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INGENIO JULIO BUITRAGO (MONTELIMAR)

Diagnostic, Valuation and Privatization Strategy Report

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4 de diciembre, 1992
Sr. Dayton Caldera
Presidente de CORNAP
Managua, Nicaragua

Estimado Sr. Caldera:

Tenemos el placer de presentarle los informes finales para los Estudios de Diagnóstico, Valoraciones, y Estrategias de Privatización para el Ingenio Julio Buitrago y el Ingenio Victoria de Julio. Estos informes han sido preparados para uso exclusivo de la administración de CORNAP para asistir en la evaluación de alternativas en las estrategias de privatización, y para proveer una base sobre la cual se puedan evaluar las ofertas hechas por inversionistas potenciales. Por lo tanto, rogamos no divulgar dichos informes a terceras personas, incluyendo posibles y futuros inversionistas.

El análisis presentado en estos informes está basado en informaciones operacionales y de contabilidad, explicaciones, e informes sometidos a nosotros y a nuestros consultores técnicos por la administración de los dos ingenios azucareros y de CONAZUCAR. Estos informes incluyen informaciones, estimados, y proyecciones que reflejan las opiniones de la administración relativa al futuro desempeño de las compañías. Dichas informaciones, estimados, y proyecciones reflejan suposiciones referentes a futuros resultados. Existe la posibilidad de que estas suposiciones sean incorrectas y, por lo tanto, no podemos garantizar que los resultados proyectados sean logrados. No garantizamos que la información, los estimados, y las proyecciones suministradas sean correctas.

Además hemos incorporado comentarios recibidos después de nuestra presentación a CORNAP en agosto de este año. Reiteramos el placer y la satisfacción profesional trabajar con usted y el personal de CORNAP.

Muy atentamente,

Price Waterhouse

Price Waterhouse

EMPRESA AZUCARERA DE REFORMA AGRARIA
JULIO BUITRAGO URROZ (MONTELIMAR)

Diagnostic, Valuation and Privatization Strategy Report

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Financial

U.S. $1.00	=	5.0 Cordovas

Area

1 Manzana	=	100 Varas^2	=	100 Meters^2
1 Hectare	=	1.4 Manzanas		
1 Hectare	=	2.47 Acres		

Weight

1 Metric Ton	=	1.087 Spanish Tons
1 Spanish Ton	=	920 Kilograms
1 Quintal	=	100 Kilograms
1 Quintal	=	220 Spanish Pounds

EXECUTIVE SUMMARY

The Julio Buitrago sugar company is one of 351 state-owned enterprises assigned to the Nicaraguan privatization corporation, CORNAP, for privatization. This report, prepared by the Price Waterhouse International Privatization Group (PW/IPG), includes a diagnosis of Julio Buitrago's operations, an estimate of the value of the company, and a recommended strategy for privatization.

A. Diagnosis of Julio Buitrago Operations

1. Company and Industry Description

The Julio Buitrago sugar company was owned and operated from 1944 to 1979 by the Somoza family which had acquired it at an auction of confiscated enemy property during World War II. The sugar company was expropriated by the Government of Nicaragua in 1979.

The Julio Buitrago sugar operation is located 62 kilometers southwest of Managua near the city of Masachapa and bordering the Montelimar tourist resort (see map on the following page). The primary activities of the sugar company are:

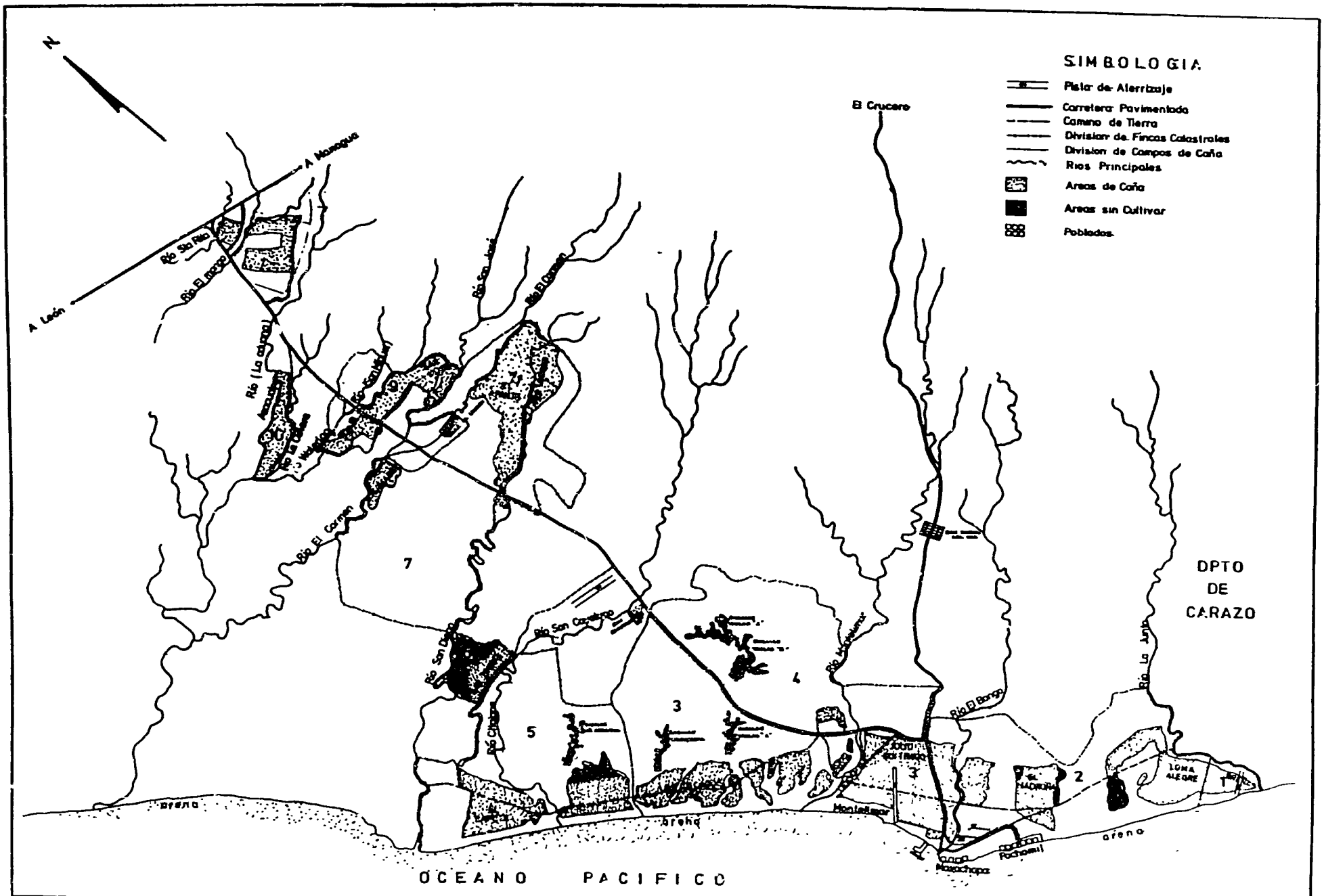
- Sugar cane cultivation
- Sugar processing
- Alcohol production
- Beef and dairy cattle
- Energy generation for internal consumption

Julio Buitrago is one of seven sugar mills operating in Nicaragua. Its annual sugar production represents approximately 10% of domestic production. The state sugar company, CONAZUCAR, sells and distributes all national output, oversees the budgets of the mills, and provides financing for the mills.

Approximately 50% of 1991/92 production was sold to the domestic market at a government set price of $17.27/quintal. Approximately 10% of output is sold under the United States quota program at a price of $18.00/quintal. The remaining 40% of output is sold on the world sugar market at a price of $8.00/quintal. The average price of sugar in 1991/92 was $13.78 per quintal.

2. Current Financial Condition

The seven sugar mills, including Julio Buitrago, have operated largely as cost centers under CONAZUCAR. Financial information is not reported on a timely basis and is unreliable. Consequently, the usefulness of financial information reported on Julio Buitrago is limited. However, PW/IPG has developed an estimated statement



COMPLEJO AZUCARERO DE R A JULIO BUITRAGO URROZ

PLANO CATASTRAL
Y DE
VIAS DE ACCESO

MUNICIPIOS DE SAN RAFAEL DEL SUR Y VILLA EL CARMEN DPTO DE MANAGUA

Finca Nº1 Los Brasiles	Nº Catastral	2851-3-09-000-00100	
Finca Nº2 Montelimar	" "	2851-3-05-000-00100	
Finca Nº3 Montelimar	" "	2853-1-16-000-00100	
Finca Nº4 Montelimar	" "	2851-1-16-000-00200	
Finca Nº5 El Zapote	" "	2851-1-11-000-02101	
Finca Nº6 San Diego	" "	2851-1-08-000-01500	
Finca Nº7 El Apante	" "	2851-1-04-000-17200	
Finca Nº8 Waterloo	Nº Catastral	2852-2-16-09600	
" "	" "	2851 1-04-02501	
Finca Nº9 San José	" "	2851-1 04-02603	
Finca Nº10 Altitualpa	" "	2852-2 16 00901	
Finca Nº11 El Apante	" "	2951 4 01 0000 01600	

Dibujó Salvador Palacios Mendez
Revisó Ing. Roberto Rodriguez Parrales
Escala 1 50000
Fecha Mayo 1992
Dpto de Riego y Drenaje
Ingenio JULIO BUITRAGO URROZ

of profit and loss for 1991/92 based on results for the first nine periods of the fiscal year. The estimated net loss for the year is C 6.8 million ($1.4 million) on sales of C 33.5 million ($6.7 million). This represents a loss of 20% per sales dollar. Management has indicated that cost cutting measures toward the end of the year would reduce the projected loss.

