

**THE MASTER PLAN STUDY REPORT**  
**ON**  
**THE TEXTILE INDUSTRY DEVELOPMENT**  
**IN**  
**THE REPUBLIC OF PARAGUAY**

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## PREFACE

It is with great pleasure that I present to the Government of the Republic of Paraguay this report entitled "The Master Plan Study Report on the Textile Industry Development in the Republic of Paraguay."

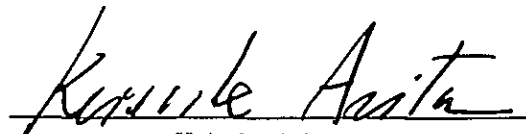
This report embodies the result of the survey which was carried out in Paraguay from November 15 to December 14, 1980 by a Japanese survey team commissioned by the Japan International Cooperation Agency following the request of the Government of Paraguay to the Government of Japan.

The survey team, headed by Mr. Mayuki Takeno, had a series of discussions with the officials concerned of the Government of Paraguay and conducted a wide scope of field survey and data analyses.

I hope that this report will be useful as a basic reference for development of the textile industry in Paraguay.

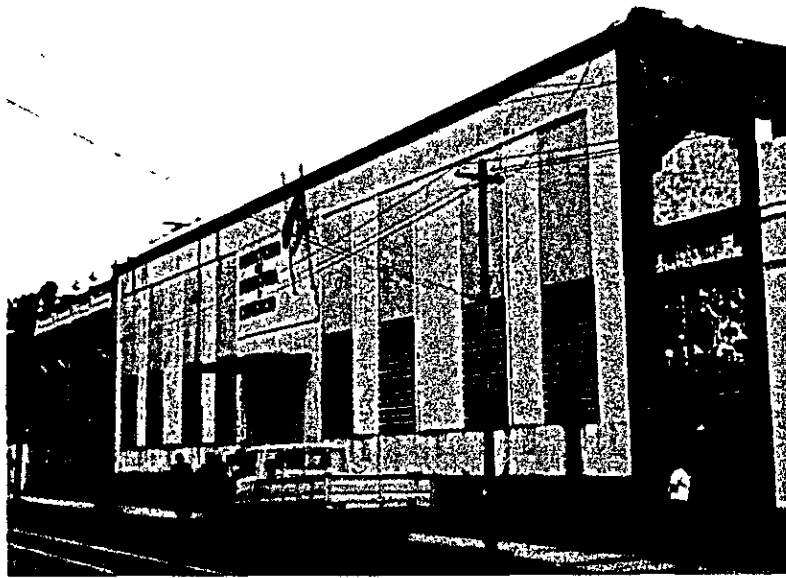
I wish to express my deep appreciation to the officials concerned of the Government of Paraguay for their close cooperation extended to the Japanese team.

July, 1981



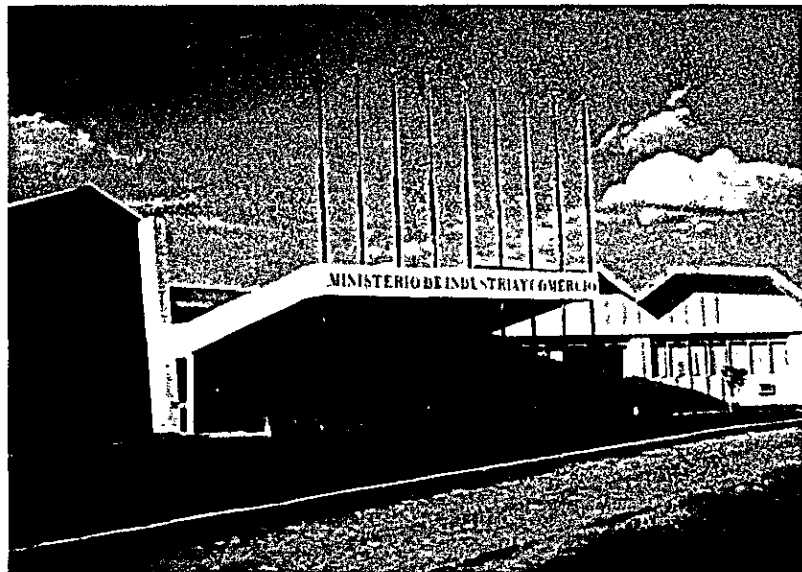
Keisuke Arita  
President

Japan International Cooperation Agency



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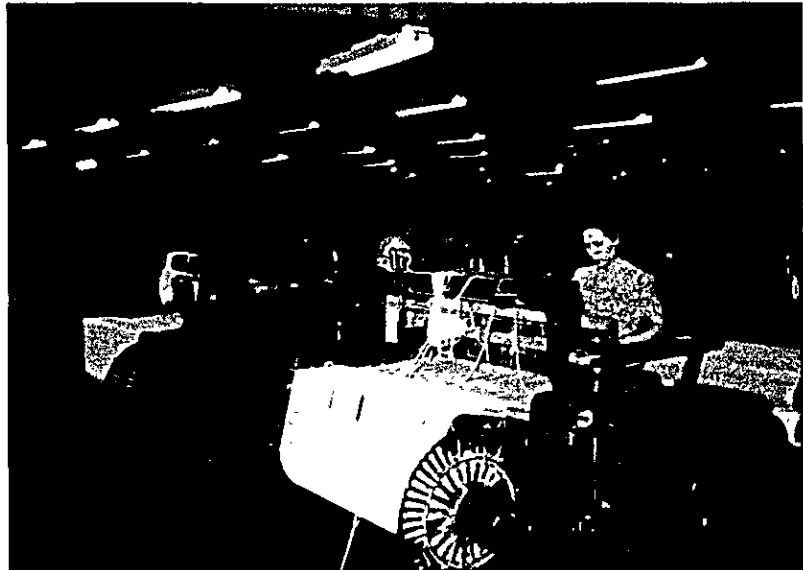


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*America Textil S.A.*

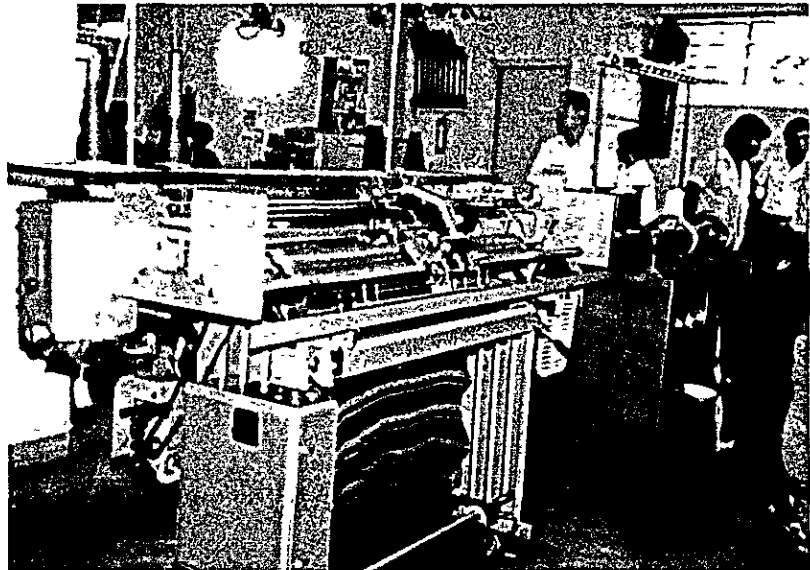
*Industria Textil  
Asuncena S.A.*



*Forno y Valle S.A.*



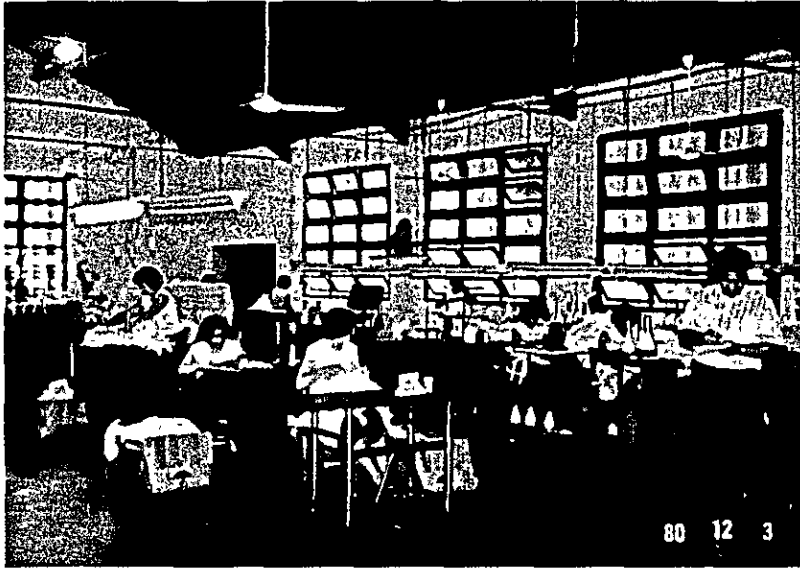
*Pedro Genovese e Hijos  
S.R.L.*



*Textil Parana S.A.*



*Textil Algolana  
Industria y  
Comercio S.A.*



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y Naval Ltd.*

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*Fenix S.A. (Sewer)*



*Algodonera Guarani  
S.A. (Ginnery)*





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## ABBREVIATION AND SYMBOLS

AATCC	American Association of Textile Chemists and Colorists, U.S.A.
ANDE	Administración Nacional de Electricidad
ANTELCO	Administración Nacional de Telecomunicaciones
A.S.M.E.	American Society of Mechanical Engineers
bbl	barrel
BNF	Banco Nacional de Fomento
°C	degree centigrade
cm	centimeter
C&F	Cost and Freight
CEPEX	Centro de Promotion de Exportaciones
CIF	Cost, Insurance and Freight
COMDESA	Compañía Paraguaya de Desarrollo S.A.
cyl	cycle
d	denier
day	day
EC	European Community
eff	efficiency
F	Flat
FOB	Free On Board
g	gram
G	guarani (= 1.6 yen)
GO	Garnett Opener
GDP	Gross Domestic Product
GNP	Gross National Product
ha	hectare
hp	horsepower
hr	hour
in	inch
I.E.	Industrial Engineering
I.N.T.N.	Instituto Nacional de Tecnología y Normalización
I.T.A.S.A.	Industria Textil Asuncena S.A.
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDB	Inter-American Development Bank
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standards
kg	kilogram
km <sup>2</sup>	square kilo meter
kW	kilo watt
kWh	kilo watt hour
l	liter
lb	pound
lx	lux
m	meter
m <sup>2</sup>	square meter

min	minute
mm	mili meter
mon	month
Nm	yarn count
OE	<i>Open End</i>
OFAT	Oficina Fiscalizadora de Algodon y Tabaco
OJT	On the Job Training
pcs	pieces
pH	index of hydrogen ion
Q.C.	Quality Control
REPSA	Refineria Paraguay S.A.
RF	Ring Spinning Frame
ROI	Return On Investment
rpm	round per minute
RTW	Rotary Traverse Winder
s	yarn count
SC	Superior Cleaner
set	set
SOP	Standard Operational Procedure
sp	spindle
STP	La Secretaría Tecnica de Planificación del Desarrollo Económico y Social
SZ	Sizing machine
t	ton
T/in	Twist per inch
US¢	U.S. cent
US\$	U.S. dollar (= 132G)
V	volt
week	week
yd	yard
¥	yen
φ	diameter
%	per cent
°	degree (angle)
'	minute (angle)

## GLOSSARY

### Converter

A converter is a wholesaler whose business ranges from planning the manufacture of goods to selling them. He buys unprocessed cloths from textile manufacturers, entrusts dye companies with dyeing and finishing the cloths, and wholesales the finished goods to garment makers. The converter stands in the intermediate stage of textile distribution, and by selling finished goods which have high added value, he functionally regulates demand and supply and bears the risk of keeping a dead stock.

### Cotton Yarn Inspection Standard

It means a standard for inspecting the quality of cotton yarn. In Japan, yarn evenness, foreign matter such as leaves and neps, and the luster, length, weight, count and the strength of yarn are judged as to whether they are at specified levels. The results of judgement are scored and the quality of the yarn is graded according to the total number of points obtained.

### Cotton Cloth Inspection Standard

It means a standard for inspecting the quality of cotton cloths. In Japan, the density, external appearance (defective condition), strength and color fastness of cloths are judged as to whether they are at specified levels. Cloths which pass all the inspection categories are marked PASSED.

### Export Inspection

Export inspection is necessary to secure overseas markets over a long period of time by preventing the exportation of inferior goods, enhancing the reputation of export goods and by giving credence thereto. In Japan, export inspection has been enforced since about 90 years ago. Export items for inspection, quality inspection standard, inspection methods and penalties are set, and exporters are obligated to attach export inspection certificates to the export goods.

### Industrial Engineering

In industrial circles (enterprises) industrial engineering is a system of technique which makes use of modern or present scientific management control methods, and deals with planning, revising and enforcing a comprehensive organization embracing people, materials and equipment, using specialized knowledge of mathematics, physics and social science and their methods, industrial engineering utilizes theories and methods regarding engineering analyses and plans, and defines, predicts and appraises the results leading from the comprehensive organization.

### On-the-Job-Training

On-the-job-training is one method of educating and training employees. Employees are educated and trained in their daily work in conformity with the type of work they perform. This method eliminates waste of time and increases the technical knowledge of employees in

their respective work. However, it demands a high degree of ability on the part of the leaders and systematization of the details of education is difficult.

### Quality Control

The purpose of quality control is to provide the buyer with manufactured goods the quality of which meets his requirements, or with service. As a statistical method is often used in new quality control, it is said to be statistical quality control.

### Standardization

In order to produce goods which will meet the requirements of customers, standards which are in conformity with the grades and quality of finished goods are established. Standardization is a systematic process in which guidance is given to employees in accordance with the set standards. Consequently, in addition to the standards of measured units, matters such as substance, actions, procedures, methods, formalities, capabilities, functions, plans, arrangements, conditions, duties, rights, responsibilities, mental attitudes, conceptions and ideas, are suggested and designated by documents, samples and other concrete ways of manifestation. Based on the scale of standardization, there are international standard, national standard, group standard and company standard.

### Standard Operational Procedure

As a part of standardization, standards are set regarding organizational operation, supervision of activities of enterprises, manufacturing and office work procedure, and are documented.

### Textile Department/Apparel Department

The textile industry is conceptually divided into two departments – textiles and apparel.

The textile department makes materials, such as yarn and cloths, for textile goods. The department covers spinning, weaving and dyeing.

The apparel department indicates the production of ready-made clothes and the outer garment industry in a sense of clothing in general. It buys cloths from the textile department, cuts and sews the cloths, and makes clothing for sale.



## SUMMARY AND CONCLUSION

### 1. Economic and Social Conditions

The Republic of Paraguay is situated in the interior of the southern part of South America and covers an area of 406,752 square kilometers. Its estimated population in 1979 was 2,979,000.

Paraguay has continued to register steady economic growth in recent years due to stabilized political and economic conditions and to the implementation of sound financial measures. The gross national product in 1979 attained a high growth rate of 10.7 percent. As the background of this development, an increase in the production of raw cotton, soy beans and other agricultural products, progress made in industrialization due to the processing of agricultural products on an expanded scale, and the brisk activity of the construction industry centering around construction of dams can be mentioned.

However, one of the big problems Paraguay is burdened with is the lag in improving the infrastructure, which constitutes a big obstacle to industrial development. Consequently the government is making special efforts to expand the network of trunk roads, pave roads and to improve river transportation. Remarkable progress has been made in these fields in the past several years.

Moreover, substitution of imports and promotion of exports are one of the basic objectives of the Fifth Social and Economic Development Plan which is being enforced. Related investment activity has been stepped up and in parallel with raw cotton exports, and importance is being attached to the switchover to exporting a part of finished cotton goods.

### 2. The Present State of the Textile Industry

To the Republic of Paraguay which is an exporter of raw cotton, there is a possibility that the cotton industry will become a promising industry in the future.

As of 1979 production of seed-cotton amounted to 230,000 tons and that of ginned cotton 73,000 tons. Although production in 1979 dropped from the previous year, there has been a marked increase in output during the past 4 or 5 years. Almost the entire production is exported.

Regarding the scale of the cotton goods market, about 6,000 tons, calculated in terms of cotton yarn, were believed to have been on the market as of 1979. Of this quantity two-thirds was produced in Paraguay and one-third was imported which constituted only a little over 2 percent of the domestic production.

In all there are 16 textile companies in Paraguay and of this number, five companies have integrated equipment for spinning, weaving, dyeing and finishing. Representative companies are Pilar S.A. and America textil S.A. Particularly noticeable at the textile companies is the obsolescence of equipment and low labor productivity.

Despite the fact that the distribution stage is simple, the distribution margin is high.

For this reason, in addition to high prices at the time of shipment from the factories, retail prices on the market are generally at a fairly low level.

As part of the government's measures to promote the development of the textile industry, steps have been taken to prohibit the importation of cotton yarn, cotton cloths and finished cotton goods. At the same time, since the government's measures are not accompanied by positive efforts on the part of the enterprises, ill effects of the government's protection policy have surfaced.

### 3. A Diagnosis of the Existing Textile Companies

The textile industry of Paraguay is in an extremely serious state as the market is glutted with high-grade goods imported from advanced countries and with popular goods coming in from neighboring countries. Consequently most of the companies are overstocked with goods so that they are compelled to curtail production. And despite the obsolete condition of equipment, their reconditioning and installation of new equipment are not sufficiently undertaken (refer to Table 1).

Moreover, due to the lack of operation supervision techniques, and of knowledge and technical skill on the part of the workers in general, both productivity and quality are lower than the world's standards. Still more education and enlightenment of the management, the intermediate supervisory class and workers is desirable. An outline of spinning, weaving, knitting, dyeing and finishing is given below.

#### (1) Spinning

The spinning equipment at all the factories is generally old and many of them date back to 20–30 years. At the major factories equipment is being replaced with new ones or additional equipment is being installed, but they are confined to only a portion of the plants. Consequently most of the machines used are original ones, and as the minimum required modifications are not made, they are not keeping up with the times. It is hoped that efforts will be made to raise their performance by partial modifications.

Under the present operating conditions, productivity is low. It is possible to raise the quality of workers if they are properly educated. Furthermore heightening the consciousness of operation supervisors with regard to maintaining performance of equipment is desirable.

Since the composition of finished goods is centered around low counts, they do not have international competitive power with their present quality. However, given the superior quality of raw cotton, high-grading of yarn counts is possible. With the present counts, usage is limited and there is no room for increasing domestic demand. Operation supervision on a high level, which can make the most of high-grade cotton, is necessary.

#### (2) Weaving

The obsolescence of equipment in general is noticeable. There are machines for which spare parts cannot be procured. There are also machines whose metal shafts have been severely abraded. Their replacement with new machines is thus desirable. The rate of operation of weaving machines is as low as 50–70 percent. The lack of spare parts and the breakage of automatic devices are given as reasons for the equipment defects.

**Table 1. List of Equipment of Textile Companies**

No.	Name of company	Equipment					
		Ginned cotton	Spinning	Weaving	Knitting	Dyeing and finishing	Sewing
1.	Manufactura de Pilar S.A.	o	o OE360sp RF33,412sp with SZ	o 630F Sulzer12F	o 3F	o Process one set Rotary 1F Flat 2F	Sewing thread
2.	America Textil S.A.	o	o RF4,728sp	o 180F with SZ		o Process one set Flat 1F	
3.	Industria Textil Asuncena S.A.	o	o RF7,440sp	o 170F		o Obermier 1F Operation of one set suspended	
4.	Forno y Valle S.A.		o OE 336sp  RF 816sp Woolen spinning one set	o 34F  (Rapier 4F)  without SZ		o Wooden process for stock dyeing one set	
5.	Pedro Genovese e Hijos S.R.L.		o RF 800sp	o 32F		o Hank dyeing bath one set	
6.	Textil Parana S.A.				o 23F		o 27F
7.	Tricotex Industrial y Comercial S.A.				o 9F	o Wince bleaching two sets	o 22F
8.	Cooperativa Militar y Naval L.T.D.				o 13F		o 17F
9.	Textil Algotana Industria y Comercio S.A.				o 8F		o 20F

OE ..... Open End  
 RF ..... Ring spinning Frame  
 SZ ..... Sizing machine

In the stage of weaving cloths all the companies hardly inspect grey cloth so that there are cases where two threads running crosswise are tangled and threads which run lengthwise pass through differently, resulting in temple flaws. Consequently raising the quality by setting a quality control standard for each process is desirable.

As there are workers more than is needed, labor costs of all the companies are high. Moreover, since energy costs are high, it is necessary to actively push forward measures to reduce personnel and to conserve energy.

### (3) Knitting

Compared with the weaving machines, a good many of the knitting equipment are relatively new. Since most of the goods are dealt with by cutting and sewing, there is no need to use low productivity machines. However, given the quality of yarn supplied at present, there is a possibility that efficiency will drop even if high-performance machines are introduced.

