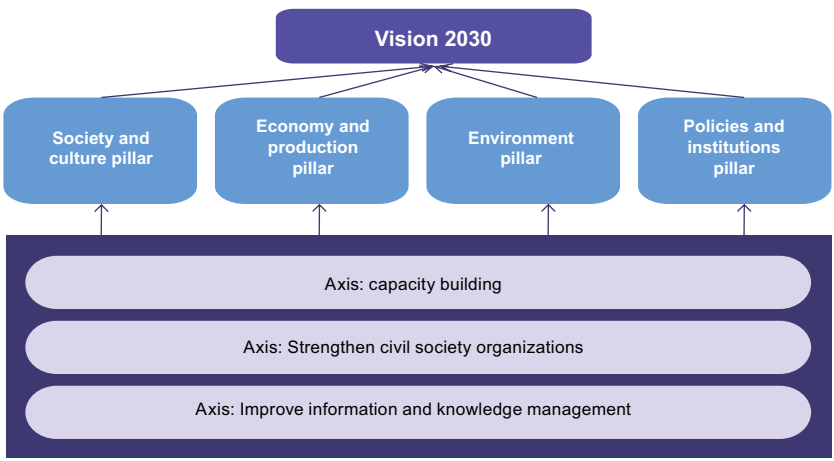
(c) Content of each level

To achieve the 2030 Vision, four pillars and three axes were established with their own strategic guidelines, in order to overcome the key barriers to development.

The aim of the four pillars is to drive transformation in each of the four dimensions, while the axes are cross-cutting strategic

guidelines aimed at enabling institutional agents, social organizations and individual social actors. The axes aim to strengthen institutions, organization and human resources to implement the strategic guidelines of the four pillars in an ongoing and sustainable way.

Diagram V.6
Content of each level: vision, pillars and axes of the EDRIPP



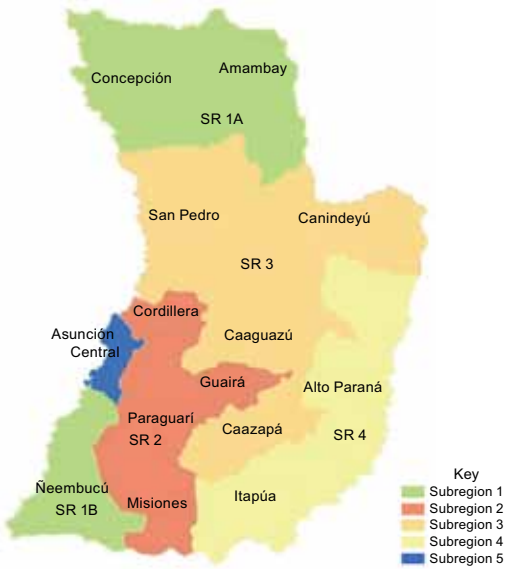
Source: Coordinación Interinstitucional y Multisectorial de Contraparte/Japan International Cooperation Agency (CIMC/JICA), *Lineamientos para formular la Estrategia de Desarrollo Sostenible de los Territorios Rurales. Informe final*, Asunción, 2011.

(d) Subregions with different characteristics

The Guidelines document proposes grouping Departments with similar characteristics into subregions (SR), in order to maximize their potential and formulate separate strategies based on their characteristics —with a view to achieving the objectives proposed by Vision 2030. The Departments in each subregion have their own characteristics, as well as shared or similar features. This fact has been verified by comparing the results of cluster analysis with the land-use map (production of soybean, maize, wheat, sunflower and sesame).[4]

[4] See Agricultural Biotechnology Institute (INBIO).