The estimated 1991/92 loss is a result of lower than average agricultural yields, high labor costs, and low world sugar prices. Poor rainfall and the lack of an adequate water irrigation system have contributed to the low agricultural yields.

3. Potential for Improved Performance

An evaluation of agricultural and industrial practices at Julio Buitrago and discussions with management indicate that substantial opportunities exist for cost reductions and improved operating efficiency, including:

- personnel reductions in the field, factory, and administration;
- more efficient water management;
- improved field practices and harvesting methods;
- increased power generation; and,
- introduction of new cane varieties.

In addition, Julio Buitrago has an opportunity to increase revenues through its recently acquired license to produce potable alcohol for the Nicaraguan market. Potable alcohol earns significantly higher margins than the industrial alcohol historically produced at the distillery.

The cash flow projections developed by PW/IPG indicate that Julio Buitrago has the potential to become profitable and generate positive cash flows if reasonable operating efficiencies are achieved. The sale of potable alcohol would also contribute substantially to profitability, according to the PW/IPG analysis. However, the profit and cash flow potential of the mill is highly sensitive to the average price of sugar which can not be accurately projected.

B. Estimated Value of Julio Buitrago

The assets that are included in the financial valuation are the productive assets of the enterprise only. These assets include the sugar mill, alcohol distillery, 4,818 manzanas of land under cultivation, 5,000 manzanas of land connecting and adjoining the cultivated land, and all equipment and inventories associated with these assets.

Two methods were used to estimate the value of IJB: the discounted cash flow (DCF) method and the liquidation value of IJB assets.

1. Discounted Cash Flow Valuation

The ***DCF method*** is considered the best method for estimating the value of Julio Buitrago as an ongoing enterprise. The DCF analysis was performed by projecting the expected future cash flows of the mill and converting the cash flows into their present values using a discount rate that reflects the riskiness of the cash flows. The analysis assumes that IJB will not have to repay any of the debt currently on its balance sheet after privatization.

IJB is currently operating at a loss and if it continues to be operated as it is now, the mill's value as an ongoing concern is close to zero. However, the results of the DCF analysis indicate that if management is able to implement reasonable operating improvements, the mill could have a value as a going concern of 23.7 to 46.5 million cordobas ($4.7 to $9.3 million).

2. Valuation Based on Asset Liquidation

The ***liquidation value*** of IJB is the price that could be achieved through an orderly sale of all the assets available to be privatized. The liquidation value is generally considered the minimum acceptable value of an enterprise. However, an enterprise may be sold as a going concern for less than the liquidation value due to employment objectives, anticipated future tax revenues, and other considerations.

The estimated asset liquidation value for IJB is 60 million cordobas ($12 million), based on asset lists provided by IJB management, the experience of industry experts, and local asset valuation specialists. This estimate should not be considered a definitive value, but rather a reasonable approximation of liquidation value. In addition, this estimate does not reflect the time and transactions costs that would be required to carry out an orderly liquidation of the mill's equipment, nor the likelihood that some equipment could not be sold given currently low world sugar prices and the low level of new investment in the industry.

3. Conclusions

A primary Government objective of privatization is for IJB to continue as a going concern. Thus, a reasonable range for the value of IJB is the going concern value of 23.7 to 46.5 million cordobas ($4.7 to $9.3 million). These estimated values are based on numerous assumptions and are particularly sensitive to variations in the discount rate and the average price of sugar.

C. Recommended Privatization Strategy

1. Government Objectives

The principal objectives of CORNAP in privatizing IJB are as follows:

- reduce or eliminate Government financial losses resulting from the negative cash flow of the mill;
- eliminate future Government investments in the mill;
- improve management and operations of the mill;
- maintain employment at the mill;
- maximize the cash generated from the privatization of IJB; and,
- transfer ownership of the mill to the private sector as quickly as possible.

2. Privatization Options

PW/IPG has identified four potential options that may be appropriate for the privatization of Julio Buitrago:

- OPTION 1: SALE OF ENTERPRISE ASSETS

  CORNAP would sell the assets of IJB as a going concern to an investor group with experience in the industry. The liabilities of IJB would remain with the Government. The investors would form a new company with IJB's assets and continue to operate the mill.

- OPTION 2: INFUSION OF NEW PRIVATE CAPITAL (JOINT VENTURE)

  A new company would be formed with the assets of IJB and new capital invested by a private investor group. The new company would be jointly owned by the private investor group and the Government with the private group holding majority control.

- OPTION 3: MANAGEMENT/EMPLOYEE BUYOUT

  CORNAP would sell the assets of IJB as a going concern to IJB management and/or employees. The purchase would likely have to be financed with Government support.

- OPTION 4: MANAGEMENT CONTRACT OR LEASE

  CORNAP would lease or contract out management of IJB to a private firm with expertise in sugar mill operations. Ownership of IJB would remain with CORNAP and the mill would continue as a going concern. Ownership of the mill could be transferred to the private sector several years later after operations, management, and financial performance had been improved.

3. Recommended Strategy

Given the uncertainty concerning the attractiveness of IJB to private parties, PW/IPG recommends that CORNAP pursue a ***flexible strategy*** which maximizes the chances of achieving a successful privatization. Based on the Government objectives outlined above, we recommend the following approach:

1. Solicit the participation of private investors in IJB through a sale of assets or joint venture (Options 1 or 2). The advantages of this approach are as follows:

   - Ownership of IJB is transferred to a private owner which eliminates the responsibility of the Government for financial losses and further capital investments.

   - Private, experienced owners have a strong incentive and the capability to improve management and operations.

   - IJB continues to be operated as a going concern and employment is maintained, although probably at a lower level.

   - Cash is generated for the Government in the short-term. (Under Option 1 only).

   The disadvantages of this approach are as follows:

   - The Government may receive a lower price if the mill is expected to continue as a going concern rather than be liquidated. As noted above, the ongoing concern value of IJB is estimated at $4.7 to $9.3 million while the cash liquidation value is estimated at $12.1 million.

   - Private investor interest in IJB may not be strong given IJB's current financial position. Attracting private investors may be difficult and time consuming compared to contracting out management.

2. If private investment proves infeasible, solicit a private manager for a management contract or lease (Option 4). Management compensation should be closely tied to profitability. The advantages of Option 4 are as follows:

   - Private, experienced management is introduced immediately.

   - Private managers, with proper incentives, have a strong motivation to improve management and operations.

   - IJB continues to be operated as a going concern and employment is maintained, although probably at a lower level.

   - IJB could be privatized at a later date after operations, management, and financial performance had been improved.

   The disadvantages of Option 4 are as follows:

   - Ownership of IJB remains with CORNAP and the Government continues to be responsible for financial losses and further capital investments.

   - The private management fee may be substantial, further increasing costs to the Government.

   - Cash proceeds from privatization are delayed.

3. If the financial potential of the mill is such that no private manager is interested in an incentive-based contract, "corporatize" the mill and minimize financial losses to the Government.

   - "Corporatization" would involve establishing the mill as an independent financial entity, rather than a cost center under CONAZUCAR as it is presently. As an independent corporation, management would have more control and more accountability for profitability. In addition, the system of financial reporting and control could be improved so that management would have more accurate information on which to base decisions and private investors would have a more reliable basis for considering an acquisition in the future.

   - Minimizing financial losses would involve reducing costs, improving productivity and efficiency, and limiting capital investments. This may require replacing current management.

A management/employee buyout, Option 3, is not recommended due to the following disadvantages:

- Ownership by current management and employees would bring no added industry experience to the management and operations of the mill.

- The Government may have to support the financing of the buyout which could result in a reduction or elimination of net cash proceeds from privatization.

4. Privatization Action Plan

The steps that CORNAP should follow to implement this privatization strategy are as follows:

- PW/IPG continues to identify potential investors.

- CORNAP/CONAZUCAR should resolve the following issues with the IJB union:

  - The basis for calculating the employees' 25% share of IJB (e.g., book value, asset value, discounted cash flow value).

  - The timing of the sale of assets to the employees in relation to the privatization of the remaining assets.

  - The terms of payment for the employees' 25% purchase (e.g. termination payment, government financing).

  If the sale to the employees precedes the sale of the remaining assets, this information should be available for inclusion in the bidding documents.

- If an asset sale, CORNAP identifies the specific assets to be included in the bidding documents.

- CORNAP/CONAZUCAR organizes preliminary meetings of professional Board of Directors of sugar industry mill owners to determine issues regarding the future functioning of the industry, such as the distribution of the U.S. quota. This information may be required for the bidding documents.

- PW/IPG prepares prospectus and bidding documents and does mailing to interested parties.

- CORNAP develops privatization selection criteria.

- CORNAP forms evaluation committee and reviews bids. PW/IPG provides assistance on request to analyze bids.

- CORNAP initiates negotiations with the most attractive bidder(s).

Readers of the report should consider that statements, estimates, and projections provided by IJB reflect assumptions concerning future results that may or may not prove to be correct. Certain results will depend on decisions resulting from future negotiations with sugar industry workers and potential investors that are not known at this time.

I. INTRODUCTION AND BACKGROUND INFORMATION

During the 1960s and most of the 70s the Nicaraguan economy experienced relatively stable economic growth, driven by cotton, coffee, beef and sugar exports. However, by the end of the 1970s, political and social tensions led to civil war.

The government that came to power in 1979 sought to change the state's role in the economy. As a result, the size and influence of the government grew rapidly during the 1980s. Privately-owned businesses were confiscated or expropriated and government regulation increased dramatically. As a result of these policies, increased military and social spending by the government, civil strife, and the U.S. trade embargo, the Nicaraguan economy suffered through a period of severe economic decline.

