

Paraguay Vende

INVESTMENT PROSPECTUS: Manufacture of Pine Wood Moldings

CNIME – Paraguay Vende Partnership Export Maquila for the United States market

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Investment Project Data

Project:	Manufacturing of pine wood moldings to be exported to the United States market under the Maquila regime.
Products:	An array of pine wood moldings identified with code 441890 in the Harmonized System Code.
Project global investment:	US\$ 1,712,530.00
In-house funding:	US\$ 1,250,000 (73 %)
Third party resources:	US\$ 255,497 (15 %)
Funding generated by project:	US\$ 207,032.00 (12 %) comercializacion
Profitability:	IRR = 62 %
Yearly sales:	US\$ 3,162,500.00 from 3 rd year on.
Size:	5,500 m ³ of pine wood moldings per year.
Human resources:	48 persons (permanent staff).
Location:	Department of Alto Paraná – Paraguay

Executive summary

The present report shows that the investment opportunity in pine wood molding is viable from the commercial, technical, economic and financial standpoints, and is fully compliant with the initial planned objectives of the **Paraguay Vende** project (see "Introduction", p. 7).

The proposed project is highly attractive when compared with other options, since it offers greater profitability. Even considering intrinsic risks that could possibly arise, the project would retain high levels of profitability.

In the case of this project, profitability is contingent on the degree of efficiency reached in the regular supply of raw materials, the timeliness of export shipments, and fluidity in communications with U.S. buyers. These risk variables have been minimized in the proposed project. In addition to risk reduction, two fundamental product features should be considered: quality and price.

Over the last seven years, world trade of wood moldings has seen a constant evolution; and this is especially true of the last two years. Currently, the U.S. market conditions are favorable to the sale of Paraguayan-made pine wood moldings. Paraguayan products enjoy a preferential tariff waiver granted by the U.S. Government, giving them a competitive advantage in the market.

Promotional negotiations undertaken in the U.S. under the **Paraguay Vende** program show that U.S. importers are interested in working together with USAID to develop mechanisms for joint investments in industrial production and export trading of forestry products of Paraguayan origin.

This requires state-of-the-art production line and equipment, and machinery must be imported in brand-new condition. The plans call for equipment able to sustain a continuous 300-day workflow in eight hour shifts. The plant would contain the array of necessary investments for handling dried and cut pine wood planks, sized and finished according to the demands of the market. The projected staff requirements amount to 48 full time employees, of whom 35 would be assigned to the production area, 4 to the sales area, and the remaining 9 to administration.

Taking into account the expected size of the manufacturing plant and the annual exportable supply of raw materials from the province of Misiones, Argentina, a consistent supply of the required raw materials can be assumed.

The proposed legal framework for the project is the *Maquila* regime, begun in Paraguay in 2000, with the objective of ensuring quality in industrial manufacturing and reducing costs of international corporations willing to set up subsidiaries or site operations in Paraguay. This regime has the advantage of allowing commercial access to Mercosur without payment of the Common External Tariff. Other advantages of *Maquila* include a one-time 1% tax on value added value, waiver of the normal VAT (IVA), and temporary permission to import machinery, equipment, components and parts for assembly, processing, and manufacturing under a contract for export.

The Maquila is a legal regime for international subcontracting where a foreign company can locate in the country by itself or through subcontracting Paraguayan companies, to perform total or partial industrial services on tangible or intangible goods temporarily admitted for their subsequent exportation. It is based in the concept of temporary admission as set forth in the Paraguayan Code of Customs, its regulations and corresponding decrees, and incorporated in the Mercosur Code of Customs.

Under the Mercosur agreement, up to 40% of value added to the final product may originate from countries outside the region, provided that the remaining 60% comes from Mercosur. This regime promotes the establishment of international corporations with technology, equipment and machinery in Paraguay, and allows 60% of value added from Mercosur to avoid payment of the remaining 40%, thus guaranteeing competitiveness and access to markets.

This *Maquila* regime ensures that international corporations can maintain their competitiveness without moving their operations to Asia, and without complicated, time-consuming customs and transportation procedures. The geographical proximity of Paraguay to Mercosur countries allows affordable and easy transportation inside and outside the region, and provides an abundant skilled and young workforce.

For Paraguay, this is a way of bolstering foreign reserves by exporting goods without exporting workers; and for Paraguayan workers it is a way to acquire skills and improve their standard of living without resorting to emigration.

Introduction

The objective of the **Paraguay Vende** program is to promote the increase of sales, exports, employment and investments, and to contribute to poverty reduction and alleviation in Paraguay. The effort seeks to assist companies and producers from the three main economic corridors of the country: Northern, Central, and Eastern (all located in the Eastern Region). The strategy is to assist companies from these corridors by providing non-financial services aimed to improve access to both national and international markets.

Even though there are Paraguayan companies with excellent products, they often experience difficulties in selling their products in more developed markets because of their executives' lack of experience. For this reason, this project is both an important challenge and lucrative opportunity for those determined to conquer external markets.

In Paraguay, transaction costs are high due to the geographical isolation of the aforementioned corridors, a weak regulatory environment, and the general business environment. Furthermore, lack of information about business opportunities and the negative image of the country among foreign investors work against the efforts toward setting up new businesses or attaining new investments.

However, there are currently investments made under the Maquila regime that have achieved positive results and enjoy significant tax benefits. This regime grants a comparative advantage for a large number of productive activities related to foreign trade, such as pine wood molding production intended for the export market, discussed in this prospectus.