Map V.1
Five subregions



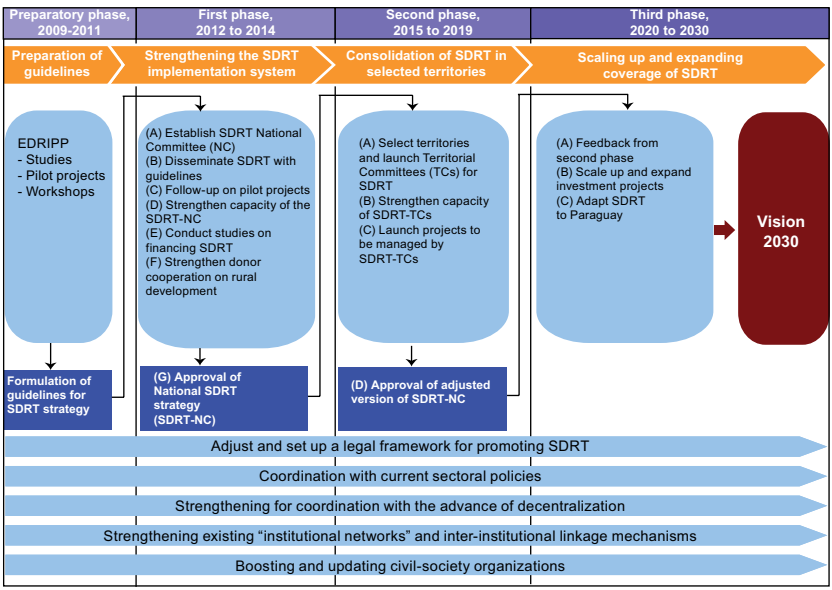
Source: Coordinación Interinstitucional y Multisectorial de Contraparte/Japan International Cooperation Agency (CIMC/JICA), *Lineamientos para formular la Estrategia de Desarrollo Sostenible de los Territorios Rurales. Informe final*, Asunción, 2011.

- Subregion 1 "Extensive production area": Departments of Concepción and Amambay (SR1A) and Department of Ñeembucú (SR1B).
- Subregion 2 "Traditional rural area": Departments of Cordillera, Paraguarí, Guairá and Misiones.
- Subregion 3 "Transition area": Departments of San Pedro, Canindeyú, Caaguazú and Caazapá.
- Subregion 4 "Agricultural export area": Departments of Alto Paraná and Itapúa.
- Subregion 5 "Metropolitan area": Central Department.

(e) Path for strengthening the system for the institutional implementation mechanism

The following diagram summarizes the proposed roadmap to develop the institutional implementation mechanism needed for achieving Vision 2030.

Diagram V.7
Roadmap for developing the institutional implementation mechanism



Source: Coordinación Interinstitucional y Multisectorial de Contraparte/Japan International Cooperation Agency (CIMC/JICA), *Lineamientos para formular la Estrategia de Desarrollo Sostenible de los Territorios Rurales. Informe final*, Asunción, 2011.

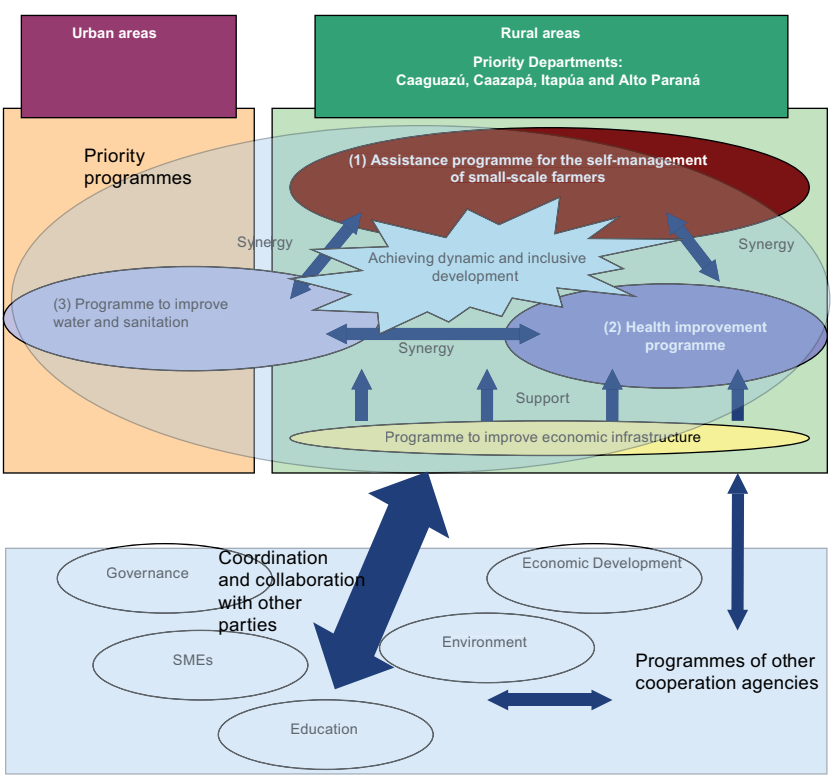
E. Implementation of JICA projects for inclusive development in rural territories

JICA is assisting Paraguay by implementing the programme approach in order to contribute to the public policies of the Government of Paraguay. In this context, the following three priority assistance programmes from the Japanese Government have been identified: "Assistance programme for the self-management of small-scale farmers", "Health improvement programme" and "Water and sanitation improvement programme".