By April 1990 when the current government took office, the Nicaraguan economy was in a period of hyperinflation, high debt and depleted international reserves. Since that time the Nicaraguan government has initiated a number of economic reforms to stabilize the economy and increase its market orientation. Among these reforms have been efforts to reduce public expenditures both through fiscal constraint and reduction of the role of the government in the economy through privatization of public enterprises.

Privatization is a high priority of the government. To direct the privatization program, Corporaciones Nacionales del Sector Publico (CORNAP), an autonomous government agency reporting to the Office of the President, was created in May 1990. The 351 public enterprises assigned to CORNAP in 1990 were organized under approximately 24 "corporations."

In addition to CORNAP's own team of privatization managers, CORNAP is being assisted by investment bankers, an IDB-funded technical assistance program with INCAE, and a USAID/Nicaragua-funded technical assistance program executed by the Price Waterhouse International Privatization Group (PW/IPG). This report, prepared by PW/IPG for CORNAP, includes a diagnostic, valuation and strategy for the divestiture of the Julio Buitrago (Montelimar) sugar company.

Julio Buitrago (IJB) is a public enterprise expropriated from the Somoza family. Until recently it was controlled by CONAZUCAR, one of the public corporations belonging to CORNAP. IJB is currently administered by an administrative board set up as part of an agreement between the Nicaraguan government and the sugar industry labor unions.

The field work supporting this report was carried out during visits to CORNAP, CONAZUCAR and IJB during April, May and June 1992. Technical evaluations of

IJB agriculture and factory operations were performed by industry experts contracted by PW/IPG. Assessment of legal issues relating to the potential privatization of the sugar company (still in progress) is being performed by the CONAZUCAR Legal Advisor. The operating and financial projections included in this report are based on information provided by IJB and CONAZUCAR management. Asset valuations were prepared by the industry experts contracted by PW/IPG and by local Nicaraguan valuation consultants.

Readers of the report should consider that statements, estimates, and projections provided by IJB reflect assumptions concerning future results that may or may not prove to be correct. Certain results will depend on decisions resulting from future negotiations with sugar industry workers and potential investors that are not known at this time.

The contents of this report are the result of our inspections of the sugar company, the review of IJB documents and industry statistics, numerous and extensive interviews with IJB management, agriculture, factory and administrative personnel; CONAZUCAR management, financial, technical, and marketing personnel, CORNAP management and others. PW/IPG would like to thank all those that assisted us during this project.

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II. WORLD SUGAR MARKET

This section of the report provides background information on world sugar production, consumption, international trade and prices.

A. World Production

According to statistics published by the U.S. Department of Agriculture (USDA), world sugar production is approximately 113 million metric tons (MT) per year. The production statistics of the largest producers in the world, and the Latin American and Caribbean region (LAC), are illustrated in the following table:

World Sugar Production - 1991/92

	(MM MT)	%
EEC	15.5	14
India	13.6	12
U.S.S.R.	8.7	8
Brazil	8.5	8
Cuba	7.3	7
China	7.0	6
United States	6.6	6
Rest of World	45.4	40
World Total	112.6	100
LAC Region:		
South America	14.0	12
Caribbean (incl. Cuba)	3.6	8
Mexico	3.5	3
Central America	2.3	2
LAC Region	28.4	24

Source: *USDA - Sugar and Sweetener - Situation and Outlook Report (December, 1991)*

USDA statistics for the last three years estimate that the general production of sugar, at the world level, has increased 4.3 metric tons (MT), or 4.0%, in the two years since 1989/90 to 1991/92. The largest increases in production occurred in India (1.5 MT), China (1.4 MT), Brazil (0.7 MT) and the United States (0.7 MT). There were declines in production in the former U.S.S.R. (0.8 MT), Cuba (0.7 MT) and the European Community (0.5 MT).

Production in the LAC region was dominated by Brazil and Cuba, which have 30% and 26%, respectively, of the total region. Other important producers are

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Colombia (6%), Guatemala (4%), Peru(2%), and Venezuela (2%). Nicaragua's (1.7%) production is similar to Costa Rica and El Salvador but larger than Belize, Honduras and Panama.

It is estimated that production growth in the LAC region has increased 1.3 MT, or 4.9%, from 1989/90 to 1991/92. The largest increases were in Brazil (0.7 MT), Mexico (0.4 MT), Argentina (0.4 MT), and Guatemala (0.2 MT). The increase in these countries was partially compensated by a reduction in production in Cuba, estimated at 0.7 MT.

B. World Demand

World sugar consumption (approximately 112 MT) is estimated by the USDA to be lower than that of production. The following table illustrates the USDA consumption statistics for the largest consumer countries in the world and the LAC region:

World Sugar Consumption- 1991/92

	(MM MT)	%
U.S.S.R.	13.3	12
EEC	12.8	11
India	12.5	11
United States	8.1	7
China	7.6	7
Brazil	7.1	6
Mexico	4.4	4
Japan	2.8	3
Rest of World	43.2	39
World Total	111.8	100
LAC Region:		
South America	12.1	11
Mexico	4.4	4
Caribbean (incl. Cuba)	1.6	1
Central America	1.1	1
LAC Region	19.2	17

Source: USDA - Sugar and Sweetener - Situation and Outlook Report, December, 1991.

USDA statistics indicate that world sugar consumption has increased approximately 4.1 MT, or 3.8%, in the last two years. This growth is attributable to population growth as well as a decrease in prices resulting from increased supply. India had the largest increase in consumption (1.4 MT). The United States

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(0.4 MT), China (0.4 MT), Brazil (0.3 MT) and Mexico (0.3 MT) also showed significant increases. The decline in consumption in the former U.S.S.R. (0.4 MT) has partially offset these increases, while consumption remained low in the extensive market of the European Community.

World consumption per capita is estimated at 20.6 kilograms. Among the principal country and regional consumers (according to the levels of per capita consumption), Mexico (49 kg), the European Community (47 kg), Brazil (45 kg), and the United States (32 kg) are the largest. The Asian region has a per capita consumption of 11 kg. Due to the low consumption and tendency towards strong economic growth, the Asian region represents a promising potential for future consumption growth. It is estimated that the largest countries in the region, China and India, consume only 7 kg and 14 kg per capita, respectively.

The per capita consumption in the LAC region is 42 kg. Per capita consumption in Central America is 38 kg. In Nicaragua, consumption is approximately 32 kg (70 lbs) per capita.

USDA estimates that in the LAC region general consumption has grown by approximately 1.0 MM MT from 1989/90 to 1991/92, or 5.7%. This increase in consumption has been greatest in Mexico (320,000 MT), Brazil (250,000 MT), Argentina (180,000 MT), and Colombia (140,000 MT).

C. Supply and Demand Equilibrium

USDA statistics show that world production has exceeded world consumption during each of the last 3 years. Excess production has been 0.5 MM MT in 1989/90, 3.5 MM MT in 1990/91, and 0.8 MM MT in 1991/92. Accumulated excess of sugar production has increased worldwide reserves which are now estimated to be around 19.9 MM MT, or 18% of annual worldwide consumption. These increasing reserves have caused a downward pressure on world sugar prices.

The producing countries with the greatest deficit are the former U.S.S.R., the United States and China with deficits estimated in 1991/92 at 4.6 MM MT, 1.4 MM MT, and 0.6 MM MT, respectively. The deficit in the former U.S.S.R. has grown as a result of its recent economic difficulties. China, however, has rapidly decreased its deficit.

Cuba is by far the greatest excess producer of sugar, with an excess estimated for 1991/92 at 6.4 MM MT. However, the excess production in this country has fallen substantially from the level of 7.2 MM MT as a result of its recent economic difficulties. Other countries/regions with significant excess production include

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Thailand (3.0 MM MT), the EEC (2.7 MM MT). Australia (2.2 MM MT), Brazil (1.4 MM MT), and India (1.1 MM MT).

Even excluding Cuba, the LAC region has a significant net excess production of sugar. It is estimated that surplus production in 1991/92 is 1.9 MM MT (excluding Cuba), which is equivalent to approximately 2% of worldwide sugar consumption, outside the region. In addition to Brazil, other countries with surpluses include Guatemala (670,000 MT), the Dominican Republic (410,000 MT), Argentina (350,000 MT) and Colombia (320,000 MT). Nicaragua exports approximately 50% of its production or approximately 108,000 MT).

The country in the region with the greatest deficit in production is Mexico, with a deficit estimated last year at 910,000 MT. Other countries with important deficits are Venezuela (200,000 MT), Chile (120,000 MT), and Perú (100,000 MT). Deficit countries in the region presently create an important demand for sugar totalling approximately 1.4 MM MT.

D. World Trade

Worldwide trade volume for sugar has declined since the beginning of the 1980s. This trend has occurred as a result of a change to corn sugar sweetener in the United States and Japan; a greater self-sufficiency in India and China; and the reduction in foreign exchange in many countries, particularly those of the former U.S.S.R and Eastern Europe. USDA estimates that the volume of world exports for 1991/92 are at about 27.4 MM MT, or equal to 24% of the total of world production, the lowest level since the end of the 1970s.

Most sugar production at the world level is consumed in the producing countries under price structures established by the governments of each country. Local prices generally do not respond to world prices which are mostly based on marginal production costs of the surplus countries. Taking into account that the international prices do not generally reflect the total cost of production, many producing countries protect the local sugar industry against these low world prices by limiting imports.

Most of the main producing countries participate in preferred markets established by net importing countries, among which the most important are the EEC and the United States. Both markets reserve import quotas for select countries and pay above the world prices. Presently the EEC pays the equivalent of approximately 29 US cents/lb, and the quota prices of the United States are at about 23 US cents/lb. In comparison, the refined sugar price at the Coffee, Sugar and Cocoa Commodity Exchange in New York is presently around 9-10 cents/lb., while the FOB sale in the caribbean ports is 12-13 US cents/lb.

