

## **2.2 INDUSTRIAL DEVELOPMENT CONCEPT**

### **2.2.1 Overview**

In recent years, Paraguay's economy has become increasingly dependent on its comparative advantage, agriculture. The share of industrial production in GDP has been declining, partly due to increased competition from MERCOSUR partners as the markets become integrated. If the process continues, Paraguay will, unfortunately, become increasingly dependent on a small number of unprocessed agricultural products. Combined with relatively high population growth, this could easily lead to a declining per capita GDP. Our development concept is designed to use Paraguay's comparative advantage to prevent this scenario from playing out. The first objective is to foster a transition from raw agricultural production to production of export-quality processed agricultural goods. Thus, the cornerstone of our strategy is to create a competitive agro-processing industry. Achieving this would turn the threat of MECOSUR integration into an opportunity. Neighboring countries would be seen not as threats *to* domestic industry, but as potential markets *for* domestic industries. The second concept that we stress is to actively seek foreign direct investment. The benefits of FDI range from the immediate impacts on employment and tax revenue, to the longer-term benefits of technology transfer. These two concepts are further outlined below.

#### **(1) Agro-processing**

##### **1) Pursuing value-added**

As Paraguay has high productivity in certain agricultural crops, agricultural processing represents a natural frontier to aim for. With proper investment and support, the comparative advantage in agricultural products can be turned into a comparative advantage in processed agricultural products. From the beginning, an export emphasis should be pursued in order to compensate for the limited domestic market and to take advantage of scale economies.

Determining which products to focus on depends upon the potential marketability of the products – this is the first step. Differentiation is the second step, connecting the consumers' preference in the market with the merits of the Paraguayan products. The third step is to organize the production system from the raw material to the final product along the production chain. This strategy is called the "cluster development strategy." The strategy is explained in Volume 5.

## **2) Improvement of quality and productivity**

Rationalization of the existing manufacturing industries is needed to reduce costs and optimize production methods by using machinery and equipment more efficiently. Efforts to expand quality control systems at the place of production are necessary. Consultation services, to assist with implementing the above, are available through CEDIAL, CEPAE, and other institutions.

The government should support and strengthen such activities and enterprises that innovate, to improve the productivity and quality, and to export. In this context, it is important to confirm their intention and preparedness with the apparent efforts that are already done in the enterprises.

## **3) Group activities in cluster development**

Fully 98% of Paraguayan manufacturing enterprises are small and medium-scale enterprises. However, specialization is not developed. Each enterprise prefers to integrate all production processes within it. To achieve an efficient and competitive industry, firms must specialize by concentrating on a specific technology. Strengthened linkages between enterprise would help induce specialization. If the level of technology and the quality of products and services are not sufficient, such linkages and divisions of labor do not happen. This condition describes the current stage of Paraguayan industry. In addition, it costs too much for small and medium companies to get market information and technology by themselves.

It is therefore proposed that the existing associations and newly created organizations in the cluster strategies facilitate cooperation among companies within the same and different fields. The areas of group activities are to obtain market and technological information that is difficult for individual enterprises to collect on their own, and to improve the quality and competitiveness of the group. If the groups already exist in various business fields, the first step is to investigate their present situation and to strengthen their activities. Some examples of joint activity are as follows:

- a) Participation in exhibitions and obtaining market information,
- b) Access and dissemination of technological information,
- c) Introduction and diffusion of quality control,
- d) Holding seminars and workshops, and
- e) Preparation of basic data concerning production and marketing.

In addition to the above activities, it is recommended to create some programs for export promotion in cooperation with organizations such as PROPARAGUAY and CEPAE when local business groups become more cohesive.

#### **4) Strengthening of export promotion activities**

The major activities of export promotion are market research and commercialization. There are already several efforts by PROPARAGUAY in this field, with some successful cases. Learning from these experiences, it is recommended to create an integrated program for potential exporters especially for small and medium enterprises. Other reference is given from the similar programs of other MERCOSUR countries such as PEE (Programa Especial de Exportaciones) of APEX (Agência de Promoção de Exportações) in Brazil and Entrepec in Uruguay. The program should be connected with strategic activities of clusters defined in this Study.

#### **5) Importance of supporting industry**

A large amount of machinery and equipment is used in agricultural production and processing. As these activities expand, the demand for maintenance services and upgrading of machinery and equipment is increasing. At the same time, there is a chronic shortage of local engineers and technicians. As most of the machinery is imported, maintenance and repair is even more complicated. Actually, when problems do occur, experts must often be brought in from Brazil. Another obstacle is the underdeveloped state of metalworking as a supporting industry. Consolidation of this sub-sector will help strengthen Paraguay's main productive sectors of agriculture and the export industry.

#### **(2) Foreign direct investment**

Although we place emphasis on the creating an agro-processing industry, foreign investment can be an alternative, and complementary, driving force of industrialization. Here we discuss its potential.

##### **a) Maquiladora industry**

At present, there is a discussion on the introduction of Maquiladora system, and on the probable foreign investment in the area of assembly industry. The Maquiladora Law was passed in 1997, and its regulations were implemented in July 2000. The concept of Maquiladora is based on the international subcontract, and the Maquiladora industry is explained as a cost center of production and can enjoy various tax incentives. Basically, the product of Maquiladora is to be exported outside and inside of MERCOSUR. More possibility of investment will be seen in those that export to the MERCOSUR market. In this case, the products from Maquiladora need to attain the regional content requirement in order to be exempted from the import tariff of the destination

country. However, even if this requirement is fulfilled, there is still remaining a problem of whether the destination country approves the product as a MERCOSUR product or not. Thus, the Maquiladora system still has some sensitive issues to be settled before its full implementation and promotion.

#### **b) Possibility of assembly industry in border areas**

One of the other possibilities might be the industrialization of border areas with foreign investment. In these areas, especially in Ciudad del Este, there is an urgent need to absorb the labor force because of its economic decline after the devaluation of the Brazilian real. In addition, the Brazilian government feels the necessity to buy more goods and services from Paraguay because of an increasing imbalance of trade between Paraguay and Brazil. Furthermore, the Brazilian manufacturing industry, the automobile industry, for example, is becoming more decentralized. They may have an interest to invest in Paraguay to manufacture auto-parts if the conditions are appropriate. The government of Paraguay approved a preferential decree for automobile and auto-parts industry in 1998. There are some discussions and studies on this possibility. This new possibility of industrialization may be accompanied with the increased international economic exchange especially in border areas in the form of subcontracting and supply of parts and components. There is an industrial park project for assembly industries in Hernandarias promoted by a joint venture between local and Brazilian capital. This movement of industrialization involving foreign capital is expected to absorb the inexperienced labor force in the border area.

According to the interview of the Study Team with the FIESP (Federação das Indústrias do Estado de São Paulo), one of the potential sub-sectors would be the metalworking, which developed during the time of the Itaipú dam construction. Most probable areas of Brazilian investment would be agro-business and its related machinery industry, because agriculture is the major industry of Alto Paraná department and the Paraná State. In order to take advantage of this possibility of Brazilian investment in auto-parts industry or metalworking, it is worth while to develop the metalworking cluster, which is discussed in Volume 5, to link their businesses with the probable new investments.

## **2.3 INDUSTRIAL DEVELOPMENT STRATEGY**

Of the above approaches to industrial development, one exploiting Paraguay's comparative advantage in resources and one centered on foreign investment. Foreign investment in Paraguay has been focused in the area of grain trading, commerce and services in recent years, with little investment in the manufacturing industry. The basic condition to promote investment is political stability and consistent economic policy. Moreover, the reasons for not realizing the licensed projects are reportedly tedious procedures. Taking these conditions, and political instability, into account, we place more emphasis on the former strategy - to strengthen competitiveness by making effective use of comparative advantage.

In this regard, we propose the following four components to promote the development strategy intended to strengthen competitiveness:

- (1) Generation of value-added, starting with agro-industry
- (2) Improvement of quality and productivity
- (3) Strengthening marketing activities
- (4) Investment promotion

In addition to the above, we add two basic and supporting duties for the public sector:

- a) Collection and distribution of industrial statistics, and
- b) Establishing consultation desks

### **2.3.1 Strategy to strengthen the competitiveness of Paraguayan products**

#### **(1) Value-added in agro-processing**

As Paraguay has high productivity in agriculture, agro-processing represents a natural frontier to move into. Paraguay's comparative advantage in agricultural products can act as a ladder to increase the competitiveness of processed agricultural products, creating a synergy effect whereby agricultural production will be stabilized and competitiveness enhanced.<sup>43</sup> Exports should be emphasized from the beginning to compensate for the limited domestic market and to pursue economies of scale.

In order to make the synergy effect work, and increase the added value of Paraguayan products, it is important to examine the marketability of potential products. Differentiation is the second step, connecting the consumers' preference with the merits of Paraguayan products. The third step is to

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<sup>43</sup> "Paraguay : Construyendo las Ventajas Competitivas", Klaus Esser, 1998

organize the production system, from raw material to final product, along a production chain. This is the “cluster development strategy” - some cases are shown later in this study.

The strategic clusters that were chosen in this study are:

- a) Mixed feed cluster
- b) Vegetable cluster
- c) Fruit cluster
- d) Cotton cluster
- e) Wood cluster
- f) Metalworking cluster

## **(2) Improvement of quality and productivity**

As tariff barriers are disappearing with economic globalization, domestic products face more competition from imports. For producers, the Paraguayan domestic market is often not big enough to efficiently make use of economies of scale in production, reinforcing the importance of looking toward the external market. Global standards of quality and productivity are required to survive in the globalized economy. Several efforts have already been made to tackle this, however, further advancement is necessary.

### **1) Industrial standardization**

The National Institute of Technology and Standardization (INTN) is promoting national industrial standards. As globalization evolves, it is necessary to elaborate and revise the technical standards to maintain consistency with MERCOSUR and international standards. To do that, it is important to exchange information and opinions with private enterprises and trade associations. Strengthening the activities of INTN on standardization is recommended.

It is also important to diffuse standardization and quality control through seminars and conferences - providing technical information on international standards, and the standards of export market countries. As a national center of technology, the INTN is also expected to provide testing and inspection services and to issue official quality certificates of products and services. The INTN must get accreditation as a certification body, and certify ISO 9000, global quality control standards, in the country.

## **2) Diffusion of quality control**

At present, few quality control measures are implemented at manufacturing plants in Paraguay. Many plants are unable to conduct line inspections in the intermediate process, or final product inspections, resulting in a rudimentary state of quality control.

The Paraguayan Quality Association (APC) is a private non-profit organization engaged in the diffusion of total quality management in enterprises, through seminars, conferences, training programs and technical assistance. All of these activities should be strengthened to promote the practice of quality control in Paraguay. In addition, the Quality Award System (National Quality Award and Excellent Management: Decree No. 5725) was put into practice in October 1999 when the National Quality Policy (Decree No. 5726) was approved. The government should support and allocate resources for these promotional activities, through not only public institutions but also non-profit organizations such as the APC.

One of the most assured ways of raising the credibility of Paraguayan products in overseas market is to obtain ISO 9000. At present, only 12 companies in the financial, electromagnetic, food processing and other sectors have obtained ISO 9000 in Paraguay. It is, therefore, strongly recommended that Paraguayan companies make active efforts to obtain ISO 9000 status. In neighboring Uruguay, the Chamber of Industries has been providing technical assistance for the introduction of the ISO 9000 system since 1996. The number of companies having obtained ISO 9000 has increased from 7 in 1997, to 30 in 1998, and 99 in 1999. A similar assistance program, including technical guidance and funding to cover the cost of obtaining ISO 9000, should be formulated and implemented in Paraguay.