Pine wood molding manufacturers started doing business in Paraguay in the last few years, and have been successfully exporting their production to the U.S. market. The business model of these companies is basically to get raw materials from neighboring countries and process them in-country for their subsequent export by traders operating in the major markets. The export trading channel of this product has been opened by these pioneering companies; what remains to be done is to expand the country's current production of exportable goods and adapt the product to consumer requirements in terms of quality, design and price.

The objective of the present study is to analyze the feasibility of setting up pine wood molding plants operating under the Maquila regime using raw materials from Mercosur neighbors of Argentina and Brazil, tailoring the products mainly to meet U.S. market demand. The study also seeks to reach potential foreign and domestic investors interested in the wood molding business, which is part of the promotional activities of the **Paraguay Vende** program to help reduce poverty in Paraguay.

Section 1: The Market

The present analysis comprises a broad range of products known as wood moldings identified in the Harmonized System Code (HSC) by the schedule number **441890**, and described as *“other builders joinery and carpentry of wood.”*

This customs schedule includes, among others, the following products: builders joinery and carpentry of wood including cellular wood panels. The following products are excluded: Windows, french-windows and their frames; doors and flush doors, and their frames and thresholds; parquet panels; formwork (shuttering) for concrete constructional work; shingles and shakes; and, prefabricated partitions and panels for buildings.

Wood moldings are intermediate goods, used mainly in the building industry, and some important aspects of which are as follows:

- World trade of wood molding showed a growing trend in the last seven years, particularly in the last two years.
- Product growth rate has been higher than the overall world trade growth rate over the same period.
- The share of developing countries in the worldwide market of wood moldings has grown.
- Exporting developing countries, Paraguay among them, have proved their international competitiveness in the timeframe under consideration.
- Market conditions of the U.S. are favorable for Paraguayan-made pine wood moldings. During promotional negotiations undertaken in the U.S. under the **Paraguay Vende** program, it has been shown that many importers of pine wood moldings expressed interest in working to improve the positioning of products coming from USAID -supported projects in Paraguay.
- Paraguayan products exported to the U.S. Market enjoy a preferential tariff waiver granted by the U.S. Government, which is a comparative advantage.

Thus, we can assume that wood moldings are a “shining star” product; that is, a product able to succeed in growing markets. Therefore, promotional efforts must be oriented towards enhancing Paraguayan export capacity and increasing Paraguay's participation in the U.S. market.

1.1 Worldwide Demand

According to data released by the International Trade Centre UNCTAD/WTO, worldwide demand for product HSC 441890 over the 1998-2002 period showed the following characteristics:

Worldwide Imports Product 441890-Year 2002 (CIF Value In thousands US\$)	Yearly growth (1998 – 2002 period) per year		Yearly Growth (2001 -2002 period) per year
	Value	Quantity	Value
2,341,546	4 %	11 %	8 %

Source: Calculations of the International Trade Center based on COMTRADE statistics.

The preceding table shows that worldwide demand exhibited growth, more so in terms of quantity than value. However, it is worth noting that in the period 2001-2002 growth in terms of value was even more marked.

During 2003 and part of 2004 the worldwide market for wood moldings experienced an increase much higher than the growth registered in the period studied in the above table. Some factors contributing to this increase are as follows:

- Recent changes in Chinese forestry law and the economic growth that this country is experiencing have created an unexpected increase in the Chinese demand for wood, which has climbed to levels never reached before.
- Scarcity of raw wood and finished wood products from Brazil due to a weak phase in the reforestation activities.
- Increased activity in the housing construction and home improvement business in the U.S., taking advantage of low interest rates offered in that market.

This increased demand should continue over the long-term, thereby offering good opportunity to permanently increase sales of the Paraguayan , especially to the U.S. market.

1.2 Major Importing Countries

Over the same period and according to the same source, the major importing countries of product 441890 were the following:

Main worldwide importing countries	Product 441890 Worldwide Imports Year 2002 (CIF Value – In thousands US\$)	Country share in worldwide imports	Annual Growth (1998–2002 period) per year		Annual Growth (2001-2002) per year Value
			Value	Quantity	
USA	863,899	36 %	6 %	n/a	13 %
Japan	314,549	13 %	17 %	24 %	- 4 %
Germany	255,600	10 %	- 9 %	- 5 %	4 %
Italy	111,413	4 %	19 %	28 %	26 %
France	80,250	3 %	14 %	23 %	9 %
UK	78,182	3 %	13 %	24 %	31 %
Switzerland	77,087	3 %	3 %	10 %	17 %
Canada	54,450	2 %	- 1 %	n/a	5 %
Austria	45,576	1 %	- 2 %	6 %	-14 %
Netherlands	36,420	1 %	- 8 %	- 5 %	- 9 %

Source: Calculations from ITC based on COMTRADE statistics.

The above table shows that North America is the biggest regional importer of the product, with more than a third of all worldwide registered imports ; followed by the European countries, with a 25% share; and Japan, with a 10% share. It should be noted that the U.S. was the largest single importer of the product, with a share of 36% of total registered imports in 2002.

1.3 U.S. Import Demand

In terms of import value, the U.S. demand for Product 441890 has evolved over the last six years , as shown below:

EVOLUTION OF THE U.S. IMPORT DEMAND Product 441890 (CIF Value – In thousands US\$)						
Country	1998	1999	2000	2001	2002	2003
USA	612,643	888,197	766,810	765,073	863,899	972,407

Source: ITC UNCTAD/WTO.