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Several other special sales agreements exist between exporting and importing countries. Cuba, the largest exporter, has sold most of its excess production over the last few decades to the former U.S.S.R. and Eastern Europe under special sales agreements. Japan has special sales/purchase agreements with Australia and the Philippines, and Canada has a special agreement with Barbados. Thus, much of international trade is conducted under terms which have nothing to do with the free market.

In 1991/92, Cuban exports represented 24% of total world exports. The former U.S.S.R. is the most significant importer, having imported 4.6 MM MT, or 17% of the world's imports last year. The following table shows the principal countries/ communities with the largest exports/imports.

World Sugar Trade - 1991/92

	(MM MT)	%
Sugar Exporters:		
Cuba	6.5	24
EEC	5.6	20
Thailand	3.0	11
Australia	2.2	8
Brazil	1.3	5
India	1.1	4
Rest of World	7.7	28
Total Exports	27.4	100
Sugar Importers:		
U.S.S.R.	4.6	17
EEC	2.8	10
Japan	1.9	7
United States	1.8	7
China	1.2	4
Rest of World	14.7	54
Total Imports	27.0	100

Source: *USDA - Sugar and Sweetener - Situation and Outlook Report (December, 1991).*
Note: Includes sales within the European Community.

One can expect that the decreasing tendency in world sugar trade will continue in the short term since it is expected that there will be fewer imports from the former U.S.S.R., the United States and Mexico. Latin American imports, outside of Mexico, will be lower (approx. 0.5 MM MT). It is also expected that imports from Asia will rise given the trend towards increased consumption in Japan, Indonesia, South Korea, and Malaysia.

E. World Prices

From 1985 until the trimester of 1990, world prices for refined sugar (Caribbean FOB), increased from US 6.8 cents/lb. to US 19.7 cents/lb. Nevertheless, since that time, the prices have fallen 35% to a level of US 12.5 cents/lb. at the end of 1992. The world prices for unrefined sugar are illustrated in the following table. Note that these prices do not reflect the costs of transportation to port, storage, and other costs incurred in Nicaragua. The net price received in Nicaragua is therefore somewhat lower than the prices listed below.

World Sugar Prices: 1985-1991

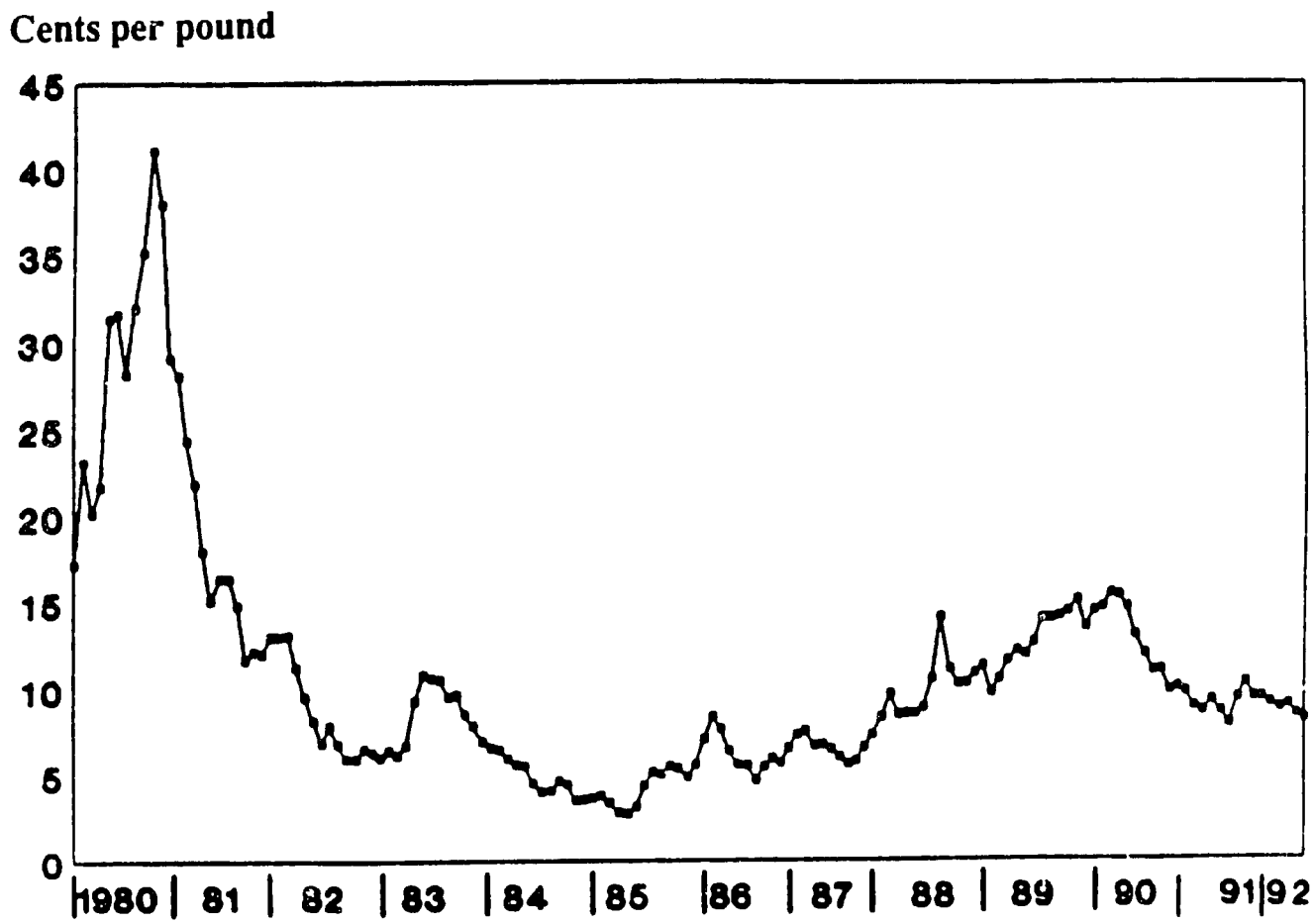
Year/Trimester	US Cents/lb. (1)
1985	6.80
1986	8.47
1987	8.75
1988	12.01
1989	17.15
1990	17.32
I	19.53
II	19.67
III	16.12
IV	13.95
1991	13.40
I	13.55
II	13.25
III	14.07
IV (2)	12.71

Notes: *(1) Contract No. 11. for refined white sugar, prices F.O.B. stored in Caribbean ports.*
(2) Estimated.

Source: *USDA - Sugar and Sweetener - Situation and Outlook Report (December, 1991)*

The FOB Caribbean prices have continued to decline during 1992, until arriving at a level of US 11.8 cents/lb. in the month of March. It appears that high production combined with excess stocks and a decline in import demand have contributed to the recent downward pressure on world prices. Conditions in the world market, however, create uncertainty as to the future direction of world sugar prices in a market that has been erratic in the past.

WORLD RAW SUGAR PRICES



1/ Contract No. 11, f.o.b. stowed Caribbean ports.
Source: Coffee, Sugar, & Cocoa Exchange, Inc.

III. NICARAGUAN SUGAR INDUSTRY

This section provides general background information on sugar production, costs, distribution, consumption, prices, competition, labor and other matters relevant to the viability and valuation of sugar mills in Nicaragua.

A. Production

The Nicaraguan sugar industry consists of seven sugar companies. Total sugar production for the seven mills in 1991/92 was 4,278,542 quintales distributed as follows:

	Quintales	%
San Antonio	1,788,404	41.8
Benjamin Zeledon	513,397	12.0
German Pomares	412,602	9.6
Victoria de Julio	767,927	18.0
Javier Guerra	321,435	7.5
Julio Buitrago	440,045	10.3
Camilo Ortega	34,732	0.8
	4,278,542	100.0

Production has ranged during the period 1970/71 to 1991/92 from a high of 5.3 MM Quintales (QQS) in 1975/76 to a low of 3.1 MM QQS in 1987/88. The average production over this 22 year period was 4.3 MM QQS. The average production over the last ten years was 4.4 MM QQS. Production over this 22 year period has fluctuated year to year, but has had only three years under 3.5 MM QQS and two years over 5.0 MM QQS (see Appendix A "Comportamiento Historico Produccion Azucar").

There is significant room for production to increase in Nicaragua over the 1991/92 results. Production reached 5.2 MM QQS in 1983/84 before the Victoria de Julio (IVJ) sugar company began operations in 1985. IVJ has a projected capacity of approximately 2.2 MM QQS when its lands are completely cultivated and agricultural productivity rises. With a break in the three year long drought conditions in Nicaragua and the injection of fresh capital, technology and management a probable result of the privatization process, production is likely to increase. If the world sugar price does not rise, this production increase would likely cause downward pressure on the average sugar price in the Nicaraguan market. Even though the Camilo Ortega sugar company may not survive, the loss of this production would not be significant.

B. Production Costs

Production costs for the seven sugar companies were estimated by CONAZUCAR for 1991/92 based on a projected sugar production of 5.5 MM QQS as shown below and in Appendix B:

	US$/QQ
San Antonio	14.38
Benjamin Zeledon	14.73
German Pomares	15.64
Victoria de Julio	15.90
Javier Guerra	16.03
Julio Buitrago	16.96
Camilo Ortega	23.47
Industry average	15.29

Given the lower than expected production, actual costs were probably higher than those presented above. Inconsistencies in the accounting policies and practices among sugar companies may also diminish the comparability of the above numbers. However, excluding Camilo Ortega, there is an 18% cost difference among the highest and lowest cost producers. The cost advantage of the lower cost producers is explained in part by their high volumes of purchased cane.

It is significant to note that the relatively high cost of existing union contracts makes it generally more economical to **buy** rather than **grow** cane at current prices.