## **3) Quality and productivity program**

According to the newly approved National Quality Policy, the Quality and Productivity Program of Paraguay (PPCP) will be formulated in the near future. In Brazil, the Quality and Productivity Program (PBQP) has been implemented to strengthen the competitiveness of industry. At present, JICA is assisting one of the institutes created for this purpose in Curitiba, providing technical assistance in transfer of quality and productivity techniques and formation of in-house activities of productivity improvement. Also in Paraguay, cooperation from an early stage of formulating the PPCP and designing the future cooperation projects in this field is recommended.

A center for quality and productivity could assume the following functions:

- a) Training of instructors concerning productivity activities,

- b) Diffusion of techniques to improve productivity through seminars and consulting activities,
- c) Diffusion of quality control for SMEs, and
- d) Upgrading quality and productivity in the furniture and textile industries.

It is proposed to set up the center in the CEPAE and to get Japanese technical cooperation, including experts in this field. Collaboration with APC and CEDIAL in related activities is possible.

#### **4) Technology information system**

In order to improve quality and productivity, it is sometimes necessary to renew machinery or invest in a new production system. In Paraguay, renewal of production facilities has been retarded since the mid-1990s due to economic stagnation and the financial crisis. Therefore, there is a certain demand for reinvestment in the business circle. However, access to the latest information of relevant and appropriate technology is a problem for most of the small and medium enterprises, especially those operating in the countryside. In these cases, easy access to technology is important for the enterprises to tackle the problems.

To facilitate SMEs access to technological information, public or private information desks of ORMIC (regional office of MIC), Department offices, private institutions, or the internet should be used. Establishing a technology information system that covers the entire country is recommended.

#### **(3) Strengthening of marketing activities**

In order to seek and sell in new markets, the following activities can be recommended.

##### **1) Market surveys**

Continually gather overseas market information for distribution to businesses. To raise cost-effectiveness, information should be gathered in collaboration with overseas public organizations, such as JETRO in Japan. A focus on promising specific markets, and item by item market research will be needed to fully understand new markets.

##### **2) Product development**

Draw up not only hygiene standards, but also quality standards (for example, the U.S. Ministry of Agriculture's Meat Purchasing Specification Standard for beef), creating an official ranking of



product quality of the relevant industry as a whole. In addition, re-examine the costs of packaging material, and offer incentives to increase design potential.

### **3) Sales promotion**

Create an industry board, a cohesive organization for the promotion of exports in target countries.

### **4) Distribution**

In addition to the maintenance of infrastructure, establish a joint project between the government and industrial groups to increase the efficiency of distribution. This joint project will investigate schemes to improve delivery efficiency, such as the modularization of units and containers, and the efficient use of returning trucks. Implement the schemes gradually.

To support and promote such marketing activities by the private sector, it is recommended that the Ministry of Industry and Commerce, or PROPARAGUAY, conduct overseas market surveys of principal products of selected clusters - that may include both traditional and non-traditional products. These should be accessible in any department of the country through the regional offices of the MIC or through the department offices.

More fundamentally, many Paraguayan entrepreneurs, especially small and medium-sized producers in the country, still do not pay much attention to market demand. By not considering customer preferences, they are losing domestic and foreign clients. They must change their mentality and modify their products according to market demand. A campaign and marketing guidance for entrepreneurs in local areas by the department offices, with the collaboration of regional offices of the MIC, is recommended.

### **(4) Investment promotion**

To attain quality and productivity that meets global standards, production facilities must be updated and new technology introduced. However, the level of Paraguayan domestic investment was stagnant during the 90s partly because of poor financial sector and overall economic conditions. Furthermore, in spite of the preferential law of investment, and incentives to import raw materials and intermediate goods, the level of investment, foreign or domestic, has not risen. In addition, information regarding such incentives has not been widely dispersed, especially among small and medium enterprises.

The Industrial Development Fund (FDI) was founded in 1994, however, the access to soft and long-term loans has been limited. Along with the strengthening of the financial sector, propaganda

and efforts to spread information would help promote the use of incentives for investment. It will make the procedures and the bureaucracy more rapid and transparent.

In the longer run, it is needed to expand long-term low interest rate loans to meet the demand for renovation and re-conversion of technology in industries. However, it takes a while to introduce a new credit line for industrial modernization, since the public financial system should be reformed and the upgrading of evaluation capacity of the commercial banks is indispensable.

## **(5) Industrial statistics**

To date there has never been a positive industrial development policy. Most existing industry was spontaneously generated. Consequently the relation between the government and the private sector is weak and even basic information on current conditions, such as production, shipment and inventories, are not available. However, in this era, modernization of the administrative and technological infrastructure of the nation is needed. Basic statistical data are indispensable to formulate appropriate policies and programs to strengthen the competitiveness of industry, as well as formulate macroeconomic and financial policies. They are also used to examine alternative measures and evaluate the effects of measures and programs. Basic economic data are now managed by the Central Bank. Industrial statistics should be consistent with this system.

It is strongly recommended that the MIC develop and establish a system of industrial statistics that grasps the structure and current conditions of industrial production, as well as to develop various indicators needed for policy making. The regional offices of the Ministry of Industry and Commerce and the departmental government offices, together with the trade associations, are expected to collect raw data from the private sector. In the process of system development, it is necessary to work jointly with the Central Bank and the STP. Data and indicators should be consistent with the MERCOSUR countries, and should be promptly open to the public.

## **(6) Information desks for enterprises**

As mentioned, the relationship between the government and the private sector is not always good in Paraguay. Communication between them is not sufficient, partly because of the lack of effort in the public sector and also because of individualism in the business circle. However, both sides are now facing a severe change in the economic environment, and it is indispensable to communicate fully with each other to become a modern industrial nation.

As mentioned, information on government incentives and regulations, for example, is not well known among entrepreneurs. From the experience of the Study team, there are not many easy to

understand explanatory materials for the small and medium-sized entrepreneurs who have not been highly educated to read the official laws and decrees of the President.

Information and consultation desks - to attend to the needs of private enterprises - are needed in each department. These desks will reduce the complexities of bureaucracy and should be manned by specially trained staff. The functions of the desk will be as follows:

- Provide information on regulations, incentives, and administrative procedures,
- Provide information on technology, industrial standards, quality control, productivity, etc.,
- Provide market information on principal products,
- Attend to inquiries from producers and enterprises of any kind,
- Provide links to relevant institutions / enterprises when problems are beyond their scope.

In order to promote the cluster strategies, a consultation desk is recommended in the locality of each cluster to facilitate the activities of participants and improve the flow of information.

## **2.3.2 Development programs and proposed projects**

### **(1) Investment promotion program**

The Paraguayan government offers credit lines and incentives for investment. However, the information is not always easily available, and the entrepreneurs sometimes do not even know of their existence, especially in remote areas. Propaganda and efforts to spread the information are needed to promote the use of incentives for investment. This will make the procedures and the bureaucracy more rapid and transparent.

In the longer run, expanding long-term low interest rate loans to meet the demand for renovation and re-conversion of technology in industries is needed. Time is needed to introduce a new credit line for industrial modernization, since the public financial system must be reformed, and upgrading the evaluation capacity of commercial banks is needed.

The following projects are proposed to promote domestic investment:

- 1) Promotion of investment incentives
- 2) Two-step loan for renovation and re-conversion of technology

## **1) Promotion of investment incentives**

### **a) Objective**

The objective is to promote the investment of small and medium enterprises and new entrepreneurs by relaying public information concerning investment incentives and application procedures. It also includes the opening of consultation desks for inquiries and applications, including follow-ups.

### **b) Project**

The project contains i) preparation of PR material, ii) training of the personnel in charge, and iii) propaganda by mass media. The MIC and the CEPAE will be the responsible agencies.

## **2) Two-step loan for renovation and re-conversion of technology**

### **a) Objective**

This project aims to upgrade and modernize industries to correspond to market requirements by renewing existing equipment and introducing new technology.

### **b) Project**

The project is to provide a new credit line for long-term investment with a low interest rate. The FDI will be the second-tier bank and the commercial banks will be the lending institutions. It should include strengthening the evaluation capacity of commercial banks. The project should be realized after reform of the institutional finance system that is now underway.

## **(2) Program for upgrading of quality and productivity**

In the age of globalization, especially within MERCOSUR as tariff barriers are disappearing, domestic products must compete more fiercely with imported goods. As the Paraguayan domestic market is not big enough to make full use of scale economies, producers must look to the external market. Thus, it is an urgent task to attain global standards of quality and productivity. Efforts have been made, however, the advances must continue.

The government should support and strengthen activities and enterprises that make efforts to innovate, improve productivity and quality, and export. It is important for the government to support the efforts that have already been made.

The Study team suggests the following projects to be implemented for the upgrading of quality and productivity of Paraguayan industry:

- 1) Project for industrial standardization
- 2) Center for quality and productivity
- 3) Diffusion of quality control
- 4) Technology information system

### **1) Project of industrial standardization**

#### **a) Objective**

The project aims to upgrade the quality of Paraguayan products and to diffuse quality control.

#### **b) Project**

The project consists of the following components:

- Preparation of national industrial standards that conform to the MERCOSUR certification system
- Diffusion of national industrial standards
- Strengthening of the testing and inspection capacity of the INTN

### **2) Center for quality and productivity**

#### **a) Objective**

The target group of the project is small and medium enterprises that intend to upgrade their export quality and productivity.

#### **b) Project**

The project contains the preparation of productivity program, the training of instructors, and the diffusion of productivity upgrading and quality control by seminars and consultation services. It is recommended that CEPAE take the responsibility of this project with the cooperation of INTN, APC and CEDIAL.

### **3) Project for diffusion of quality control**

#### **a) Objective**

The project aims to diffuse quality control to small and medium enterprises

#### **b) Project**

The Paraguayan Quality Association (APC) is operating with limited resources. The project is to strengthen the activities of the APC, including acquisition of ISO 9000.

#### **4) Project of technology information system**

##### **a) Objective**

The project aims to allow individual enterprise to access the technology needed for modernization.

##### **b) Project**

The project consists of two parts: first, the establishment of a technology information system using the latest appropriate technology, and, second, information service and maintenance through Internet and consultation desks.

#### **(3) Programs for cluster development**

The cluster development programs are discussed in a separate volume of this study.

#### **(4) Program for strengthening of marketing**

Market survey and product developments are very important to search and enter new markets. To support and promote such marketing activities by private actors, as a first step, the Ministry of Industry and Commerce or PROPARAGUAY should conduct overseas market surveys of some products of selected clusters that may include both the traditional and non-traditional products. These should be accessible in any department through the regional offices of the MIC, or through the department offices.

The following projects are recommended to support the marketing activities of individual companies:

- 1) Market studies of principal products of selected clusters
- 2) Orientation of entrepreneurs toward marketing

##### **1) Project of market studies of principal products of selected clusters**

##### **a) Objective**

This project aims to provide primary market demand information to exporters and manufacturers to allow them to adapt their products to the market

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##### **b) Project**

The project conducts export market studies of principal products of the selected clusters. It then provides information services on export markets to the relevant agents.

## **2) Project for orientation of entrepreneurs toward marketing**

### **a) Objective**

This project intends to enlighten small and medium entrepreneurs on the importance of marketing and of adapting their products to market.

### **b) Project**

The project consists of campaign and guidance of marketing for small and medium enterprises, especially those located in the country, to make them more oriented toward market demand. CEPAE and the regional offices of the MIC (ORMICs) should take the initiative of this motivation.

## **(5) Program of industrial statistics**

The above four areas of industrial strategy focus mainly on the private sector's efforts to improve their competitiveness. In addition to these, there are two other areas that support the whole effort: the preparation and publication of industrial statistics and the setting up of consultation desks for enterprises. Here we propose an industrial statistics project.

### **1) Project of industrial statistics**

#### **a) Objective**

The project is to prepare industrial statistics to grasp the structure and production of industries. With those basic data, it will be possible to develop indicators that are needed to formulate industrial policies and programs.

#### **b) Project**

The project consists of i) development of a system of production statistics, ii) data collection, and iii) publication.