As many of the knit goods are colored sportswear, defects are not noticeable.

Since productivity and quality are greatly influenced by the quality of the original yarn, it is necessary to carefully check the original yarn received.

### (4) Dyeing and Finishing

Pilar S.A. and America Textil S.A., the two major textile manufacturers, on the whole have equipment for bleaching, dyeing and printing fabrics, dyeing yarn, and finishing, and although the machines are maintained satisfactorily, their running speed and the rate of operation seem to be low. The equipment of the other companies is obsolete and their operating condition is bad.

Even in the case of the two major companies mentioned above, their productivity is believed to be considerably lower than the level of advanced countries if their equipment, personnel and output are judged. A reform of their organization, rationalization of equipment and improved supervision are desirable.

Since all the companies do not carry out thorough quality inspection, printed goods and dyed goods of inferior quality are in the market. Consequently efforts should be made to improve quality by using good quality dyes and auxiliary agents and by establishing and supervising standard operation methods.

In order to reduce costs, retrenchment of oil, dyes and subsidiary materials and raising efficiency are desirable.

## 4. Export Possibility

A part of Pilar's products is exported to Argentina, but given the domestic production setup, as it is, exports will be difficult because of quality problems.

Under the "basic development plan", construction of an integrated mill equipped with 20,000 spindles, 200 looms and one set of dyeing equipment is planned as a plant for exclusive production of goods for export purpose. From a production cost standpoint only, cotton yarn,

which has sufficient competitive power, can be produced but efforts should be made to reduce the costs of grey cloth and textiles.

As the weight of depreciation accompanying plant construction is heavy, manufacturing costs increase, but this can be solved by raising the rate of operation. If, assuming that plant operation of 360 days per year as in Taiwan and South Korea is possible, exports to neighboring countries, such as Argentina and Bolivia, are thinkable. There is possibility of exporting to Europe and America, but there are somewhat unfavorable factors in that delays in deliveries are likely to occur as Paraguay is an inland country. However, exports to Europe and America will be promising if electric power costs and the price of raw cotton are lowered and river transportation is improved.

As the rise in depreciation of grey cloth adds to transportation cost, production cost is in-between those in Japan and Brazil. Consequently it will be somewhat difficult to export grey cloth as it is.

For the time being, exporting dyed goods, too, will be difficult as in the case of grey cloth. Exports to neighboring countries, excepting Brazil, will become possible when electric power costs are reduced and new and efficient equipment to improve quality is introduced. In the area of price competitiveness, raising the rate of operation of the new plant, lowering electric power costs and the price of raw cotton are important points.

The good quality of Paraguayan cotton is its strong point, and there will be no problem if new and efficient equipment is installed.

## 5. The Course of Development of the Textile Industry Centering Around Cotton

### (1) Experience in the Development of the Textile Industry in Brazil and Central and South America

In many textile-advanced countries the textile industry achieved its motive power in the first stage of industrialization. In Paraguay, too, the development of its textile industry as the axis of propelling industrialization is hoped for, and for this purpose, accumulating capital, building up the infrastructure, commercial capital and an inflow of foreign capital are desirable.

In Central and South America, too, there are many countries, including Brazil, whose textile industry has already grown up. In viewing the experience in commercialization in these countries, there are many points which offer great suggestions to the development of the textile industry of Paraguay. They are:

- 1) Factories were started on a small scale and efforts were made to modernize them, install additional equipment and to expand the factories gradually while looking at the demand trend. However, unless an economic unit to a certain extent is acquired, there is no merit in plant expansion.
- 2) At an integrated plant operating on a large scale, which seeks scale and supervision merits, the risk is great from a business standpoint and 5 to 10 years will be required before the plant can be put on the right track.
- 3) At the time of start of plant operation the government's assistance measures such as

tax exemption on imported machines, tools and materials and protection based on customs barriers are indispensable.

## (2) The Future Aspect of Paraguay's Textile Industry

Establishment of an export substitute type industry (hereinafter called export substitution) to increase the added value by exporting, and promotion of import substitutes in the domestic market (hereinafter called import substitution) are objectives of developing the textile industry.

Materialization of development is taken as a substitute plan of a development formula which takes into consideration the basic policy regarding economic measures and technical and financial aspects. However, as export substitution and import substitution are objectives of developing the textile industry, an alternative complying with these two objectives is conceivable. In connection with the former, a case of maintaining the status quo, a case of installing additional equipment in the existing textile factories, and a case of building new textile factories devoted exclusively to producing goods for export purpose are conceivable as an alternative. In connection with the latter, a case of maintaining the status quo, a case of rehabilitating the existing factories; and a case of improving the structure of the textile industry are conceivable as an alternative.

At the same time that the alternatives are chosen to comply with their respective objectives, adjustment of their relationship would be studied and the alternative, which is the most desirable and is realizable, would be picked.

The above two points constitute basic points in considering Paraguay's textile industry. In building a model for Paraguay's textile industry, the work would be centered around the two points and a study would be made with a concept flow like that indicated in Chart 1.

In regard to the development objectives of export substitution and import substitution, establishment of export-oriented factories, rehabilitation of the existing textile enterprises and improvement of the textile industry structure in addition to building new plants are the basic strategy. While making export substitution as the key point of development, it is most practical to utilize this power and to promote development of the textile industry. The things that are more necessary before this function is brought into play are technical elevation of Paraguay's textile industry and particularly I.N.T.N.'s fulfillment of its important role.

The development of Paraguay's textile industry is dependent firstly on enhancing the functions of I.N.T.N. and secondly, on establishing export-oriented factories. With these as the main axis, promotion of the textile industry will be pushed by coupling the rehabilitation of the existing factories with the establishment of joint production plants.

If the development process is tabulated, it is as indicated in Table 2.

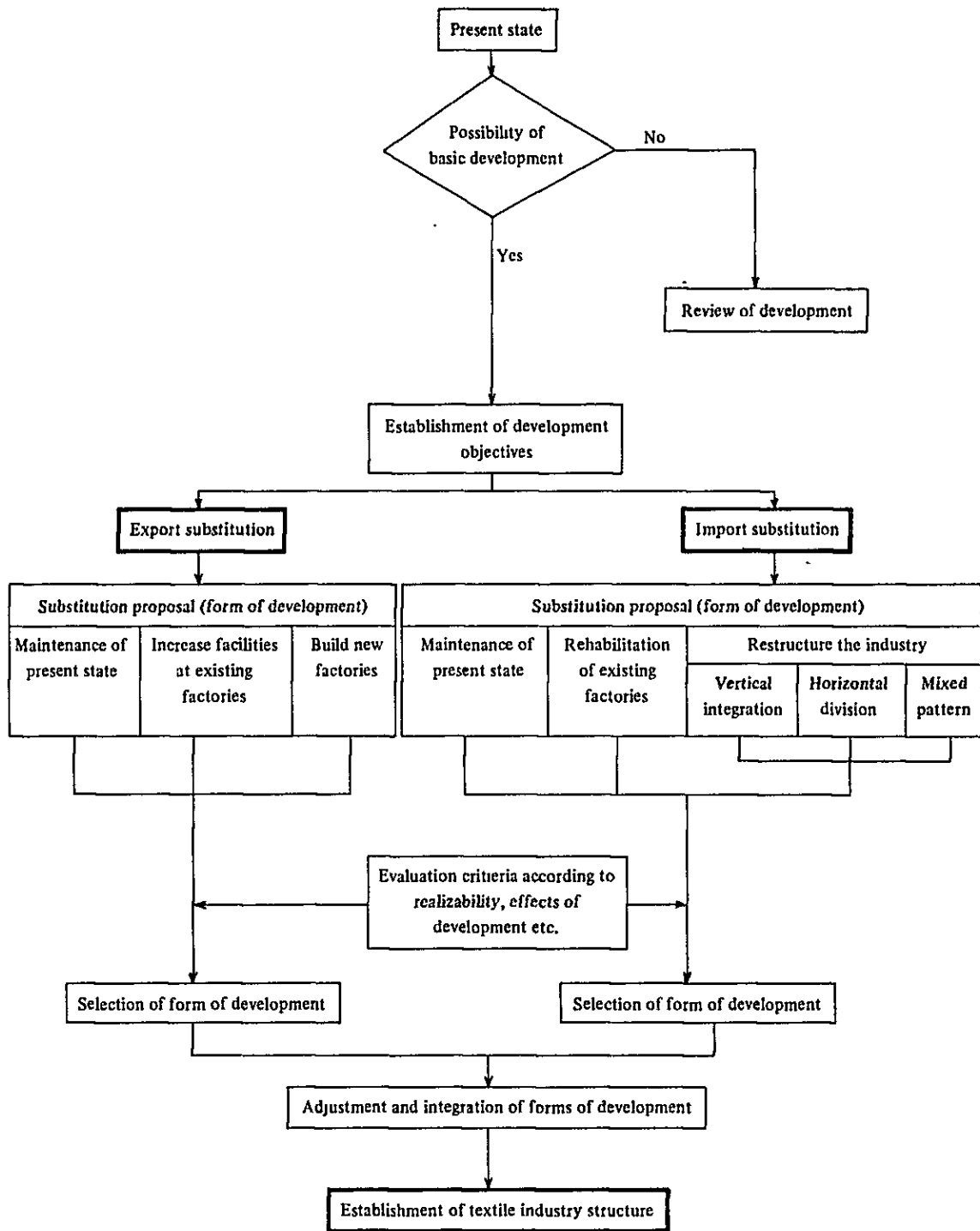


Chart 1. Process of Building Up a Model for the Structure of the Textile Industry

**Table 2. Development Process**

Object \ Period	First phase	Second phase	Third phase
I.N.T.N.	Enhancing I.N.T.N.'s functions	Guidance and supervision	Guidance and supervision
Large textile enterprises	Rehabilitation	Renovation of spinning equipment	Renovation of weaving equipment
Small textile enterprises	Rehabilitation scrapping of spinning and dyeing equipment	Installation of new spinning, weaving and dyeing equipment	
New textile enterprise		Establishment of spinning mill	Establishment of New weaving and dyeing mills
Converters		Fostering of converters	

## 6. Basic Development Plan

### (1) Development of Strategy

In order to attain development objectives, the following strategy will be planned.

#### 1) Enhancement of I.N.T.N.'s functions

Along with increasing personnel and expanding equipment, the functions of I.N.T.N. will be enhanced by receiving technical guidance from countries advanced in the textile industry, standardization will be enforced, activities, such as inspection of export goods, technical services, advertising and publicity, will be undertaken, and efforts will be made to raise the technical level of the textile industry.

#### 2) Rehabilitation of Existing Textile Companies

Activities to enlighten management and engineers and rehabilitation of the textile companies will be undertaken. The competitive power of companies will be strengthened by improving operation techniques and the quality of products and by lowering production costs.

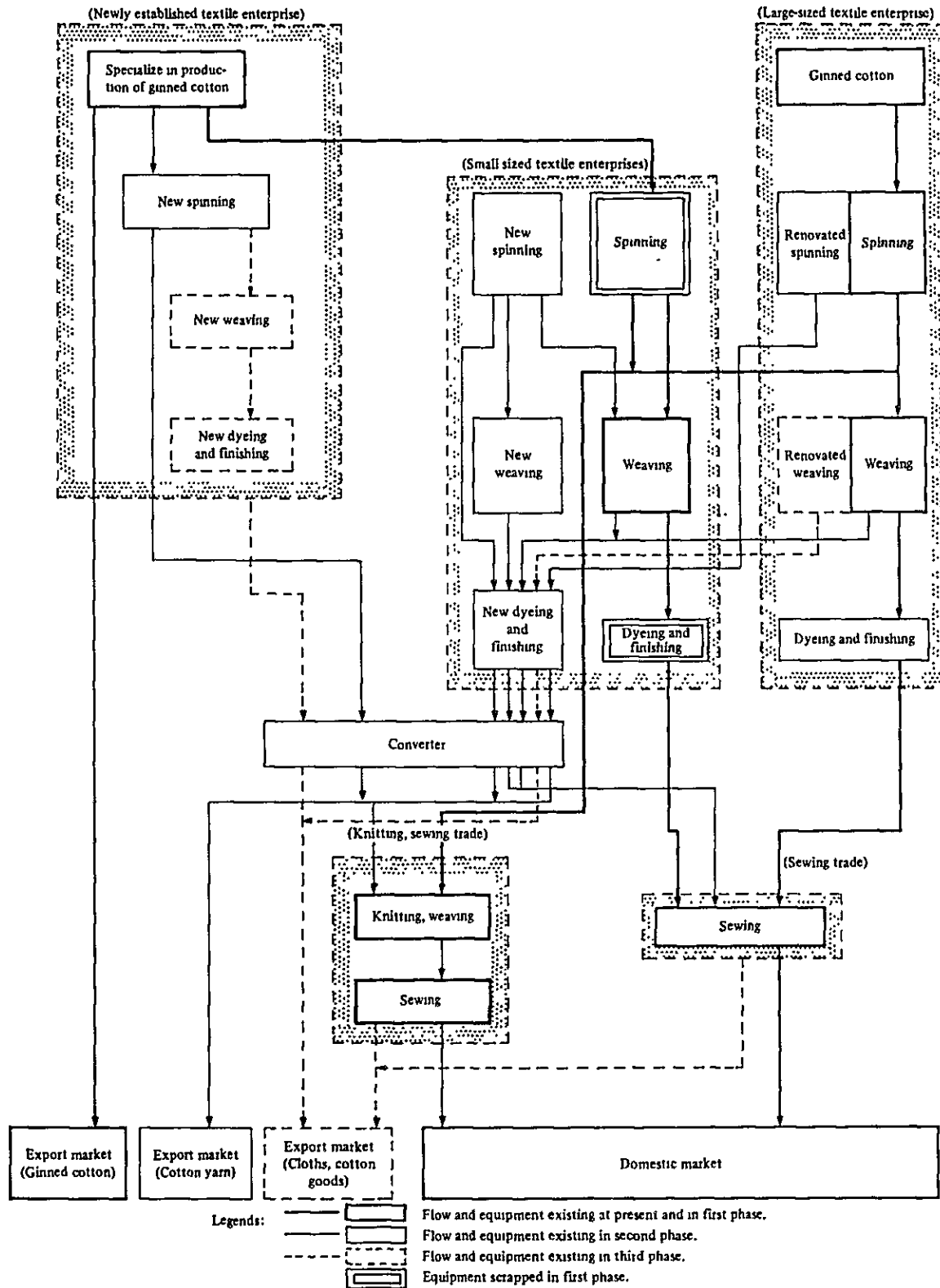
#### 3) Structural Improvement of the Textile Industry

After the existing companies have been rehabilitated, rationalization of small textile companies will be pushed forward by reajusting the production fields of individual companies and by utilizing joint production equipment, and efforts will be made to improve the structure of the textile industry.

#### 4) Expansion of Textile Exports

New export-oriented spinning factories and new weaving factory will be built to strengthen export competitive power. Yarn, fabric and finished goods will be exported in consecutive order. Initial target markets are the neighboring countries





Note: In the flow from the spinning section to the weaving section, yarn dyed is to be included in the spinning section.

Chart 2. Structural Plan of Textile Industry

and the ultimate targets are the markets in West European countries. In order to expand sales outlets, converters will be fostered.

By carrying out the above strategy, the future structure of Paraguay's textile industry will be as shown in Chart 2. The textile enterprises are basically divided into three groups, — newly-established enterprises, large enterprises and small enterprises — and each group has a different market. The converters exist between them and the sewing trade. With the newly-established textile enterprises as the nucleus, the functions of the converters will be utilized, and the textile industry will make steady progress. As a result, Paraguay's textile industry will be producing 10,242 tons of yarn and 28,092 thousand meters of fabric per year, as indicated below.

(1) Yarn

Newly-established factory	2,470 t/y
Existing factories	7,772 t/y
Total	10,242 t/y

(2) Fabric

Newly-established factory	6,924,000 m/y
Existing factories	21,168,000 m/y
Total	28,092,000 m/y

(2) Measures for Promoting the Textile Industry

Among the measures for promoting the textile industry are programs centering around the development of the industry and programs to improve mainly the business environment of the industry.

With regard to the former, there are enhancement of I.N.T.N.'s functions, rehabilitation of the existing enterprises, commencement of joint production, establishment of new export-oriented factories and establishment and fostering of converters. Among the latter are preferential treatment in taxation and financial matters, opening up of markets, building up the infrastructure, and establishment of trade organizations. As preferential treatment in taxation and financial matters, there are export duties on finished goods, capital goods, import duties and protection of the taxation system.

Measures for promoting the textile industry will be taken in three stages which are shown in Table 3.

(3) Studies on Development of the Textile Industry from Financial Standpoint

On the subject matter, since small textile enterprises and newly-established enterprises require equipment investment, a study will be made of the economic nature of their business.

In order to jointly produce textile goods for sale in the domestic market by utilizing Industria Textil Asuncena S.A.'s (I.T.A.S.A.) mill, the small textile enterprises plan to install

**Table 3. Measures for Promoting the Textile Industry**

Period		First phase	Second phase	Third phase
Item				
Objectives		Readjustment of basic conditions	Export of yarn	Export of woven and processed goods
Counter-measures	Enterprises	<ul style="list-style-type: none"> <li>o Rehabilitation</li> <li>o Enlightenment of management</li> </ul>	<ul style="list-style-type: none"> <li>o Quality control movement</li> <li>o Structure improvement of the textile industry</li> <li>o Raising productivity</li> </ul>	<ul style="list-style-type: none"> <li>o Quality control movement</li> <li>o Raising productivity</li> </ul>
	I.N.T.N.	<ul style="list-style-type: none"> <li>o Enhancement of function such as technical guidance and supervisory powers</li> <li>o Expansion of textile inspection functions</li> </ul>	<ul style="list-style-type: none"> <li>o Standardisation of yarn</li> <li>o Inspection of yarn for export</li> <li>o Technical services</li> <li>o Publicity activities</li> </ul>	<ul style="list-style-type: none"> <li>o Standardisation of woven and processed goods</li> <li>o Inspection of woven and processed goods for export</li> <li>o Technical services</li> <li>o Publicity activities</li> </ul>
	Government	<ul style="list-style-type: none"> <li>o Revision of export duties</li> <li>o Tariff barrier to yarn</li> <li>o Exemption of import duty on capital goods</li> <li>o Building up of infrastructure (ports, harbors and marine transportation)</li> </ul>	<ul style="list-style-type: none"> <li>o Tariff barrier to woven and processed goods</li> <li>o Tax reduction for yarn exporters</li> <li>o Expansion of structure for opening up overseas markets</li> <li>o Financing system for export enterprises</li> <li>o Opening a course on textiles at vocational training facilities</li> </ul>	<ul style="list-style-type: none"> <li>o Tax reduction for exporters of woven and processed goods</li> <li>o Expansion of structure for opening up overseas markets</li> </ul>
	Others	<ul style="list-style-type: none"> <li>o Establishment of knitter's and sewers' trade organizations</li> </ul>	<ul style="list-style-type: none"> <li>o Establishment and fostering of converters</li> </ul>	

5,000 spindles, 48 looms and one set of dyeing and finishing equipment in the first phase, and an additional 5,000 spindles in the second phase. Total investment will amount to G2,106 million. Profits in the first phase are estimated at G354,877,500 per year on sales amounting to G1,150,591,200 per year. The rate of profit on sales will be a high 30.8 percent and that on investments will be 39.7 percent. In the second phase profits are estimated at G523,344,370 per year on sales amounting to G1,637,228,100 per year. The rate of profit on sales and that on investment will be 32 percent and 37.4 percent, respectively. The high rates are due to relatively high selling prices and light depreciation.

Next the newly-established enterprises will produce goods for export markets. Plans call for installation of 20,000 spindles in the first stage, and 200 looms and a new dyeing and finishing plant in the second stage. Total investment will amount to G6.4 billion. Profits in the first stage are estimated at G2,110,625 per year on sales amounting to G1,111,500,000 per year. The rate of profit on sales will be a low 0.2 percent which will barely make out a profit. However, in the second stage, profits will be G201,749,370 per year on sales amounting to G2,234,775,000, resulting in a high 9 percent profit on sales. This will be due to the commencement of sales of dyed and finished goods. Although the rates of profit on investment in

the first and second phases will be 14.2 percent and 15.4 percent, respectively, the profit portion is small and the rates of profit on investment for bearing interest and depreciation will be 14.2 percent in the first phase and 12.3 percent in the second stage.

Under these circumstances, the earning power of the small textile enterprises is high. On the other hands, it will be necessary for the newly-established enterprises to make great efforts business-wise at the time their mills start operating. However, even in the case of the newly-established, enterprises, there will be room to lower production costs so that it is believed that the becomic nature of their business will improve as a result of a detailed survey in the future.

#### (4) *Economic and Social Impacts of Development*

Import substitution and the expansion of exports will be accelerated as a result of development of the textile industry, at the same time, less payments will be made in foreign exchange and more foreign currency will be earned.