C. Consumption

Domestic sugar consumption grew steadily in Nicaragua from 1970/71 (1.5 MM QQS) through 1987/88 (3.3 MM QQS) at an approximate annual rate of 4-5%, or roughly 100,000 QQS per year. However, consumption fell precipitously in 1987/88 to 1.7 MM QQS, because of the critical economic condition of the country (see Appendix A). Consumption climbed in each of the two following years, but had only reached 2.3 MM QQS by 1990/91. Average consumption was 2.4 MM QQS over the 21 year period.

Per capita consumption in Nicaragua in 1990/91 was approximately 32 kg or 70 lbs. This level of consumption is roughly similar to that of Panamá and the other Central American countries, with the exception of Costa Rica (57 kg) and Guatemala (40 kg) (see Appendix C). Thus, sugar consumption appears to bear a relationship with prevailing economic conditions and disposable incomes. If this is

true, sugar consumption should be expected to rise as the Nicaraguan economy continues to recover.

D. Supply and Demand

Average production (4.3 MM QQS) has exceeded average consumption (2.4 MM QQS) over the past two decades. Thus, Nicaragua has consistently been a sugar exporting country. Exports have averaged approximately 44% of production over this period. This situation has been accentuated in recent years with the fall off of domestic consumption. During the period 1988/89 through 1990/91 exports averaged 54% of production (see Appendix A and the graph on the following page).

E. U.S. Preferential Quota

U.S. consumption exceeds domestic production. The U.S. is therefore a sugar importing country. Imports to the U.S. are managed by means of a preferential quota system whereby exporting countries are assigned a quota of the U.S. import requirements. The U.S. quota is important because the import price to the U.S. has been significantly higher than world sugar prices over the last ten years. In 1990/91, the U.S. quota and world sugar prices were US $19.28 and US $11.88, respectively (see Appendix D).

The U.S. production/consumption deficit has narrowed in recent years. Consequently, Nicaraguan quota exports to the U.S. have decreased as shown below:

YEAR	QUOTA (QQS)	% EXPORTS	% PRODUCTION
89/90	1,063,720	42	24
90/91	909,883	35	19
91/92	429,000	20	10

The decrease in the U.S. quota will tend to place downward pressure on the average sugar price paid to sugar companies to the extent that the international price (Contract No. 11) remains below the U.S. quota price.

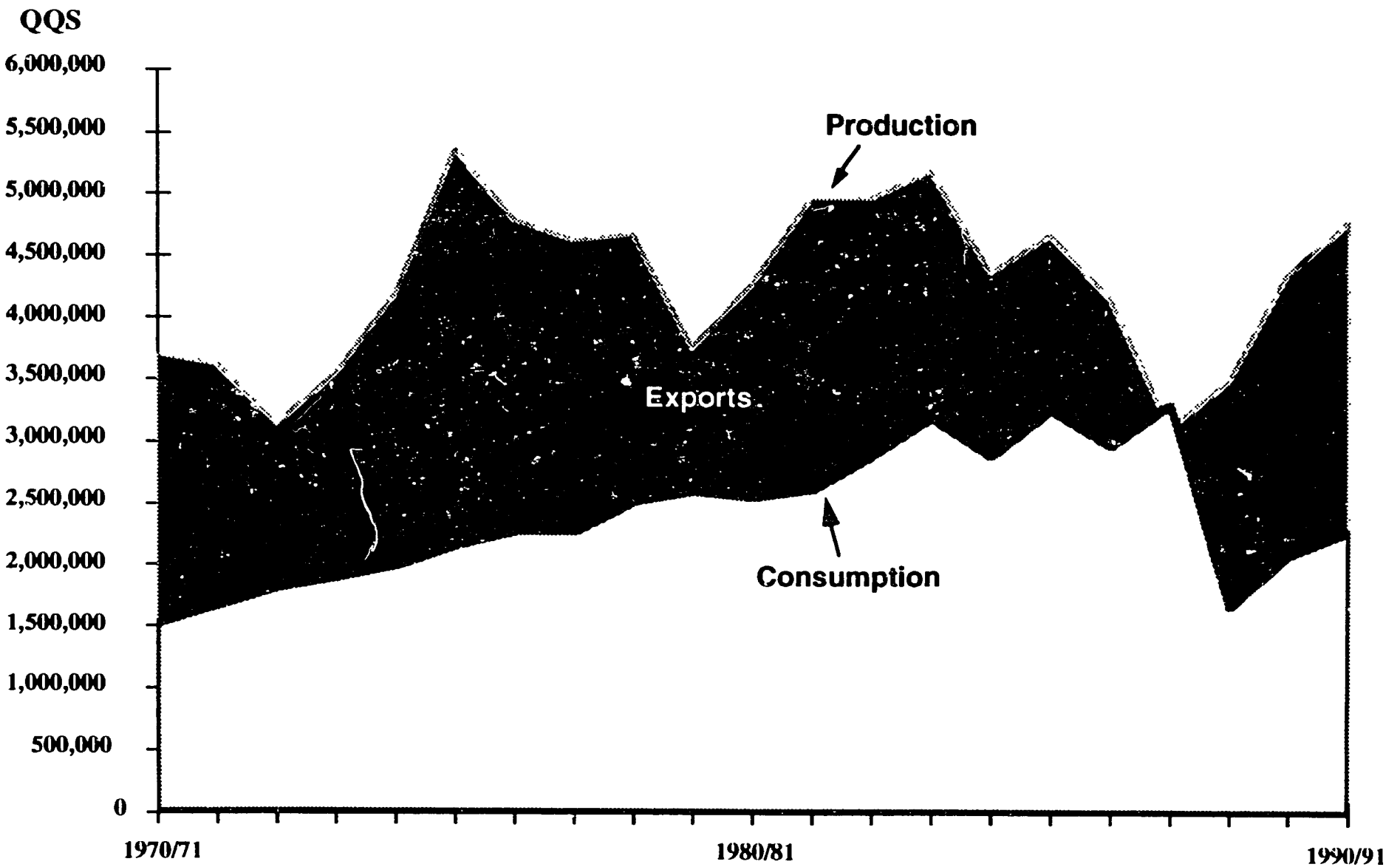
F. Producer Sugar Prices

The price of sugar paid to the sugar company has three components as follows:

- Domestic price
- Contract No. 11 (International)

- 12

Nicaraguan Sugar Market
Production, Consumption, and Exports



Nicarag Sugar Inglee 7/92
Inf/ PIF

- Contract No. 14 (U.S. Quota)

The ***domestic price*** of sugar paid to sugar companies is established by the Ministry of Economy and Development. The price to the producer depends on the purity of the sugar as shown below:

Refined	C 102.42	$ 20.48
White sulfitate	C 86.34	$ 17.27
Crude	C 78.75	$ 15.75

Of the total world production of sugar less than 30% is traded internationally. Only 10-15% is traded on the world free market. The world sugar market is therefore a residual market and extreme price swings are not uncommon. Purchases of the ***New York No. 11 (World) sugar contract*** are therefore timed to lock in prices at their estimated peak. Since 1979/80, average New York No. 11 export prices have ranged from a high of $24.75 in 1980/81 to a low of $7.10 in 1984/85 (see Appendix D). The average C-11 price for 1991/92 was $8.00. The average C-11 price since 1979/80 in this volatile market was approximately $13.50.

The ***U.S. preferential quota price*** received by producers for Nicaragua's allocation of the U.S. quota during 1991/92 was $18.00. This price is part of the U.S. agricultural support system for U.S. farmers established by the USDA. The U.S. quota price has varied between $17.18 and $19.28 over the last three years.

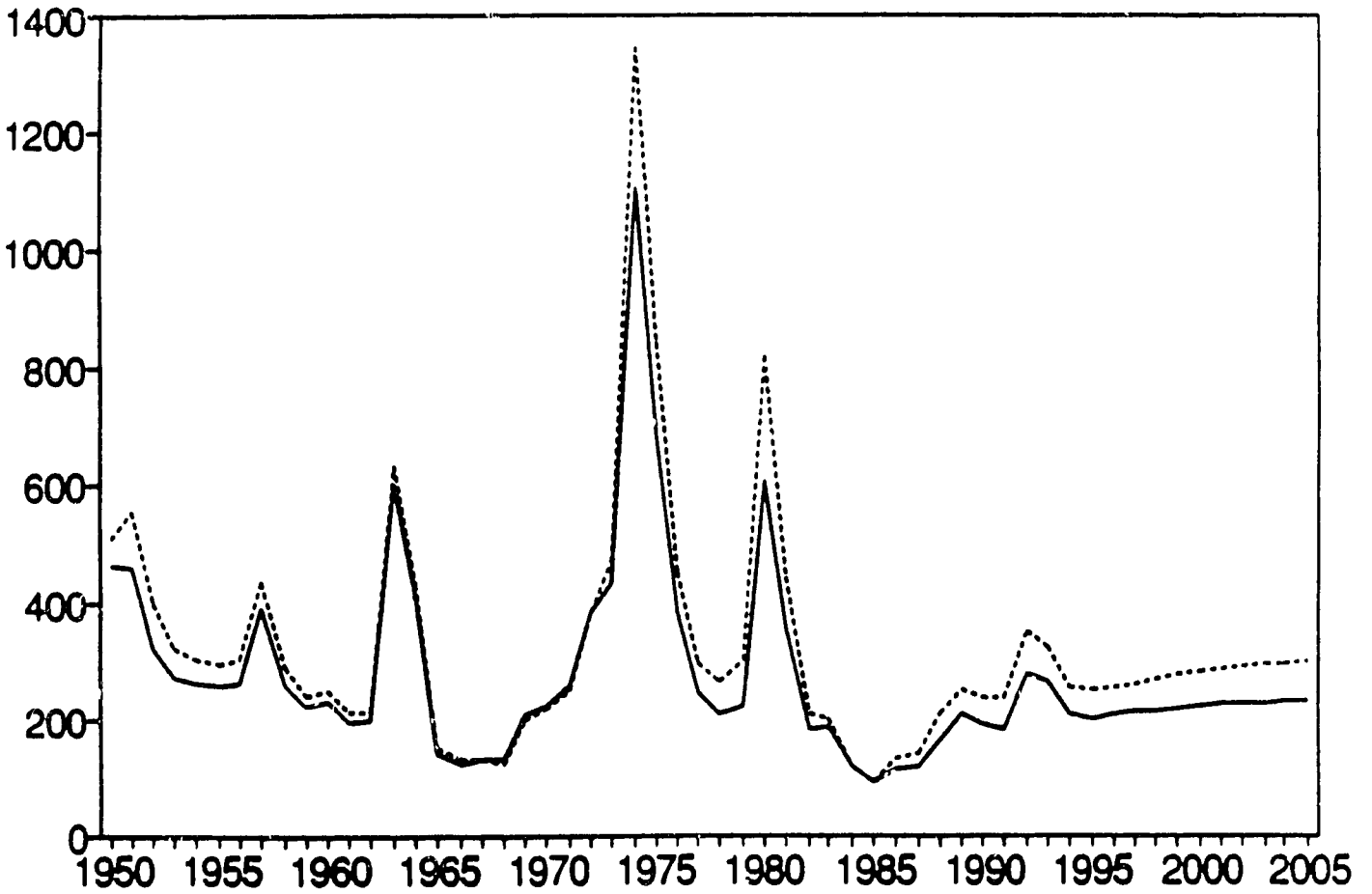
Under the existing pricing scheme, the price paid to Nicaraguan sugar producers is the weighted average of the three price components described above. The calculation of the 1991/92 price to producers is shown below:

	PRODUCTION (QQ)	**PRICE (US$)**	**REVENUE**
Domestic	2,204,959	$17.27	$38,079,647
World	1,644,583	8.00	13,156,661
U.S. Quota	429,000	18.00	7,722,000
	4,278,542		$58,961,154

Producer Price $58,961,154 / 4,278,542 QQ = $13.78 QQ

As production sold in the world market presently makes up over 40% of total production, the average price to producers is extremely sensitive to fluctuations in the world price. This sensitivity may increase in the future for the following two reasons:

Sugar Prices
($/ton, 1985 constant)



—— Deflated by Manufacturing Unit Value (MUV) Index
- - - - Deflated by US GNP deflator

Source: World Bank, International Economics Department.

- The decreasing U.S. quota allocation will result in an increase in sugar sold in the world market

- Potential increases in production may increase the percentage of sugar sold in the world market.

If all other variables were held constant, the above events would probably increase the risk to producers operating in the Nicaragua sugar industry. Recovery of domestic consumption, negotiation of an increase in the domestic price, and higher and less volatile prices in the world market are factors that would decrease risk in the Nicaragua sugar industry.

G. Consumer Price

The price of sugar at the point of sale to ***distribution agencies*** (middlemen) is also regulated by the Ministry of Economy and Development (see Appendix E). The prices shown in Appendix E are established for 100 lb bags traditionally used by Nicaraguan producers. The distribution agencies, supermarkets, and others in the distribution chain customarily repackage sugar in smaller containers and are free to mark up prices. The price of sugar to the final consumer is not regulated in Nicaragua.

Certain producers (San Antonio and Julio Buitrago) plan on packaging sugar in 5 lb bags to reduce middlemen markups and to increase consumer identification and preference for their product. Currently, no separate price has been established by the Ministry of Economy and Development for sugar packaged in 5 lb bags. Producers are expected to request the establishment of such a price classification to recover the additional packaging and handling costs of the 5 lb bag.

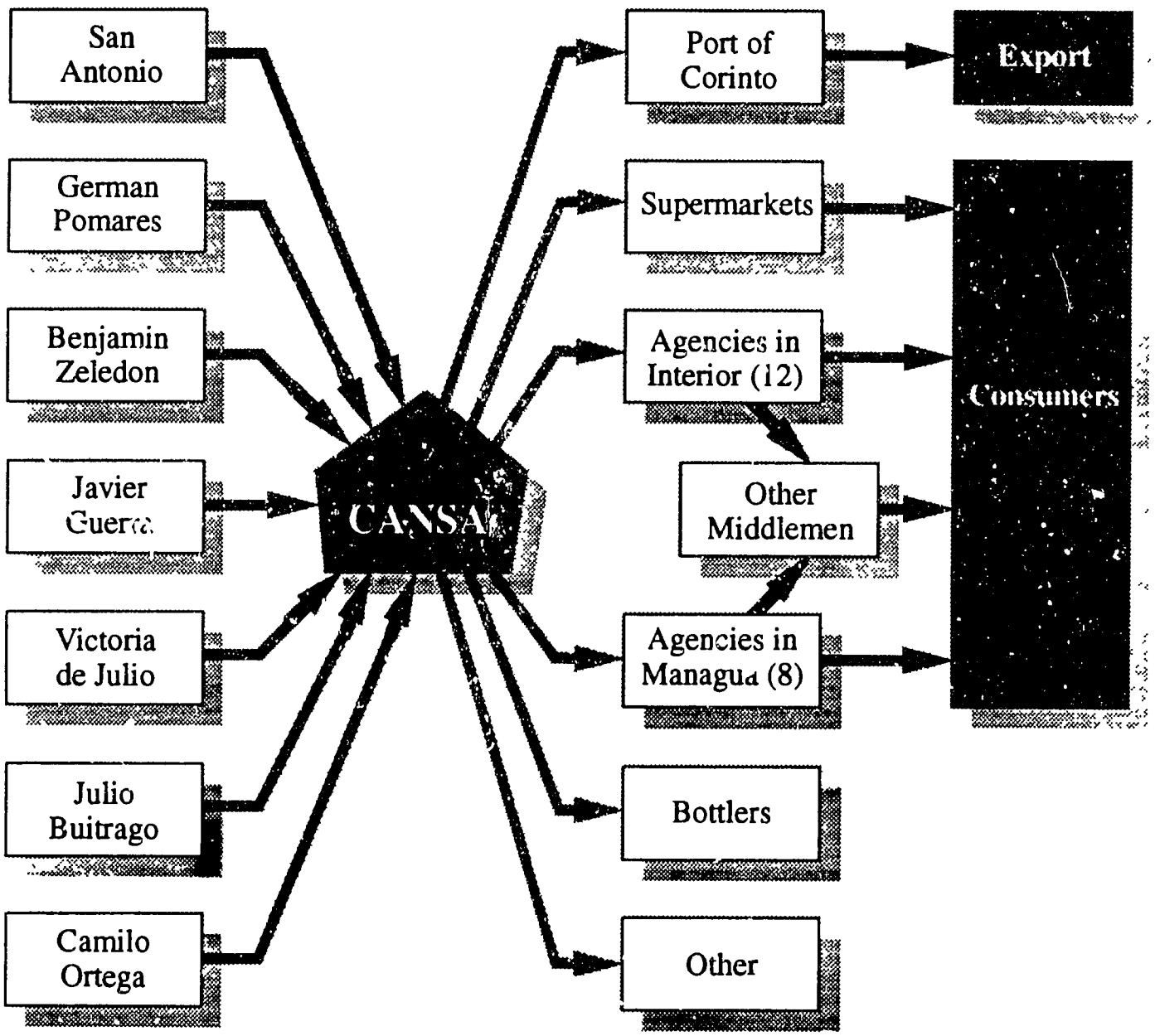
H. Distribution

Currently, all domestic and export distribution and sales are managed by CANSA, a public sector sugar distributor controlled by CONAZUCAR.

Sugar companies place their production in 100 lb bags at CANSA on consignment. CANSA distributes sugar in the domestic market through its 8 agencies within Managua, 16 agencies in the rest of the country, supermarkets, bottlers, and others.

Exports are sold through brokers. Approximately 60% of exports are currently sold through the futures market to provide working capital. Exports leave the country via the Port of Corinto, located on the Pacific coast. Export sugar is bagged in 150 lb. polypropylene bags, stored at the mill, trucked to the port, stored there, hoisted

Nicaragua Sugar Distribution Channels



Nicaragua Sugar PORT-9/92
INTL IPG

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aboard ship on pallets, and then emptied into the hold. There is no bulk sugar terminal at the port.

I. Cane Growers ("Colonos")

The quantity of cane purchased from independent cane growers ("colonos") varies widely from approximately 90% at German Pomares and 50% at San Antonio to nearly 0% at Julio Buitrago.

The traditional contract in Nicaragua between producers and the independent cane growers provides independent growers one quintal (100 lbs) of sugar per short ton of cane, less the cost of services provides by the sugar company to the independent growers. The price paid to growers is the weighted average price producers receive for a quintal of sugar (see above). In 1991/92, producers paid independent growers $13.78 per ton of cane, less services rendered to growers.

Union contracts have increased overall labor costs to sugar companies. There is also currently excessive field workers in many of the sugar companies. Consequently, at today's low price to growers, it is often more economical to *purchase* rather than *grow* cane.

J. Sugar Industry Organization

Until June 1992, the Nicaragua sugar industry was 100% owned and managed by the government. The seven sugar mills were controlled and managed by **CONAZUCAR**, a public sector holding company in the sugar industry which belongs to **CORNAP**. CONAZUCAR has played an important role in the review and approval of the seven mills' operating and capital expenditure budgets and therefore in the allocation of financial resources to the mills. Import and testing of cane varieties and technical assistance to the mills has been coordinated through CONAZUCAR. CORNAP has not been involved in the operations of the mills.

Each sugar mill has operated as a cost center, producing sugar with little or no profit orientation. **CANSA** manages the sale and distribution of the final product. Sales reporting to the mills has been untimely, making sales, cost of sales, and the "bottom line" information officially reported by the mills unreliable.