## **(6) Program of setting consultation desks for enterprises**

Not only for policy-making but also for information service and procedures, the communication between the government and the private sector is indispensable to promote industry. Information, such as government incentives and regulations for industrial operation, are not well known among entrepreneurs. Furthermore, there are not a sufficient amount of explanatory materials that are easy for small and medium-sized entrepreneurs, who are not always highly educated, to understand. It is recommended to create information and consultation desks for any kind of

administrative procedures and inquiries in each department to attend to private enterprises. These desks will reduce the complexities of bureaucracy and should be manned by specially trained staff. In this respect, we propose the following two projects:

- 1) Project of consultation desks in Department offices
- 2) Project of consultation desks for cluster development

### **1) Project of consultation desks in Department offices**

#### **a) Objective**

The objective is to diffuse the information on technology and government incentives over the country, especially to small and medium enterprises. This should be the one-stop office for information and procedure in every Department.

#### **b) Project**

A consultation desk in each Department, to provide information on technology, markets, as well as government incentives for enterprises, is proposed. The consultation desk should attend to inquiries from enterprises and channel them to relevant offices and institutions.

### **2) Project of consultation desks for cluster development**

#### **a) Objective**

The project aims to facilitate implementation of the cluster development strategies.

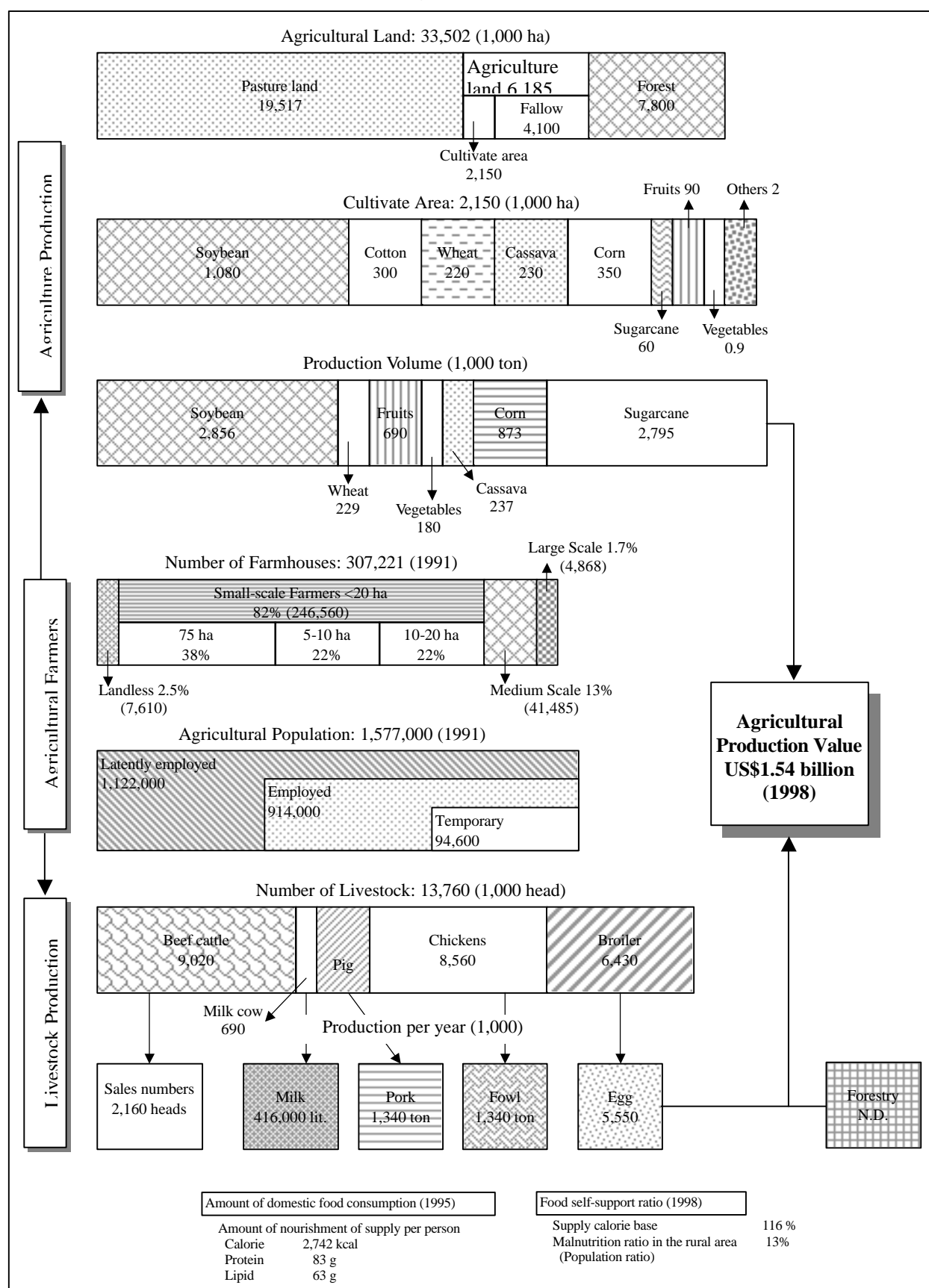
#### **b) Project**

The project is to open consultation desks for the selected clusters to provide any kind of information that relates to the specific cluster and to link the producers or manufacturers with appropriate organizations to implement the cluster program.



## **APPENDIX**

## A-1 Basic structure of agricultural sector



Source:: Prepared, based on Direccion de Censos y Estadisticas Agropecuarias, MAG, 1991, 1995, 1998

**A-2 RCA Index for 10 typical export commodities of Paraguay and other MERCOSUR countries**

Table A-2(1) RCA Index: Soybean

	1985/90	1991	1993	1994	1995	1996
Paraguay	1.90	1.25	1.67	1.76	1.83	1.75
Uruguay	0.04	0.02	0.30	0.08	0.00	0.00
Argentina	0.21	0.33	0.73	0.78	0.59	0.55
Brazil	0.09	0.16	1.29	1.36	1.13	1.17

Table A-2 (2) RCA Index: Cotton

	1985/90	1991	1993	1994	1995	1996
Paraguay	1.49	1.92	0.96	0.70	0.98	0.83
Uruguay	0.00	0.00	0.01	0.00	0.03	0.00
Argentina	0.04	0.08	0.04	0.16	0.30	0.51
Brazil	0.02	0.03	0.01	0.00	0.00	0.00

Table A-2(3) RCA Index: Soyoil

	1985/90	1991	1993	1994	1995	1996
Paraguay	0.22	0.36	0.64	0.96	0.60	0.81
Uruguay	0.01	0.01	0.00	0.00	0.00	0.00
Argentina	0.74	0.88	2.96	2.27	1.82	2.03
Brazil	0.17	0.20	1.65	2.17	2.89	2.55

Table A-2(4) RCA Index: Soybean Meal

	1985/90	1991	1993	1994	1995	1996
Paraguay	0.19	0.29	0.44	0.23	0.39	0.64
Uruguay	0.01	0.01	0.00	0.00	0.00	0.00
Argentina	0.53	0.63	2.06	1.83	1.59	1.97
Brazil	0.32	0.34	3.00	2.73	3.73	4.10

Table A-2(5) RCA Index: Meat

	1985/90	1991	1993	1994	1995	1996
Paraguay	nd	nd	0.20	0.23	0.21	0.20
Uruguay	0.80	0.53	10.36	10.66	9.82	11.37
Argentina	0.27	0.23	0.12	0.02	0.33	0.33
Brazil	0.06	0.06	0.19	0.12	0.08	0.11

Table A-2(6) RCA Index: Sunflower Meal

	1985/90	1991	1993	1994	1995	1996
Paraguay	0.00	0.00	0.13	0.09	0.12	0.27
Uruguay	0.00	0.00	0.00	0.00	0.00	0.00
Argentina	1.91	1.84	5.20	4.65	4.65	5.19
Brazil	0.00	0.00	0.00	0.00	0.00	0.00

Table A-2(7) RCA Index: Sunflower Oil

	1985/90	1991	1993	1994	1995	1996
Paraguay	0.00	0.00	0.00	0.12	0.13	0.09
Uruguay	0.00	0.00	0.04	0.01	0.01	0.01
Argentina	1.36	1.31	3.13	3.08	3.23	3.63
Brazil	0.00	0.00	0.00	0.00	0.00	0.00

Table A-2(8) RCA Index: Tomato

	1985/90	1991	1993	1994	1995	1996
Paraguay	0.10	0.16	0.04	0.04	0.01	0.05
Uruguay	0.00	0.00	0.03	0.00	0.00	0.00
Argentina	0.00	0.00	0.00	0.00	0.00	0.00
Brazil	0.00	0.00	0.05	0.00	0.01	0.04

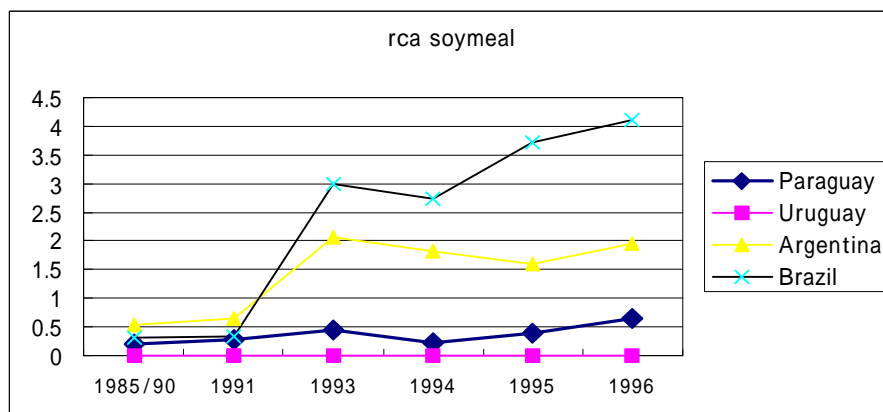
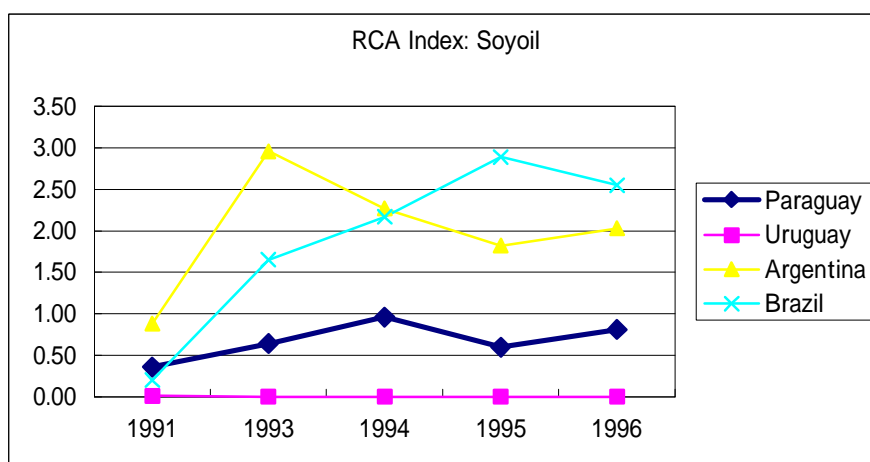
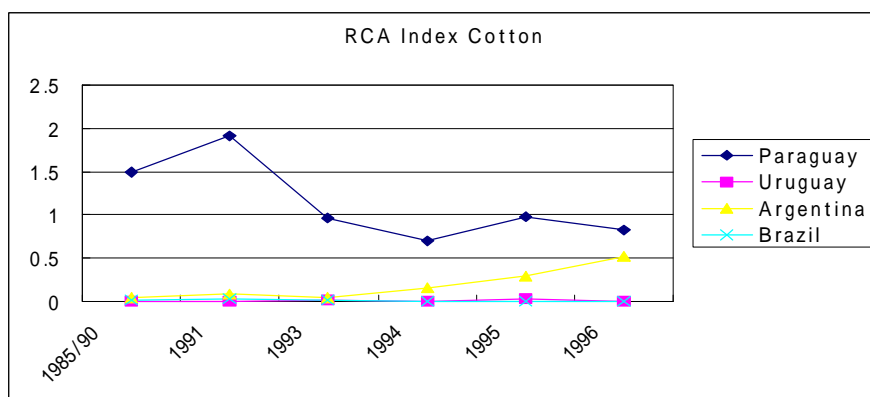
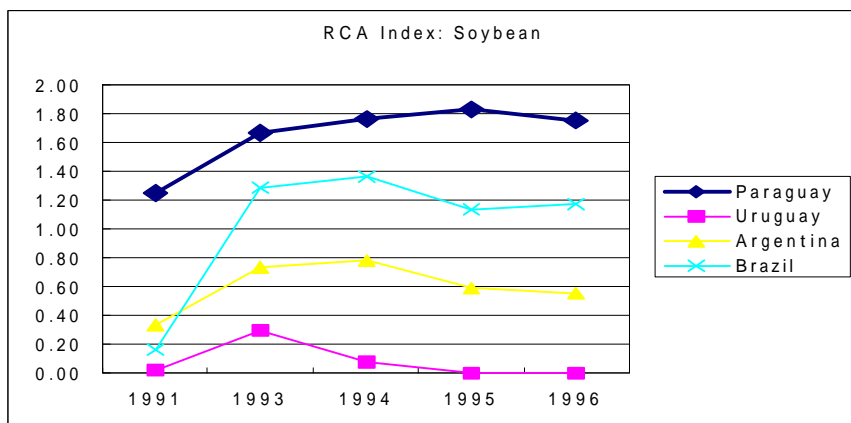
Table A-2(9 ) RCA Index: Sunflower