In the process of import substitution, it is possible that a domestic production increase of 2,065 tons will fully substitute for 2,115 tons of textile goods, other than synthetic textiles, that are imported from the United States and Japan. The total amount is US\$3,626,500, which is 38.4 percent of the total value of textile goods imported into Paraguay.

Textile goods for export will center around the production of the newly-established textile mills and US\$8,424,000 worth of foreign currencies will be acquired in the second phase of development (1987–1999). Foreign currencies acquired in the third phase of development (1992–1996) will amount to US\$16,932,000 which is equivalent to 17.2 percent of the export sales of raw cotton in 1979, and to 5.5 percent of the total value of exports in the same year. Value-wise textile goods will rank sixth among the main commodities exported.

As regards the present workers in the textile industry, it is estimated that about 2,800 workers are in the employ of five spinning and weaving enterprises and that about 1,200 workers are employed by the knitting and sewing trades. This means a decrease of 700–800 workers in the employ of the spinning and weaving enterprises. If the employees in the fields of transportation and services are included, the total number employed will increase.

As effects with respect to the transfer of technology resulting from the development of the textile industry, the establishment of export-oriented textile mills will particularly have relevance to the measures for strengthening I.N.T.N. With the establishment of export-oriented textile mills, the capacity of producing textile goods which have export competitive power will be transferred to these mills, while efforts to enhance the technical strength of the entire textile industry will be made by I.N.T.N. Production control techniques, such as quality control, industrial engineering and air conditioning, will spread to other industries and will contribute to their technical advancement.

The other industries will benefit from the development of the textile industry. Firstly, the production of raw cotton and ginned cotton as raw materials supply is conceivable. And in consequence of increased supply and increased exports, the acreage under raw cotton crop will be increased and the production of raw cotton will be boosted from the present 100,000 tons to 300,000 tons. In addition, it is conceivable that the number of sales agents of parts, dyes and expendables will increase, that new ironworks will be built and that about several small-

scale sewing enterprises will be established.

That is to say, if exports of textile goods are further impelled in the stage when they are fairly under way, exports of cotton yarn and fabrics as a substitute for raw cotton will make headway and the added value of exports will increase.

With the development of the textile industry and the expansion of exports of textile goods, the building up of the infrastructure, the accumulation of capital, the expansion of the domestic consumption market by distributing income, and the transfer of technology will be accelerated, thereby enhancing the potential for industrialized development.

## 7. Suggestions Regarding the Course of Action in the Future

Promotion of the textile industry will fulfill a very important role in raising the added value of exports, accelerating industrialization and in stabilizing the Paraguayan economy. Development program necessary for promoting the textile industry are shown in Table 4, and as the first step of actualization, the following two points should be enforced.

### (1) Enhancing the Functions of I.N.T.N.

Enhancing the function of I.N.T.N., which will assume the central role in promoting the textile industry, is the first point that should be taken. It is necessary to revise pertinent laws which will empower I.N.T.N. to engage in activities to the fullest extent possible. Next, installation of equipment for tests and inspection and the acquisition and fostering men of talent should be undertaken. Along with these steps, it is necessary to have the parties concerned with the textile industry fully aware of the effects of promoting production technology and the activities of I.N.T.N.

### (2) Feasibility Studies

The small textile enterprise and the newly-established textile enterprise have a big role to play in promoting the textile industry. With regard to the economic nature of their business, too, it has been pointed out that basically, it is worth studying with an eye to materializing it in the future. A feasibility study in this regard should be made in the same way as enhancing the functions of I.N.T.N.

#### 1) Small Textile Enterprise

Joint production is to be undertaken by utilizing the buildings of Industria Textil Asuncena S.A. and by installing therein spinning, weaving, dyeing and finishing equipments. With regard to a substitute plan for joint production involving only spinning, dyeing and finishing, a study should be made as to whether joint production on a commercial basis is possible by taking into consideration the opinions of the parties concerned.

#### 2) Newly-established Textile Enterprise

As regards integrated mills equipped with spinning, weaving, dyeing and finishing equipments, detailed studies of the market, conditions of location, production plans, investment plans, and business methods will be made to determine whether production on a commercial basis is possible.

Table 4. Programs for the Textile Industry Development in Paraguay

Item	Schedule	Phase 1 (1982-1986)	Phase 2 (1987-1991)	Phase 3 (1992-1996)	Remarks
I.N.T.N. 1. Revision of law 2. Training of personnel 3. Expansion of equipment 4. Guidance in and supervision over textile enterprises					Compulsory identification of quality begins in 1987 Installation of testing and inspecting machines
Large textile enterprises 1. Rehabilitation 2. Import substitution 3. Export					Cotton yarn 5,520 t/y Fabric 14,820,000 m/y
Small textile enterprises 1. Renewal of equipment 2. Import substitution					Equipment investment (first investment: spinning 5,000 sp looms 48 units, dyeing and finishing) (second investment: spinning 5,000 sp added) Cotton yarn 2,252 t/y (first investment 1,126 t/y) Fabric 4,822,000 m/y
Newly established textile enterprise 1. Construction of new factories or expansion 2. Guidance in operation 3. Spinning 4. Weaving and finishing					Equipment investment (first investment: spinning 20,000 sp) (second investment: looms 200 flats dyeing and finishing) Cotton yarn 2,470 t/y Fabric 6,924,000 m/y
Social and economic effects 1. Savings in foreign currency 2. Earning of foreign currency 3. Employment		US\$3,627,000 US\$8,424,000	US\$16,932,000		Employment in the direct production departments remains at the same level because 700 workers lose and get a job at the same time. Employment will increase if workers employed in the indirect production departments are included.

Note: The scheduled periods will be shortened if the plan is carried out smoothly.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial reporting and compliance with regulatory requirements. The text notes that incomplete or inconsistent records can lead to significant legal and financial consequences for the organization.

2. The second section focuses on the role of internal controls in preventing fraud and errors. It outlines various control mechanisms, such as segregation of duties, authorization procedures, and regular audits, which are designed to minimize the risk of misstatements and ensure the integrity of the data. The document stresses that a robust internal control system is a key component of an effective risk management strategy.

3. The third part of the document addresses the challenges of data security and privacy in the digital age. It highlights the need for organizations to implement strong security protocols, including encryption, access controls, and regular security updates, to protect sensitive information from unauthorized access and cyber threats. Additionally, it discusses the importance of adhering to data protection regulations, such as the GDPR, to maintain trust with customers and stakeholders.

4. The final section discusses the impact of technology on business operations and the need for continuous learning and innovation. It notes that while technology offers numerous opportunities for efficiency and growth, it also requires a skilled workforce and a culture of innovation. Organizations are encouraged to invest in training and development programs to ensure their employees are equipped to handle the challenges of a rapidly changing technological landscape.

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## 1. ECONOMIC AND SOCIAL CONDITIONS

### 1-1 General Conditions

#### (1) Topography

Situated in the interior of the southern part of South America, the Republic of Paraguay covers an area of 406,752 square kilometers, which is about 1.1 times the area of Japan. It is an inland country bounded by Brazil, Argentina and Bolivia. The country is divided into eastern Paraguay and western Paraguay by the Paraguay River which traverses the central part of the country from north to south. Eastern Paraguay covers about 40 percent of the country and is made up of hilly terrain and plains. The altitude of the highest place is less than 200 meters above sea level and the lowest place is only 80 meters above sea level. There is little change in the topography of western Paraguay which is made up of large, gentle-sloping plains. The southeastern part is made of low marshland.

Asuncion, the capital of Paraguay, was constructed in 1537 by the Spaniards on the left banks of the Paraguay River facing an inlet. Hills stretch across the city. Asuncion covers an area of 103.75 square kilometers.

The main rivers are the Parana and Paraguay rivers which meet one another to form the La Plata River, making it possible to connect with the two major ports of Buenos Aires and Montevideo.

#### (2) Climate

Paraguay has a subtropical climate. The seasons are largely divided into summer and autumn, and in between them are the short spring (September–October) and autumn (April–May). The average yearly temperature is 24.5 degrees C.

The winter season extends for about three months from June to August and its average temperature is 14.5 degrees C. In the northern part of Chaco and Itapua and Alto Parana region which are forest zones, the temperature falls below zero and frost falls.

Summer lasts for about five months from November to March and although the average temperature during this season is 31.5 degrees, there are times when the maximum temperature exceeded 40 degrees. Sudden changes in the temperature occur particularly in the spring and autumn and it is quite often that the temperature varies close to 20 degrees in one day.

Generally it is warmer in the northwestern part of Paraguay compared to the southeastern part. The temperature is highest in the Chaco region and is the lowest in the southern part of the Parana River.

#### (3) Population

The estimated population of Paraguay in 1979 was 2,970,000. Although the population density is very low and is 7.3 persons per square kilometer, the rate of annual increase in population is a relatively high 3 percent (refer to Table 1-1).

**Table 1-1 Transition of Total Population**

Item Year	Total population	Rate of population increase (%)
1970	2,301,081	2.74
1971	2,364,846	2.77
1972	2,431,222	2.81
1973	2,500,312	2.84
1974	2,572,185	2.87
1975	2,646,877	2.90
1976	2,724,391	2.93
1977	2,804,703	2.95
1978	2,887,760	2.96
1979	2,973,493	2.97

Source: The Central Bank of Paraguay

**Table 1-2 Transition of Estimated Population of Principal Cities**

Unit: person

Year Name of city	1972	1976	1980
Asunción	392,753	442,000	497,000
Area Metropolitana	483,148	543,700	666,300
Encarnación	23,343	25,200	27,900
Pedro J. Caballero	21,023	28,200	37,900
Concepción	19,392	21,300	23,400
Villarrica	17,687	18,700	19,700
Cnel. Oviedo	13,786	15,100	16,600
Pilar	12,506	17,600	24,800
Caaguazú	7,905	13,100	21,700

Source: Planning and Engineering Office of the President's Office

About 30 percent of the total population live in cities and their suburbs. The population of Asuncion is about 490,000. About 97 percent of the total population are concentrated in the fertile eastern Paraguay. Only fewer than 100,000 people live in the extremely depopulated western Paraguay which covers about 60 percent of the total area of the country. The drift of population to cities is increasing yearly with the result that land prices in the cities are rising steeply so that has become increasingly difficult to acquire land (refer to Table 1-2).

Paraguay enforced a completely isolation policy in the first half of the 19th century and prohibited foreigners from immigrating into the country so that there was no migration of Europeans up to the latter half of the 19th century. The consequence was that 96.5 percent of the population consisted of Spaniards, who had conquered the country, and of persons of mixed Spanish and aboriginal (guarani) parentage. Europeans and Japanese, who are relative newcomers, account for 2 percent and Indio 1.5 percent of the total population.

## 1-2 Economy

Lacking natural resources such as minerals and oil, Paraguay is a primary products exporting country centering around products of the agriculture, stock-farming and forestry industries such as meat, lumber, soy beans and raw cotton. In recent years the government has placed emphasis on developing agricultural products for export by giving export bounties and preferential tax treatment to farmers. Production of particularly raw cotton and soy beans has markedly increased. However, human resources are too little in consequence of the wars with neighboring countries twice. Added to this, internal conditions such as the marked concentration of population in eastern Paraguay, the fact that only about 3 percent of the population live in western Paraguay which occupies 60 percent of the total area of the country, and the high cost of transportation as Paraguay is an inland country, have brought about a cramped domestic market in addition to arresting the comprehensive development of the country.

Although Paraguay is faced with unfavorable conditions geographically and economically, there is a strong desire to promote the economic development of the country. The yearly average real growth rate of the gross national product in 1978 was 10.3 percent. The growth rate in 1979 was 9 percent, the highest in Latin America (refer to Table 1-3).

Table 1-3 Transition of Gross National Product

Item Year	GNP (Unit: \$1 million)	As against 1960 index	Rate of increase (%)
1960	448.4	100	—
1965	570.2	127.2	4.9
1970	700.7	156.3	4.2
1975	948.2	210.4	6.1
1977	1,133.8	252.9	9.6
1978	1,250.5	278.9	10.3
1979	1,363.1	304.0	9.0

Source: Ministry of Industry and Commerce

Moreover, in the case of the gross domestic product, the yearly average growth rate has continued to register double digit figures, recording 12.8 percent in 1977, 10.9 percent in 1978 and 10.7 percent in 1979 (refer to Table 1-4).

**Table 1-4 Gross Domestic Product and State Revenue**

Year	Gross domestic product		
	Present prices (Unit: 1 million G)	1977 prices (Unit: 1 million G)	Yearly increase rate (%)
1970	74,921	157,761	4.8
1971	83,736	166,341	5.4
1972	96,899	177,056	6.4
1973	125,437	189,794	7.2
1974	168,018	205,430	8.2
1975	190,439	218,413	6.3
1976	214,069	233,741	7.0
1977	263,612	263,612	12.8
1978	322,542	292,235	10.9
1979	430,514	323,504	10.7

Source: The Central Bank of Paraguay

As the background of such smooth development, satisfactory agricultural production due to the increase in acreage under cultivation, the increase in exports of agricultural products, the progress of industrialization and the brisk activity of the construction industry centering around the construction of hydroelectric power stations can be cited. Moreover, it can be said that political stability, the rise in prices on a low level, and the stabilization of currency directly and indirectly have supported the economic development of Paraguay. The nature of the people's consumption has diversified and the demand particularly for durable consumer goods has remarkably increased. This is a clear indication of the qualitative rise in the standard of living.

With the 5-year state reconstruction program for the period from 1943 to 1948 as the start, the government drew up the first (1965-66), the second (1967-68), the third (1969-70), the fourth (1971-75) and the fifth (1977-81) development plans and has been tackling with the development and advancement of an economic society. As one step for the realization of these development objectives, the government is making efforts for the induction of foreign capital, investment of foreign enterprises in the industrial field particularly for the purpose of increasing exports of agricultural and dairy products and of accelerating import substitution and export substitution.

On the other hand, the rates of increase in the consumers' prices in 1973 and 1974 reached high levels of 12.8 percent and 25.2 percent, respectively, because of the oil crisis. The steep climb subsided subsequently due to money tightening measures taken by the government, and the rates of increase in 1976 and 1977 were limited to one digit figures, namely, 4.5 percent and 9.4 percent, respectively. However, with business stimulated by accelerated internal develop-

ment, consumers' prices started rising again and increased by 28.2 percent in 1979. The upward trend is continuing (refer to Table 1-5).

Table 1-5 Consumer's Price Index

1964 index = 100

Item \ Year	1977	1978	1979
Food	253.5	265.8	344.1
Housing	183.2	194.9	238.5
Clothing	188.8	210.8	259.7
Other	224.4	241.4	317.0
General index	218.1	241.3	309.3
Yearly increase rate	9.4%	10.6%	28.2%

Source: The Central Bank of Paraguay

The rise in prices is attributed largely to external factor abroad. Firstly, Argentina and Brazil, Paraguay's main trading partners, were hit by severe inflation. Secondly, Guarani, the Paraguayan currency, is strongly linked to the U.S. dollar, and when the American currency weakens in the international money market, the cost of imports from other countries with a strong currency increases.

The hydroelectric power station, which is under construction at Itaipu, is scheduled to be completed in the latter half of the 1980s. When this power plant is completed, Paraguay will become selfsufficient in electric power. Studies are being made with a view to constructing a big aluminum refinery and to industrializing methanol, silicon and crystals for which inexpensive electric power will be utilized. On top of this, acquisition of large amounts of foreign currencies is expected from exporting surplus electric power.

### 1-3 Finance

Ever since the Paraguayan Government reformed the financial and banking systems with the assistance of the International Monetary Fund in 1957, sound finance and a balanced budget have been the basis of its economic policy. In carrying out financial measures, the government placed emphasis on preventing inflation and succeeded in stabilizing prices to an extent unseen in Latin America to date.

The role played by the government in the field of finance since 1960 for developing the Paraguayan economy has rapidly heightened, and with the economic development plan as the axis, investments in public utilities and induction of foreign capital are being actively made.

To cope with the increasing demand for public services due to economic growth, public investments have rapidly increased. Consequently, in order to expand public services while maintaining a sound financial policy, it is necessary to increase the revenue of the central government. For this purpose various measures have been taken.

As a result, the central government's revenue increased 23 percent in 1978 and 29 percent in 1979. The revenue from taxes, including direct and indirect taxes, accounted for more than 90 percent of the total revenue. The rates of increase in the tax revenue were 32 percent in 1978 and 28 percent in 1979.

#### 1-4 Banking

Paraguay's banking structure is divided into government financial organs with Banco Central del Paraguay (Central Bank of Paraguay) as the axis, and private financial institutions. Among the latter are foreign financial institutions.

##### (1) Government Financial Organs

###### 1) Banco Central del Paraguay

Due to a financial reorganization effected in 1952, the functions of the Paraguay State Bank as the central bank were separated and became independent. The main functions of Banco Central del Paraguay are issuing currencies, fixing interest rate on deposits and loans, and making decisions on policies regarding currency and finance. The government's financial policy, which is routed through the Central Bank, has stabilization of the value of the Paraguayan currency as its basic objective. The Central Bank has adopted a fund allocation system for commercial banks and a deposit system for imports.

###### 2) Banco Nacional de Fomento (BNF)

Banco Nacional de Fomento was established in 1962 by taking over the private department of the Paraguay State Bank. Its main objective is furnishing funds for the development of the agriculture, stock-raising, forestry and manufacturing industries. To accommodate funds for these industries, the bank obtains loans from the Central Bank and international financial institutions such as the World Bank and Inter-American Development Bank (IDB), issues bonds and also uses its deposits. Banco Nacional de Fomento is divided into three independent departments -- development, agriculture and commerce. The development department advances low-interest loans for the stock-raising, agriculture and forestry industries in addition to issuing development bonds with the approval of the Central Bank, and mortgage bonds. The agriculture department accommodates individual farmers and agricultural cooperative associations with funds at low interest for purchasing land, managing farms and for procuring machinery. In keeping with the increased production of raw cotton recently, funds advanced to the ginned cotton trade have increased rapidly.

The commerce department is engaged in the same kind of business as the commercial banks. It accepts deposits and also advances funds. Its loan terms are about the same as those of commercial banks.

The loan situation of Banco Nacional de Fomento in 1977 is given in Table 1-6.

###### 3) Fondo Ganadero

Established in 1969, Fondo Ganadero is under the control of the Central Bank. It obtains loans from the World Bank, the International Development Association (IDA) and the Central Bank to accommodate funds mainly for fostering large-scale stock-raising enterprises.

Table 1-6 Funds Advanced as Classified by Industries and Their Ratio

(Unit: 1 million G)

Amount Industry	0	1.000	2.000	3.000	4.000	5.000	6.000	7.000	8.000	9.000	10.000	11.000	%
Agriculture							6.496						56
Manufacturing			2.553										22
Commerce and others			2.007										17
Stock-raising		464											5
Total												11.500	100.0

Source: Banco Nacional de Fomento

- 4) Banco Nacional de Ahorro y Préstamos Para la Vivienda  
Founded in 1972 as a financial institution specializing in financing housing construction, this bank accommodates funds for purchasing land, building and/or enlarging houses.

(2) Private Financial Institutions

1) Commercial Banks

At present there are 15 commercial banks of which 12 banks have tied up with foreign capital. Among them the First National City Bank has the largest assets, followed by Banco de Londres y America del Sur and Banco de la Nacion Argentina in the order named. All the banks are obligated to keep large legal reserves.

2) Long-term Credit Banks

There are three long-term credit banks in addition to Compañia Paraguaya de Desarrollo S.A. (COMDESA). Established as a supplementary organ of Banco Nacional de Fomento, COMDESA is obligated mainly to advance intermediate-term and long-term funds for building up fixed assets of enterprises and for producing export goods and import substitutes.

The maximum interest on the commercial banks' loans is set at 12 percent by the Bank Law, but as several percent is added under the pretext of commission, the cost rate to the borrower is very high (refer to Table 1-7).

**Table 1-7 Interest Rates of Major Banking Institutions**

Item Financial institution		Interest		Commission		Average loan period (Month)
		Max. (%)	Min. (%)	Max. (%)	Min. (%)	
Banco Nacional de Fomento	Short-term	12	12	12	10.2	8
	Intermediate-term	12	9	6	3.6	48
	Long-term	12	9	7.2	4.8	100
Commercial Banks	Short-term	12	12	16	12	6
	Intermediate-term	10	10	4.5	4.5	12
	Long-term	-	-	-	-	-
Fondo Ganadero	Short-term	12	12	6	-	10
	Intermediate-term	-	-	-	-	-
	Long-term	11	11	0.2	-	120

Source: Banco Nacional de Fomento



### (3) Main Assistance Countries and International Financial Institutions

Given the possibility of economic development of Paraguay mainly because of political stability over a long period and of the development of hydraulic power resources, the governments of advanced countries and various international financial institutions are engaged in positive assistance activities. These activities are directed mainly to the fields of transportation, farming, stock-raising and energy and are contributing greatly toward consolidating the economic foundation of Paraguay (refer to Table 1-8).