JICA has devised a series of projects to implement the sustainable development strategy for rural territories from the EDRIPP, while also

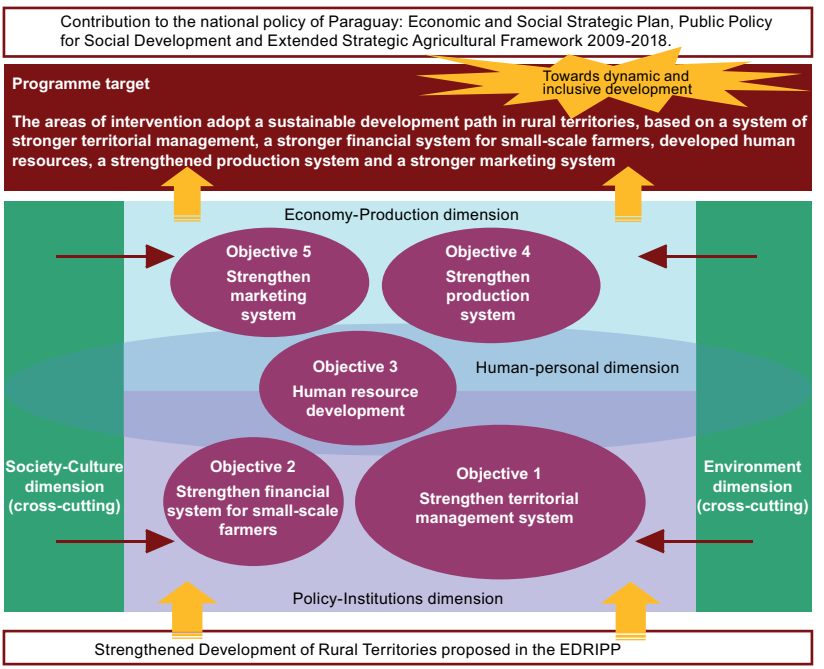
helping with the study. These projects are being implemented in the context of the "Assistance programme for the self-management of small-scale farmers", which has the following target: "The areas of intervention adopt a sustainable development path in rural territories, based on a system of stronger territorial management, a stronger financial system for small-scale farmers, developed human resources, a strengthened production system and a stronger marketing system". There are also the following five objectives: (1) strengthening the territorial management system, (2) strengthening the financial system, (3) developing human resources, (4) strengthening the production system, and (5) strengthening the marketing system.

Diagram V.8
General features of JICA cooperation with Paraguay



Source: Prepared by the author.

Diagram V.9
Summary of the Assistance programme for the self-management of small-scale farmers



Source: Prepared by the author.

To achieve the five Programme objectives, the following two main pillars are used: (a) strengthening the territorial management system as a new development platform for rural territories, and (b) strengthening value chains through strategic partnerships with the private sector. If these two goals were not achieved, it would be very difficult to implement dynamic and inclusive development of rural territories.

1. Strengthening the territorial management system as a new development platform for rural territories

Since 2011, JICA has been working on this objective: (1) strengthening the territorial management system, which is one of the main tasks for implementing a territorial approach as a new

development platform for rural territories through institutional arrangements. Two cooperation projects have been implemented with this in mind: the Rural development project on strengthening the territorial management system in Itapúa and Caazapá (Katupyry) and the Project for improvement in the agricultural extension and microfinance system for rural development based on the territorial approach. The Rural development project on strengthening the territorial management system in Itapúa and Caazapá (Katupyry) has been the main project of the Programme, and is summarized in table V.6.