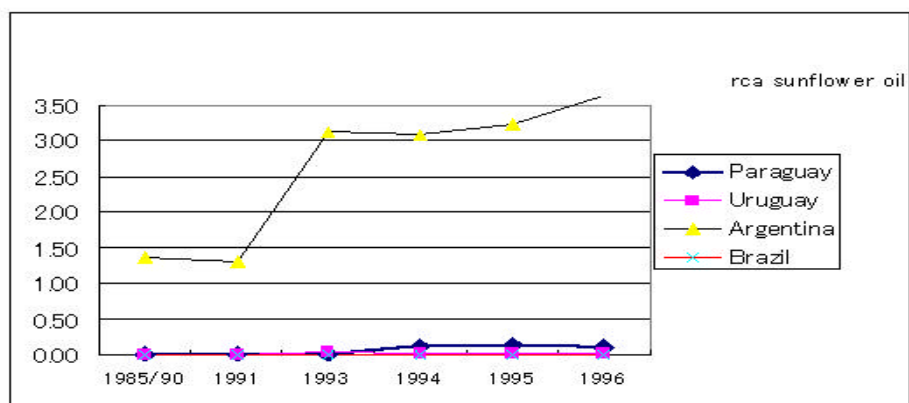
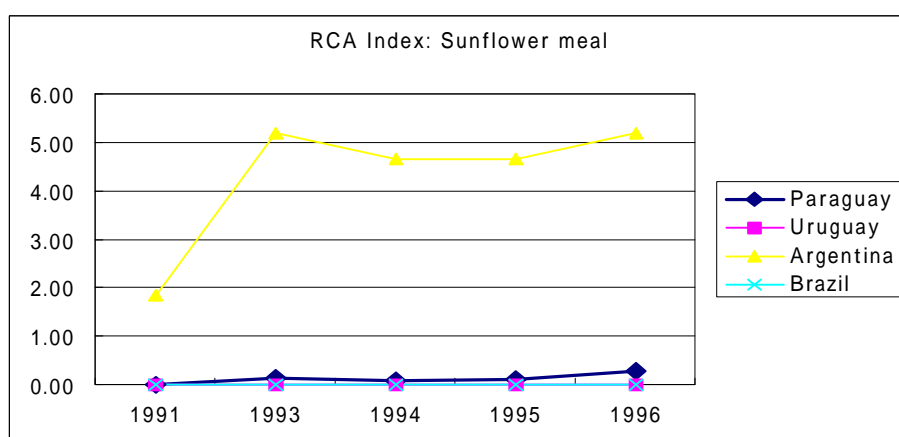
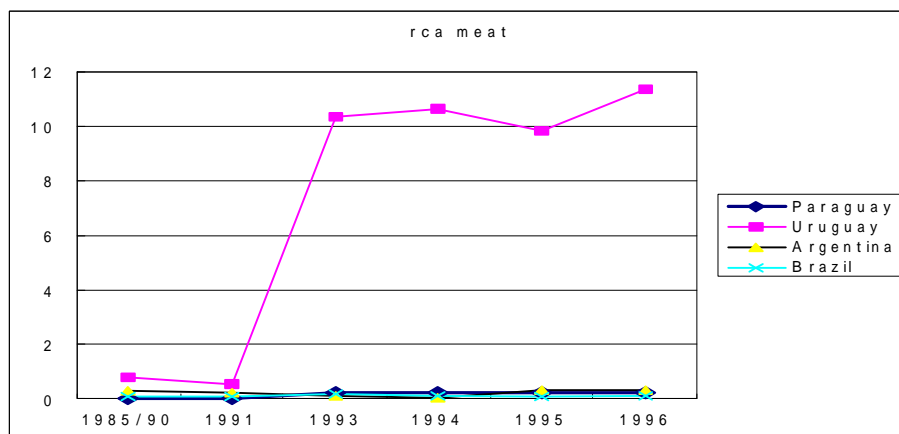
	1985/90	1991	1993	1994	1995	1996
Paraguay	0.00	0.00	0.00	0.00	0.00	0.00
Uruguay	0.00	0.00	0.00	2.57	6.93	4.37
Argentina	0.48	0.46	0.75	1.63	1.86	1.21
Brazil	0.00	0.00	0.00	0.00	0.00	0.00

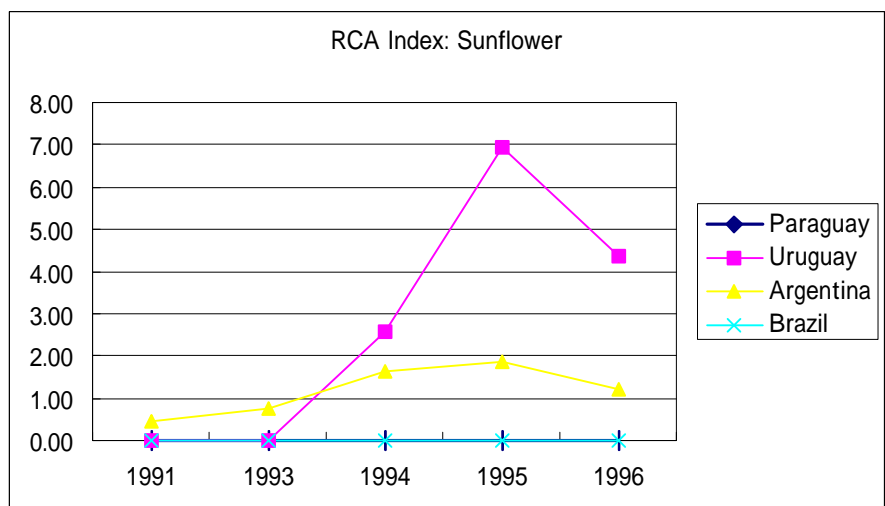
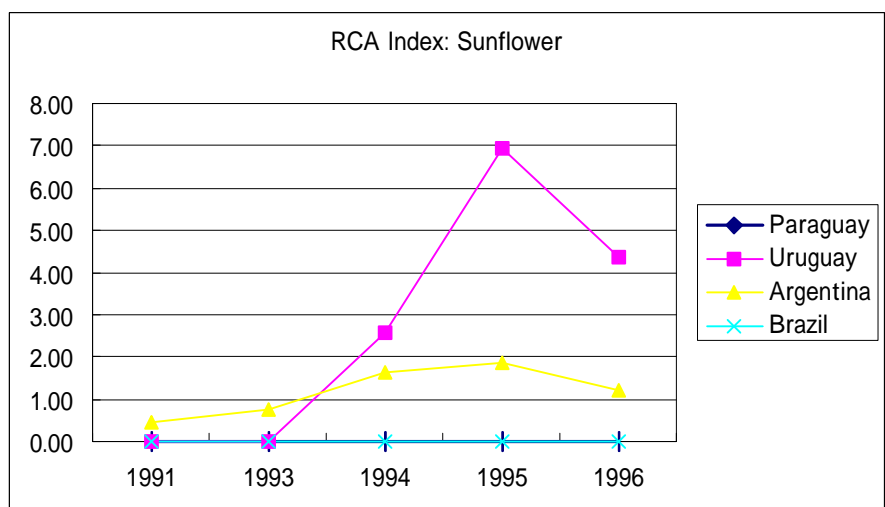
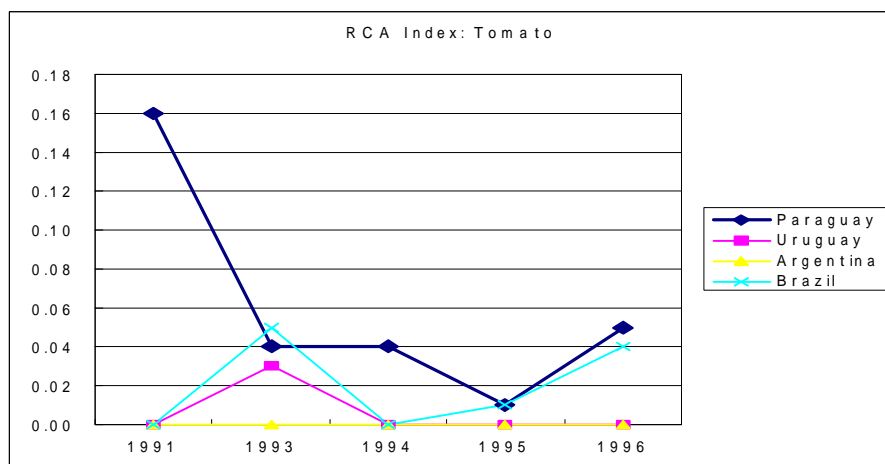
Table A-2+ (10) RCA Index: Poultry

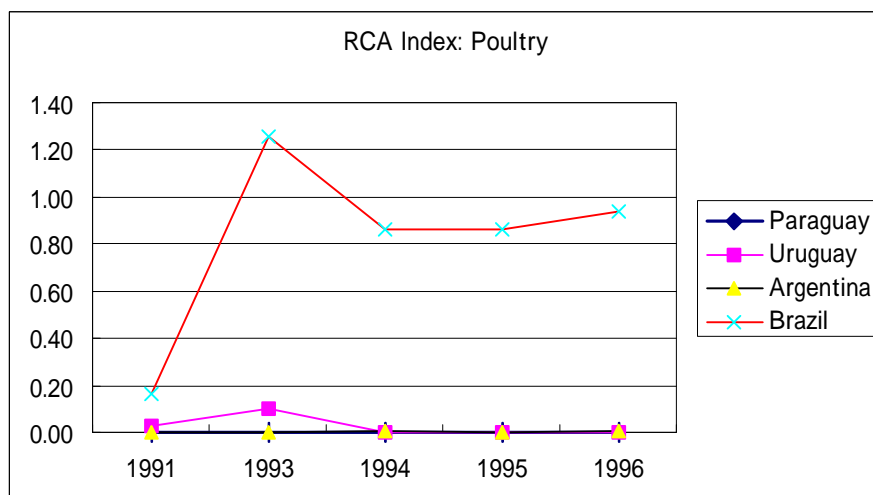
	1985/90	1991	1993	1994	1995	1996
Paraguay	0.00	0.00	0.00	0.00	0.00	0.00
Uruguay	0.02	0.03	0.10	0.00	0.00	0.00
Argentina	0.00	0.00	0.00	0.01	0.00	0.01
Brazil	0.10	0.16	1.26	0.86	0.86	0.94