The outline of assistance extended by the major international financial institutions is as follows.

#### 1) The World Bank Group

As at the end of June 1980, loans advanced were about \$165,000,000 from the International Bank for Reconstruction and Development and about \$93,000,000 from the International Development Association for a total of \$258,000,000. The funds have been directed to projects concerning agriculture, roads and education.

#### 2) Inter-American Development Bank (IDB)

Funds advanced by IDB as at the end of June 1980 amounted to about \$362,000,000. Most of the funds advanced are long-term low-interest loans in due consideration of the fact that Paraguay is a developing country.

#### 3) Assistance from Japan

##### 1. Onerous Cooperation

The Japan Export-Import Bank and the Overseas Economic Cooperation Fund have advanced yen loans for purchasing ships and for construction of roads (refer to Table 1-9).

##### 2. Gratuitous Cooperation

A ¥800 million grant-in-aid was given to Paraguay for construction of a vocational training center which was completed in March 1979. Of this amount ¥650 million was spent on construction work and ¥150 million on procuring materials.

As a part of modernizing the agriculture, stock-raising and forestry industries, Japan has given a ¥1,500 million grant-in-aid for establishing a comprehensive agriculture and forestry development center in southern Paraguay, and a ¥600 million grant for establishing satellite communication ground stations and for repairing and improving microwave communication facilities.

## 1-5 Transportation and Communications

### (1) Transportation

Improvements in land, water and air transportation and communications have been delayed and this has become the biggest obstacle to the industrial development of Paraguay. However, as efforts in these fields are being actively made by obtaining assistance from the World Bank, Inter-American Development Bank and other international financial institutions,

Table 1-8 Assistance Trend of Major Interantional Financial Institutions

Lending organ	Amount (Unit: \$1,000)	Period	Grace period (年)	Interest (%)	Commission (%)	How funds are spent.
International Bank of Reconstruction and Development (IBRD)	22,000	1977/94	4	8.20	0.75	Promotion of education of rural communities
	33,000	1978/95	4	7.45	--	Construction of road between Colonel Oviedo and Encarnacion
	10,000	1977/92	4	8.20	0.75	Industrial promotion
International Development Association (IDA)	9,000	1964/2009	10	4.50	--	Economic development
	10,000	1974/99	5	8.00	0.75	Promotion of stock-raising
	11,530	1979/96	4	7.00	0.75	Ditto
Inter-American Development Bank (IDB)	26,400	1970/2000	4.5	3.25	0.75	Paving of Route No. 9
	10,600	1978/2003	2	7.50	1.25	Paving of chaco cross-country road
	10,500	1978/2018	10	2.00	0.50	Agricultural administration education
	3,400	1964/95	1	1.25	0.75	Construction of housing
	14,150	1964/89	7	3.25	0.75	Construction of Akalai power plant
	29,000	1971/96	5	3.25	0.75	Expansion of electric power supply network
	32,500	1978/2003		7.50	1.25	Electrification project in eastern part of Paraguay
	8,300	1969/94	4	2.25	1.25	Construction of water supply facilities
	7,400	1974/2014	11	2.00	0.50	Ditto

Source: Central Bank of Paraguay

Table 1-9 Onerous Cooperation from Japan

Date of agreement	Object of loan	Amount (¥ million)	Redemption period (Year)	Interest (%)	Financing organ
July 1959	River vessels	1,368	10	6	Japan Export-Import Bank
Nov. 1972	Satellite communication ground stations Microwave communication facilities	3,900	20	4	Overseas Economic Cooperation Fund
June 1975	Same as above	2,000	20	4	Same as above
June 1977	Road Construction	1,850	25	4	Same as above
Dec. 1978	River vessels	7,500	25	4	Same as above

Source: Ministry of International Trade & Industry (Japan)

remarkable progress has been made in the past several years. Buses are widely utilized by the public at large. Long-distance buses are operated from the capital city of Asuncion to all parts of the country. Even international buses bound for Sao Paulo and Buenos Aires are operated. In Asuncion mass transportation is mostly dependent on buses, and streetcars run in only a few parts of the city. Reliance on taxis is relatively low, while that on automobiles for private use has rapidly increased in recent years.

#### 1) Land Transportation

##### ① Roads

The total length of the roads is 6,895 kilometers of which 905 kilometers are asphalted (refer to road map 1-1). The rest of the roads are mostly either dirt or macadam roads. In rainy weather there are times when vehicle traffic is prohibited to prevent accidents and to repair roads. As the bad condition of roads is one of the obstacles to the economic development of the country, the 5-year economic and social development plan (1977-1981) has laid stress particularly on investing in road improvements. The following trunk roads have been completely asphalted. National Highway No. 1 which extends from Asuncion to Encarnacion over a distance of 370 kilometers. Nacional Highways No. 2 and No. 7 which run from Asuncion to Stroessner over a distance of 327 kilometers.

The two highways have been linked with Brazil as a result of the "Friendship Bridge" built across the Parana River. The amount of Paraguayan products transported by truck to Stroessner for export to Brazil has increased in recent years.

On the other hand, ferryboat service is operated to Argentina from Asuncion and Encarnacion. There is also truck and bus service linking with Buenos Aires. As one of the important measures for the economic development of Paraguay, a 700 kilometer cross-country highway is under construction in the western part of the country with the assistance of the Inter-American Development

# MAPA DE LA REPUBLICA DEL PARAGUAY



Source: CEPEX

Bank. This highway will become the nucleus of development of the relatively retarded regions in Paraguay. It will also connect with Bolivia's road network. As the artery linking the Pacific coast of South America with the contries in the basin of the La Plata River and the Atlantic coast, the highway has unfathomable importance. The government has already received a loan from the World Bank for expanding and paving other trunk roads and these projects are making steady progress.

## ② Railways

The total length of Paraguay's railways, including private industrial railways, is 1,152 kilometers. The total length of railways under public management is 441 kilometers of which the 370-kilometer railway between Asuncion and Encarnacion is operated twice weekly. Encarnacion links with Argentine city of Posadas on the opposite bank by ferryboat and Posadas is connected with Buenos Aires by the Argentine Railways. Built in 1854 with British capital, the railways in Paraguay are the oldest in South America. They were bought and nationalized by the Paraguayan Government in 1961. The lines as well as the rolling stock have become obsolete, and buses and trucks are now the main means of conveyance. To meet the demand for large-scale transportation accompanying the increase in agricultural production and on the premise that electric power from the Itaipu hydroelectric power plant will be supplied, the government has plans to electrify and modernize the railways.

## 2) River Transportation

Since Paraguay is an inland country, the greater part of export and import goods are transported by utilizing the Paraguay and Parana rivers, and most of the goods are transshipped between oceangoing vessels and river-boats. Vessels with a displacement up to 20,000 tons can navigate up to Asuncion but navigation during the dry season is difficult at times.

Recently goods have been transported by truck to the Brazilian port of Paranagua, and although trade is increasing by utilizing the free zone at this port, river transportation is still an important means of communication in Paraguay.

Flota Mercante del Estado is playing a big role in this field. In addition to engaging in internal transportation, Flota Mercante operates regular service to Europe and on international river routes of Brazil and Argentina. Since most of its ships are obsolete, there are problems in transportation efficiency. Forty-two vessels are under construction with yen loans from Japan.

The ports of Asuncion and Concepcion have loading and unloading facilities and warehouses. They have the following cargo machinery.

- Five 6-ton Coles cranes
- Two 10-ton Coles cranes
- One 30-ton Nelson crane
- Eleven 1.5-ton forklifts
- One Yale 10-ton forklift
- Two 3-ton Fenwich forklifts
- Eight motor-operated 3-ton cranes
- One motor-operated 5-ton crane
- Two motor-operated 6-ton cranes
- One motor-operated 20-ton crane

Two tractors

Asuncion port's piers, warehouses and berthing capability are follows:

Concrete pier	885 meters
Pier	294 meters
Warehouses	Seven with total floor space of 18,500 m <sup>2</sup>
Cargo yards	12 hectares
Road	5
Depth of water:	
(when the river is swollen)	5.5 meters
(in dry season)	3.6 meters
Railway	1,500 meters

As the present capacity of Asuncion's port facilities is insufficient to cope with the increase in exports and imports centering around agricultural products and machinery, the government has decided to expand the port with a \$29 million loan received from the World Bank. The expansion project is scheduled to be started in June 1981.

### 3) Aviation

At present Stroessner Airport in Asuncion is the only international airport in Paraguay. In addition to the airlines of neighboring countries such as Varig (Brazil), Aerolinea Argentina and lan Chile (Chile), which fly into Asuncion, Iberia (Spain), Lufthansa (West Germany) and other airlines of West European countries, which operate long-distance international flights, make stopovers in Asuncion.

Lineas Aereas Paraguayas, the national airline, operates flights to Argentina, Brazil, Bolivia and Uruguay.

Domestic air transportation linking Asuncion with Encarnacion, Stroessner, Pedro Juan Caballero, Concepcion, and other local cities is operated by transport planes of the Paraguayan Air Force. As the runways at the local airports are not paved, takeoff and landing cannot be made in rainy weather. Consequently improvements and expansion of local airport facilities have become a matter of urgent necessity. A project to develop Stroessner Airport into an international airport is being pushed with financial assistance from Japan.

### (2) Communications

Telegraphic and telephone service is operated by the State-owned ANTELCO and is a monopolistic enterprise of the government.

There are about 200 telephone exchange offices the greater part of which is concentrated in Asuncion. In the cities calls are made by dialling numbers. The popularization rate of telephones is low. In addition to introducing microwave circuits to increase the suburban circuits, the government is stepping up establishment of an international microwave network which will link with Argentina and Brazil. The government completed construction of a satellite communication ground station in 1977 with a loan obtained from Japan. The station was opened in May 1978.

## 1-6 Industries

The composition ratio of agriculture in the gross national product in 1977 was a high 20.7 percent. Agriculture was followed by stock-raising with 7.3 percent and by forestry with 3.3 percent. The composition ratio of the manufacturing industry, including construction, which was 19.6 percent in 1975, increased by 2.8 percent to 22.4 percent in 1979, reflecting brisk activity in dam construction. The annual growth rate of the gross national product in 1979 was 10.7 percent. The growth rate of the construction industry centering around dams recorded a high growth rate of 30 percent. The actual figures and the growth rates of the gross national product classified by industries are shown in Tables 1-10 and 1-11.

### (1) Agriculture

Constituting an important field of industry in Paraguay, agriculture accounted for 20.7 percent of the gross national product in 1979. The annual average growth rate of agriculture during the period from 1970 to 1975 was 6.6 percent. The growth rate in 1979 was a fairly high 6.5 percent. The principal agricultural products are soy bean, corn, raw cotton, sugar beet, tobacco, coffee, mandioca, rice and wheat (refer to Table 1-12).

Table 1-10 Gross National Product Classified by Industries

(Unit: 1 million G)

	1975	1976	1977	1978	1979
<b>Primary Industry</b>	<u>70,284</u>	<u>73,961</u>	<u>89,925</u>	<u>103,430</u>	<u>135,163</u>
Agriculture	37,727	45,043	59,308	63,249	84,200
Stock-Farming	23,841	21,313	21,777	30,139	38,487
Forestry	8,546	7,397	8,590	9,622	11,895
Hunting, Fishing	170	208	250	420	581
<b>Secondary Industry</b>	<u>37,287</u>	<u>43,788</u>	<u>56,219</u>	<u>70,683</u>	<u>94,261</u>
Mining	365	529	685	794	1,446
Manufacturing	29,759	34,221	44,974	54,419	69,610
Construction	7,163	9,038	10,560	15,470	23,205
<b>Basic Services</b>	<u>10,339</u>	<u>12,438</u>	<u>14,871</u>	<u>18,976</u>	<u>25,248</u>
Electricity	2,305	3,208	3,953	5,088	6,777
Water supply and drainage	434	527	654	894	1,112
Transportation, Communication	7,600	8,703	10,264	12,994	17,359
<b>Other Services</b>	<u>72,529</u>	<u>83,882</u>	<u>102,597</u>	<u>129,453</u>	<u>175,842</u>
Commerce, Finance	43,594	51,502	66,026	83,986	112,656
General administration	6,493	7,623	10,283	12,710	14,595
Housing	5,018	5,570	6,077	7,493	11,229
Others	17,424	19,187	20,211	25,264	37,362
<b>Gross National Product Based on Market Prices</b>	<u>190,439</u>	<u>214,069</u>	<u>263,612</u>	<u>322,542</u>	<u>430,514</u>

Source: Paraguay Central Bank

**Table 1-11 Composition of Gross National Product Classified by Industries and Annual Real Growth Rates**

Item \ Year	Annual growth rate (%)					Composition ratio (%)				
	1974/75	1975/76	1976/77	1977/78	1978/79	1975	1976	1977	1978	1979
<b>Primary Industry</b>	8.2	3.7	11.1	5.9	6.7	35.7	34.6	34.1	32.6	31.4
Agriculture	3.4	4.7	15.6	6.2	6.5	22.4	22.0	22.5	21.6	20.7
Stock-farming	20.8	3.3	1.3	3.8	4.0	9.5	9.2	8.2	7.7	7.3
Forestry	9.3	-1.9	9.1	7.9	14.0	3.7	3.3	3.3	3.2	3.3
Hunting, Fishing	28.2	18.0	14.3	37.4	31.8	0.1	0.1	0.1	0.1	0.1
<b>Secondary Industry</b>	1.4	7.9	22.0	14.0	13.0	19.6	19.7	21.3	21.9	22.4
Mining	20.2	42.2	23.6	15.9	42.1	0.2	0.2	0.2	0.3	0.4
Manufacturing	-1.8	5.5	20.1	9.8	7.7	16.3	16.0	17.1	16.8	16.4
Construction	21.2	18.1	31.1	32.0	30.0	3.1	3.5	4.0	4.8	5.6
<b>Basic Services</b>	15.6	12.0	9.4	12.9	13.9	5.5	5.8	5.7	5.8	5.9
Electricity	22.0	26.1	11.7	16.1	20.1	1.3	1.5	1.5	1.6	1.7
Water supply, and drainage	14.8	9.9	12.6	23.3	12.1	0.2	0.2	0.3	0.3	0.3
Transportation, Communication	13.8	7.6	8.3	11.0	11.5	4.0	4.1	3.9	3.9	3.9
<b>Other Services</b>	6.0	8.9	10.1	13.2	12.2	39.2	39.9	38.9	39.7	40.3
Commerce, Finance	4.4	10.1	12.0	14.3	12.5	24.5	25.2	25.0	25.8	26.2
General administration	16.6	6.7	6.0	7.9	9.9	4.2	4.2	3.9	3.8	3.8
Housing	7.2	8.1	8.3	11.5	10.5	2.4	2.4	2.3	2.3	2.3
Others	5.8	6.7	7.0	12.9	12.9	8.1	8.1	7.7	7.8	8.0
<b>Gross National Product Based on Market Prices</b>	6.3	7.0	12.8	10.9	10.7	100.0	100.0	100.0	100.0	100.0

Source: Paraguay Central Bank

**Table 1-12 Production of Principal Agricultural Products**

(Unit: 1,000G)

Item \ Year	1975	(%)	1976	(%)	1977	(%)	1978	(%)	1979	(%)
Banana	990,250	2.5	1,072,000	2.3	1,134,980	1.8	1,658,750	2.5	2,718,720	3.1
Coffee	1,123,200	2.8	439,875	0.9	1,278,000	2.0	2,484,000	3.8	2,764,690	3.1
Sugar beat	1,662,000	4.2	2,338,560	4.9	2,816,000	4.5	3,303,360	5.0	4,558,640	5.2
Orange	1,551,638	3.9	1,742,541	3.7	2,382,060	3.8	2,637,770	4.0	2,098,610	2.4
Raw cotton	2,800,000	7.0	4,726,800	10.0	11,125,000	17.8	12,640,680	19.2	11,000,900	12.5
Sweet potato	1,425,520	3.6	1,730,675	3.7	1,980,720	3.2	1,717,410	2.6	2,334,220	2.7
Corn	3,378,000	8.5	3,683,154	7.8	3,896,930	6.2	4,421,740	6.7	8,459,150	9.6
Kidney-bean	1,192,000	3.0	758,688	1.6	1,096,600	1.7	1,646,570	2.5	2,415,800	2.8
Water melon	900,000	2.3	1,234,250	2.6	984,210	1.6	1,712,500	2.6	2,671,150	3.0
Mandioca	10,027,237	25.2	11,125,690	23.5	11,302,660	18.0	10,408,950	15.8	14,071,600	16.0
Soy bean	4,180,000	10.5	5,824,000	12.3	8,750,000	14.0	6,600,000	10.0	11,443,500	13.3
Vegetables	1,331,690	3.4	1,497,080	3.2	1,791,900	2.9	2,189,840	3.3	3,168,030	3.6
Others	9,158,823	23.1	11,240,950	23.5	14,136,560	22.5	14,531,490	22.0	20,094,920	22.7
<b>Total</b>	<b>39,720,358</b>	<b>100</b>	<b>47,414,263</b>	<b>100</b>	<b>62,675,620</b>	<b>100</b>	<b>65,953,060</b>	<b>100</b>	<b>87,799,930</b>	<b>100</b>

Source: Paraguay Central Bank



In recent years the government has accommodated farm management funds for export products, such as soy bean, raw cotton and sugar beet, set up favorable purchase prices for the producers, and has developed plant breeding (introduced a new variety of raw cotton). As a result of active measures taken by the government, the acreage under cultivation of the above crops is increasing rapidly.

Agricultural production for the period from 1975 to 1979 increased at an annual rate of 8.2 percent, which far exceeded the 3 percent increase in population. As a result, self-sufficiency in food and a rapid increase in exports of farm produce have become possible. The thing that should merit most attention in the above period is the rapid rise in production and the increase in soy bean and raw cotton exports. Soy beans and raw cotton accounted for only 22.2 percent of the commodities exported in 1975, but their ratio jumped to 59 percent in 1979. Particularly with regard to raw cotton, since 80 percent of its production is plucked by hand, it has brought about a shortage of farm labor supply in some regions, and a rapid increase in the wages of cotton pickers (wages rose from 8–10 G per kilogram in 1978 to 10–12 G per kilogram in 1980).

Consequently plans are being worked out to increase the acreage under raw cotton cultivation by accelerating mechanized farming. On the other hand, as the natural environment of Paraguay is suitable to raw cotton production, its output has rapidly increased in recent years (from 1,100 million G in 1972 to 11,400 million G in 1979). Raw cotton accounted for 26.7 percent of the total exports in 1979.

Paraguay being a primary industry country, it is anticipated that agriculture will play an increasingly important role in the economic development of the country.

## (2) Stock-farming

Stock-farming accounted for 7.3 percent of the gross national product in 1979. Beef constitutes the main product of stock-farming. As part of its policy to protect the beef resources, the government, without raising the domestic selling price of beef, has set an export price on beef and established a quota system on beef exports. It has also devised measures to prohibit the slaughtering of female cattle. Beef had a very high share of exports of which it accounted for 32 percent in 1973 and 20 percent in 1974. In recent years, however, beef exports have tended downward due to restrictions imposed on beef imports by European Community markets. Problems awaiting to be solved are extermination of the infections foot-and-mouth disease and increasing the number of cattle raised per hectare by modernizing facilities.

## (3) Forestry

The composition ratio of forestry in the gross national product in 1979 was about 3.3 percent. Lumber accounted for a high 13.9 percent of the total exports in 1979. Forests cover an area of 24 million hectares, which is about 60 percent of the total area of Paraguay. Among the useful trees are pines, cedar, quebracho and lapacho.

The lumber industry centers around east alto Parana basin and is in a favorable situation as the region is fertile and is close to the Argentinian and Brazilian markets. Exhaustion of timber resources is feared because of indiscriminate felling of trees in recent years. The government has enacted legislation to curb disorderly felling of trees. It has also banned exports of logs and is making efforts to foster the lumber industry by encouraging production of plywood and flooring.

#### (4) Manufacturing Industry

The manufacturing industry accounted for 19.2 percent of the employed population and 16.4 percent of the gross national product in 1979. The products are mostly those produced by the primary industry and the light industry (refer to Table 1-13).