The **Ministry of Economy and Development** regulates sugar prices in the domestic market. It also establishes import restrictions which allow domestic producers to operate free of competition from other countries, similar to the situation in the sugar industry throughout the world.

Independent growers have formed associations by sugar company. The primary grower associations are:

GROWERS ASSOCIATION	SUGAR MILL
• Asociación de Cañeros del Occidente	San Antonio, German Pomares
• ANDAIME	Javier Guerra
• RIVAS	Benjamin Zeledon

Sugar industry unions are organized under the umbrella organization of the **Federacion de Trabajadores de Azucar**. The principal sugar industry unions include:

UNION	POLITICAL AFFILIATION
• FNT	Sandinista
• CST	Independent
• Other independents	Independent

Relatively recent changes in the law allow unions to be formed with a minimum of 25 members. However, existing unions may act as deterrants to the creation of new unions.

Labor contracts tend to be similar across the industry, but are negotiated on a company by company basis.

Labor-management relations have been generally harmonious in recent years with the possible exception at German Pomares. Worker strikes have occurred on a limited basis.

The **Azucareros del Istmo Centroamericano (AICA)** is a regional body with representatives of each of the Central American sugar producing countries. Its headquarters are in Guatemala. It meets quarterly to discuss issues of common interest to its members and to arbitrate disputes that arise among the sugar producing countries of the region.

K. Restructuring of the Nicaraguan Sugar Industry

Privatization and other restructuring measures in the sugar industry have, or are expected to result in, the following changes:

- The workers of Julio Buitrago and Victoria de Julio will be provided a six month option to invest in up to 25% of the government's current participation in those sugar companies. The 25% participation in Victoria de Julio is to be in the form of agricultural lands. The remaining assets of the two mills are to be privatized.

- The workers of San Antonio, German Pomares, Benjamin Zeledon and Javier Guerra will have the option of investing their 25% in up to 50% of Benjamin Zeledon and 70% of Javier Guerra, via a mutual fund to be established in the name of the workers of these sugar mills. The remaining 50% of Benjamin Zeledon and 30% of Javier Guerra will be privatized.

- San Antonio has been returned to its previous owners.

- German Pomares is in the process of being returned to its previous owners.

- CORNAP will study the divestiture of Camilo Ortega.

- Management of the Victoria de Julio, Julio Buitrago, Benjamin Zeledon, and Javier Guerra sugar companies was transferred in May 1992 from CONAZUCAR to four-person administrative boards established at the four mills.

Persons familiar will the Nicaraguan sugar industry expect the restructured industry to operate in a cartel-like manner. A board of directors would be established at CANSA. The board is expected to be made up of the owners of the sugar mills and representatives of the pertinent regulatory bodies. The primary responsibilities of the board would be to allocate export quotas, discuss pricing issues, self-police the industry, arbitrate disputes, represent the industry, and conduct other similar tasks.

L. Competition

The following is a brief overview of the strengths and weaknesses of the seven sugar companies operating in the Nicaraguan sugar industry, obtained from interviews with persons familiar with the sugar mills. Historical operating statistics for the seven sugar mills are included in Appendix F.

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1. San Antonio

San Antonio is the largest mill in the country, accounting for approximately 42% of production. It is owned by one of the strongest economic groups of the country and has a reputation for strong management. It has the only sugar refinery in the country and is currently doubling refinery capacity. The ownership group also controls ***Flor de Caña*** the largest distributor of rum in Nicaragua. However, the company was not able to reduce personnel in recent years to the extent accomplished by other sugar mills.

2. Victoria de Julio

IVJ is the second largest mill in Nicaragua in the sugar industry, where economies of scale can be important. It is the most modern and technologically advanced mill in the country, built in 1985. Industrial yield is high at 2.2 QQ/T. The factory is located in the center of the cane fields resulting in low cane transportation costs. Energy co-generation could be an important source of profits if the project is completed. Despite its many advantages, the potential at IVJ has yet to be realized. Effective management of its central pivot irrigation system appears to be the most important problem. Electric blackouts and problematic dark soils are contributing factors. Only 60% of the planned cane fields have been cultivated resulting in low utilization of the 7,700 TNS/day factory.

3. Julio Buitrago

IJB has relatively good agricultural and industrial yields. Soils, sugar quality and labor relations are good. It has limited capacity to increase cane production and suffers from a lack of water during years of light rainfall. However, it has the only distillery among the seven sugar mills and recently obtained a permit to produce potable alcohol which has attractive profit margins.

4. Benjamin Zeledon

IBZ has low production costs and excellent potential. It has an adequate supply of water and potential to expand cultivated areas and sugar production. Management and the ability of future investors to work with labor which may hold up to 50% of the company may be the determining factor in the results of this mill.

5. Javier Guerra

IJG is similar to Benjamin Zeledon in that it has good potential. It may be limited by how effectively the company is managed with 70% labor ownership.

6. German Pomares

IGP purchases 90% of its cane from colonos which gives it a competitive cost advantage in agricultural operations. However, poor cane varieties and lack of irrigation have resulted in low industrial yields. Management is considered ineffective and labor relations are poor.

7. Camilo Ortega

ICO is milling only 500 tons per day with an extremely low industrial yield. ICO may not be a viable operation.

IV. AGRICULTURAL OPERATIONS

A. Background

The sugar mill at Montelimar was owned and operated from 1944 to 1979 by the Somoza family, who had acquired it at an auction of confiscated enemy property during World War II, and who lost it due to the political events that ended their hold on the country's presidency. The first sugar factory was erected in the early fifties with second-hand equipment from Cuba. Gradually, more land was put into cane, additional tracts being acquired, and the factory underwent successive phases of expansion.

The area which now makes up the Julio Buitrago sugar operation is located 62 kilometers southwest of the city of Managua and is connected to this capital city by an all-weather highway. The majority of the 4,818 manzanas of land dedicated to the production of sugar cane are located in the coastal plains at an elevation of about 30 meters above sea level running parallel to the coast with a total length of approximately 18 kilometers and about 3 kilometers wide. Other cane production areas that form the Julio Buitrago Sugar company are located along both sides of the highway leading to Managua from Montelimar. This farmland does not form a continuous block, but rather consists of four individual farms located in the "intermediate plains" at an elevation ranging from 60 to 120 meters above sea level and a distance up to 20 kilometers from the sugar mill.

The Montelimar factory was erected about a mile upstream from the mouth of the Montelimar River, one of the short streams running from the Volcanic Chain into the Pacific and providing irrigation water to the band of cane land. Given the configuration of the cane land, the factory is located as favorably as possible with respect to cane transportation.

The climate of the area is suitable for sugar cane production with average temperatures ranging from 26.48 C. in October to 30.38 C. in April. Rainfall is the limiting factor with average annual rainfall of 1,397 millimeters (mm) falling mainly from May through November and a very dry period with virtually no rainfall from December through April. This time period from December through April also limits the extent of the normal crop period of five months.

Completely independent of the sugar factory, at a distance of a quarter of a mile, on the edge of the same ravine, a 1923 vintage, 4,500 l per day capacity alcohol distillery was installed during the seventies. It has its own steam generator and operates on a schedule determined by product orders, unrelated to that of the sugar factory.

B. Agriculture/Cane Production

Cane production at Ingenio Julio Buitrago over the last thirteen crops has fluctuated between a high of 358,549 tons of cane in the 81/82 crop with an average yield of 66.72 tons of cane per manzana to a low of 166,843 tons in the 87/88 crop in which the average yield was 36.80 tons per manzana. The quality of cane is reasonable with sugar yields ranging from 173.78 pounds of sugar per ton of cane in the 80/81 crop to a high of 214.95 pounds of sugar per ton of cane ground in the 88/89 crop.

1. The Company-Owned Farm

Julio Buitrago is comprised of nine sugar cane producing farms with a total 4,818 manzanas of cultivatable land (not including "colono" land). The area harvested in the 1991/92 crop was 4,729 manzanas. The current area under cultivation in May 1992 was 4,334 manzanas as several fields harvested in the last crop had been plowed under for re-planting. The shortage of available irrigation water as a result of low rainfall had delayed the cane planting program in early 1992, however areas of cane owned by independent cane farmers locally known as "colonos", were currently being planted and the expected area for harvesting in the 1992/93 crop was estimated to reach 4,692 manzanas including "colono" cane.

2. Soils

The soils of Ingenio Julio Buitrago have a good texture and topography that allows for full mechanization of all field activities as well as permitting irrigation, either by furrow irrigation or by sprinklers. Soils of the various types found in the project area are generally fertile with adequate amounts of Phosphorus and Potassium. Consequently no significant response has been obtained to these two elements when applied as fertilizer.

These soils have been studied for soil moisture holding capacity, in general it can be stated that soil moisture at 1/3 atmosphere averages about 45% and at 15 atmospheres soil moisture averages about 25%. Apparent soil density averages about 0.80. Consequently considering a 50 centimeter depth for root activity the soil moisture capacity of these soils would be equivalent to 80 mm. The range of available soil moisture capacity at Luis Buitrago varies between 80 and 105 mm.

3. The Climate

As mentioned above, rainfall is the limiting factor for the sugar production at Julio Buitrago. Several years are reported to have had less than 1,000 mm of rainfall and since the primary source of irrigation water is surface run-off, these low rainfall years have resulted in reduced available irrigation water.

Rainfall data for the area has been recorded since 1968. The twenty-three year average and the monthly rainfall figures for 1991 are given below:

Month	1968/1990 (mm)	1991 (mm)
January	0.0	0.0
February	0.0	0.0
March	0.0	0.0
April	8.0	0.0
May	208.0	305.0
June	233.0	94.0
July	82.0	6.0
August	162.0	71.0
September	324.0	153.0
October	310.0	132.0
November	70.0	11.0
December	0.0	0.0
Total	1,397.0	772.0

Five months of the year receive practically no rainfall. During the two month period of July and August it is common to have a short drought.