Table V.6
Rural development project on strengthening the territorial management system in Itapúa and Caazapá: summary

Overall goal	Sustainable improvement of social and economic situation through the territorial development system in the 4 selected territories The System of Participatory Territorial Management is introduced as a medium- and long-term national strategy in 13 Departments of the Eastern Region
Project objective	Achieving the development objectives identified for each territory through the application of the System of Participatory Territorial Management and strengthened inter-institutional coordination mechanisms
Expected outcomes	(1) A body to decide on territorial development using participatory and inclusive methodology is set up and/or consolidated in each of the 4 selected territories (2) Capabilities of institutions involved in Participatory Territorial Management are strengthened, and the inter-institutional coordination mechanisms between associated organizations are improved at the central, departmental and district levels (3) Human resources for Participatory Territorial Management are developed in the public and private sectors at the central, departmental and district levels (4) Territorial development programmes and strategies are formulated and implemented (5) Changes generated by the project are confirmed
Duration	February 2012 to January 2017 (5 years)
Target area	4 territories in the Departments of Itapúa and Caazapá Definition of "territory": geographical area with a defined social, economic, environmental and institutional identity. As there is no political definition in Paraguay, for convenience in the context of the project, territory is understood as a group of districts in each Department with the same identity
Target group	Residents in selected territories (up to about 250,000 people), and the staff involved in public and private sector development at the central, departmental and district levels
Counterpart organization	Ministry of Agriculture and Livestock (MAG) and Ministry of Finance (MH)

Source: Ministry of Agriculture and Livestock (MAG) and Ministry of Finance (MH) and the Japan International Cooperation Agency (JICA), 2012.

The MAG and MH are the main project implementers, with support from JICA. The ministries work on defining institutional arrangements between provincial governments, municipalities, academic sector, private sector, civil society and other territorial actors —so as to create territorial bodies as forums for discussions, planning, coordination and monitoring of activities in accordance with territories' needs.

Achieving the real participation of territorial actors is considered key to the initiative, as is how to link the three levels of government with the various sectors (including the private sector), so that territorial bodies can truly be forums for the development of rural territories.

It is important for the undertaking to align the various experiences within Paraguay. For instance, there is the MAG Integrated Management System for Agricultural and Rural Development (SIGEST), which has support from IICA (MAG, 2011); the GTZ experience in the Department of Caazapá (Birbaumer, 2007); and the FAO experience in the Department of San Pedro (STP/FAO, 2009). It is also hoped that lessons can be learned from the experiences of other Latin American countries, such as Mexico, Costa Rica, Peru and Brazil.

The PIDERAL experience is extremely interesting in this regard, and lessons can be learned from it. These alignments would enable the Katupyry project to function better and have a greater impact on institutional capacity building in the three levels of government, in order to develop rural territories and create a platform for more inclusive development.

2. Strengthening value chains through strategic partnerships with the private sector

As mentioned in chapters III and IV, some agroindustry clusters were developed as part of the cluster strategy put forward in the EDEP. These agroindustry clusters helped boost the rural economy by improving its competitiveness. Above all, they played an important role in rural territories by increasing production, improving product marketing, generating processing plants, creating jobs and so on.

Forming value chains is an essential driver for development in rural territories. The Assistance programme for the self-management of small-scale farmers is therefore part of one of the two main pillars. To form value chains in a self-sustainable way once cooperation activities have ended, it is vital to set up a strategic partnership mechanism with the private sector, so that agricultural products produced by small-scale farmers and raw materials/processed products can access the relevant markets. In the case of Paraguay, the private sector's large production cooperatives and private enterprises have well-established value chains in rural territories. It is therefore important to analyse possible ways of working with production cooperatives and private enterprises.

3. Strategic partnerships with production cooperatives

Production cooperatives are known to play an important role in Paraguay, in terms of technical assistance and credit (USAID, 2012). Large production cooperatives, for instance, are associated in the Federation of Production Cooperatives (FECOPROD). FECOPROD has been promoting the idea that small-scale farmers and large-scale cooperatives should work together for various reasons (FECOPROD/SCC/IFAD, 2010). The main values of the large-scale cooperatives are the spirit of "living better together" and reducing security problems (theft and private land invasions).

In addition, the Education Development Fund set up by Article 42 of Law No. 438/94 on Cooperativism, which is financed by cooperatives' surplus (the Law states that a minimum 10% of cooperatives' surplus must be paid to the fund to be used for the education of members, managers, employees and the community), is a major source of funding for new links between large and small cooperatives (including neighbouring communities).