Annual growth of U.S. imports of wood moldings over the 1998-2002 period has been higher than the corresponding global average (6% vs. 4%).

The growth rate of product purchases in the U.S. for 2001-2002 was 13%, a figure that represents almost twice the corresponding global average (8%). These levels were maintained over the 2002-2003 period. Several factors contributed to this growth: low interest rates for building and home improvement loans, and a high degree of competitiveness of imported versus domestically produced moldings.

The evolution of the U.S. import demand for Product 441890 is classified by regional origin as follows:

U.S. IMPORT DEMAND ORDERED BY ORIGIN Product 441890 (CIF Value – In thousands US\$)						
Region	1998	1999	2000	2001	2002	2003
North America	511,484	761,379	598,806	570,658	591,405	661,766
South America	28,512	44,342	39,278	65,499	116,322	140,685
East Asia	7,534	17,739	30,640	35,384	42,037	56,646
European Union -25	20,866	12,328	25,728	24,750	39,605	32,833
Southeast Asia	36,644	39,710	54,099	38,362	35,708	38,474
Others-Europe	73	294	423	12,355	16,219	18,628
Australia	2,691	2,369	6,518	8,689	9,100	6,067
Central America	3,859	8,241	8,779	6,279	9,096	10,367
Others	980	1,795	2,539	3,097	4,407	6,941
Total	612,643	888,197	766,810	765,073	863,899	972,407

Source: International Trade Statistics, U.S. Department of Trade.

In 1998, imports from North America --the main U.S. provider-- amounted to 83% of total registered product imports. In the subsequent years this market share declined, replaced by an increase in the share of the other suppliers -- South America chiefly among them. These other providers claimed a 14.5% share in 2003, up from a mere 4.7% in 1998.

The data indicates that the U.S. buys from a more geographically disperse set of producers than other major importers; this dispersion, in turn, generates sales for South American countries (Brazil, Chile, and Paraguay).

Future behavior of U.S. demand cannot be accurately predicted based solely on its evolution over 1998-2003. Global market conditions changed in 2003 (on account of the above mentioned facts about China, the U.S., and Brazil), producing a marked increase in world demand, much higher than the yearly average considered above.

It is worth mentioning that the data suggests that the U.S. demand for pine wood moldings will continue to grow in the long-run, a favorable prospect for Paraguayan producers.

Section 2: Supply

2.1 Global Supply

According to data released by the International Trade Center UNCTAD/WTO, the global supply of Product 441890 for the period from 1998-2002 showed the following characteristics:

Worldwide Exports Product 441890 - Year 2002 (FOB Value-Thousands US\$)	Annual Growth (1998 – 2002 period) per year		Annual Growth (2001 – 2002 period) per year
	Value	Quantity	Value
2,497,312	2 %	14 %	3 %

Source: Calculations of ITC based on COMTRADE statistics.

In this period global supply taken as a whole has grown, with a higher proportion of growth in quantity rather than in value; however, growth in value over the 2001-2002 period has been slightly higher.

As already noted, the marked increase of worldwide product demand over the year 2003 and part of 2004 was not matched by a corresponding increase in supply, given the rigid character of global supply. As a consequence, product prices show a steady growing trend in the short and medium terms.

2.2 Major Exporting Countries

Utilizing the same data, the main exporting companies of product 441890 in this period are shown in the chart below:

Major Global Exporting Countries	Global Exports Product 441890 Year 2002 (FOB Value - Thousands US\$)	Country share in global exports	Annual Growth (1998–2002) per year		Annual Growth (2001-2002) per year
			Value	Quantity	Value
Canada	613,335	24 %	n/a	n/a	2 %
Indonesia	256,800	10 %	6 %	10 %	- 7 %
Austria	221,870	8 %	11 %	21 %	24 %
Germany	194,130	7 %	15 %	36 %	13 %
USA	115,771	4 %	-13 %	n/a	-22 %
Finland	92,560	3 %	5 %	19 %	9 %
Sweden	79,571	3 %	1 %	13 %	3 %
Philippines	71,547	2 %	n/a	n/a	- 6 %
China	70,439	2 %	25 %	17 %	24 %

Source: Calculations of ITC based on COMTRADE statistics.

As demonstrated above, Canada is the main product exporter, with a share of almost 25% of the worldwide registered exports for 2002. It is followed by Indonesia, Austria and Germany, which together make up another 25% share. It is worth noting that the U.S. is also an exporter of this product, with a share of

4% of registered global export in 2002 but also with a decreasing trend in value over the same period.

What is remarkable about the role of the U.S. as an exporting country is the fact that over the 2001-2002 period the value of its exports was reduced 22%, showing an evident contraction of its foreign sales due to the increase in its internal supply needs.

2.3 Major Countries Exporting to the U.S. Market

The main countries exporting Product 441890 to the U.S. market over the 1998-2002 period are shown in the following chart:

MAJOR COUNTRIES PROVIDING TO THE U.S. MARKET							
Product 441890							
(CIF Value – Thousands US\$)							
Country	Ranking (2002)	1998	1999	2000	2001	2002	2003
Canada	1	506,033	754,418	593,573	567,017	588,326	660,368
Brazil	2	11,877	17,844	26,649	43,162	72,007	90,736
Chile	3	15,644	25,344	10,277	18,761	40,766	41,686
China	4	6,510	16,653	28,204	31,978	40,465	53,947
Indonesia	5	26,801	30,394	36,806	20,988	19,415	20,716
Norway	6	2	15	9	10,930	14,528	16,530
Germany	7	701	668	2,216	3,110	9,525	3,947
Thailand	8	2	17	1,174	9,168	8,983	10,021
Others		45,073	42,844	67,902	59,959	69,884	74,456
Total		612,643	888,197	766,810	765,073	863,899	972,407

Source: International Trade Statistics, U.S. Department of Trade.