Note: RCA (Revealed Competitive Advantage) indices are estimated based on volume. Sources: Estimated based on FAO Trade Yearbook, Several issues. Those of both 1985/90 and 1991 data are borrowed from: Informe Sobre Competitividad Agroindustrial En El MERCOSUR, 1998











### A-3 Intra-Industry trade (Balassa Index) of selected products

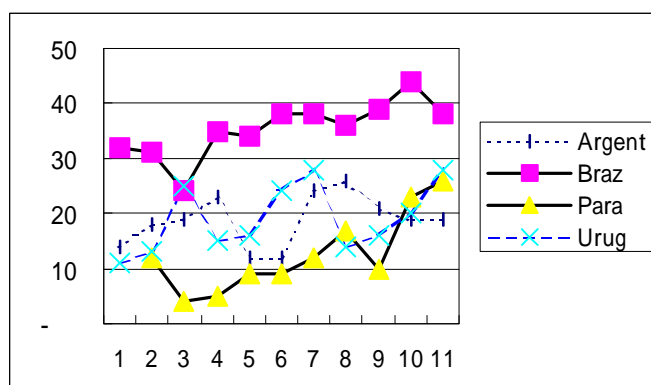
Country	Product/Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
PARAGUAY	soybean	-	4	2	8	2	1	-	-	-	2	
	cotton	19	9	7	6	2	2	7	14	7	9	
	coffee	-	-	11	17	-	16	38	-	63	55	
	tobacco	10	4	1	3	28	26	25	18	6	6	
	yerba mate	17	3	8	21	-	-	6	-	59	80	
	meat	32	9	7	5	30	42	39	32	22	27	
	hides	4	2	2	6	-	-	1	4	2	1	
Argentina	soybean	0	0	0	2	1	0	0	0	0	0	
	cotton	-	-	-	-	-	0	86	87	45	26	33
	coffee	-	-	-	1	1	-	-	-	-	-	
	tobacco	2	5	3	3	6	9	7	22	17	30	27
	yerba mate	-	27	52	86	15	2	3	1	3	2	3
	meat	99	95	78	71	58	73	70	71	77	76	63
	hides	-	1	-	-	-	-	1	1	2	1	6
BRAZIL	soybean	53	29	13	3	1	25	23	6	25	39	38
	cotton	-	-	-	67	62	62	74	53	62	70	45
	coffee	-	-	-	-	-	-	-	-	-	-	-
	tobacco	1	-	-	2	1	6	8	7	7	9	8
	yerba mate	-	-	-	-	-	1	7	15	18	42	42
	meat	93	95	90	87	95	97	92	99	100	96	98
	hides	74	95	65	86	79	76	60	69	60	49	38
URUGUAY	soybean	7	15	74	34	37	70	78	-	17	-	-
	cotton	-	-	-	-	-	-	-	35	18	37	33
	coffee	-	-	-	-	-	-	-	-	-	-	-
	tobacco	24	14	45	23	22	31	0	9	18	47	93
	yerba mate	-	-	1	-	-	-	3	2	2	3	3
	meat	24	21	25	27	22	20	23	16	17	21	24
	hides	21	39	30	19	31	44	43	39	37	34	42

Notes: Those cells typed with "-" are non-zero but very close to zero value.

Those cells typed with "0" are zero value.

Sources: Estimated Based on The DATAINTAL Database from the IADB;

OCIT Data Compiled from Customs (Paraguay)



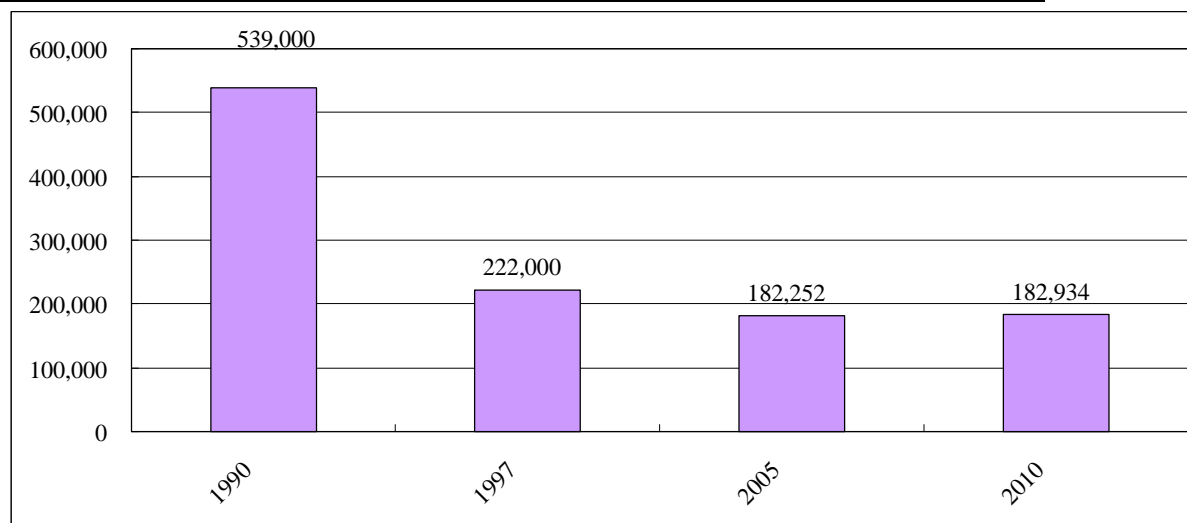
## A-4 Estimated production volume of major agricultural and livestock products

**Table A-4 Estimated production volume of major agricultural and livestock products**

### (1) Cotton

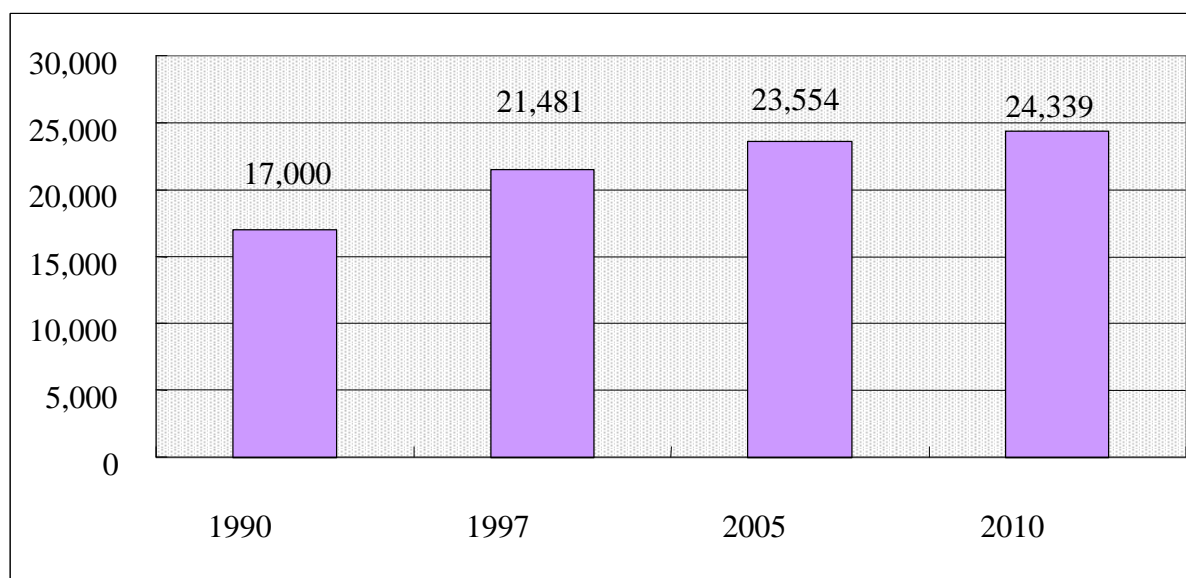
(ton)

	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.												
Consepción		33,551	29,558	23,813	13,332	6,979	12,750	9,315	7,319	6,508	0.7857	0.8892
San Pedro		62,250	48,562	65,618	49,018	24,586	51,281	40,424	37,412	36,096	0.9255	0.9648
Coordillera		3,477	5,451	7,237	1,832	718	1,650	981	724	617	0.7383	0.8526
Guairá		35,955	10,637	15,673	10,662	5,305	7,520	4,267	3,187	2,720	0.7469	0.8536
Caaguazú		112,136	74,578	98,195	61,726	25,288	41,429	45,004	37,281	34,416	0.8284	0.9231
Caazapá		35,496	27,739	30,556	37,056	15,806	20,655	13,742	11,872	10,853	0.8639	0.9142
Itapúa		36,492	39,190	80,902	67,418	26,586	33,760	23,660	21,477	20,010	0.9077	0.9317
Misiones		2,363	11,894	15,232	6,874	2,168	5,200	5,139	4,910	4,809	0.9555	0.9794
Paraguarí		12,601	13,640	22,891	12,947	6,075	16,600	9,095	8,495	8,116	0.9340	0.9554
Alto Paraná		36,665	61,134	43,913	31,413	5,672	9,500	26,622	20,934	19,552	0.7863	0.9340
Central		2,190	2,660	4,559	275	199	570	850	615	550	0.7238	0.8946
Ñeembucú		5,051	7,061	5,294	5,925	3,297	3,000	4,773	4,388	4,275	0.9193	0.9743
Amambay		5,098	4,560	5,983	4,940	863	2,500	1,200	919	789	0.7656	0.8589
Canindeyú		25,687	30,973	31,650	16,983	5,751	8,885	8,513	6,509	5,720	0.7646	0.8788
REGION OCCID.												
Pte. Hayes		4,620	1,840	2,388	2,271	2,344	1,049	942	763	675	0.8096	0.8849
Alto Paraguay		1	1	70	30	112	2,002	2,673	10,896	22,916	4.0765	2.1031
Boqueron		7,140	10,400	7,265	7,049	7,347	3,649	5,084	4,551	4,310	0.8951	0.9470
Total	539,000	420,773	379,878	461,239	329,751	139,096	222,000	202,284	182,252	182,934		