It is against this background that the Project for the formation of clusters of agricultural cooperatives in the eastern region of Paraguay is being implemented. The project design was based on the experience of the Project on strengthening small-scale cooperatives in the south east, while integrating the territorial approach. In other words, the project

attempts to promote the establishment of a socio-economic partnership between leading and smaller cooperatives, including small-scale farmers' committees and associations in a territory influenced by each leading cooperative. The project is summarized in table V.7.

Table V.7
Project for the formation of clusters of agricultural cooperatives in the eastern region of Paraguay: summary

Overall goal	Increase the income of participating small-scale farmers through the formation of cooperative clusters
Project objective	Improve administrative and financial management by forming clusters of leading cooperatives and organizations of small-scale farmers in their area of influence
Expected outcomes	(1) Clusters formed between leading cooperatives and small-scale farmers' organizations in their area of influence, with operations based on sustainable economic relations (2) Large and small cooperatives improve their administrative and organizational management capacity with the guidance of counterpart agencies and experts (3) Establishment of a system of ongoing and sustainable monitoring and evaluation by the counterpart
Duration	February 2012 to January 2016 (4 years)
Target area	Departments of Caaguazú, Alto Paraná, Itapúa and San Pedro
Target group	Leading cooperatives, small cooperatives, associations and committees of small-scale farmers
Counterpart organization	National Cooperative Institute (INCOOP) and the Federation of Production Cooperatives (FECOPROD)

Source: Prepared by the author.

4. INCOOP, FECOPROD and JICA, 2012

The project seeks to include small cooperatives and small-scale farmers' associations and committees within the territory of leading cooperatives in the latter's value chains. The aim is to create new relationships between leading cooperatives and small-scale farmers' organizations in an innovative and self-sustainable way.

(a) Strategic partnerships with private enterprises

An innovative and attractive concept is required to promote the establishment of a strategic partnership mechanism between private enterprises and small-scale farmers. Porter and Kramer (2011 and 2006) put forward a new concept of creating shared value. According to these authors (2011), the concept of shared value can be defined as: operational

practices and policies to improve an enterprise's competitiveness, while simultaneously promoting the social and economic conditions in its communities of operation.

The creation of shared value focuses on identifying and broadening connections between economic and social progress. It is based on the premise that both forms of progress should be approached using the principles of value. Value, in turn, is defined as benefits relative to costs, rather than just benefits alone. The creation of value is an idea that has been widely recognized in the business, where profit is the income generated from customers minus the costs incurred. In any event, the business world has rarely approached social issues from a value perspective, but rather has treated them as peripheral matters, obscuring the connections between economic and social affairs. The creation of shared value should take precedence over corporate social responsibility to guide business investment in the community.

Corporate social responsibility programmes focus mainly on reputation, and only have a limited connection to the business —which makes it difficult to justify and sustain them in the long term. The creation of shared value, on the other hand, is integral to the competitive on-the-job-training and profitability of the enterprise. The latter uses the enterprise's unique resources and experience to create economic value by creating social value.

Table V.8
Comparison between corporate social responsibility and the creation of shared value

Corporate social responsibility	Creation of shared value
Value: doing good	Value: economic and social benefits relative to cost
Citizenship, philanthropy, sustainability	Shared creation of value between enterprise and community
Discretional (freely and prudently) or in response to external pressure	Integrated to compete
Separated from profit maximization	Integrated into maximization of profits
Agenda determined by external reports and personal preference	Agenda specific to enterprise and is generated internally
Impact limited by corporate footprint and relevant budget	Realigns the enterprise's entire budget
Example: fair trade	Example: transformation of procurement processes to increase quality and productivity

Source: M.E. Porter and M.R. Kramer, "Creating shared value: how to reinvent capitalism-and unleash a wave of innovation and growth", *Harvard Business Review*, January-February, 2011.

In Paraguay, there are already some joint initiatives under way between private enterprises and small-scale farmers. UNDP (2008), presents the following five success stories: Manufactura de Pilar S.A. with small-scale cotton producers, Shirosawa S.A.I.C. with small-scale sesame farmers, Pollpar S.A. with employees and the community in education, Banco Visión S.A. de Finanzas with the inclusive micro-finances service and the Centre for Information and Resources for Development (CIRD) with differently abled people.

The Trociuk[5] company has been working with over 2,500 small-scale farmers in the vicinity of its processing plant since 2004. Trociuk and the small-scale farmers sign a contract stipulating a commitment to the purchase and sale of products, crop-care standards and forms of cash payment. The company works with each individual farmer to sell reduced-price seedlings and cost-price inputs for the first three years, offering training and technical assistance for five years, as well as financing facilities.