It should be noted that over the period from 1998-2002, all countries except Indonesia and Canada increased their exports to the U.S. market. It is especially worth noting Norway, with a yearly average increase of 3,030%, Denmark with 401%, Thailand with 302%, Germany with 104%, Brazil with 59%, and Chile with 17%.

Comparing the 2002 export value against the 2003 export value for each country supplying the U.S. market, we can appreciate that Chinese exports increased by 33%, Brazil by 26%, Norway, 14%, and Canada and Thailand 12%. On the contrary, German exports decreased 59%.

From these statistics we can infer that the U.S. has been diversifying its product supply sources in recent years, orienting its purchases mainly towards emerging markets.

2.4 Paraguayan Exports to U.S. And Worldwide

As a country exporting Product 441890, Paraguay took the 44th place in the 2002 worldwide ranking, with a share of less than 1% of the market. 93% of its sales are oriented towards the U.S. market. Paraguayan exports to the U.S. market over the 1998-2003 period evolved in quantity and value as follows:

PARAGUAYAN EXPORTS TO THE U.S. Product 441890 (FOB Value – Thousands US\$)					
1998	1999	2000	2001	2002	2003
-	158	2,901	5,818	2,938	4,550

Source: Central Bank of Paraguay; OCIT.

PARAGUAYAN EXPORTS TO THE U.S. Product 441890 (in Tons)					
1998	1999	2000	2001	2002	2003
-	196	3,602	8,170	4,586	8,119

Source: Central Bank of Paraguay; OCIT.

In the preceding data, these facts should be noted:

- Over the period from 1998-2002, the average rate of growth in value was 158% per year, while the average rate of growth in quantity was 179% per year.
- Over the 2001-2002 period there was a decrease in value of 50%, while the decrease in terms of quantity was 44%.
- Over the period 2002-2003 there was a reversal of the situation, with a growth rate of 55% in value and 77% in quantity.

Section 3: Price and Sales

3.1 Prices in the Global Market

Average price levels obtained for Product 441890 by the major exporting countries in the global market during 2002 were the following:

AVERAGE PRICE LEVELS OBTAINED IN THE GLOBAL MARKET BY THE MAJOR EXPORTING COUNTRIES Product 441890 – Year 2002 (FOB Value – US\$/Ton)	
MAJOR EXPORTING COUNTRIES	Global Average Price
Canada	n/a
Indonesia	644
Austria	914
Germany	1,171
USA	n/a
Finland	1,012
Sweden	1,062
Philippines	1,327

Source: Calculations of ITC based on COMTRADE statistics.

This price range can be attributed to the vast array of products that fall under the tariff schedule for product 441890. As was already pointed out in the paragraph dealing with worldwide product demand, the marked increase in demand experienced from October 2003 provoked a steep climb in the worldwide price levels, with a trend to remain at these levels for the foreseeable future.

3.2 Prices in the U.S. Market

The average price levels of Product 441890 obtained in the year 2002 by the major exporting countries in the U.S. and global markets were the following:

AVERAGE PRICE LEVELS OBTAINED BY THE MAJOR EXPORTING COUNTRIES IN THE U.S. AND GLOBAL MARKETS Product 441890 - Year 2002 (FOB Value – US\$/Ton)		
MAJOR EXPORTING COUNTRIES	Average Price (USA)	Average Price (Global)
Canada	n/a	n/a
Brazil	864	725
Chile	n/a	n/a
China	1,774	1,329
Indonesia	872	644
Norway	1,598	1,759
Germany	1,214	1,171
Thailand	n/a	n/a
Paraguay	641	636

Source: Calculations of ITC based on COMTRADE statistics.

It should be noted that average prices obtained by the major exporting countries in the U.S. market are, in most observed cases, higher than the average prices

obtained by these countries in the global market, by margins varying from 1% (Paraguay) to 35% (Indonesia)

According to primary sources of information, prices rose abruptly beginning in October 2003 due to factors previously discussed, with prices rising to double the average price for the year. According to the same sources, all the U.S. market parameters point to prices remaining high in the near future.

3.3 Prices of Paraguayan Exports to the U.S. Market

The evolution of annual average prices for Paraguayan exports of Product 441890 to the U.S. market over the 1999-2003 period is the following:

EVOLUTION OF ANNUAL AVERAGE PRICES OF PARAGUAYAN EXPORTS TO THE U.S. MARKET Product 441890 (FOB Value – US\$/Ton)				
1999	2000	2001	2002	2003
806	806	712	641	560

Source: Central Bank of Paraguay; OCIT.

As can be observed, prices have tended to decrease during this period. This decrease can basically be attributed to limitations of Paraguayan offerings related to the following factors:

- Problems due to lack of uniform product quality.
- Problems related to timeliness of shipments and overextended delivery times.
- Communication failures among the members of the supply chain .