**(2) Sorghum****(ton)**

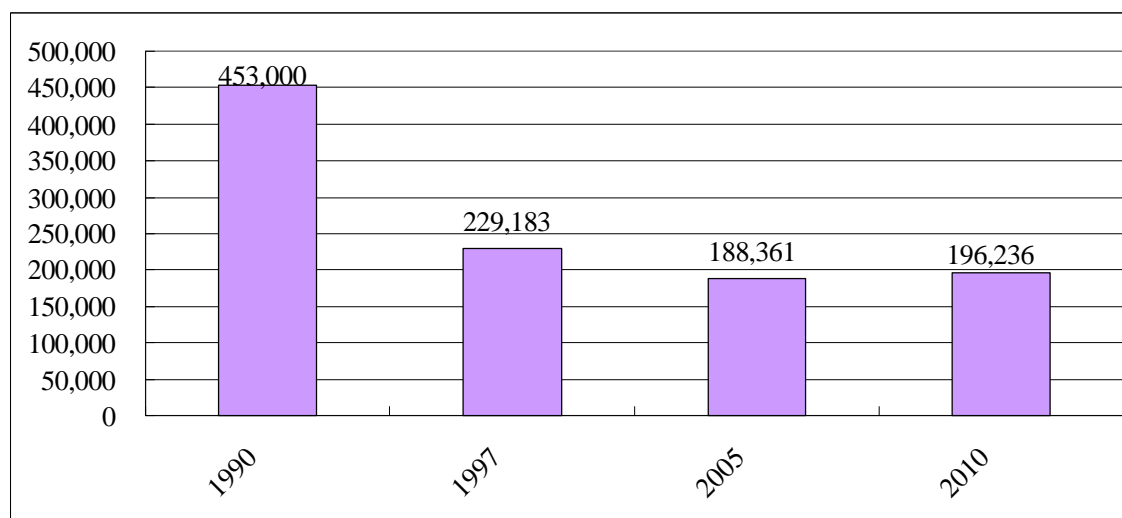
	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.												
Consepción		10	13	13	19	19	14	14	15	15	1.0564	1.0162
San Pedro		329	383	441	464	483	494	684	756	804	1.1050	1.0642
Coordillera		126	135	155	153	152	119	99	96	92	0.9651	0.9671
Guairá		1	5	3	7	6	6	7	9	10	1.2792	1.1225
Caaguazú		141	179	206	213	221	277	273	303	320	1.1101	1.0542
Caazapá		5	6	4	6	6	6	108	152	206	1.4102	1.3545
Itapúa		2,990	3,039	3,534	3,633	3,643	4,569	4,575	4,935	5,141	1.0787	1.0418
Misiones		55	71	79	85	86	79	85	90	92	1.0590	1.0267
Paraguarí		80	86	98	100	101	88	100	103	104	1.0270	1.0141
Alto Paraná		95	113	128	146	275	343	323	410	462	1.2684	1.1274
Central		4	3	3	2	2	3	3	3	3	0.9557	0.9913
Ñeembucú		3	7	5	6	5	5	6	6	6	1.0515	1.0281
Amambay		119	114	129	141	144	125	668	812	962	1.2157	1.1845
Canindeyú		365	459	530	555	586	588	2,160	2,669	3,137	1.2359	1.1753
REGION OCCID.												
Pte. Hayes		1,070	1,273	1,478	1,396	1,436	1,522	1,560	1,643	1,686	1.0535	1.0262
Alto Paraguay		210	198	229	201	179	149	156	147	142	0.9409	0.9675
Boqueron		13,320	16,121	18,742	16,189	1,663	13,094	12,688	11,405	11,155	0.8989	0.9780
TOTAL	17,000	18,923	22,205	25,777	23,316	9,007	21,481	23,509	23,554	24,339		



**(3) Wheat**

(ton)

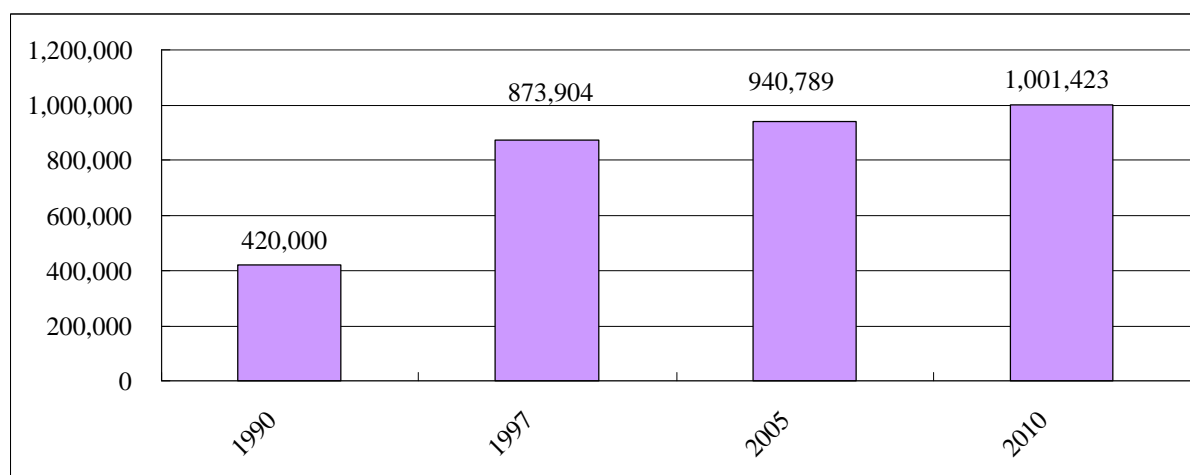
	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT												
Consepción		156	1	1	1	1	1	1	1	0	0.5821	0.7971
San Pedro		22,000	12,448	9,570	2,292	5,400	2,710	2,688	1,886	1,588	0.7015	0.8421
Coordillera		138	1	1	1	1	1	1	1	0	0.5898	0.8015
Guairá		50	1	1	1	1	1	1	1	1	0.6576	0.8389
Caaguazú		14,318	23,332	35,105	31,727	77,083	35,273	32,880	38,075	39,990	1.1580	1.0503
Caazapá		695	2,100	1,800	3,650	4,500	27,000	23,000	41,495	56,855	1.8041	1.3702
Itapúa		150,874	200,739	156,398	59,958	203,355	54,060	42,000	33,661	29,290	0.8014	0.8702
Misiones		1,255	286	358	1,600	1	1	1	0	0	0.2520	0.4865
Paraguarí		685	1	1	1	1	1	1	0	0	0.4968	0.7458
Alto Paraná		103,065	152,245	137,970	93,824	215,052	77,610	57,420	52,219	48,231	0.9094	0.9236
Central		1	1	1	1	1	1	1	1	1	1	1
Ñeembucú		1	1	1	1	1	1	1	1	1	1	1
Amambay		16,920	16,021	15,578	6,000	13,501	17,520	10,500	9,989	9,674	0.9514	0.9684
Canindeyú		17,765	18,250	18,900	9,566	24,544	15,000	11,600	11,030	10,602	0.9509	0.9611
REGION OCCID.												
Pte. Hayes		485	1	1	1	1	1	1	1	0	0.5155	0.7575
Alto Paraguay		1	1	1	1	1	1	1	1	1	1	1
Boqueron		1	1	1	1	1	1	1	1	1	1	1
TOTAL	453,000	328,410	425,430	375,688	208,626	543,445	229,183	180,098	188,361	196,236		



**(4) Corn**

(ton)

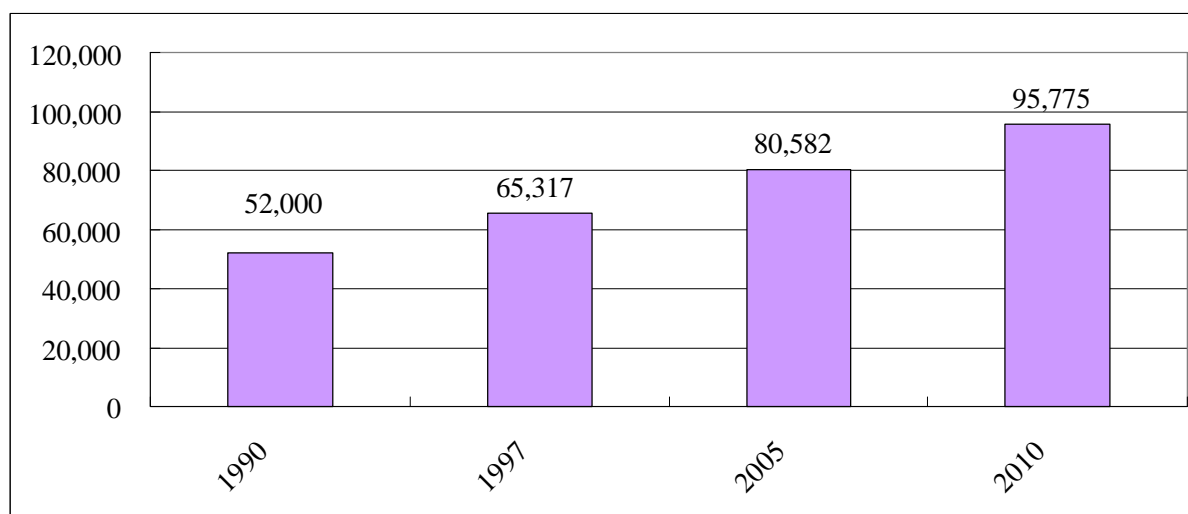
	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.												
Consepción		11,585	20,448	22,096	18,118	29,343	15,104	16,275	16,686	16,670	1.0252	0.9991
San Pedro		30,544	15,184	76,943	39,111	90,437	66,500	71,400	87,404	96,039	1.2241	1.0988
Coordillera		16,774	6,707	24,288	6,127	11,136	8,589	6,250	5,566	5,176	0.8905	0.9301
Guairá		16,224	10,462	16,558	21,175	15,703	16,000	19,500	20,462	21,073	1.0493	1.0299
Caaguazú		60,465	86,087	119,173	59,532	131,369	112,500	67,986	70,419	69,905	1.0358	0.9927
Caazapá		44,144	51,108	34,248	32,914	53,736	54,000	66,107	70,426	73,770	1.0653	1.0475
Itapúa		72,120	70,897	185,474	179,749	210,067	189,991	162,500	191,057	203,336	1.1757	1.0643
Misiones		5,134	15,202	14,009	7,173	7,183	12,495	10,800	11,261	11,513	1.0427	1.0223
Paraguarí		13,091	21,403	18,208	4,921	13,769	17,805	17,871	18,055	18,443	1.0103	1.0215
Alto Paraná		86,840	73,190	225,947	166,443	265,200	221,550	211,500	253,264	273,641	1.1975	1.0805
Central		3,115	1,473	2,231	2,800	449	1,104	1,318	1,112	1,042	0.8437	0.9372
Ñeembucú		2,272	6,466	4,286	8,274	7,664	2,555	4,125	4,201	4,193	1.0185	0.9980
Amambay		26,447	24,276	21,666	29,544	63,954	50,364	40,500	46,421	49,116	1.1462	1.0581
Canindeyú		49,410	58,068	50,118	77,363	154,583	104,247	120,000	143,249	156,237	1.1937	1.0907
REGION OCCID.												
Pte. Hayes		480	298	330	300	378	407	390	392	395	1.0049	1.0068
Alto Paraguay		190	129	120	35	35	45	53	41	37	0.7741	0.9021
Boqueron		310	266	400	495	655	648	658	774	836	1.1757	1.0813
TOTAL	420,000	439,145	461,664	816,095	654,074	1,055,661	873,904	817,233	940,789	1,001,423		



**(5) Tomato**

(ton)