The results are positive thanks to clearly pre-established rules between the company and individual small-scale farmers. It is hoped that this important undertaking will be further promoted as a good practice in creating a value chain to include small-scale farmers.

Another example is the Frutika[6] company, which began technical assistance for small-scale farmers in 2004. This took the form of a public-private agro-fruit-forestry project with GTZ cooperation. It also involved the provincial government and municipality of Caazapá and technical staff from MAG and Frutika. The project consisted in remediation of soil, forests and citrus crops (orange and grapefruit) in Caazapá. Following the project, Frutika has continued to work with organized small-scale farmers to sell seedlings and provide training, technical assistance for follow-up and information on financing.

Frutika pays cash for the products that small-scale farmers send to the factory. The company's estimated annual yield is 13,000 tons of grapefruit, 12,000 tons of oranges and 500 tons of passion fruit from the joint efforts with small-scale farmers' organizations. Furthermore, it is hoped that this important initiative to include organized small-

[5] See [online] http://www.trociuk.com.py/.
[6] See [online] http://www.frutika.com.py/index2.html.

scale farmers in the company's value chain will be maintained or scaled up over time.

It is a challenge to analyse the current situation of these companies and some new cases to identify lessons learned and design programmes for the creation of shared value between companies and small-scale farmers —in order to increase shared competitiveness in rural territories.

F. Conclusion: Paraguay in 2030 and JICA cooperation activities for dynamic and inclusive development

This chapter presents the Paraguayan context in 2000, the summary of the EDEP proposal and cooperation activities carried out by JICA following the EDEP —including a study of five projects, initiatives for transforming the JICA cooperation policy between the EDEP and the EDRIPP, and the introduction of the JICA Assistance programme for the self-management of small-scale farmers.

This confirmed the various forms of JICA assistance between 2000 and 2011 in various sectors to implement the EDEP proposal, in the form of 30 technical cooperation projects, seven visits by individual experts, four technical cooperation projects run by the JICA Partnership Programme (JPP), two technical cooperation for development planning activities, one grant aid project and two Japanese ODA loans.

Studying the five projects also confirmed the need to find a new approach for JICA cooperation to achieve a political and institutional capacity, intersectoral linkages and a new strategic alliance with the private sector. It is hoped that the new development approach will achieve dynamic and inclusive development for the target population, thereby increasing awareness of the importance of self-management.

With this in mind, the sustainable development of rural territories, including the EDRIPP proposal, was presented and analysed as a landing approach. As part of the implementation of the EDRIPP

proposal, the JICA Assistance programme for the self-management of small-scale farmers was explained with emphasis placed on the following two pillars: strengthening the territorial management system as a new development platform for rural territories, and strengthening of value chains through strategic partnerships with the private sector.

The new concept of "creating shared value" was presented as a proposal for generating strategic partnerships with the private sector. As a result, this chapter has recognized the efforts made by the Paraguayan Government and JICA. The chapter has also highlighted the major challenges of ongoing work to strengthen the territorial management system and value chains with the private sector.

Although these challenges may be complex and difficult to overcome, they are essential for achieving dynamic and inclusive development, so as to narrow the gap between socio-economic strata in the rural territories of Paraguay.

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Study on inclusive development in Paraguay

Internatinal cooperation experiences

This co-publication by the Economic Commission for Latin America and the Caribbean (ECLAC) and the Japan International Cooperation Agency (JICA) contains examples of and reflections on the technical assistance and international cooperation work undertaken by JICA, in conjunction with Paraguayan companies and public- and private-sector institutions, in recent decades in Paraguay, contributing to major advances in the country's development.

The involvement of JICA in Paraguay goes far beyond simply executing cooperation projects. The Japanese agency has been an active participant in the debate on the nation's economic development strategy based on strengthening production capacity with social inclusion, especially in the agricultural exports sectors.

ECLAC frames the experience of JICA in Paraguay in the Latin American context, incorporating it into the regional debate on long-term strategies for inclusive and sustainable development. The case study presented in this volume provides answers to a central question that ECLAC has been asking in various international forums: how can structural change for equality be promoted in Latin America and the Caribbean?

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