Due to the economic climate already discussed, prices obtained by the Paraguayan product in the U.S. market also benefited from the global price hike after October 2003, and current price levels are around US\$ 1,400/Ton (FOB – Paranaguá, Brazil), with a trend to remain at these high levels in the near future.

3.4 Commercialization

According to research based on data from primary sources and conducted under the **Paraguay Vende** program, the current climate for Paraguayan production of Product 441890 for the U.S. market shows the following relevant features:

- The distribution channel is formed by direct sales from the producer to the U.S.-based industrial distributor, who, in turn, is in charge of delivering the product to industrial users. This channel limits knowledge of current market conditions and service quality offered to import customers.
- Given that there is a limited diversity of wholesale distributors maintaining commercial relationships with Paraguayan exporters, participation of Paraguayan exporters in the U.S. market is limited and weak, because their sales strength lies in personal, direct contact of exporting producers with many distributors.
- There is a deficiency in communications of exporters in their dealings with industrial distributors to handle the details of each export shipment and to perform follow-up sales operations.
- U.S. industrial distributors have expressed concerns about the regularity and timeliness of shipments coming from South America. Currently, there is a problem with lack of available containers and with a general delay in shipments due to insufficient space in the regular shipping lines employed.
- Furthermore, industrial distributors expressed concern about lack of uniform quality of the product exported from Paraguay. This fact undermines the trust that should exist between producer and distributor.

In the face of the above mentioned facts, it is recommended that the new company should consider the following corrective actions when structuring their organization and commercial operations program:

- Establish a distribution channel that incorporates a U.S.-based sales agent who would have, depending on the exporter, the following responsibilities:
 - Provide updated information on current conditions of the U.S. market.
 - Promote the company's brand-name and the products being sold and broaden the customer base in a selective way.
 - Provide customers with technical assistance in different aspects of commercialization.
 - Coordinate bank transactions inherent to export operations.
- Dedicate staff exclusively to handling the accounts of import customers. These staff should coordinate with the sales agent in handling and following-up the details of every operation and keep fluid personal business contacts with agents of the shipping lines and customs, in order to continually achieve regularity and timeliness of product shipments and deliveries.
- Emphasize a production quality control system that ensures the continuous meeting of buyer-required specifications.

By taking these recommendations into account, the company would ensure permanent placement of their products at the right place and time, and would satisfy the U.S. consumer.

Section 4: Technical Analysis

This analysis is based mainly on the experience accumulated to this date by one of the factories operating in Paraguay under the current Maquila Regime. This factory makes wood moldings from raw material (pine wood) coming mainly from the province of Misiones, Argentina, and exports almost all of their production to the U.S. market. Consequently, all aspects concerning project engineering, company size, and location were deemed as valid for this analysis.

4.1 Product Description

The project deals with the manufacture of a wide array of pine wood moldings, which in turn are subdivided in regards to their finishing process, in the following way:

- unpainted moldings
- painted moldings

4.2 Technical Specifications

The manufacturing unit will have a production line and facilities equipped with state-of-the-art technology. Machinery, vehicles and general equipment will be imported brand-new from origin under the preferential temporary admission regime as set forth in the Maquila Law currently in force in Paraguay.

4.3 Raw materials

The raw materials for the process are basically dried and cut pine wood planks, sized to conform to the requirements of the product to be manufactured. These raw materials are identified under customs schedule number **44071000**, whose description reads "Wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness exceeding 6mm (.236inch), coniferous." Ninety per cent of the raw materials will come from the province of Misiones, Argentina, and the rest will be of local origin. Introduction of raw materials to factory areas will be done under the preferential temporary admission regime set forth in the Maquila Law.

In the province of Misiones, there is a total cultivated area of around 400,000 hectares (988,422 acres) of pine trees (*Pinus eliotti*) at this time, which accounts for 40% of the total pine tree cultivated in Argentina. In addition, there are about 900 pine processing industrial companies in Misiones, chiefly workshops, sawmills, rolling mills, paper mills, plywood factories, and others. It should also be noted that there are a number of important mid- and large-size sawmills able

to export the required product and with whom the company could negotiate a commercial supply agreement on an ongoing basis. According to estimates from the Forestry Industries and Producers Association of the region, the annual volume of the province's exportable supply of the product is in the order of 56,000 cubic meters (about 1,977,621 cubic feet), which could easily meet and exceed the Project's requirements for raw materials.

Concerning the internal provision of raw materials, data from the Paraguayan Federation of Timber Merchants points out that the area under reforestation in 2002, using pine and other tree species, amounts to about 26,500 hectares (65,482 acres). Of this area, 57% is located in the coastal area of the Parana River, in the departments of Canindeyú, Alto Paraná, Caaguazú, Caazapá, Itapúa and Misiones. Some limitations to the advancement of reforestation efforts in Paraguay exist, mainly due to lack of resources and failure to effectively implement the Forestry Law which grants tax incentives to the sector. Consequently, local suppliers of the required raw materials should not be expected to provide a greater share of the materials in the medium term.

Lastly, it should be noted that in the neighboring provinces in Brazil and Argentina, to the south of Misiones (Corrientes, Entre Ríos, Chaco, and Formosa), there are sufficient pine-cultivated areas which eventually could become alternate suppliers of raw materials for the Project.

4.4 Labor and other supplies

The complete size of the workforce for company operation will amount to 48 persons, working in normal shifts of 8 hours each. Personnel directly assigned to production will amount to 35 persons, of which 4 must be qualified technicians and the rest would receive training under a continuous training program. In case of labor shortfalls due to orders that would demand operation of additional shifts, hiring labor to conduct the extra shifts should not be a problem.