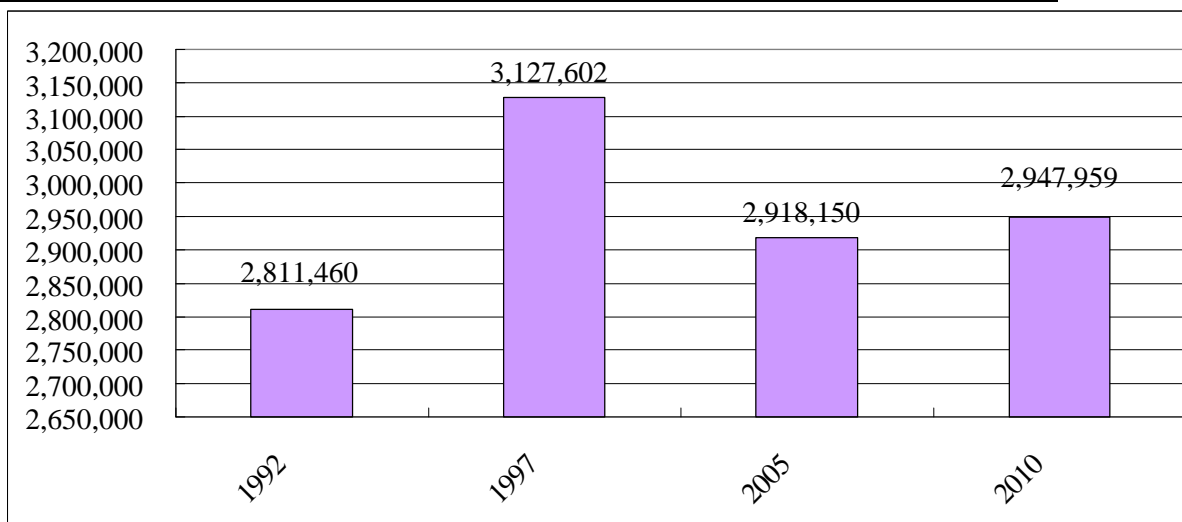
	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.												
Consepción		2,300	2,339	2,220	2,285	2,289	1,686	1,444	1,343	1,279	0.9304	0.9517
San Pedro		1,975	1,869	1,763	1,814	1,818	3,025	5,400	6,232	6,956	1.1540	1.1162
Coordillera		3,656	3,496	3,338	3,477	3,570	3,746	3,225	3,205	3,180	0.9939	0.9920
Guairá		212	195	188	193	193	1,616	380	471	514	1.2393	1.0924
Caaguazú		9,931	9,309	11,484	11,831	11,895	21,552	19,812	22,680	24,441	1.1448	1.0776
Caazapá		148	137	132	133	133	4,420	10,140	20,446	32,559	2.0164	1.5924
Itapúa		1,453	1,267	1,428	1,510	1,600	1,678	2,150	2,297	2,403	1.0683	1.0462
Misiones		529	472	453	466	464	484	560	565	572	1.0088	1.0132
Paraguarí		2,622	2,440	2,319	2,388	2,454	4,645	5,700	6,499	7,110	1.1402	1.0940
Alto Paraná		4,140	3,855	3,690	3,870	4,290	4,503	3,850	3,884	3,882	1.0087	0.9995
Central		16,135	14,253	13,609	14,028	15,156	16,732	11,100	10,828	10,538	0.9755	0.9732
Ñeembucú		201	165	159	163	163	169	720	828	950	1.1495	1.1483
Amambay		386	414	400	420	426	743	875	998	1,087	1.1408	1.0885
Canindeyú		335	292	282	287	303	315	304	303	303	0.9976	0.9997
REGION OCCID.												
Pte. Hayes		148	63	61	1	1	1	1	0	0	0.3760	0.6347
Alto Paraguay		1	1	1	1	1	1	1	1	1	1.0000	1.0000
Boqueron		1	1	1	1	1	1	1	1	1	1.0000	1.0000
TOTAL	52,000	44,173	40,568	41,528	42,868	44,757	65,317	65,663	80,582	95,775		



**(6) Sugarcane**

(ton)

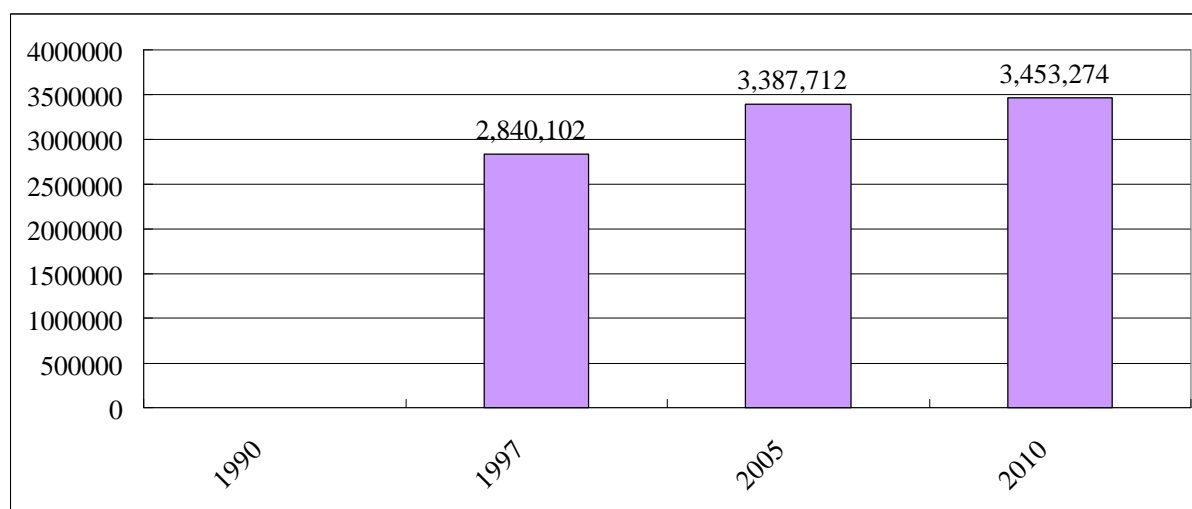
	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.												
Consepción		24,180	24,180	24,550	25,890	26,080	32,400	31,850	33,570	34,583	1.0540	1.0302
San Pedro		105,140	115,440	110,620	117,600	132,300	134,400	135,000	141,078	144,263	1.0450	1.0226
Coordillera		243,930	240,170	231,000	249,340	248,400	250,000	243,450	244,731	245,123	1.0053	1.0016
Guairá		1,149,690	1,140,800	1,048,050	1,109,550	1,128,105	1,128,108	1,078,000	1,072,550	1,068,361	0.9949	0.9961
Caaguazú		467,880	465,920	357,600	361,950	379,350	384,800	380,000	367,354	362,189	0.9667	0.9859
Caazapá		97,510	95,648	84,000	94,990	101,200	103,400	145,591	153,849	160,874	1.0567	1.0457
Itapúa		29,170	27,750	28,260	30,100	29,450	29,450	29,760	29,995	30,119	1.0079	1.0041
Misiones		15,870	15,500	15,700	15,800	15,810	15,810	44,000	49,162	54,442	1.1173	1.1074
Paraguarí		260,150	258,000	262,940	297,600	303,800	297,600	312,500	323,632	329,651	1.0356	1.0186
Alto Paraná		29,900	30,780	31,120	34,200	34,466	34,500	34,960	35,972	36,478	1.0290	1.0140
Central		253,250	251,040	245,690	253,140	248,630	240,630	238,500	236,356	235,039	0.9910	0.9944
Ñeembucú		6,160	5,600	5,710	6,150	6,720	6,720	9,840	10,543	11,110	1.0715	1.0538
Amambay		20,800	21,870	22,270	23,800	24,309	24,310	24,220	24,883	25,192	1.0274	1.0124
Canindeyú		33,330	33,230	33,690	35,910	36,400	364,000	90,000	119,102	135,086	1.3234	1.1342
REGION OCCID.												
Pte. Hayes		74,290	73,390	74,800	79,980	79,980	81,472	74,600	75,372	75,448	1.0104	1.0010
Alto Paraguay		50	1	1	1	1	1	1	1	1	0.6576	0.8389
Boqueron		160	1	1	1	1	1	1	1	0	0.5806	0.7962
TOTAL		2,811,460	2,799,320	2,576,002	2,736,002	2,795,002	3,127,602	2,872,273	2,918,150	2,947,959		



**(7) Orange**

(ton)

	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.												
Consepción		141,670	141,689	141,664	142,317	142,972	142,931	143,177	143,476	143,635	1.0021	1.0011
San Pedro		173,400	173,375	173,672	174,353	175,155	175,104	174,659	174,971	175,103	1.0018	1.0007
Coordillera		160,880	161,492	161,722	162,446	163,193	163,146	175,609	177,451	178,966	1.0105	1.0085
Guairá		58,140	57,877	57,851	58,318	58,385	58,368	59,107	59,267	59,380	1.0027	1.0019
Caaguazú		323,030	323,500	323,401	324,891	326,385	326,292	342,691	345,192	347,214	1.0073	1.0059
Caazapá		110,810	111,400	111,187	111,699	112,213	112,181	109,517	109,470	109,322	0.9996	0.9987
Itapúa		1,032,900	1,032,330	1,032,570	1,037,327	1,042,383	1,042,653	1,344,058	1,383,969	1,420,668	1.0297	1.0265
Misiones		103,650	103,200	103,003	103,478	103,953	103,924	106,528	106,929	107,256	1.0038	1.0031
Paraguarí		67,830	68,100	68,010	68,324	68,638	68,618	67,771	67,824	67,809	1.0008	0.9998
Alto Paraná		313,340	314,100	314,089	315,536	316,987	316,896	316,376	317,008	317,288	1.0020	1.0009
Central		36,980	36,500	35,610	35,721	34,300	34,167	35,226	34,831	34,687	0.9888	0.9959
Ñeembucú		99,710	98,500	98,488	98,942	99,397	99,368	241,380	265,616	290,129	1.1004	1.0923
Amambay		50,410	50,600	51,502	51,597	51,834	51,819	51,053	51,221	51,259	1.0033	1.0007
Canindeyú		107,740	108,300	109,353	109,715	110,219	110,188	109,621	109,991	110,133	1.0034	1.0013
REGION OCCID.												
Pte. Hayes		27,750	27,410	27,373	27,500	28,480	28,209	28,651	28,849	28,970	1.0069	1.0042
Alto Paraguay		12,100	10,650	10,441	10,206	10,253	1,356	10,677	9,087	8,826	0.8511	0.9713
Boqueron		2,110	2,110	1,975	1,701	1,709	4,882	2,391	2,560	2,627	1.0705	1.0264
TOTAL		2,822,450	2,821,133	2,821,911	2,834,071	2,846,456	2,840,102	3,318,492	3,387,712	3,453,274		

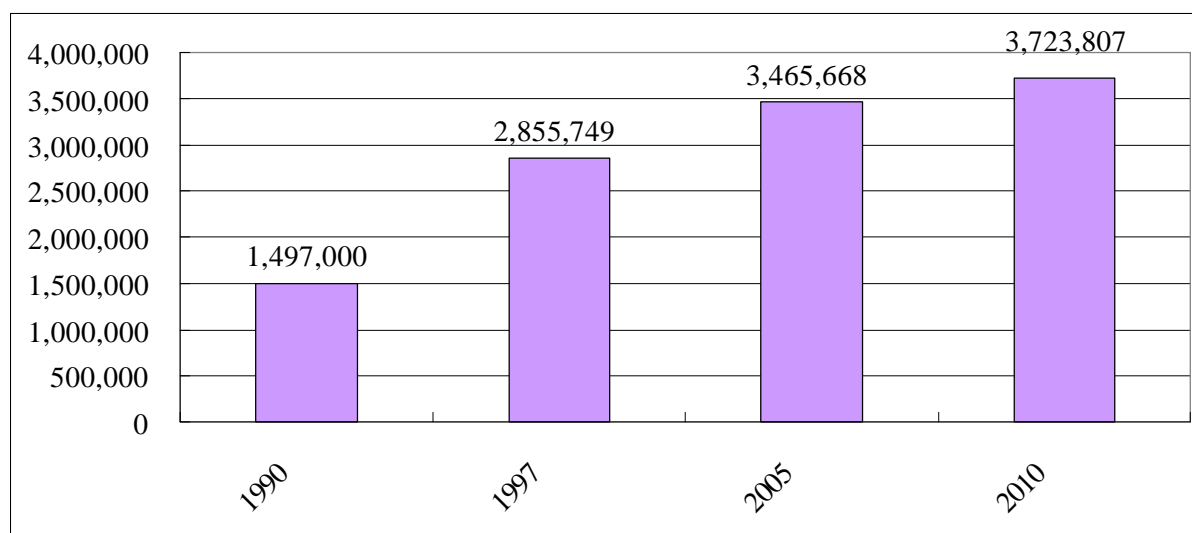




# **(8) Soybeans**

(ton)