Table 1-13 Production of the Manufacturing Industry

(Unit: 1 million G)

Item	1975		1976		1977		1978		1979	
		(%)		(%)		(%)		(%)		(%)
Foodstuffs	10,273	34.5	11,778	34.4	14,510	32.3	16,301	30.0	19,143	27.5
Beverages	1,724	5.8	2,040	6.0	2,753	6.1	3,855	7.1	4,775	6.9
Tobacco	956	3.2	1,069	3.1	1,142	2.5	1,212	2.2	949	1.4
Fibers	1,894	6.4	2,298	6.7	5,482	12.2	7,127	13.1	5,988	8.6
Clothing	205	0.7	221	0.6	243	0.5	282	0.5	445	0.6
Hides and leather	1,937	6.5	2,487	7.3	2,788	6.2	3,044	5.6	4,262	6.1
Wood work	3,276	11.0	2,643	7.7	3,480	7.7	5,103	9.4	9,380	13.5
Furniture	280	0.9	352	1.0	392	0.9	421	0.8	749	1.1
Printing, publishing	566	1.9	672	2.0	945	2.1	1,019	1.9	2,324	3.3
Chemicals	1,015	3.4	1,410	4.1	1,463	3.3	1,645	3.0	1,820	2.6
Petroleum products	3,262	11.0	3,633	10.6	4,899	10.9	5,293	9.7	8,450	12.1
Non-ferrous metal	1,227	4.1	1,490	4.4	1,889	4.2	2,045	3.8	2,336	3.4
Metal goods	710	2.4	684	2.0	980	2.2	1,159	2.1	1,157	1.7
Transportation equipment	232	0.8	323	0.9	375	0.8	406	0.7	565	0.8
Others	517	1.7	586	1.7	646	1.4	702	1.3	1,120	1.6
Subtotal	28,074	94.3	31,686	92.5	41,987	93.3	49,614	91.2	63,463	91.2
Handiworks	1,685	5.7	2,535	7.5	2,987	6.7	4,805	8.8	6,147	8.8
Total	29,759	100.0	34,221	100.0	44,974	100.0	54,419	100.0	69,610	100.0

Source: Paraguay Central Bank

Two-thirds of the added value of the manufacturing industry is acquired from processing agricultural products. The manufacturing industry is therefore greatly dependent on the agriculture industry which has abundant raw materials. Among the manufacturing industries related to agriculture are cotton textiles, lumbering, meat processing, sugar refining and edible oil. With the constant development and diversification of agricultural products, it is believed that the basis of expanding processing of agricultural products will not change in the future. Particularly in matters of investment, which have been presented to Banco Nacional de Fomento, there are many things which are related to the cotton textile, agriculture and manufacturing industries.

Important among the industries not related to the agriculture industry are the alcohol refining, cement production and oil refining industries. The demand for particularly cement has markedly increased due to progress made in the execution of plans for construction of road and big power plants. To meet the increased demand, a plan to build a new cement plant to raise yearly production from the present 200,000 tons to 580,000 tons is taking concrete shape. The plant will be built with financial assistance from France. The oil refinery of Refineria Paraguay S.A. (REPSA), which was built in 1966, has a capacity of refining 10,000 barrels of oil per day. In 1965 REPSA built an asphalt plant adjoining the oil refinery.

The manufacturing industry has made rapid progress in the past several years (the annual growth rate during the period from 1975 to 1979 was 10.8 percent). This high rate is due greatly to the increased supply of agriculture and forestry raw materials and to the increased demand for manufactured goods resulting from an increase in the income of farmers, and to the demand for Itaipu dam construction.

Owing to the increase in the national income and the stagnation of exports of processed meat to overseas markets, many fields of the manufacturing industry are turning their eyes to the domestic market. Exports of cement and tung oil have dropped as the reserve for their exportation has declined due to the brisk domestic market.

Automobiles are not produced in Paraguay. Passenger cars, trucks and two-wheeled vehicles are all dependent on imports and their imports from Japan have rapidly increased lately.

Parallel with the development of hydraulic power resources, the government is directing attention to fostering industries which utilize electric power. It is studying the possibility of constructing a steel mill, aluminum refinery, a paper pulp factory and a chemical fertilizer plant.

#### (5) Resources and Energy

Although prospecting of the underground resources has not been conducted fully, it is known that iron copper, manganese, bauxite, lime stone and other mineral deposits exist. However, as the quantity of deposits is unknown, it is not clear whether the resources can be economically developed. The majors are prospecting for oil in the regions centering around Chaco but they have not yet succeeded.

At a place where the Parana River forms the boundary with Brazil, the Itaipu hydroelectric power plant (generating capacity of about 12,600,000 kilowatts) is under construction as a joint project with the Brazilian Government. When it is completed, the plant will be the largest of its kind in the world. A plan to build the Yacyreta hydroelectric power plant (output 4 million kilowatts) in the lower reaches of the Parana River as a joint project with the Argentine Government is taking shape. After the two projects are completed, it will probably be after 1990 when electric power will be produced on a full scale. The Paraguayan Government has an agreement with the Brazilian and Argentine governments which stipulates that one-half of electric power produced at the two plants will belong to Paraguay. Consequently Paraguay will then have a reserve supply of electric energy and it is expected to become the world's largest exporter of electric power.

### 1-7 Foreign Trade

#### (1) Trend of Trade

The structure of Paraguay's foreign trade is typical of a developing country in that agriculture, forestry and other primary industry products and their processed goods are exported, and capital goods, intermediate products and consumer goods are imported.

On entering the 1979s, Paraguay's export trade rapidly increased and whereas the yearly average amount of export in the latter half of the 1980s was only \$50 million — \$60,000 million, exports reached \$305,180,000 in 1979. Paraguay exported a wide variety of goods

ranging from raw cotton (32.3 percent of the total export value) to oil seeds, mainly soy beans (26.7 percent), beef, edible oil, coffee, tobacco, refined oil, an extract of quebracho, lumber, leather and hides. The diversification of export goods constitutes a favorable factor from the standpoint of stabilizing the revenue from exports in a situation in which international market prices are unstable (refer to Table 1-14).

Along with the diversification of export goods, the import structure is changing. In the initial stage of the 1980s, lumber and beef accounted for 50 percent of the total exports, but in 1979 raw cotton and soy beans accounted for 59 percent of the export commodities.

Lumber accounted for 13.9 percent of the total exports in 1979 and is an important export commodity. Prospects are that export of lumber, which has continued to recover since its darkest days in 1976, is expected to gradually increase as products like laminated lumber, which has a high added value, have infiltrated the North American and European markets.

The European Commodity countries accounted for 48.8 percent of the total value of goods exported in 1979, followed by neighboring Argentina with 16.7 percent (refer to Table 1-15). The United States' and Japan's ratios were respectively 5.8 percent and 5.4 percent.

In line with the progress in internal development, imports are on the upward trend. Before and after 1970 imports amounted to \$60 million – \$70 million a year, but in 1979 the amount of imports reached \$431,760,000. (refer to Table 1-16.) Machinery and other capital goods accounted for 52.1 percent of the total exports, followed by petroleum with 20.3 percent and food and beverages with 14.2 percent.

In 1979 Brazil and Argentina respectively ranked first and second in the amount of goods imported by foreign countries from Paraguay. Brazil accounted for 22.3 percent and Argentina 17.1 percent of the total imports, followed by Algeria with 11.6 percent, the U.S. with 11.5 percent and Japan with 8.4 percent (refer to Table 1-17). In principle imports are transacted with letters of credit and the acceptable grace of payment is 180 days.

## (2) Customs Tariff System

Generally export duties ranging from 20 to 25 percent are levied on officially assessed values determined by the Central Bank in accordance with the nature of export goods.

As a result of enlargement of the list of banned import goods from June 1972, the import of meat products, dairy products, rice, starch, sugar, tobacco, furniture and textile goods, in addition to petroleum products, drugs and wiring, has been restricted to a certain extent. There are also seasonal restrictions on the import of agricultural products. Paraguay's import system is complicated. In addition to customs duties, there are a surtax and a supplementary tariff. Furthermore complementary charge is added. Regarding each tax, there are varieties in exemption and tariff rates for each individual case. On top of this, an import deposit (100 percent) is required. Consequently, in importing goods, the parties concerned are saddled with high cost and complicated import formalities. The government is exerting itself to simplify the customs tariff system.

## (3) Balance of International Accounts

Paraguay's trade balance in 1979 recorded a deficit of \$126,580,000 (exports

Table 1-14 . Principal Export Goods

(Unit: FOB \$1,000)

Item \ Year	1975		1976		1977		1978		1979	
		(%)		(%)		(%)		(%)		(%)
Meat	32,421	18.3	21,215	11.6	22,189	8.0	24,063	8.5	5,579	1.8
Coffee	8,718	4.9	7,809	4.3	10,092	3.6	213	0.1	4,193	1.4
Seeds for industrial use	19,092	10.8	34,138	18.7	58,829	21.1	41,632	14.8	81,349	26.7
Edible oil	10,612	6.0	17,214	9.4	29,387	10.5	16,814	6.0	19,111	6.3
Tobacco	12,015	6.8	14,694	8.1	13,715	4.9	9,284	3.3	8,563	2.8
Quebracho extract	2,543	1.4	3,677	2.0	5,284	1.9	5,160	1.8	3,178	1.0
Refined oil	9,753	5.5	11,610	6.4	12,290	4.4	8,497	3.0	9,732	3.2
Bean-cake fertilizer	5,147	2.9	8,028	4.4	10,277	3.7	10,203	3.6	14,143	4.6
Leather and hides	3,042	1.7	3,155	1.7	6,450	2.3	9,468	3.4	6,983	2.3
Lumber and related products	28,031	15.9	12,363	6.8	20,232	7.3	20,757	7.4	42,311	13.9
Raw cotton	20,108	11.4	34,610	19.0	80,489	28.9	100,024	35.5	98,596	32.3
Others	25,229	14.4	13,823	7.6	9,657	3.4	35,339	12.6	11,438	3.7
Total	176,711	100.0	182,336	100.0	278,891	100.0	281,454	100.0	305,176	100.0

Source: Paraguay Central Bank

Table 1-15 Export Amounts Classified by Countries

(Unit: FOB \$1,000)

Country \ Year	1975		1976		1977		1978		1979	
		(%)		(%)		(%)		(%)		(%)
Argentina	49,676	28.1	17,950	9.8	35,822	12.8	24,152	8.6	51,009	16.7
Spain	4,609	2.6	2,791	1.5	3,780	1.4	6,783	2.4	5,569	1.8
Britain	18,348	10.4	10,910	6.0	13,455	4.8	14,975	5.3	625	0.2
U.S.A.	15,521	8.8	21,284	11.7	39,530	14.2	22,211	7.9	17,628	5.8
France	7,915	4.5	10,416	5.7	13,161	4.8	3,530	1.3	5,907	1.9
Uruguay	2,281	1.3	8,747	4.8	12,899	4.7	7,013	2.5	13,611	4.5
Belgium	3,754	2.1	777	0.4	1,076	0.4	1,468	0.5	1,811	0.6
The Netherlands	15,103	8.5	27,120	14.9	42,983	15.4	26,497	9.4	45,344	14.9
West Germany	22,050	12.5	20,390	11.2	28,374	10.2	38,808	13.8	46,407	15.2
Italy	836	0.5	2,985	1.6	5,548	2.0	16,779	6.0	21,688	7.1
Switzerland	13,430	7.6	21,369	11.7	26,326	9.4	15,977	5.7	21,789	7.1
Brazil	6,172	3.5	10,965	6.0	16,266	5.8	20,416	7.3	29,103	9.5
Japan	3,678	2.1	6,402	3.5	6,403	2.3	32,308	11.5	16,407	5.4
Others	13,338	7.5	20,230	11.2	33,278	11.8	50,537	17.8	28,278	9.3
Total	176,711	100.0	182,336	100.0	278,901	100.0	281,454	100.0	305,176	100.0

Source: Paraguay Central Bank

Table 1-16 Principal Import Goods

(Unit: FOB \$1,000)

Item	1975		1976		1977		1978		1979	
		(%)		(%)		(%)		(%)		(%)
Food	8,808	4.9	14,098	7.8	12,651	5.0	14,453	4.5	19,977	4.6
Beverages, tobacco	18,172	10.2	14,937	8.3	19,599	7.7	28,979	9.1	41,567	9.6
Fuel, oil	38,443	21.6	37,914	21.0	42,571	16.7	59,644	18.8	87,520	20.3
Paper, corrugated cardboard	5,275	3.0	4,859	2.7	7,057	2.8	7,111	2.2	8,693	2.0
Chemicals and chemical products	9,538	5.3	8,957	5.0	12,535	4.9	16,334	5.1	26,229	6.1
Transportation machinery	22,614	12.7	23,114	12.8	40,660	15.9	60,133	18.9	63,310	14.7
Textile goods	8,741	4.9	3,739	2.1	6,187	2.4	6,733	2.1	9,437	2.2
Agricultural machinery	4,822	2.7	4,088	2.3	9,802	3.8	10,478	3.3	11,083	2.6
Iron and steel	14,091	7.9	12,538	7.0	15,208	6.0	14,655	4.6	30,899	7.2
Nonferrous metal products	1,982	1.1	3,040	1.7	3,567	1.4	5,222	1.6	4,448	1.0
Machinery in general	36,626	20.5	34,620	19.2	56,855	22.3	53,831	16.9	79,737	18.5
Others	9,249	5.2	18,314	10.1	28,685	11.1	40,165	12.9	48,858	11.2
Total	178,361	100.0	180,218	100.0	255,377	100.0	317,738	100.0	431,758	100.0

Source: Paraguay Central Bank

Table 1-17 Import Amounts Classified by Countries

(Unit: FOB \$1,000)

Item	1975		1976		1977		1978		1979	
		(%)		(%)		(%)		(%)		(%)
Argentina	33,219	18.6	37,754	20.9	43,228	16.9	48,767	15.3	74,040	17.1
U.S.A.	21,777	12.2	18,398	10.2	30,867	12.0	34,755	10.9	49,809	11.5
Uruguay	3,509	2.0	6,941	3.9	8,497	3.3	13,428	4.2	14,275	3.3
Britain	16,178	9.1	13,653	7.6	13,813	5.4	30,500	10.0	24,192	5.6
The Netherlands	999	0.6	992	0.6	1,028	0.4	1,341	0.4	2,672	0.6
West Germany	14,534	8.1	15,321	8.5	22,380	8.8	26,191	8.2	31,665	7.3
Belgium	1,808	1.0	1,445	0.8	1,604	0.6	1,925	0.6	1,820	0.4
Spain	1,289	0.7	2,811	1.6	5,852	2.3	3,752	1.2	5,361	1.2
Sweden	3,141	1.8	2,369	1.3	3,787	1.5	4,586	1.4	4,138	1.0
France	2,570	1.4	2,458	1.4	5,184	2.0	6,423	2.0	8,776	2.0
Italy	2,115	1.2	2,059	1.1	2,231	0.9	3,486	1.1	5,371	1.2
Algeria	26,557	14.9	23,144	12.8	23,478	9.2	34,637	10.9	40,069	11.6
Switzerland	1,006	0.6	992	0.6	1,199	0.5	1,535	0.5	2,297	0.5
Brazil	37,151	20.8	31,198	17.3	53,915	21.1	62,711	19.7	96,371	22.3
Japan	8,813	4.9	8,456	4.7	22,847	8.9	25,193	7.9	36,085	8.4
Others	3,695	2.1	12,227	6.7	15,467	6.2	18,508	5.7	24,817	6.0
Total	178,361	100.0	180,218	100.0	255,377	100.0	317,738	100.0	431,758	100.0

Source: Paraguay Central Bank

\$305,180,000 and imports \$431,760,000). Current transactions also showed a deficit amounting to \$290,200,000. The government is endeavoring to make up the deficits by promoting exports of agricultural products. However, with the execution of hydroelectric power plant projects on a full scale and the promotion of various projects under the economic and social development program, imports of related capital goods have increased so that it is believed that it will be difficult to reduce the deficit in current transactions. The government therefore hopes to balance international accounts by inducing private foreign capital and by obtaining loans from foreign government organs and international financial institutions.

## 1-8 National Development Programs

Paraguay's first national development plan was a 5-year national development program carried out from 1943 to 1948. The government has since executed four five-year development programs, and at present the 5th economic and social development program (1977-1981) is being carried out. The Planning Agency, which is under direct control of the President's Office, is in charge of drawing up and enforcing development plans. The Agency decides on the priority order of various projects and attends to the matter of making adjustment of their relationship between macroplans and individual projects. The basic objectives of the 5-year economic and social development program (1977-1981) are raising the income level of the people and establishing a structure for redistributing earnings. The objectives are divided into long-term objectives which will form the basis of national development, and short-term objectives to strengthen the administrative system and to improve the quality of manpower. The short-term objectives should be attained during the 5-year program.

### (1) Long-term Objectives

- 1) As a means to further promote welfare in general and to consolidate social peace, raising the income of the people and increasing employment will be speeded up.
- 2) Protection will be given to strengthening and fostering native capital, and the structure for rational integration of native capital will be improved. In order to assist internal efforts, foreign investment in production activities will be supported.
- 3) As a means to increase the opportunity of the people to receive profits resulting from national development, the policy of safeguarding public welfare service will be continued and a structure for redistributing income will be established.
- 4) The development of material resources will be rationalized and environment will be protected and improved.
- 5) As a basis of comprehensive development of the country or partial or regional development of self-sustaining areas, Paraguay's material and economic intergration will be promoted. A systematic organization and an economic structure aimed at making a national contribution to the process of unifying Latin America will be established.
- 6) The policy of making investments in public utilities in the order of priority will be continued. By adopting control measures, social overhead capital, which will form the national basis, will be increased. This will become the prop and barometer of the economic activity of the private sector.

- 7) In order to support stabilized development, the equilibrium of finance at home and abroad will be maintained.

(2) Short-term Objectives

- 1) Management capacity will be increased and the administrative system will be strengthened. Public savings will be increased in order to accelerate production of preferential fields of industry.
- 2) In order to meet the demand for national development, national manpower will be improved qualitatively and quantitatively by expanding the educational system and health insurance system and by strengthening the labor qualification system.
- 3) As a means to support measures decided on to achieve the social and economic objectives, a planning structure will be established, systematized and strengthened.
- 4) Studies and scientific and technical surveys of natural resources will be fostered. Regarding utilization of electric energy, the objective will be generation of electric power by the hydroelectric power plant on the Parana River.

The long-term and short-term objectives are as listed above. Progress made so far in executing the 5-year development program will be viewed from the economic aspect. Due to increased agricultural production resulting from the expansion of the acreage under cultivation and the brisk activity of the construction industry centering around the construction of dams, the Paraguayan economy is developing smoothly. Particularly the gross domestic product, which had been expected to increase at a rate of 7.3 percent during the period from 1977 to 1979, actually showed an increase of 11.5 percent which exceeded the government's expectations. Moreover, the gross domestic product per capita rose from 85,796 G in 1976 to 108,796 G in 1979, recording a high 8.2 percent increase in annual growth.

Next, as regards the growth of various fields of industry, an annual growth rate of 6.5 percent had been set as a target for the agriculture industry for the 1977–1979 period, but the actual annual growth was 9.4 percent and exceeded the target by 2.9 percent. The annual growth rate of the construction industry was 31 percent, which was much higher than the anticipated growth rate of 10.8 percent.

The 1977–1981 national economic and social development program is registering smooth progress in all fields with the exception of the education field which has lagged behind the other fields. The year 1982 will be the readjustment period for the program. The next 5-year development program is scheduled to be started in 1983 and its main objectives are expected to be acceleration of agricultural development and promotion of the manufacturing industry by utilizing electric power generated at the Itaipu hydroelectric power plant.

## 1-9 Industrial Development Policy

(1) Objectives

In the process of social and economic development industrialization is playing a big role in the same way as agriculture. The government is actively stepping up measures to procure basic consumer goods and to promote and expand the agriculture, manufacturing and other industries.



The basic objectives of the industries in the economic and social development program (1977–1981) are as follows:

- 1) Within the dynamic factors in the process of national development, the industries will be given further assistance and will be developed at an accelerated pace.
- 2) The domestic supply of manufactured goods will be increased and they will be diversified for the purpose of producing surplus goods possible for export.
- 3) As a means to increase the demand for primary industry materials and to expand the productive arrangement of labor, the development of fields related to the export of agricultural products and manufactured goods will be fostered.
- 4) In order to yield profits supplied by the State, activities to produce substitute import goods will be encouraged.
- 5) While fostering the regional distribution of enterprises, industrial development will be gradually localized.
- 6) Improving the living standard of the people will be fostered by promoting employment by industries.
- 7) Materialization of investigations for determining the possibility of establishing industrial enterprises, which will utilize electric energy in large quantities, will be accelerated.
- 8) Industrial production will be raised and the classification of human resources for each branch of industry will be reformed.
- 9) A technical industry directed at exports will be organized and developed.

In order to achieve the above objectives, the following strategy is conceived.

- a. Indirect assistance in the taxation system and government financing and direct assistance to public utilities and civil engineering works will be speeded up.
- b. Since the price level and quality which will enable the cost and quality of manufactured goods to coexist in the growth of industrial activities, labor productivity will be improved.
- c. A comprehensive objective of regional development will be set up in accordance with local industrial development.
- d. In order to push forward industrial development, plans aimed at exporting manufactured goods, internal investigations and studies will be made, and positive cooperation will be given to foreign enterprises which offer capital, techniques and markets.
- e. Efforts will be made to increase the supply of, and diversify, industrial products in order to promote import substitutes.