Concerning other supplies, the production process requires use of the following:

- Glue for finger-jointing.
- Plastic and cardboard for packing finished product.
- Metal bands for packing finished product.
- Base paint for moldings.
- Electric power.
- Fuel for boilers.
- Water and various other minor supplies.

Their supply is regular within the country and no supply problems are expected.

4.5 Production process

The production process of pine wood moldings consists of the following steps:

- Receiving of raw materials. Small, planed, dried wood planks of the "4 S" type, sized according to the requirements of the finished product, are received in factory.

- **Sorting.** In the next steps, planks are sorted according to their quality. Planks showing knots, stains, fissures and other flaws are discarded.
- **Cutting or deburring.** Next, vertical cuts are made to the wood planks using pneumatic deburrers, in order to achieve the required lengths and discard defective parts.
- **Jointing and pressing of planks.** In this step finger-joints are made in both ends of planks, and then they are glued, jointed, and pressed.
- **Longitudinal cut.** After getting planks with the required lengths, longitudinal cuts are made in order to get the desired width while maximizing their yield.
- **Molding.** This process is done in a high-speed precision molding machine in order to get the desired shapes. A great variety of shapes can be obtained by using this machine. At the end of this step, the molded planks could follow two paths according to the specifications of the desired product. In the first, natural pine wood moldings go directly to the packing and storage step, while in the second, the pine wood moldings that are to be painted go to the next stage in the process.
- **Painting and drying.** In this step basic paint is applied to the molded planks. The process is performed employing a paint line and a drying tunnel.
- **Packing and storage.** Finally, the finished product is packed and stored in warehouses for their subsequent loading into containers.

Additionally, the production process requires internal transportation mechanisms (forklifts) for the correct passage of the pieces throughout the different stages. A flowchart of the production process is shown in Attachment 1: "Flowchart of the Production Process".

4.6 Production Schedule

The initially planned production schedule for the first ten years of project operation is as follows:

PLANNED PRODUCTION SCHEDULE Product 441890			
Year	Cubic m (Cubic ft.)	Equiv. Tons *	Days of operation
1	3300 (115,945.5)	1439	180
2	4400 (154,594)	1918	240
3 to 10	5500 (193,242.5)	2398	300

*Using an equivalence 1 cubic meter= 0.436 Tons.

The program expects an annual production equivalent to a volume of 5,500 cubic meters (193,242.5 cubic feet) of pine wood moldings from the third year onwards, representing 100% of normal production capacity of 300 days of operation in 8-hour daily shifts. In the first year production is expected to reach 60% of that capacity, and 80% the second year.

4.7 Size

To determine the size of the plant the following external factors have considered:

- Capacity of the Paraguayan company operating in the same sector.
- The magnitude of the target market (U.S.).
- Present supply capacity of sawmills operating in the province of Misiones, Argentina, of raw materials on an ongoing basis.

Among the internal factors most influential for the plant's production capacity are the following:

- Degree of technical skill of the workforce to be hired.
- Degree of automation of intermediate processes.
- Quality and quantity of raw materials to be processed.
- Adequate maintenance of machinery and equipment.

4.8 Capacity

As mentioned above, normal production capacity is 5500 cubic meters (193,242.5 cubic feet) of finished product per year, operating in daily shifts of 8 hours in 300 days of operation.

Taking into consideration plant usage at full capacity (*i.e.* three 8-hour daily shifts under 300 days of operation) a production of 16,500 cubic meters (579,728 cubic feet) of finished product could be achieved.

4.9 Location

The selected plant location is in the Department of Alto Paraná, near Ciudad del Este. The region has the following advantages:

- It is close to the network of roads going to the Paraguayan free port on the Atlantic (Paranaguá, Brazil), located 750 km east of Ciudad del Este.
- It is geographically close to the supplying sources of raw materials (Misiones, Argentina), which are located no further than 200 km from the proposed plant location.
- Excellent availability and low cost of transportation.
- Excellent availability and low cost of labor.
- Tax incentives granted under the Maquila Regime.

- Availability of water, power, and other supplies.
- Reasonable cost and availability of real estate.
- Adequate soil topography for construction of civil works.

As for micro-location, a minimum area of 6 hectares (about 15 acres) is planned for laying out the whole industrial complex, including the administrative offices and space for future plant expansion.

Section 5: Organizational Structure

5.1 Administrative Structure

The complete permanent workforce necessary for the company to operate at the optimal level, will amount to 48 persons working in normal 8-hour shifts. Eventually, overtime shifts of 4-16 hours could be needed in the production area. It is assumed that within the planned geographic plant location there is a labor market that is teachable, and thus we incorporate a training component into the investment plans.

The following staff should be hired for the production area:

- 1 Plant Manager.
- 3 Officers.
- 31 Shift Workers.

For the sales area, the following staff is considered necessary:

- 1 U.S.-based Sales Agent.
- 1 Sales Representative.
- 1 Buying Agent for raw materials and supplies.
- 1 Sales Assistant.

Finally, administrative duties will be handled by a staff composed of:

- 1 Manager.
- 1 Accountant.
- 1 Manager of Human Resources .
- 2 Assistants (control and administration).
- 1 Messenger.
- 3 Security Officers.
- 1 Night Guard.