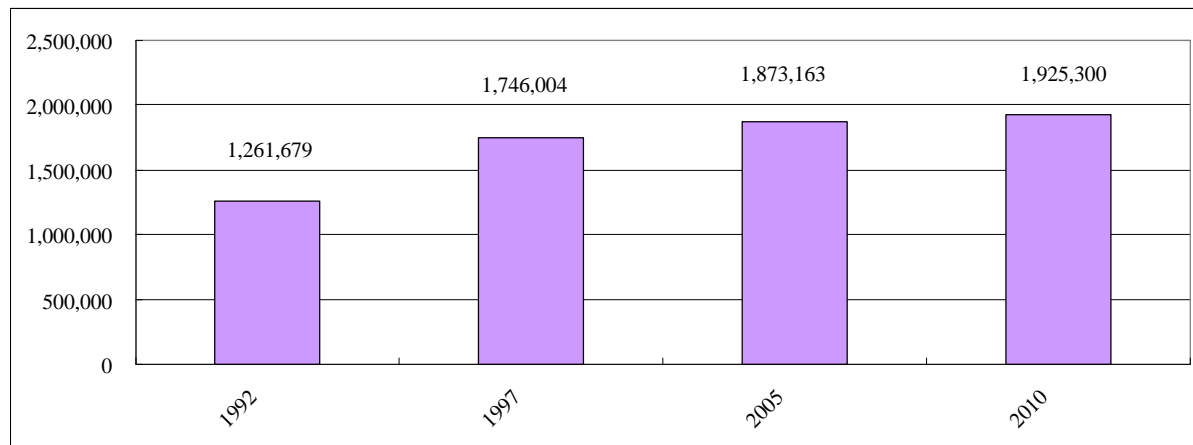
	1990	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.												
Consepción		400	407	415	1	1	500	248	193	196	0.7774	1.0156
San Pedro		36,370	42,268	39,600	46,000	76,000	57,600	72,997	82,307	87,868	1.1275	1.0676
Coordillera		40	36	35	1	1	1	1	0	0	0.4592	0.6943
Guairá		530	524	461	1	1	652	660	551	605	0.8353	1.0965
Caaguazú		51,600	55,640	57,893	144,624	170,598	156,970	176,623	225,549	254,180	1.2770	1.1269
Caazapá		19,690	19,350	19,600	63,030	72,800	180,000	187,721	293,746	372,840	1.5648	1.2693
Itapúa		777,928	671,568	863,093	740,552	754,000	794,530	974,924	1,005,991	1,032,229	1.0319	1.0261
Misiones		330	576	530	1	1	660	680	593	662	0.8721	1.1166
Paraguarí		900	1	1	1	1	1	1	0	0	0.4825	0.7367
Alto Paraná		742,606	814,211	1,044,829	1,071,258	1,160,575	1,180,390	1,106,443	1,190,236	1,227,239	1.0757	1.0311
Central		1	1	1	1	1	1	1	1	1	1.0000	1.0000
Ñeembucú		1	1	1	1	1	1	1	1	1	1.0000	1.0000
Amambay		37,600	35,520	36,553	78,000	102,752	99,000	96,869	119,687	132,331	1.2356	1.1056
Canindeyú		125,550	155,692	149,100	251,330	333,278	385,440	435,840	546,809	615,652	1.2546	1.1259
REGION OCCID.												
Pte. Hayes		1	1	1	1	1	1	1	1	1	1.0000	1.0000
Alto Paraguay		1	1	1	1	1	1	1	1	1	1.0000	1.0000
Boqueron		1	1	1	1	1	1	1	1	1	1.0000	1.0000
TOTAL	1,497,000	1,793,549	1,795,798	2,212,115	2,394,804	2,670,013	2,855,749	3,053,012	3,465,668	3,723,807		



**(9) Pig**

(head)

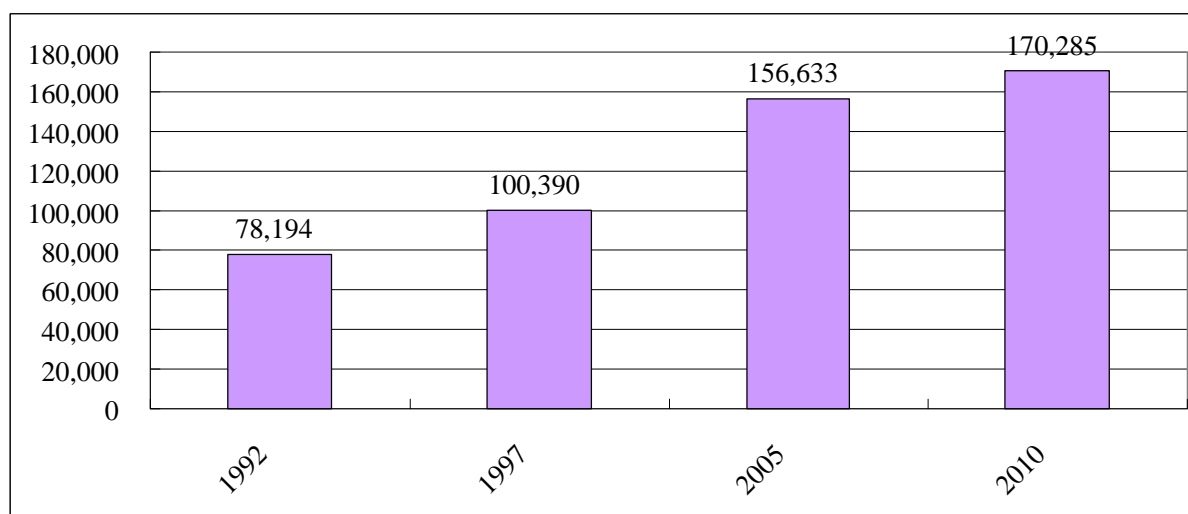
	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.											
Consepción	51,064	53,617	54,685	82,028	87,769	76,557	76,985	83,926	87,131	1.0902	1.0382
San Pedro	161,111	183,694	184,997	231,118	247,296	234,026	237,145	254,107	262,261	1.0715	1.0321
Coordillera	50,333	54,513	56,795	79,513	85,078	73,834	73,523	79,384	81,971	1.0797	1.0326
Guairá	56,565	73,420	65,050	78,060	83,524	84,565	84,122	89,462	92,091	1.0635	1.0294
Caaguazú	155,003	152,321	165,854	199,788	213,773	201,405	204,122	216,422	222,320	1.0603	1.0273
Caazapá	90,777	101,941	104,236	122,998	131,607	123,502	125,033	132,279	135,672	1.0580	1.0256
Itapúa	246,409	276,594	282,941	323,268	345,896	330,951	335,646	353,952	362,701	1.0545	1.0247
Misiones	25,808	27,023	28,134	36,856	39,435	37,418	37,852	40,855	42,321	1.0793	1.0359
Paraguarí	71,374	79,598	81,956	100,806	107,862	103,264	104,354	111,820	115,430	1.0715	1.0323
Alto Paraná	173,014	212,891	213,891	232,037	248,279	230,046	232,446	242,537	246,939	1.0434	1.0182
Central	32,040	39,356	40,990	50,418	53,947	51,648	52,115	56,532	58,655	1.0847	1.0376
Ñeembucú	17,033	17,056	17,248	23,285	24,914	23,112	23,415	25,086	25,893	1.0714	1.0322
Amambay	20,014	21,321	22,047	36,818	39,395	37,260	37,948	43,180	45,861	1.1379	1.0621
Canindeyú	86,772	102,006	101,937	93,709	100,268	104,706	105,663	108,054	109,358	1.0226	1.0121
REGION OCCID.											
Pte. Hayes	16,402	16,894	17,015	21,779	23,303	21,951	21,575	22,893	23,495	1.0611	1.0263
Alto Paraguay	4,691	4,714	4,695	5,763	6,166	5,717	5,644	5,894	6,003	1.0443	1.0186
Boqueron	3,269	3,308	3,554	5,331	5,704	6,042	5,985	6,780	7,199	1.1328	1.0618
TOTAL	1,261,679	1,420,267	1,446,025	1,723,575	1,844,216	1,746,004	1,763,573	1,873,163	1,925,300		



**(10)Rice**

(ton)

	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.											
Consepción	288	267	298	316	316	227	208	199	192	0.9566	0.9663
San Pedro	395	380	376	329	329	249	1	1	0	0.5089	0.5525
Coordillera	3,460	3,669	4,339	3,463	5,282	2,870	2,759	2,665	2,582	0.9658	0.9691
Guairá	332	316	394	347	354	245	210	196	186	0.9314	0.9497
Caaguazú	1,272	1,347	1,766	1,887	2,010	1,863	1,242	1,274	1,260	1.0256	0.9890
Caazapá	7,607	7,628	8,020	6,475	6,973	9,008	37,606	44,937	52,771	1.1950	1.1743
Itapúa	34,932	37,765	37,691	30,972	32,315	30,871	35,445	34,801	34,694	0.9818	0.9969
Misiones	16,008	16,551	21,854	28,867	30,357	32,940	45,077	53,527	58,983	1.1875	1.1019
Paraguarí	3,178	3,123	2,856	2,296	2,323	3,166	5,900	6,264	6,702	1.0617	1.0699
Alto Paraná	2,555	2,627	3,083	3,705	3,991	5,876	4,308	4,870	5,134	1.1305	1.0542
Central	2,182	21,522	2,124	1,430	1,343	750	875	614	515	0.7018	0.8394
Ñeembucú	1	1	1,476	1,240	1,250	1	1	1	1	0.9941	0.7905
Amambay	3,164	1,383,082	3,709	3,782	4,103	6,427	2,680	1,800	1,449	0.6718	0.8047
Canindeyú	2,751	2,726	3,266	3,638	3,912	5,894	4,850	5,481	5,813	1.1301	1.0607
REGION OCCID.											
Pte. Hayes	67	36	41	1	1	1	1	0	0	0.4321	0.6761
Alto Paraguay	1	1	1	1	1	1	1	1	1	1.0000	1.0000
Boqueron	1	1	1	1	1	1	1	1	1	1.0000	1.0000
TOTAL	78,194	1,481,042	91,295	88,750	94,861	100,390	141,165	156,633	170,285		



**(11) Cassava**

(ton)

	1992	1993	1994	1995	1996	1997	1998	2005	2010	INDICE 2005	INDICE 2010
REGION ORIENT.											
Consepción	9,590	11,708	10,994	9,738	11,280	11,870	9,200	9,177	9,073	0.9975	0.9887
San Pedro	23,270	26,976	28,657	21,749	29,146	33,520	43,000	46,670	49,379	1.0854	1.0580
Coordillera	11,540	9,774	13,916	7,509	11,202	12,430	12,000	12,164	12,297	1.0137	1.0109
Guairá	12,000	9,866	14,574	15,817	13,332	15,200	13,000	13,480	13,616	1.0369	1.0101
Caaguazú	31,990	30,470	42,730	39,845	45,251	46,600	46,600	50,114	51,886	1.0754	1.0354
Caazapá	13,640	15,304	15,439	13,818	14,436	14,780	23,325	24,585	25,777	1.0540	1.0485
Itapúa	25,960	25,026	32,420	26,880	26,931	26,660	27,000	27,057	27,061	1.0021	1.0001
Misiones	3,870	3,975	4,363	3,227	4,520	5,650	4,784	5,025	5,147	1.0503	1.0243
Paraguarí	16,060	10,432	14,206	17,179	16,231	17,730	14,000	14,397	14,455	1.0283	1.0041
Alto Paraná	14,610	18,055	14,038	15,184	20,267	23,300	23,000	24,914	26,036	1.0832	1.0450
Central	3,350	6,303	3,003	3,504	2,687	2,690	1,500	1,290	1,165	0.8600	0.9034
Ñeembucú	1,840	2,050	2,677	1,992	1,960	1,290	1,000	896	830	0.8962	0.9255
Amambay	4,490	4,411	3,159	5,385	7,140	8,140	6,000	6,657	6,946	1.1095	1.0434
Canindeyú	6,950	9,259	11,000	8,820	15,423	16,620	23,134	27,771	30,923	1.2005	1.1135
REGION OCCID.											
Pte. Hayes	150	170	180	150	150	158	151	149	148	0.9890	0.9931
Alto Paraguay	10	10	10	10	10	12	11	11	11	1.0235	1.0117
Boqueron	30	40	40	40	40	46	41	43	44	1.0444	1.0172
Total	179,350	183,829	211,406	190,847	220,006	236,696	247,746	264,401	274,795		