(2) Law No. 550 for the Promotion of Investment for Economic and Social Development

The Law No. 550 for the Promotion of Investment (Ley No. 550 de Fomento de las Inversiones para el desarrollo Economico y social), which was enacted in 1975, forms the basis of the government's industrial policy. The objectives of this law, based on the government's economic and social policies, are fostering the development of specific regions through more effective utilization of resources and promoting capital investment by giving special privileges to projects so as to increase wealth and the production of services. From the standpoint of promoting domestic development, the government grants special taxation favors with regard to investments — regardless of whether they are foreign or domestic capital — which the State deems “necessary” or “desirable”.

1. Kinds of Investments

1) Necessary investments

Necessary investments are mainly those which will be used for production and processing by utilizing domestic raw materials and which will contribute to increasing exports. Necessary investments have priority in the economic development of Paraguay.

2) Convenient investments

Convenient investments are those for labor intensive import substitute industries which use domestic raw materials.

3) Necessary and moreover convenient investments.

2. Benefits

1) Benefits for necessary investments

- a. Complete exemption from taxes and other obligations on monetary exchange charges, emanating from the incorporation of capital.
- b. Complete exemption from customs duties, additional and complementary charges on the import of capital goods.
- c. Complete exemption from additional charges on monetary exchange from the import of capital goods.
- d. Complete exemption from guarantee required prior to the import of capital goods.
- e. Reduction of 50% (fifty per cent) of income tax for a period of five years from the date of the first taxable balance sheet, payable on income from the investment made under this law.

2) Benefits for convenient investments

- a. Complete exemption from taxes and other obligations for monetary exchange

operations emanating from the incorporation of capital.

- b. Complete exemption of customs charges on the import of capital goods.
- c. Exemption of 70% (seventy per cent) of the additional charges for monetary exchange on the CIF value of the import of capital goods.
- d. Complete exemption from guarantee required prior to the import of capital goods.
- e. Reduction of 30% (thirty per cent) of the income tax for a period of five years from the date of the first taxable balance sheet, payable on income from investments made under this law.

### 3) Convenient and necessary investments

- a. Complete exemption of customs charges, additional and complementary charges, for monetary exchange and from guarantee required prior to the import of raw material, containers, and other materials not produced in the country, or not produced in the required quantity for production during the first three years, when such materials are destined for investments classified as necessary.
- b. Exemption of 75% (seventy five per cent) of the customs obligations, additional and complementary charges, total exoneration of the guarantee required and reduction of 70% (seventy per cent) of the additional charges for monetary exchange on the import of raw material, containers and other materials not produced in the country or not produced in the required quantity for production for the first two years when such materials are destined for investments classified as convenient.
- c. Exemptions and privileges foreseen in the Customs Code referred to as the system of Temporary Admission (DRAWBACK), for secondary materials imported under this law.
- d. Complete exemption from customs obligations, additional and other charges for exports.
- e. Complete exemption from taxes levied for the constitution of enterprises, for corporate contracts, for inscription in the Public Registry of Commerce and other national registries, and for the issue, placement and transference of shares related to the formation of corporations.  
Investment to improve, enlarge and modernize industries and other existing activities or to exploit new social and economical rubrics, will enjoy the benefits of the concerned law, if they are considered necessities or convenients.

### 3. Forms of Investment

Investments for establishing new enterprises or modernizing existing enterprises will be made in the following forms.

- 1) Cash or in kind of equal value.
- 2) Machinery, tools, property or some other capital.
- 3) Patents, trade-marks or stocks, credit, clients.
- 4) If repatriating citizens of qualified immigrants, who at the time of their arrival in Paraguay own property or have capital for use in industrializing fields of primary industry such as agriculture, cattle-raising and forestry, or for use in establishing and operating manufacturing enterprise, they will receive benefits of the Law No. 550 for the Promotion of Investment for Economic and Social Development when it is recognized that their objectives are necessary and that their investments will be beneficial.

#### 4. Remittance of Profits and Dividend

Investors who have integrated foreign capital can remit their profits, dividend on shares, fees for using trade-marks, etc., abroad. Remittances are made through banks authorized to exchange foreign currencies. Remittance can be made three years after starting business and going into production. The amount to be remitted cannot exceed 20 percent of the capital of the integrated or joint company.

#### 5. Preferential Development Regions

In order to develop the country uniformly, investments which lead the way for economic development of specially designated regions, will receive benefits of the Law No. 550 for the Promotion of Investment for Economic and Social Development. The Special Economic and Social Development Secretariat (La Secretaria Tecnica de Planificacion del Desarrollo Economico y Social or STP for short) prepares a list of preferential development regions in the first quarter of every year to obtain the approval of the National Economic Investigation Committee (Consejo Nacional de Coordinacion Economica). The Government has authority to give approval at its free discretion through the secretariat (STP) to other regions as well. The greater part of the Chaco district has been designated as a preferential development region. Among the other preferential development regions are Alto Parana, Nueva Asuncion, Boqueron, Neembucu, Guaira and Pte Hayes.

#### 6. Additional Privileges with Regard to the Location of Industry in the preferential Development Regions.

- 1) In accordance with the provisions of the Law No. 550 for the Promotion of Investment for Economic and Social Development, benefits will be given to the activities of enterprises for which investments are deemed necessary.
- 2) Based on the Law 1003/64 and its restrictions, exemption from taxation and stamp duty for two years. There is a separate provision concerning importation of particularly capital goods.
- 3) Five-year exemption from legal patent fees concerning national administration stipulated in the Law 344/71.

- 4) Five-year exemption from real estate tax imposed on real property where investment activities are conducted.

#### 7. Contract Obligation

The disposition of investment registration formalities, acceptance period, and restrictions on assets or some other property are provided for separately.

#### 8. Investment Council

The function of the Investment Council is to appraise and judge whether an investment project is basically within the legal limits. The Minister of Commerce and Industry is Chairman of the Council and its members are composed of cabinet ministers concerned and representatives of government organs concerned and private circles.

### (3) Preferential Investment

Investments in the following industries which form the basis of economic and social development will be particularly promoted.

#### 1) Intensive Electric Power Industry

Aluminum, chemical fertilizer, and uranium concentrate industries for effectively utilizing the maximum possible amount (50 percent) of electric energy produced at the Parana Hydroelectric Power Station.

#### 2) Agro Industries

Industries for processing fruits, vegetables, cereals, meat and their by-products in order to promote the development of the agriculture and manufacturing industries and exports.

#### 3) Industries for Raising Agricultural Production

In order to turn out products which are presently imported for use in the agriculture industry, domestic energy and raw materials will be effectively utilized. The chemical fertilizer, insecticide, weedicide, silo, desiccator, tractor, planter, thresher, sprayer, agricultural machinery and pump manufacturing industries.

#### 4) Industries Utilizing Lumber

Sawmills and plywood, furniture, wood products, molding, flooring and chip board industries for the purpose of more effectively utilizing forestry resources.

#### 5) Import Substitute Industries

Manufacturing industry which will help reduce imports and also lower production costs, chemical, food processing, glass making, machinery and tools, electric machinery and appliance, instruments, iron and steel, and metal goods manufacturing industries.

### (4) Investment Trend

The government is making positive efforts to foster industries. As at the end of

1979 there were 301 projects to which Law No. 550 for the Promotion of Investment for Economic and Social Development was applied. Total investments in these projects amounted to 31,600 million G (refer to Table 1-18) of which about one-half was invested in agriculture, cattle-raising and chemical products projects. Although investments in the lumber and construction materials industries amounted to less than 10 percent of the total investments, they accounted for one-fourth of the total number of projects. With the construction of dams going on a full scale, it is anticipated that the lumber and construction materials industry will make significant progress in the future. The textile industry centering around cotton was involved in four projects with a combined investment of 121 million G. Although the scale of the textile industry is still small (refer to Table 1-19), brisk investment is expected depending on the promotion of this industry.

**Table 1-18 Outline of Projects (1979) Classified by Industries to which Law No. 550 for the Promotion of Investment for Economic and Social Development**

Industry	No. of projects	No. of persons employed	(%)	Invested amount (unit: 1 million G)	(%)
Food	25	575	6.6	997.1	3.2
Beverages	6	179	2.0	319.3	1.0
Tobacco	4	36	0.4	160.7	0.5
Textiles	4	128	1.5	120.9	0.4
Ginned cotton	6	352	4.0	1,068.3	3.4
Clothing	16	550	6.3	166.8	0.5
Lumber	43	1,216	13.9	1,119.0	3.5
Furniture	3	74	0.8	15.6	0.1
Chemicals	21	327	3.7	4,942.2	15.6
Plastic products	8	126	1.4	296.1	0.9
Construction material	33	706	8.1	1,494.4	4.7
Metal goods	14	322	3.7	891.6	2.8
Leather and hides	6	276	3.2	437.5	1.4
Printing	22	218	2.5	298.0	0.9
Paper, cardboard	5	120	1.4	343.2	1.1
Other manufacturing industries	13	233	2.7	158.3	0.5
Agriculture and cattle raising	19	2,093	24.0	10,229.0	32.3
Construction	8	100	1.1	170.0	0.5
Silo	18	724	8.3	6,224.3	19.7
Banks	3	65	0.7	496.0	1.6
Transportation	12	180	2.1	1,548.9	4.9
Others	12	139	1.6	145.3	0.5
<b>Total</b>	<b>301</b>	<b>8,739</b>	<b>100.0</b>	<b>31,624.5</b>	<b>100.0</b>

Source: Ministry of Industry and Commerce

**Table 1-19 Textile Industry Projects (1979)**

Project undertaker	Investment region	No. of employed (persons)	Invested amount (unit: 1 million G)
Textil Asuncion Industrial y Comercial S.R.L.	CAPITAL	7	12.6
Miguel Auad Cattebeke	CAPITAL	16	7.5
Forno y Valle S.A.	CAPITAL	80	80.0
Textilia S.A.I.T. YC.	CAPITAL	25	20.8
Total	-	128	120.9

Source: Ministry of Industry and Commerce

## 2. THE PRESENT STATE OF THE TEXTILE INDUSTRY

### 2-1 An Outline of the Textile Industry

The textile industry of the Republic of Paraguay has a long way to go. As an industry, it is small in scale. Since its technological level, too, is low, it may be proper to consider that the textile industry is still in a formative stage. The question is whether the textile industry will grow up as an industry which will buttress the economic development of Paraguay. To state one's conclusion first, as a general judgement, one cannot help but say that the textile industry, as it is today, regrettably does not possess such a condition.

Paraguay does not have industries to speak of with the exception of agriculture and cattle-raising. As of now, Paraguay is not blessed with oil and other mineral resources. In order to develop the Paraguayan economy, it is necessary to foster industries which will by all means become the motive power of development as, for instance, construction of hydroelectric power stations since Paraguay has abundant water resources, and the agroindustry for processing agricultural products.

It was from such a viewpoint that the cotton industry is one of the industries which attracted attention in recent years and came into being. Paraguay is a raw cotton exporter and moreover, the production of raw cotton has rapidly increased in recent years due to improved breeds. In addition to this abundant raw material which has put Paraguay in an advantageous position, the textile industry is a labor intensive industry, so that it benefits a developing country like Paraguay. Moreover, as the textile industry is an industry which has been firmly established technologically, it is relatively easy to take root in a developing country. Furthermore the fact that the textile industry took the lead of other industries in developing countries should not be forgotten.

The actual state of Paraguay's cotton industry and the points at issue will be studied from economic and technological standpoints.

### 2-2 Balance of Demand and Supply of Cotton Textiles

#### (1) Production

##### 1) Production of Raw Cotton

The actual production of seed cotton and lint cotton during the past ten years, which has been published by the Paraguay Central Bank, is as shown in Table 2-1.

With regard to the raw cotton production throughout the 1970s, the yearly average growth rate of yield during the first half (1970-74) based on lint cotton was 20.1 percent and that for the second half (1975-79) was 22.9 percent. The marked increase was due largely to the adoption of Reba B-50 as a popular breed as a result of technical cooperation given by France in the second half of the 1960s. Up till then the American Deltapine and other breeds had been used, but as they were weak against *Bacterium Malvacearum*, Reba B-50 was adopted and led to a marked increase in the raw cotton crop. A new breed called Reba P-279 which, the Cotton and Tobacco Inspection Office (Oficina Fiscalizadora de Algodon y Tabaco - OFAT) said, could produce 25 percent more cotton than Reba B-50, was adopted



**Table 2-1 Actual Raw Cotton (seed cotton and lint cotton) Production**

Item \ Year		Year									
		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Seed cotton	Output (ton)	-	-	40,515	84,000	85,000	100,000	105,040	222,500	284,700	230,000
	Amount (1 million G)	-	-	851	2,016	2,975	2,800	4,726	11,125	12,641	11,001
Lint cotton	Output (ton)	11,601	5,204	12,719	22,256	24,106	32,170	33,807	72,841	90,660	73,281
	Amount (1 million G)	610.3	405.9	773.2	1,602.4	1,977.0	2,573.6	3,813.4	12,577.5	13,677.0	12,276.8

Source: Paraguay Central Bank's "Cuentas Nacionales 1972/79" (July 1980) and "Boletín Estadístico No. 268" (September 1980)

**Table 2-2 Production of Cotton Yarn (annual)**

Name of enterprise	Number of spindles	Production (1,000 tons)	Remarks
Manufactura de Pilar S.A.	33,772	3,720	Based on the results of questionnaire.
America Textil S.A.	7,728	1,200	Estimated from equipment owned and from hearings.
Industria Textil Asuncena S.A.	7,440	660	Based on the results of questionnaire. Yarn counts are No. 7, 11 and 24.
Forna y Valle S.A.	1,152	60	Estimated from equipment owned and from hearings.
Pedro Genoves e Hijos S.R.L.	800	66	Based on the results of questionnaire. Yarn counts are No. 8 and 16.

**Table 2-3 Trend in the Production of Cotton Fabric**

Year \ Item		Year									
		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Production (1,000 m)		20,300	20,600	21,200	21,000	23,200	16,100	15,300	20,317	20,879	20,252
Value of production (1 million G)		1,071.0	1,195.1	1,317.9	1,656.7	2,294.0	1,760.0	1,679.8	2,391.3	2,419.1	3,594.6

Source: Paraguay Central Bank's "Boletín Estadístico No. 268" (September 1980)

from the second half of the 1970s. According to the Ministry of Agriculture and Cattle-raising, a complete switchover from B-50 to P-279 had already been made between 1976 and 1977, but it appears that actually about an 80 percent changeover was made between 1980 and 1981. At any rate, with the positive introduction of new breeds, it is believed that the raw cotton production in Paraguay will be maintained at a relatively high level in the future. However, from the standpoint of absolute quantity, Paraguay's raw cotton output is still small when compared with other countries. Paraguay's production amounts to only 2-3 percent of each of the big cotton-producing countries such as the United States, Soviet Russia and China. Its production is a little over 10 percent of Brazil's output.

## 2) Production of Cotton Yarn

There are no official statistics showing the production of Cotton Yarn in Paraguay. Consequently the output will be roughly calculated from replies to questionnaire presented to enterprises and from the equipment of enterprises from which replies to the questionnaire were not available.

There are five enterprises which have spinning process equipment. In the order of size they are Manufactura de Pilar S.A. (360 open end spindles and 33,412 ring spinning frames for a total of 33,772 spindles), America Textil S.A. (7,728 ring spinning frames), Industria Textil Asuncena S.A. (7,440 ring spinning frames), Forno y Valle S.A. (336 open end spindles and 816 ring spinning frames for a total of 1,152 spindles), and Pedro Genoves e Hijos S.R.L. (800 ring spinning frames). Shown in Table 2-2 is the actual cotton yarn production of each one of the five companies. With regard to a part of the enterprises, the annual production was estimated from their equipment and the rate of operation. By accumulating the output figures of the five enterprises, the annual cotton yarn production was estimated at 5,700 tons.

## 3) Production of Cotton Fabric

The Paraguay Central Bank made an announcement with regard to the production of cotton cloths for the period from 1970 to 1979 (refer to Table 2-3). The production during the 10-year period almost remained on the same level. However, the value of production showed a rising trend, and if the index value for 1970 is set at 100, that for 1979 was 355.6.

## (2) Exports

### 1) Raw Cotton Exports

At present more than 90 percent of raw cotton cultivated in Paraguay is exported. To Paraguay raw cotton is the biggest source of obtaining foreign currencies. As the total exports from Paraguay in 1979 amounted to a little over US\$300 million on a nominal basis, it means that raw cotton accounted for one-third of the total exports. This trend became particularly marked when raw cotton exports in 1975 exceeded 10 percent of the total exports for that year. The ratio reached 35 percent in 1978, making raw cotton one of Paraguay's important exported goods (refer to Table 2-4).

Raw cotton exported is graded for taxation purpose (export duty) by OFAT which is under the control of the Ministry of Agriculture and Cattle-raising. According to OFAT, the assessment standard is close to the grading of American cotton. Table 2-5 shows the trend of exports of OFAT-graded raw cotton during the past five

years. Last year was an exception, and generally raw cotton centering around grades III, IV and V is exported (refer to Table 2-5).

**Table 2-4 Trend of Lint Cotton Exports (on nominal basis)**

Year Item	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Quantity exported (tons)	11,216	2,887	7,593	18,606	17,465	26,525	32,638	58,813	83,595	76,694
Export amount (U.S. \$1,000)	4,048	834	3,815	11,622	16,500	20,107	34,610	80,487	100,024	98,596

Source: Paraguay Central Bank's materials (September 1980)

**Table 2-5 Trend of Exports of Lint Cotton Graded by OFAT**

(Unit: ton)

Year Grade	1975	1976	1977	1978	1979
I	-	-	-	-	-
II	205	292	1,047	1,019	183
III	5,706	7,923	14,299	21,043	7,550
IV	7,219	11,517	17,026	27,228	18,593
V	7,304	7,927	12,923	20,646	21,553
VI	4,920	3,424	8,823	9,785	17,074
VII	1,093	488	3,219	1,821	8,316
VIII	-	28	60	5	168

Source: Paraguay Central Bank's "Boletín Estadístico No. 268" (September 1980)

Principal countries which imported Paraguayan cotton in 1979 were West Germany, Japan and Argentina, which accounted for about one-half of the total raw cotton exports from Paraguay. It is worthy of note that exports to Japan and Argentina have rapidly increased in the past several years (refer to Table 2-6).

In 1979 Japan imported about 735,000 tons of raw cotton worth approximately ¥268.5 billion (source: December 1979 issue of Japan Foreign Trade Monthly). Of the total amount, 11,200 tons, which is equivalent to 1.5 percent, was imported from Paraguay. In terms of money, ¥3.83 billion, which is equivalent to 1.4 percent of the total value of raw cotton imported by Japan, is by no means large. However, as the quality of Paraguayan cotton has been confirmed to be of good quality as a result of a recent tour of inspection of Paraguay, imports from that country are expected to further increase in the future if problems, such as delays in deliveries and impurities mixed in raw cotton after picking, disappear.

## 2) Exports of Cotton Yarn, Fabric and Other Processed Goods

Insofar as seen from official statistics, exports of cotton yarn, cloths and other finished cotton goods from Paraguay are very limited. Table 2-7 shows the trend of cotton textile exports during the past ten years. Exports of cotton goods in terms

Table 2-6 Actual Lint Cotton Exports Classified by Countries

(Unit: ton)

Year Country	1975	1976	1977	1978	1979
West Germany	8,222	2,491	7,142	17,513	16,443
Japan	1,348	2,557	2,313	23,996	11,296
Argentina	44	85	4,573	4,133	10,349
Switzerland	6,918	9,779	5,931	4,537	6,827
U.S.A.	220	684	7,737	3,771	5,870
Portugal	466	3,170	7,939	3,566	5,335
Uruguay	1,130	5,391	5,530	3,750	3,981
Spain	2,022	293	811	2,945	3,192
Italy	231	815	2,148	6,765	2,331
France	1,908	1,332	4,568	148	1,078
The Netherlands	1,331	1,215	1,851	400	788
Belgium	694	—	255	304	373
Britain	348	791	666	2,048	105
Others	1,643	4,035	7,349	9,719	8,726

Source: Paraguay Central Bank's "Boletin Estadistico No. 268" (September 1980)

Table 2-7 Trend of Exports of Finished Cotton Goods

Year Item	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Quantity exported (tons)	1	3	—	132	19	246	196	188	479	95
Export amount (U.S.\$1,000)	4	43	2	152	71	529	491	456	996	176

Source: Paraguay Central Bank's "Boletin Estadistico No. 268" (September 1980)

of money amount to less than 1 percent of the total exports from Paraguay and are negligible when compared with the total exports of processed goods.

Among the problems which impede the export of cotton goods are their inferior quality and the export duty of 10 percent levied on cotton goods exported. Voices for abolition of the export duty were often heard during the hearings in Paraguay.