5.2 Legal Structure

As a beneficiary of the Maquila Regime, the company may operate under any of the charter structures set forth in Paraguayan law. The most commonly used ones are:

- Anonymous Society (Sociedad Anónima, S.A.).
- Limited Liability Company (Sociedad de Responsabilidad Limitada, S.R.L.).
- Branch of a Foreign Company

It should be noted that at present there is no limitation to the amount or origin of the capital investment, which may be 100% of foreign, national, or dual origin.

5.3 Legal Framework

The main institutional aspects of the legal framework reference the following:

- The Maquila Regime and its corresponding regulations.
- Labor and Social Security laws.
- Health and Environmental Protection laws.

5.3.1 Maquila Regime

Law No. 1064/97 "Of Maquila" and its corresponding regulation by Decree No. 9585/2000 are given special importance as legal framework for the project. These can be seen in Attachment 2, "Maquila Law".

The initial investments, operational plan and expected results are closely linked to what is allowed or forbidden by this regime. Companies operating under the Maquila Regime enjoy tributary incentives that affect investments and the operational plan.

Fiscal incentives under the Maquila Regime include waivers granted to all kinds of internal taxes, fees, tariffs and customs import and export duties, being subjected instead to a single 1% tax over the value added within the national territory. These incentives comprise waivers of the following taxes:

- Revenue Tax.
- Value Added Tax (IVA).
- Deeds and Documents Tax.
- Customs Tariffs.
- Customs Valuation Service Fee.
- Consular Fee.
- Port and Airport Duties.
- Payment of Computer Fees.
- Any tax, fee or tariff over securities that the company or third parties may extend in relation to the Maquila Regime.
- Any tax, fee or tariff over loans extended for financing maquila operations.
- Taxes on money transfers related to the Maquila Regime.

- Any other existing or potential tax, fee, or duty on entrance or exit of goods protected under the Maquila Regime.

To companies operating exclusively under Maquila operations (pure maquila), the regime also grants the following waivers or benefits in addition to those already mentioned as an incentive to create new and separate companies under Maquila:

- Waiver of Commercial Tax to businesses, industries, professionals and craftspersons.
- Waiver of Construction Tax that affects the industrial plant, conforming to that already approved under the Maquila program.
- Waiver of municipal taxes directly affected by the “maquila process”.
- Waiver of the Value Added Tax (IVA) on the rental or leasing cost of machinery and equipment included as part of the “maquila program”.
- Any other existing or potential tax, fee, or duty at the national or departmental level.

As a complementary incentive, the Maquila Law allows companies operating under said regime to sell up to a 10% of the exported sales volume from the previous year in the domestic market the following year.

5.3.2 Labor and Social Security Framework

The company operating under the Maquila Regime must be in compliance with legal regulations as set forth in the National Constitution, the Workers Code (Law No. 213/93), their modifications (Law No. 496/95) and corresponding regulations.

Additionally, the company will also be bound to comply with what is set forth in Law No. 375/56 and its modifications (Law No. 427/63, Law No. 1085/65 and Law No. 98/92) regulating the Social Security Regime for employees. Thus, the company will have to make a monthly contribution in the amount of 16.5% of the monthly salary accrued by workers in the company payroll.

This national Social Security Insurance covers risks of diseases, accidental injury of the worker and his family, maternity, labor injuries, laboral diseases, subsidies for disability, old age and death, including retirement pensions among others.

5.3.3 Health and Environmental Protection Framework

Companies operating under the Maquila Regime are subject to comply with the regulations set forth in Law No. 836/80 – Health Code.

The Project must comply with all municipal and departmental ordinances, Law No. 1294, “Of Municipal Organization”; Law No. 422/73 “Of Forestry”, with its regulatory decree No. 11.681/75; Law 294/93 “Evaluation of Environmental Impact”, with its regulatory decree No. 14,281/96; Law No. 716 - “Penalties for Crimes Against the Environment”, and all other norms and decrees on the matter as set forth by the Secretariat of Environment (SEAM).

5.4 Conclusions of Technical Analysis

Upon evaluation of the different parts of this analysis, it can be assumed that there are no significant limitations which would hinder the progress of this study as it proceeds toward the next phase of the project.

The planned line of production shows versatility both in regards to production capacity and finished products that could be made using the same equipment. Add this to the favorable opportunity presented with the tax waiver options set forth in the Maquila Law, and there exists a highly attractive investment outlook for this project.

Emphasis should be put on hiring a competent, experienced plant manager who would be able to manage the different production operations, oversee the continuous training of unskilled labor, and make the necessary changes to adapt to market tastes in regards to product finishing and quality.

Finally, it will be of the utmost importance to achieve long-lasting commercial agreements with suppliers, in order to ensure long-term success and survival of the company undertaking the project.

Section 6: Economic and Financial Analysis

6.1 Required Investments

The project requires a total investment of approximately US\$ 1,712,530.⁰⁰. Of this amount, 69% or US\$1,175,089.⁰⁰, represents fixed investment. The remaining 31%, or, an estimated amount of US\$537,441.⁰⁰, is required working capital.

6.2 Financing of the Investment

It is expected that the company's own resources will finance up to 85% of this endeavor, while the remaining 15% would be financed through short-term loans given in US Dollars. Therefore, the financing structure would be the following:

FINANCING OF GLOBAL INVESTMENTS					
Own Resources		Loans		Total Financing	
US\$	Share	US\$	Share	US\$	Share
1,457,033	85 %	255,497	15 %	1,712,530	100 %

From the outset, the company must have an integrated capital of US\$ 1,250,000.⁰⁰. For the first year of operation, a short term loan extended in U.S. Dollars has been considered in order to cover the working capital during that period. For the subsequent years, these needs will be covered with resources generated by the Project and therefore no additional contributions of capital will be needed from shareholders.

6.3 Projected Operational Revenues

Regular projected revenues will come from sales of pine wood moldings described in the Customs Harmonized System Code under schedule number 441890. According to the planned production schedule, the revenue estimated within the project framework is as follows:

PROJECTED OPERATIONAL REVENUES Product 441890		
Year	Volume in m ³ (cubic ft)	Value (US\$)
1	3300 (115,946)	1,897,500
2	4400 (154,594)	2,530,000
3 to 10*	5500 (193,242)	3,162,500

* Yearly revenues.

Revenue coming from annual sales is depicted in Chart 3 of the Attachment 5: "Economic and Financial Analysis".

6.4 Projected Operational Costs

The operational costs will evolve in the following manner during the development of the project:

PROJECTED OPERATIONAL COSTS Product 441890	
Year	Value (US\$)
1	1,416,475
2	1,738,817
3	2,084,154
4	2,084,154
5	2,084,154
6 to 10*	2,044,408

* Yearly costs

The main components of these operational costs, together with their corresponding values and proportional share of the total costs, are shown in the following table. Values were calculated on the basis of Year 3 production figures, since production is planned to be at 100% of normal capacity from that year on.

PROJECTED OPERATIONAL COSTS Product 441890		
Expenses	Value (US\$)	Share
Production	1,804,508	87 %
Administration	87,896	4 %
Sales	174,975	8 %
Taxes – Maquila	16,775	1 %
TOTALS	2,084,154	100 %

Detailed operational costs can be seen in Chart 8 of Attachment 5, “Economic and Financial Analysis”.

6.5 Projected Results

It is expected that the project will turn a profit in its first year of operation, when operation is expected to proceed at just 60% of the normal potential processing capacity. As the usage of the full plant capacity increases, the results will increase, with profit margins ranging from 38% in the first year to 89% in years six through ten. The following is a summary of the evolution of net profits expected during the Project's ten-year span:

EXPECTED NET PROFITS Product 441890		
Years	Value (US\$)	Profit/Capital ratio
1	481,025	38 %
2	791,183	63 %
3	1,078,346	86 %
4	1,078,346	86 %
5	1,078,346	86 %
6 to 10*	1,118,092	89 %

* Yearly profits.

The detailed expected results over the projected 10-year span are shown in Chart 10 of Attachment 5, "Economic and Financial Analysis".

6.6 Point of Equilibrium

The third year of operation was taken as a basis to calculate the point of equilibrium, since it is at the third year that the plans call for the plant to start operating at 100% of its processing capacity. The low level of fixed costs during that year (17.2%) will allow the company to achieve the annual equilibrium operating with a mere 25% of its installed capacity, which translates to a production level of 1375 cubic meters (48,310.6 cubic feet) of pine wood moldings per year (i.e, 25 40-foot containers). This calculation is shown in Chart 9 of Attachment 5, "Economic and Financial Analysis".

6.7 Financial Viability

From the financial point of view, the project is fully and definitely viable. The net balance of available funds allows the company to afford all planned expenses with enough margin throughout the entire project time. This means full payment of the short-term loan planned for the first year, and payment of annual dividends to shareholders throughout the projected span of ten years. Planned fund sources and their usage, together with the projected availability of funds, debt payments, allocation of dividends to shareholders, and the resulting surplus are shown in greater detail in Chart 11 of Attachment 5, "Economic and Financial Analysis".

6.8 Cash Flow of Project

It is worthy to note that net cash flow is positive beginning in the first year of operation, with a balance of US\$269,775.⁰⁰, and shows a sustained increase until the fourth year, where it reaches the amount of US\$1,197,504.⁰⁰. From that point on the cash flow remains at this level until the ninth year, where it increases again, reaching the amount of US\$1,917,185.⁰⁰ as a result of the reimbursement of initial investments. A detailed evolution of the Project cash flow is shown in Chart 12 of Attachment 5, "Economic and Financial Analysis".

6.9 Profitability of the Project

The profitability offered by the Project is highly attractive for the planned investment. It should be noted that under normal conditions the Net Actual Value (NAV) of the project cash flow --taking into account a 6% annual discount rate-- is US\$ 6,349,697.⁰⁰. Conversely, the Internal Revenue Rate (IRR) is 65%, much higher than other standard financial alternatives available in the market. Additionally, the existence of a short recovery time for the planned investment (TRC), which is just 2 years and 5 months, confirms this appraisal. Calculations related to NAV, IRR, and TRC are shown in Chart 12 of Attachment 5, "Economic and Financial Analysis".

6.10 Intrinsic Project Risks

The sensitivity analysis was performed adjusting the following variables in an independent manner:

- Variable 1: Comprising a 20% increase in the operational costs.
- Variable 2: Comprising a 20% decrease in the operational revenue.

Taking both variables into account, the project is still attractive based on its profitability. The corresponding calculations and their results are shown in Charts 13, 14, and 15 of Attachment 5, "Economic and Financial Analysis".

SENSITIVITY ANALYSIS				
Variables	NAV at 6 % (US\$)	IRR (%)	(years)	(months)
Variable 1	3,655,884	39 %	3	7
Variable 2	2,289,327	28 %	5	-