### (3) Imports

Normally imports of cotton in Paraguay center around cloths and other processed goods, but in looking at Paraguay's official statistics on imports of textile goods, it is noted that imports of fibers except cotton are large and those of finished cotton goods are a little. Reasons for this situation are firstly, the domestic market is not very large so that it is possible for cotton goods produced in the country to meet domestic demand to a certain extent, and secondly, the

effects of the Presidential Ordinance No. 19635, which banned the importation of cotton yarn, cloths and other cotton goods for the purpose of protecting the domestic cotton trade (refer to Table 2-8). The ordinance was promulgated in December 1975. (However, according to information obtained at the local hearings, the ordinance has been partially revised and been alleviated after 1979). Actual imports of cotton goods during the past ten years are shown in Table 2-9.

**Table 2-8 List of Cotton Goods Importation of which is banned by ordinance No. 19635 (As of December 19, 1975)**

Item No.	Name of articles
55.05	Cotton yarn for commercial use
55.08	Cotton cloth with sponge class curl
55.09	Other cotton cloths
58.08.00.03	Cotton tulle, cotton cloth with knotted mesh plain cloth
60.01.00.04	Nonelastic lace cloth
61.05.00.04	Pocket handkerchief
62.02.01.03	Sheeting
62.02.02.03	Tablecloth, napkin
62.02.89.03	Other cotton goods
62.03.00.01	Cotton bags

**Table 2-9 Actual Imports of Cotton Goods**

(1) Amount

(Unit: U.S.\$1,000)

Item \ Year	Year									
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Cotton yarn	57.5	49.6	52.5	36.1	39.5	46.0	33.4	78.5	61.8	122.7
Cotton cloths	560.7	375.6	242.7	197.9	94.7	106.5	14.8	14.4	123.0	3.6
Other cotton goods	293.1	175.9	79.5	33.9	178.6	223.7	41.6	74.2	158.4	278.9

(2) Quantity

(Unit: ton)

Cotton yarn	32.7	21.9	32.3	16.9	15.0	19.2	11.8	15.9	13.2	20.7
Cotton cloths	371.1	327.0	298.4	169.7	101.2	32.9	4.7	2.4	8.1	0.6
Other cotton goods	221.6	121.5	39.0	10.7	62.3	75.3	19.7	23.4	83.8	130.8

Source: Paraguay Central Bank's "Boletín Estadístico No. 268" (September 1980)

As will be seen from Chart 2-1, cotton yarn is mostly imported from France and Argentina and imports from these countries account for 90 percent of the total imports. In the past several years more cotton yarn has been imported from France than from Argentina. This is believed attributable to the skyrocketing inflation in Argentina to which there seems to be no end. It is worthy of note that imports from Peru accounted for 9 percent of the total cotton yarn imports in 1979. This is attributed to increased production of raw cotton in Peru in 1978 and to various export incentives given to Peru's textile industry as a result of the promulgation at the end of 1978 of the Law for the Promotion of Exports of Nonconventional Goods. As a matter of fact, Peru exported 9,122 tons of cotton in 1979, two times more than in 1978 (source: Peru Industry Association materials).

On the other hand, imports of cotton cloth are extremely limited. As shown in Chart 2-2, cotton fabrics are imported mainly from Brazil. With regard to cotton goods, which require a much higher degree of processing, much of them is imported from the United States, as shown in Chart 2-3.

#### (4) Consumption

##### 1) Consumption of Raw Cotton

The International Cotton Advisory Committee publishes every year the various countries' consumption of raw cotton for industrial use. Paraguay consumed 5,400 tons of raw cotton (tentative amount) in 1977/78 (August 1, 1977 – July 31, 1978) mainly for spinning purpose. This means that about 6 percent of Paraguay's raw cotton production is used for spinning and that the rest is exported. According to the above committee, Paraguay's past consumption of raw cotton for industrial use was as indicated in Table 2-10.

**Table 2-10 Consumption of Raw Cotton for Industrial Use**

(Unit: 1,000 tons)

Year	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78
Consumption	3.7	3.9	3.9	4.8	4.8	4.8	4.8	5.4

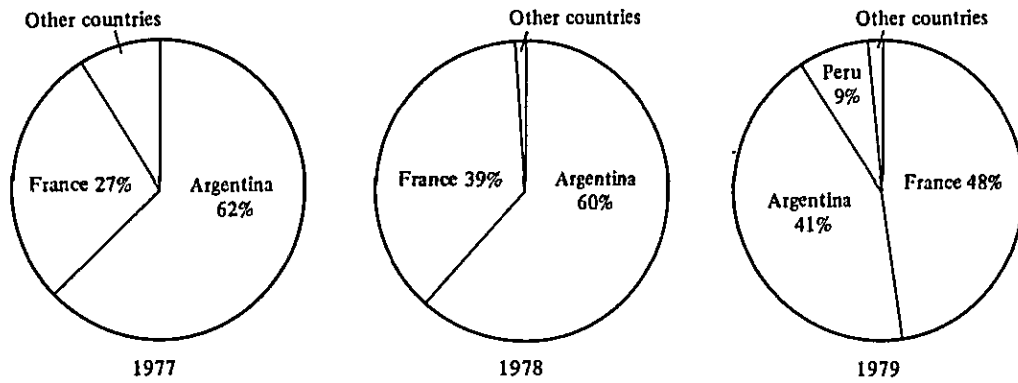
Source: 1978 edition of the World Statistics Almanac published by the United Nations.

Note: Figures are for the 12 months from August 1 to July 31.

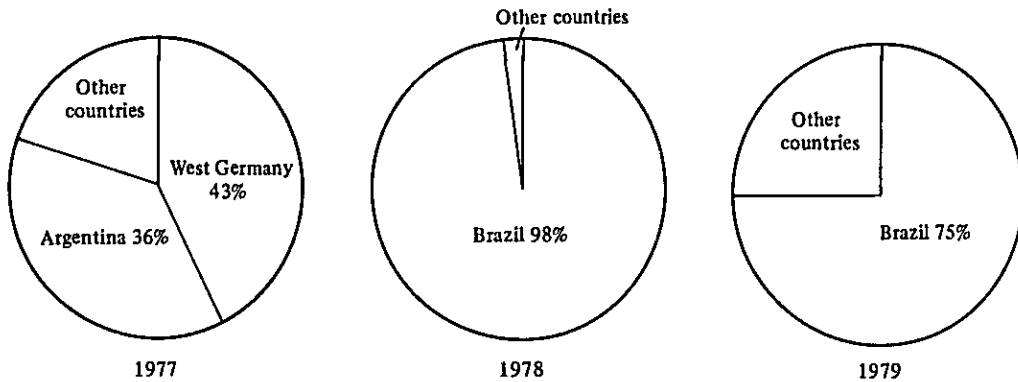
##### 2) Domestic Consumption of Cotton Goods

The amount of cotton goods exported by Paraguay is so little that there is almost no need to consider it. It is possible to estimate the domestic consumption of cotton goods from the amount of domestic production and the amount of this product imported from abroad.

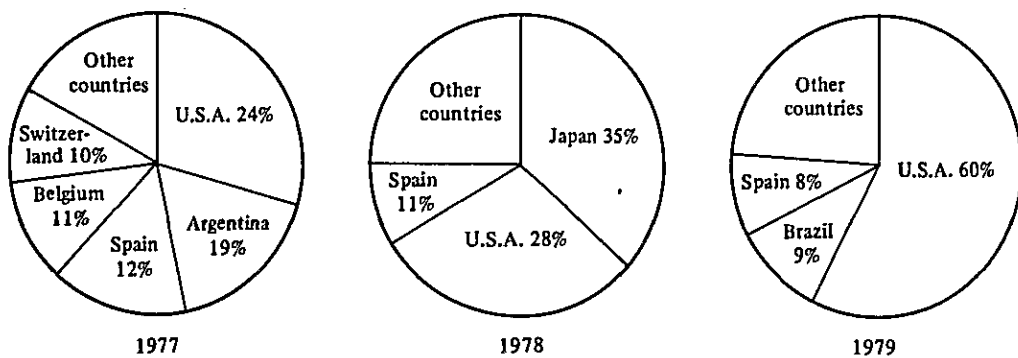
However, the problem is how to look at the amount imported. As mentioned previously, as a result of the import embargo ordinance promulgated in December 1975, imports of cotton yarn dropped once after 1976. But with the partial relaxation of the ordinance in 1979, cotton yarn imports are again on an upward trend. But even so, cotton yarn imported in 1979 amounted to only 21 tons. This is an official figure released by the Paraguay Central Bank. The quantity imported is less than 1 percent of the domestic production of cotton yarn. In judging these figures



**Chart 2-1 Cotton Yarn Imports Classified by Countries (based on U.S. dollar)**



**Chart 2-2 Cotton Cloth Imports Classified by Countries (based on U.S. dollar)**



**Chart 2-3 Imports of Other Cotton Goods (based on U.S. dollar)**

alone, it is conceived that the domestic consumption is around 5,700 tons which is equal to the domestic production of cotton yarn. As a practical problem, there is a possibility that foreign-made cotton yarn, which does not appear in the statistics to the knitting trade, is included in the above figures. It is very difficult to grasp the actual situation. Insofar as we learned during our investigation in Paraguay, most of the replies were that cotton yarn was obtained from Pilar S.A. We did not hear that foreign-made cotton yarn was used. Most of the knitting enterprises complained about the quality, price and delivery of the domestic cotton yarn.

Next, with regard to cotton cloths, domestic production, according to the Central Bank, amounted to 20,252,000 meters in 1979. As mentioned above, production has hardly changed in the past ten years. On the other hand, cotton cloth imports rapidly dropped during this period, and only 0.6 ton (about 3,000 meters) was imported from Brazil in 1979 (Imports in 1970 amounted to 371 tons). As cotton cloths, like cotton yarn, are subject to the import embargo ordinance, less than ten tons were imported in 1976 (Imports tended to drop by a wide margin in the first half of the 1970s, and this trend became particularly marked after 1976). Consequently, calculation-wise, since the amount of cotton cloths exported is very small (95 tons which is equivalent to about 500,000 meters in length) and the amount of cotton cloths imported is also negligible, the domestic consumption is believed to be around 20,250,000 meters, which is about the same as the domestic production.

The above arguments are based on official statistics. With regard to the actual state of the domestic textile market, as many people have pointed out, goods, which came into Paraguay from neighboring countries without officially going through customs formalities, are being marketed in large quantities. In seeing this state, domestic textile enterprises invariably lament the people's taste for foreign goods. The principal commodity among the textile goods, which enter Paraguay without going through the customs, is synthetic textiles, but cotton goods are by no means an exception. Consequently there is a fear of underestimating the size of the market with arguments based on official statistics. For instance, regarding cotton goods, trial calculation is possible as shown in Table 2-11.

**Table 2-11 An Example of Estimating the Domestic Consumption of Cotton Goods Based on Figures Made Public by the Central Bank (1979)**

Production	4,050.4 tons	(Note 1)
Imports	+ 131.4 tons	
	4,181.8 tons	
Exports	- 95.0 tons	
Domestic consumption in 1979	4,086.8 tons	
Consumption per capita in 1979 (Note 2)	1.38 kg	

(Note 1) In the statistics on production, there is only cotton cloth item, so it has been substituted for cotton goods. Since the unit quantity in this case is meters, the weight per meter was converted to 200 grams as a standard case.

(Note 2) The estimate population of Paraguay in 1979 was 2,970,000.



The consumption of 1.38 kg of cotton goods per capita is a very low figure when compared with developed countries where the average consumption per capita is 6–7 kg. It is even lower than the average consumption in other Latin America countries, which is about 3 kg.

The domestic consumption of textile goods will be computed from a separate standpoint. For example, the present state of Paraguay can put on the past locus of Japan which has abundant statistics related to textile goods and is a forerunner of the textile industry. This idea will probably draw criticisms, but as a tryout, the following arguments are set forth.

Results of a sampling survey made by the Paraguay Central Bank of the consumption expenses of the average working class households have been obtained (refer to Table 2-12). As the number sampled was not very large, there are some doubts as to whether the information is sufficiently valuable as material. However, since a family budget survey has not been made, the information obtained will be used as reference.

Table 2-12 Composition of Household Expenses (November 1980)

Item Expense	Consumption expense (G)	Composition ratio (%)
Food and drinks	25,435	52.3
Housing	4,884	10.0
Light and fuel	2,441	5.0
Clothing	4,283	8.8
Sundry expenses	11,593	23.8
Total expenses	48,637	100.0

Source: Paraguay Central Bank materials

The composition ratio of five major household expenses is as shown in Table 2-12. The ratio is: expenses for food and drinks 52 percent, housing expense and light and fuel expenses combined 15 percent, clothing expense 9 percent, and sundry expenses 24 percent. The expenditure composition is like the consumption composition in Japan around 1955, but the ratio of clothing expense in Japan is much higher than that in Paraguay. This is due to the seasonal difference between the two countries and the difference in the habit of wearing underwear. The consumption of textile goods as a whole in Japan was then 3.53–3.65 kg, of cotton goods was 2.51–2.65 kg (calculated in terms of thread), and on this basis, the present consumption in Paraguay was estimated.

If the amount of consumption mentioned above is revised by taking into consideration the difference in the purchasing power per capita and the increased portion of the prices of textile goods, the following conclusion can be made.

Consumption of textile goods per capita

$$(3.53 - 3.65) \text{ kg} \times 0.79 = (2.79 - 2.88) \text{ kg} \longrightarrow \boxed{2.8 \text{ kg per capita}}$$

Consumption of cotton goods per capita

$$(2.51 - 2.65) \text{ kg} \times 0.79 = (1.98 - 2.09) \text{ kg} \longrightarrow \boxed{2.0 \text{ kg per capita}}$$

The above are revised values, which took into consideration the difference in purchasing power and prices.

(5) Appraisal of the Balance of Demand and Supply

1) Estimate of Necessary Import Amount

The point which is lacking in the above arguments is the movement of goods in stock. In the recent inspection of enterprises, it was found that some of them had fairly large stocks. However, it is very difficult to grasp the stocks quantitatively. With regard particularly to stocks in the distribution stage, it is difficult without a detailed survey on the government level. It appears that surveys of this nature are still insufficient. Given the statistical limitations, the economic environment surrounding Paraguay's cotton industry is grasped by assuming that the stocks at the beginning and at the end of the year are unchangeable. As mentioned previously, it is imports which are expected to be considerably apart from the actual circumstances in Paraguay's statistical figures. Accordingly, based on the consumption per capita, obtained by means of the estimates mentioned above, the import quantity was calculated backward.

The consumption of textile goods as a whole is as follows.

$$2.8 \text{ kg} \times 2,970,000 \text{ people} = 8,316 \text{ tons}$$

The consumption of cotton textile goods computed in terms of cotton thread is as follows.

$$2.0 \text{ kg} \times 2,970,000 \text{ people} = 5,940 \text{ tons}$$

Consequently the necessary import amount of cotton goods in 1979 would be as follows.

Domestic consumption	5,940.0 tons
Export amount	+ 95.0 tons
	<hr/>
	6,035.0 tons
Domestic production	- 4,050.4 tons
	<hr/>
Necessary import amount	1,984.6 tons

In the necessary import amount, since there should actually be cotton goods which are adjusted by stocks, it does not necessarily mean that the entire amount is imported. However, as the balance between the increase and decrease of stocks throughout the year is zero, imports of about 2,000 tons are anticipated. This amount exceeds by far the 152.1 tons of cotton yarn, cotton cloths and other cotton goods which were officially cleared through the customs in 1979.

## 2) A Profile of Paraguay's Cotton Goods Market

Lastly the whole picture of Paraguay's cotton goods market will be completed. The market had a size of about 6,000 tons in 1979, which amounts to only 2 percent of neighboring Brazil's (consumption 325,000 tons) and 5 percent of Argentina's (consumption 117,000 tons). Of the 6,000 tons two-thirds were produced in Paraguay and the remaining one-third was imported (including goods which entered the country without officially passing through the customs). The amount of cotton goods exported was small and was about several percent of the domestic production. The domestic consumption of cotton goods is expected to increase in the future. Reasons for this are that the national economy is relatively stabilized, that the living standard of the people is rising rapidly, and that the rate of increase in population is maintained at a relatively high level. However, the generally high prices of cotton goods sold in Paraguay might become a factor in restraining consumption. Consequently a rapid increase in the consumption of cotton goods cannot be expected even if demand as a whole increases.

### 2-3 Appraisal of Quality Standard

#### (1) Raw Cotton

Compared with the international level, the quality of cotton textile goods produced in Paraguay is at a low level in the processing stages of spinning, weaving and dyeing. This is due to the fact that a unified quality inspection standard has not been established and that the present quality control is inadequate.

However, progress has been made in improving raw cotton breeds in recent years, and Reba B-50, the first improved breed, has been highly appraised as the material for the upper middle count cotton yarn. Following the popularization of Reba B-50, a new breed called Reba P-279, which is superior in both quality and productivity, was developed. A switchover from Reba B-50 to Reba P-279 is being pushed. A complete changeover to P-279 is expected in 1980/81. Compared with Reba B-50 in the production of raw cotton, it is said that Reba P-279 yields 11 percent seed cotton, 5 percent more lint cotton and is 9 percent higher in quality for a total advantage of 25 percent. The lint cotton yield rate of Reba P-279 is 35–38 percent as against 31–32 percent in the case of Reba B-50. If conditions are good, a yield of 3,000–3,500 kilograms per hectare is possible. The fibres of P-279 have a high level quality having a length of  $1\frac{3}{32}$ – $1\frac{1}{18}$ , micronaire of 4.2–4.6 and pressley index of 92,000–100,000.

#### (2) Cotton Yarn

##### 1) Results of Tests

The survey team obtained samples of cotton yarn for testing. The results of tests are given in Table 2-13.

In yarn appearance classification of evenness, although not much unevenness is seen, recurring irregularities are frequently detected with much dispersion in the presence of foreign matters, which are observed in yarn would blackboard Sample No. 1 to below class 3 sample. Even if the yarn is of high quality, because low quality yarn is mixed, the overall evaluation drops with extremely conspicuous yarn unevenness, presence of foreign matters and slab in the completed product.

Table 2-13 Results of Testing Cotton Yarn

Material No.	Nominal count	Measured count	Yarn wound blackboard *		U (%)	IPI			Strength of single yarn	Elasticity of single yarn	Twist per inch	The rate of fluctuation of twist per inch
			Yarn evenness	Foreign matters		Thin	Thick	Neps				
1	10	10.4	2	1	11.50	8	0	24	777	12.5	14.4	3.00
2	12	12.0	unarrive	1	10.60	8	8	32	504	9.8	15.7	2.56
3	8	9.1	unarrive	unarrive	16.45				1,045	10.7	11.7	5.59
4	8/2		2	unarrive								
5	16	17.8	2	unarrive	17.75	584	1,288	1,100	419	6.6	17.5	5.44
6	16/2		3	unarrive								
7	20	20.9	2	2	14.20	64	284	472	301	5.6	14.9	5.23
8	24	22.5	unarrive	2	14.9	200	476	448	259	6.0	15.8	6.74
9	Coma 40	45.4	Coma	unarrive	11.95	16	88	212	153	4.6	21.5	5.46
10	7	7.6									10.4	7.31
11	11	11.5									14.1	8.53
12	20	21.3									17.45	4.41
13	8	8.2	unarrive	1	14.30	2,224	16	16	664	9.2	17.0	3.03
14	14	13.3	2	1	11.70	4	8	48	505	10.2	14.0	2.14

\*(Note) The yarn appearance classification by yarn wound blackboard regarding both yarn evenness and foreign matters was made according to the yarn appearance standard No. 1, 2, 3 and unarrived No. 3 of Japan Spinners Inspecting Foundation.

## 2) General Conditions of Quality

Generally the product composition is centered around low count. Since the raw cotton used is of good quality, high-grade cotton is spun from machines which are adjusted and are in good condition. As the adjustment for waste of cotton is inadequate due to the eccentricity of rollers and the bad condition of gauges resulting from the lack of proper maintenance of the machines, the quality of yarn deteriorates in the spinning process, so that the best use of the good quality of raw cotton is not made.

Given its present quality, paraguayan cotton yarn does not have international competitive power. Moreover, with the counts produced at present, range of products for which cotton yarn is used are limited, and there is no room for increasing domestic demand. Consequently it is only by repairing machinery and by improving operation control that raising the counts to higher grades is possible. Moreover paper cops of 9°15' are used for packing and cotton yarn is simply stuffed into cloth bags. Packing low count cotton yarn in cotton cloth bags is not immediately linked to defects, but middle count yarn while being transported is liable to be damaged due to rubbing. Consequently improved packing is desirable for yarn with counts higher than the middle count.

## (3) Cotton Fabric

### 1) Results of Tests

The survey team obtained cotton cloth samples for testing. The results of tests are shown in Table 2-14.

**Table 2-14 Results of Testing Cotton Fabric**

Item No.	Description	Manufacturer	Yarn count (s)		Density (No. of yarn/m)		Width (cm)	Weight (g/m <sup>2</sup> )
			Warp	Woof	Warp	Woof		
1	Poplin	Pilar	25.7	26.8	101.0	63.7	90.0	164.4
2	Shirting	Pilar	47.6	38.0	82.0	66.3	90.0	91.6
3	Two Ply Yarn Twill	Pilar	37.8/2	25.7/2	128.5	54.0	107.0	303.3
4	Denim	Pilar	6.0	9.5	67.6	43.0	107.0	430.2
5	Deck chair	Pilar	9.3/2	9.5	70.0	50.0	48.0	351.0
6	Fancy	America Textil	32.0/2	14.1	112.0	40.0	160.0	243.0
7	Poplin	America Textil	29.8	33.6	114.5	57.6	114.0	135.6
8	Shirting	America Textil	30.4	24.3	73.0	50.0	113.0	113.8
9	Curtain	America Textil	21.2/2	18.9/2	55.6	38.0	147.0	230.8
10	Towel	America Textil	Pile 24.6/2 Texture 25.9/2	Texture 13.7	Pile 32.0 Texture 32.0	Texture 32.0	230.0	397.2

Note: Count is average of 10 times. Density is average at 4 places.

## 2) General Condition of Quality

As there is generally no unified quality standard, all almost the enterprises do not inspect raw cloth in the weaving stage. Consequently much defect of yarn and woven is seen. Argentine cotton cloths do not have international competitive power and furthermore, because of their present quality level, it will be difficult to substitute them for imported cloths.

### ① Defect of yarn

Defects of yarn such as uneven yarn slubbed yarn, nep, seedy and neppy, the irregularity of counts and the irregularity of twist are conspicuous.

Especially, the stop of weaving machine due to the cutting-off of horizontal yarn is liable to induce defect of woven and will be a factor of deteriorating the quality.

### ② Defect of woven

Mis-draw of vertical yarn, warp float due to the cutting-off of wire, temple mark due to the incomplete rotation of ring-temple are seen sometimes.

With regard to horizontal yarn, defects of woven such as double pick, lashing-in and start up mark are seen sometimes.

### ③ Feeling

It is a problem with the cloths of shirting and cloths for making women's blouses, but generally not many people have interest in the feeling of cloths, and there are some cloths in which lead-marks are very conspicuous because of over stretching of vertical yarn tension. And also the uneven setting up warp line with each machine was noted.

The above are the main defects of cotton cloths and in order to rectify the defects, raising the quality of raw cotton and the establishment of a quality control standard for each manufacturing process are desirable.

## (4) Dyeing and Finishing

### 1) Results of Tests

The survey team obtained samples for test purpose. The results of the tests are shown in Table 2-15.

(( Items tested ))

(( Test standards ))

Appraisal of dyes	JIS L 1065
Tensile strength and elongation percentage	JIS L 1096
Tear strength	JIS L 1096 Pendulum Method
Contraction percentage	JIS L 0217 No.103
Fastness of color:	
Light	JIS L 0842 No. 3 exposare method 4th class test
Washing	JIS L 0844 A-2
Friction	JIS L 0849 II pattern drying and wetting

Table 2-15 Results of Testing Dyeing and Finishing

No.	Name of article	Marker	Dye used ( ) Estimate	Tensile strength ( ) Elongation %		Tear strength		Contraction		Light (Grade)	Fastness of color				Appraisal (Standard) Japanese goods:100 (Points)	
				Warp (kg)	Woof (kg)	Warp (g)	Woof (g)	Warp (%)	Woof (%)		Disco- ration (Grade)	Washing (grade)	Drying (Grade)	Friction Wetting (Grade)		
1	Cotton cloth dyed in one color blue	Pilar	Reaction	-	-	1,233	890	-0.7	-0.7	4<	4-5	4	5	2-3	1-2	70
2	ditto madder red	Pilar	-	-	1,150	1,000	-0.5	2.0	-	-	-	-	-	-	-	30
3	ditto light blue	Pilar	Reaction	-	1,533	1,160	-0.2	-0.3	2.0	4<	4-5	5	5	5	4	60
4	ditto green	Pilar	Vat colours	-	1,207	840	-0.7	-0.3	-0.3	4<	4	4-5	5	4	1-2	80
5	ditto red	Pilar	Naphthol	-	2,150	1,917	0.3	0.5	0.5	4	4-5	4	4	2	1-2	70
6	Cotton denim dark blue	Pilar	Naphthol	238 (24.5)	74 (12.5)	9,750	4,483	3.3	0	4	4-5	3-4	4-5	1-2	1	50
7	Cotton duck striped pattern	Pilar	(Direct)	-	-	-	-	-	-	<4	2	1	2-3	3-4	1-2	-
8	Cotton printing flower pattern	Pilar	(Reaction)	-	-	1,271	1,016	0	-0.1	4	5	5	5	4-5	2	80
9	ditto border pattern	Pilar	(Reaction)	-	-	1,163	1,030	0	-1.9	<4	5	4-5	5	4-5	1-2	50
10	ditto flower pattern	Pilar	Pigment	34.5 (6.2)	30.3 (18.8)	1,650	1,417	3.1	0.4	4<	4-5	4-5	5	3-4	1	20
11	ditto	Pilar	(Pigment, Reaction)	-	-	1,273	867	0.3	-1.1	4	5	5	5	5	2-3	70
12	ditto napped blanket	Pilar	(Pigment, Reaction)	-	-	2,133	2,523	3.4	-2.2	4<	4-5	4-5	5	4	1-2	70
13	Cotton cloth dyed in one color red	America Textil	Naphthol	131.3 (12.8)	38.0 (9.5)	5,380	2,900	7.1	1.4	4<	4-5	4	4-5	3-4	1-2	60
14	Cotton printing red pattern	America Textil	(Pigment)	56.3 (5.5)	35.0 (19.5)	1,203	890	2.9	1.4	4	5	5	5	4-5	1-2	40
15	ditto flower pattern	Pilar	(Pigment, Reaction)	51.5 (5.3)	32.6 (22.5)	1,317	900	0.4	0.9	4<	5	5	5	4	1-2	80
16	ditto curtain cloth	America Textil	(Pigment)	102.6 (9.7)	67.7 (14.5)	2,683	2,500	6.0	2.3	4	5	5	5	2-3	2-3	40
17	ditto slub thread flower pattern	America Textil	(Pigment)	42.6 (14.7)	25.8 (23.3)	3,590	2,007	1.0	0.2	4<	5	5	5	4	2-3	70
18	ditto black ball pattern	America Textil	(Pigment)	69.5 (11.0)	27.3 (13.8)	1,207	733	6.3	0.7	4	4-5	4	4	2-3	1	20
19	Cotton cloth dyed in one color toweling	Pilar	Reaction	-	-	-	-	-	-	<4	4-5	2-3	4-5	4-5	2-3	50
20	E/C printing flower pattern	Brazilian product	Pigment	62.2 (13.2)	36.5 (32.8)	2,050	1,290	0.3	0.1	<4	3-4	4-5	5	4-5	2	20
21	Cotton printing black pattern	Brazilian product	Pigment	-	-	1,250	1,200	0.8	-0.5	4<	5	4-5	5	3-4	1	70

Note: -mark in Contraction Column indicates elongation.

Measuring time conditions:

Temperature	20 ± 2 degrees C
Related temperature	65 ± 2%

(( Appraisal ))

The technical nature of printing, merits and demerits of finishing, and technology of dyeing plain fabrics were appraised and were rated based on 100 points for Japanese goods in each category.

Over 80 points	Excellent
60–80 points	Good
40–60 points	Passable
Under 40 points	Bad

- ① On the whole, friction and fastness of color are bad. Particularly wetting is bad. This is due to bad washing in water after dyeing and printing. Moreover, as it is not effected resin finishing in the finishing process, this defect is not covered.
- ② Generally dyed fabrics which obtained more than 70 points had been more or less finished, and their feeling was so-so. However, the others were not finished and are of inferior quality.
- ③ Printed fabrics are with repeat 8"–12" and are mainly of small patterns. There are many flower patterns in 4 to 6 colors, and most of them are simple patterns. However, on the whole, there are many defects such as patterns out of place, inferior engraving, poor sharpness of profile, streaks, broken lines, faulty white parts, and lack of luster. Lack of printing and engraving technologies is conspicuous.
- ④ No. 8 and No. 15 printed fabrics are so good that they can't be believed to be Pilar's products. Particularly in the case of No. 8, the discharge print with reactive dye was effected.
- ⑤ With regard to some printed fabrics with linear lattice patterns, 1–2 inch defects of bow and shew in the texture in some parts was noticed. This defect can be solved by eliminating the occurent source of each machine and by introducing Weft Bend Rectifier equipment. The entrance part of the stenter is generally the place for installing this equipment, but the matter should be studied according to the occur-ent source.

2) General Conditions of Quality

Fabrics are generally characteristic of development countries. They are mainly composed of shirting and poplin and are 36–40 inches in width. Both cloths dyed in one color and printed cloths have low added value. Moreover, as quality inspection is not made thoroughly, fabrics dyed in solid color and printed cloths of inferior quality are sold in the market. Each enterprise should therefore try to improve quality in the dyeing and finishing processes by using dyes of good quality and auxiliary agents and by establishing a standard operating procedure.

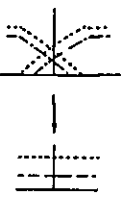


(5) Sewed Goods

1) Results of Tests

The survey team obtained samples for test purpose. The results of the tests are shown in Table 2-16.

Table 2-16 Results of Inspection of Sewed Goods

Inspected items	Blue T shirt stripe	Green T shirt	White Polo shirt	Training wear (Pants)	Training wear (Sweater)
Quality indication (composition, handling)	None	None	None	None	None
Shape, defect of raw cloth, soiling, defect in dyeing	o	o	o	o	o
Shew, joining patterns together, design matching	o	Shew	o	o	o
Margin to seam, margin to fold, sewing thread	o	o	o	o	o
Comes off of sew, seam shipping,	Seam shipping	o	Jumping stitch	o	o
Sewing stopper, weft bend, sewing wrinkle	Sewing stopper	o	o	o	o
Seam distorted, bring other yarn, Loose	o	o	o	o	o
Sewing condition	o	o	o	Problem with threads which run crosswise	o
Hemstitch, pocket, rib stitching	o	o	Darning bad	o	o
Attaching buttons Attaching fastener	-	-	o	o	Problem with fastener
Threading elastics, Over casting button hole, clearing of tail yarn	o	o	o	o	o
Number of stitches (3 cm interval)	Attaching sleeve 15 Side seam 14 Bottom hemming 13 Good	Attaching sleeve 14 Side seam 14 Bottom hemming 12 Good	Attaching sleeve 16 Side seam 15 Good	Theigh inside 18 Above grow 18 Good	Attaching sleeve 18 Side seam 18 Mate line 11 Good
Overall opinion	Bad	Good	Bad	Bad	Good
T shirt 2 kinds of bottom hemming  Seam joint	<ul style="list-style-type: none"> <li>Seam shipping in bottom hemming with two needles</li> <li>Possibility of continued fray of loop.</li> <li>Bottom hemming made with two needles and the end of sewing is not finished in seam joint.</li> </ul>	<ul style="list-style-type: none"> <li>Marked shew in body of garment</li> <li>Bottom hemming is made with two needles and the end of sewing is not finished in seam joint.</li> <li>Shear in under sleeve crotch. Problem with the strength of seam.</li> </ul>	<ul style="list-style-type: none"> <li>Seam shipping in over lock.</li> <li>Falling of seam shipping in rib stitching and over lock.</li> <li>No looping of cut end in pocket's mouth and end of margin to seam.</li> </ul>	<ul style="list-style-type: none"> <li>Thread is cut in the lock stitch of waist due to the inability to withstand against the stretching of material.</li> <li>No tape reinforcement in bottom hemming.</li> </ul>	<ul style="list-style-type: none"> <li>Material is thick, but over lock with one needle inadequate.</li> <li>Metal piece of stopping end with fastener are sewed on and they intrude in the cloth.</li> </ul>

(Note) o mark indicates "good".

## 2) General Condition of Quality

Fenix S.A., the biggest manufacturer of cotton garments which are producing under the Rangler, Cacharel and Blue Bell brands, carries out quality inspection which is in line with the level of foreign countries which provide the brands. Consequently Fenix's goods are on the international level. Quality inspection made by the other sewing enterprises is imperfect so that there are technical problems such as shew and seam ship in the stitch. As a result garments of low grade in quality are sold in the market.

## 2-4 Prices

On the whole the prices of textile goods sold in Paraguay are high. Due to the embargo on the importation of cotton yarn, the knitting mills buy cotton yarn mainly from Manufactura de Pilar S.A. as they are not equipped with spinning process. According to Tricotex Industrial y Comercial S.R.L., the average count cotton yarn costs 480 G per kg and the yarn dyed about 780G. Since the importation of cotton cloths and other cotton goods is also banned, high-priced cotton goods are being marketed. Listed in Table 2-17 are retail prices of cotton goods which the survey team bought in Asuncion as samples. The causes of the high-prices of cotton goods in Paraguay centering around production cost will be studied.

### (1) Spinning

A comparison of the spinning cost of Pilar S.A., the largest textile company in Paraguay, with those of Japan and Brazil is shown in Table 2-18. Insofar as it is seen in the table, the production cost of Paraguay is lower than that of neighboring Brazil, and if quality does not come into question, it can be said that the spinning industry has export competitive power. The main reason for this is that the high manufacturing cost, which is about the same as in Japan, is covered by the price of raw cotton. Pilar S.A. is able to hold down the price of raw cotton at a relatively low level because it owns equipment related to lint cotton. Whereas Pilar S.A., America Textil S.A. and Industria Textil Asuncena S.A., the three top-ranking cotton spinning companies, have lint cotton equipment, the two lower-ranking companies, Forno y Valle S.A. and Pedro Grenoves e Hijos S.R.L., do not have such equipment so that they are compelled to buy cotton from ginnery at a price which is about 50 percent higher than the top-ranking companies. The survey team heard that Pedro was selling its plant. Forno offset its disadvantage by selling goods (mainly woolen goods) to the Paraguayan Army and by installing new efficient open end equipment.

Like Pedro and Forno, many of the textile enterprises in Brazil are independent of the ginnery, and the price of raw cotton is not very cheap. In view of this, the Brazilian Government gives export incentive\* to textile enterprises so it is possible to ship cotton goods at low prices.

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\* Economic reforms were carried out in Brazil after 1980 on the ground of financial pressure. Exports of cotton goods dropped by a large margin compared with the past, and up 1980, a credit system and another system called BEFIEEX had been adopted. Under the credit system a fixed percentage of the export amount was returned to the exporter and it may be said to be a kind of export subsidy. As to the BEFIEEX system, an enterprise which approved an export plan, received a tax reduction on machinery and parts which it imported from abroad.

Table 2-17 Market Process of Cotton Goods

No.	Description	Material	Name of dyeing and finishing	Measurement (cm)	Manufacturer	Retail price (G/m)	Remarks
1	Poplin	Cotton	Dyed plain cloth (blue)	90	Pilar	300	
2	Lawn	Cotton	Bleaching	90	Pilar	250	
3	Poplin	Cotton	Dyed plain cloth (light blue)	93	Pilar	300	
4	Poplin	Cotton	Dyed plain cloth (green)	90	Pilar	330	
5	Gabardine	Cotton	Dyed plain cloth (red)	107	Pilar	650	
6	Denim	Cotton	Naphthol-dyed	107	Pilar	600	
7	Deck chair fabric	Cotton	Stripped yarn dyed	48	Pilar	250	
8	Poplin	Cotton	Print (7 colors)	90	Pilar	315	
9	Poplin	Cotton	Print (6 colors)	90	Pilar	335	
10	Poplin	Cotton	Print (4 colors)	80	Pilar	170	
11	Poplin	Cotton	Print (6 colors)	90	Pilar	335	
12	Flannel (reverse side naped)	Cotton	Print (3 colors)	90	Pilar	300	
13	Thick Dobby	Cotton	Dyed plain color (red)	160	America Textil	730	Manufacturer's selling price 540 G/m
14	Poplin	Cotton	Print (4 colors)	115	America Textil	360	
15	Poplin	Cotton	Print (7 colors)	90	Pilar	360	
16	Thick curtain fabric	Cotton	Print (3 colors)	147	America Textil	530	
17	Lawn (slub weave)	Cotton	Print (5 colors)	113	America Textil	520	
18	Poplin	Cotton	Print (2 colors)	114	American Textil	480	Manufacturer's selling price 270 G/m
19	Toweling	Cotton	Dyed plain color (blue)	230	American Textil	950	
20	Broad cloth	E/C	Print (5 colors)	140	Produced in Brazil	383	
21	Poplin	Cotton	Print (3 colors)	93	Produced in Brazil	220	
22	Poplin	Cotton	Dyed plain color (green)	90	Pilar	315	
23	Gingham	Cotton	Top dyeing (4 colors)	92	Pilar	270	
24	Thin Dobby	Cotton	Print (5 colors)	90	Pilar	335	

Note: Bought at retail store in Asuncion (December 1980)

But in Paraguay, as export duty exceeding 10 percent is levied on export goods, the advantage gained from low production cost is ultimately lost.

## (2) Weaving

A comparison of the costs of producing cotton fabric in Japan, Brazil and Paraguay is shown in Table 2-19. Paraguay's production cost is about the same as that of Japan. The reason for this is that although the cost of raw material is low, the manufacturing cost is high. Compared with Brazil, labor and electric power costs are high. Under the present manufacturing cost it is difficult to export cotton fabric.

**Table 2-18 International Comparison of Cotton Spinning Costs**

(Unit: G/bale)

Country Division	Japan	Brazil	Paraguay
Cost of raw material	130,000	112,000	79,443
Manufacturing cost	81,600	64,000	83,310
<b>Total cost</b>	<b>211,600</b>	<b>176,000</b>	<b>162,753</b>

Note 1: Cost price per bale of Card 40

Note 2: Paraguay's cost is that of Pilar S.A.

Note 3: There is a possibility that Brazil's raw material (raw cotton) cost is lower than G 112,000.

**Table 2-19 International Comparison of the Costs of Manufacturing Cotton Fabric**

(Unit: G/m)

Country Division	Japan	Brazil	Paraguay
Raw material cost	151.20	136.77	126.48
Manufacturing cost	86.40	70.80	106.85
<b>Total cost</b>	<b>237.60</b>	<b>207.57</b>	<b>233.34</b>

Note: Paraguay's cost is that of Pilar S.A.  
Broadcloth 38-inch wide

**Table 2-20 Comparison of the Production Cost of Dyed Goods**

(Unit: G/m)

Country Division	Japan	Brazil	Paraguay
Raw material cost	237.60	207.57	233.34
Manufacturing cost			
Bleaching	79.84	48.96	56.06
Printing (rotary)	275.41	126.32	134.83
<b>Total cost</b>			
Bleaching	317.44	256.53	289.40
Printing (rotary)	513.01	333.89	368.17

### (3) Dyeing and Finishing

With regard to the cost of producing dyed goods, the same may be said as in the case of grey fabric, Paraguay's cost is between those of Japan and Brazil. Compared with Brazil, the manufacturing cost is slightly higher, and it is the price of grey fabric which has pushed up the production cost of dyed goods. As already mentioned, the price of grey fabric in Paraguay is fairly high and this reflects in the cost of dyed goods (refer to Table 2-20).

### (4) Distribution Cost

The distribution structure appears to be simple. There are cases where cotton goods are directly shipped from plants for retail sale. There are also stores in cities which are under the direct management of mills and specialize in selling cotton goods. Despite the fact that the distribution stage is relatively short, retail prices are very high. The survey team actually found that there was an average difference of about 30 percent between the prices of goods at the time they are shipped from fabrics, and the selling prices in Asuncion. As mentioned previously, the high domestic prices are attributed to the manufacturing stages beginning with lint cotton, but the problem concerning the distribution stage, too, cannot be overlooked.

## 2-5 The Present State of the Government's Promotion Policy

It cannot but be said that the measures taken by the government to promote the textile industry are inadequate. The importation of cotton yarn, cotton cloths and other cotton goods has been banned since 1976, but insofar as the survey team found out, various shortcomings of the protective policy have surfaced. Firstly, although all the cotton textile enterprises should improve their equipment and business structure during the protectionist period, the steps taken by them are far from sufficient. This is clearly discernible by looking at the quality of cotton goods produced by the enterprises. Secondly, despite the existence of many problems on quality, the prices of cotton goods in the retail stage are very high. Cotton goods are marked at prices which represent fairly a high markup on the production cost calculated by the survey team. Granting that the protectionist policy is necessary in fostering Paraguay's infantile textile industry, such a policy will lose its significance unless effective efforts are made by the textile enterprises during the protectionist period. On the contrary, ill effects of protection will occur. Expansion of the textile department of I.N.T.N., which supports the textile enterprises from a technical aspect, is indispensable. It is deemed necessary to put the department in a position of guidance organ for the textile enterprises. With regard to fostering textile engineers, the survey team could not see any education undertaken in this respect.