4. Historic Cane Yields

Cane yields during the past nine crops have varied widely as can be seen from the following table, which is presented with annual rainfall figures to show the effect of rainfall on sugar cane yields in the area.

Crop Year	Area Harvested	Tons Cane Harvested	Tons/ Manzana	Rainfall mm	Ton Cane/ mm
1983-84	4,758.62	227,992.38	47.91	686.50	0.0698
1984-85	5,057.23	289,699.60	57.28	1,579.70	0.0363
1985-86	4,911.59	297,178.92	60.51	1,322.20	0.0458
1986-87	5,376.72	276,214.76	51.37	1,081.30	0.0475
1987-88	4,451.81	165,159.29	37.10	688.10	0.0539
1988-89	4,195.50	233,577.49	55.67	2,273.00	0.0245
1989-90	3,764.45	235,458.85	62.55	1,083.00	0.0577
1990-91	4,604.02	263,063.73	57.14	987.00	0.0579
1991-92	4,728.89	227,267.25	48.06	772.00	0.0622
Average	4,649.87	246,183.08	52.94	1,163.64	0.0455

Ingenio Julio Buitrago relies heavily on irrigation for the production of sugar cane. Most of the available irrigation water comes from surface run-off and is either pumped to higher elevations or drawn from streams by gravity flow water in-takes. There are only three wells supplying irrigation water and these are located in the Jicaro and Madroñal farms.

5. Irrigation Water Availability

A survey of available irrigation water was carried out during the inspection to the Julio Buitrago and available water data was provided by management. These conditions refer to May 1992 and could improve in future months depending on future rainfall.

For furrow irrigation purposes a flow rate of 14 GPM/Mz (Gallons per Minute per Manzana) is considered necessary and for sprinkler irrigation a flow rate of 10 GPM will usually satisfy water demand of the crop. The 4,818 manzanas of IVJ sugar fields average as a whole only 6.04 GPM/Mz. From the data it can be seen that only four farms appear to have an adequate water supply (San Jose, Buitrago, Azacualpa and Apante). Severe water deficits are found in four farms (San Diego, Jicaros, Madroñal and Loma Alegre).

6. Cane Varieties

Current sugar cane varieties cultivated at Ingenio Julio Buitrago are reported to be (in the order of dedicated crop area, from highest to lowest): L.68-40, Q.75, L.68-90, J.60-5, Pindar, L.76-17, L.72-3, Co.421, B.4744, Co.419, and various others. The varieties preceded by the letter L. are originally from Louisiana, The Pindar and Q. varieties originally were developed in Australia, the J.60-5 is from Jarunu (Cuba) and the Co. varieties are from Coimbatore, India. The B. variety is from Barbados. The first two numbers usually denote the year in which the variety was developed.

7. Agricultural Practices

a. Land Preparation

Ingenio Julio Buitrago is currently programming to renew 20% of the cane area each year. The typical land preparation includes two passes with a heavy disc plow, a third pass with a medium disc harrow, and then the furrowing of the field. The implement used for the first pass is a Rome Plow 12 x 36" (twelve discs of 36" diameter each) which breaks up old cane stools. The second pass is done with the same plow at ninety degrees to the first pass. Both passes are carried out with either a John Deere 4640 tractor (165 HP) or a Russian-built T-150K tractor of approximately the same horsepower. The second pass is done with a medium disc harrow 56 x 28" to break up clots and improve quality of the seed bed. The last pass is the furrowing of the field carried out by a John Deere 4640 tractor with two furrowing middle-busters mounted on the tool bar.

b. Planting

The planting of cane at Julio Buitrago is primarily a manual operation, including the hand cutting of seed, loading to transport units, unloading at the field site, distribution of seed in the furrow, cutting of seed pieces and covering of seed. Seed density is calculated to give between 10 and 12 buds or eyes per linear meter. Depending on the development of the cane used for seed, this amount of buds will translate into about 7 to 8 tons of seed per manzana. Seed transportation is carried out by company owned trucks carrying about eight tons of seed sufficient to plant one manzana.

c. Fertilization

All fertilization of sugar cane fields is carried out by 65 horse power two wheel drive tractors mounted with a two-row fertilizer implement. Productivity with this equipment is one manzana per hour. Two men are employed to supply the tractor with fertilizer.

d. Cultivation and Weed Control

Weed control is carried out either manually or with manual applied herbicides using knapsack sprayers. The predominant weeds are of the grass family with some broad leaf infestation in plant canes.

Manual weeding is done with "machetes" once or twice per crop. This work is paid by "norm" at a rate of one man-day per 1000 varas of row length. A manzana furrowed at 1.50 meters between rows has 5,500 varas of total row length consequently it takes 5.5 "tasks" to hand weed a field. The manual application of herbicides with knapsack sprayers is also paid by "norm" or "task". The daily "task" is 1.5 manzanas per man-day. Tractor cultivation is also carried out with MTZ-80 tractors and a two row implement with productivity of 1.9 Mz/hour.

e. Irrigation

Two irrigation systems are used at Ingenio Julio Buitrago; furrow irrigation using gravity flow and sprinkler irrigation using portable aluminum pipe lines driven by either electric or diesel powered pumps delivering 1,100 gallons per minute to five nozzles, each delivering 220 GPM.

In general, the flow of water handled by each irrigation man is low compared to other furrow irrigated sugar operations. Average flow observed per irrigator was about 40 liters per second equivalent to 634 GPM. With this flow, irrigators were accomplishing about 1.5 manzanas per ten hour day. This translates into a water application of 1,440 cubic meters per day or the equivalent of 144 millimeters of water.

In general, the water distribution system, comprised of main water canals, field supply and distribution ditches, was observed to be overgrown with weeds, thus increasing water losses through percolation and seldom were herbicides used to keep irrigation canals free of weeds.

The basic sprinkler irrigation unit is made up of one diesel driven pump using a 260 horse power engine and a 1,100 GPM pump. Five guns are used to apply water, with each manned by a crew of nine men. Pumping 20 hours per day each system

will cover 8 manzanas (56,206.4 square meters) and lay down 4,996.2 cubic meters of water equivalent to an application of 88.9 millimeters.

This system as applied in Julio Buitrago is not efficient as far as utilization of man-power as 9 man-days are required to irrigate 8 manzanas, for a productivity of 0.89 manzanas per man day utilized, compared with an average productivity of 1.0 manzanas per man-day for surface furrow irrigation. The primary advantage of the sprinkler system is efficiency in water usage as with furrow irrigation 144 mm are used per manzana per round while with the sprinkler system about 89 mm are used to accomplish the same results.

f. Sugar Cane Harvesting

Sugar cane harvesting at Ingenio Julio Buitrago is performed in two distinct methods based on the loading system of each.

One system is referred to locally as harvesting by "linga" which is hand cut cane and an additional cut made half way up the cane stalk and laid in windrows every 3 rows, manually loaded on bullock drawn carts and driven to fixed transfer stations to be trans-loaded to either cane trucks or cane carts pulled by agricultural tractors. This cane is bundled with chain slings and is unloaded at the cane yard in the mill where the chain slings are removed and returned to the field.

The second system is known locally as the "charbaca" systems where cane is cut by hand and laid in 4 row windrows and loaded directly unto either cane trucks or cane carts pulled by agricultural tractors both provided with chain nets. The cane is loaded in bulk form and unloaded at the mill site by a "Hilo" type chain net unloaded directly unto the feeder table.

Although the "linga" method of harvesting is more costly, the quality of the cane, having less trash and extraneous matter, and the higher bulk density obtained which permits bigger pay-loads for the cane trucks coupled to less damage to the cane fields and less soil compaction is the system generally preferred by the local field management.

It is the opinion of this consultant that mechanized cane harvesting can not be successfully introduced at Julio Buitrago until field lay-out, design and furrow configuration are modified to suit chopper harvester operations. The company also lacks the necessary support equipment to service, repair and maintain harvesters working in the fields. The level of technical expertise to support a mechanized cane harvesting system takes several years to develop and the simple introduction of cane harvesting equipment without adequate preparatory work both in improving field conditions and providing for qualified technical support staff has not helped this sugar operation.

In general, the level of maintenance of all agricultural equipment at Julio Buitrago is low and although much of the equipment has had several years of use the present condition of this equipment would indicate that most of the equipment has suffered from abuse and neglect, prematurely making many of these units obsolete.

8. Future Outlook on Production Costs

The performance figures for Julio Buitrago in 1991/92 can be found in Chapter VII which addresses the financial analysis of the operation. The "base case" in the financial analysis, Scenario 1, is based on the historical performance of IJB and assumes that the mill continues to perform as it has in the past. Scenario 2 assumes that management is able to make reasonable improvements in the operation of the mill in order to achieve efficiency and productivity levels that are consistent with industry norms. Scenario 3 assumes, in addition to the assumptions in Scenario 2, that management is able to improve the profit margins of its alcohol business by utilizing its new license to produce and sell potable alcohol.

For the future of Ingenio Julio Buitrago it will be necessary to carry out the following changes in order to reduce the cost of cane delivered to the mill:

- Increase cane yields.
- Reduce "standing cane" costs.
- Increase area to maximum potential.
- Improve harvesting costs.
- Reduce agricultural overhead.

a. Increasing Cane Yields

Sugar cane production at the Ingenio Julio Buitrago, despite the fact that all areas are under irrigation, relies practically entirely on rainfall to supply its irrigation water requirements, as only three wells for irrigation water are in production. The watershed that feeds the various streams that supply irrigation water, over the years has seen its vegetation cut down and consequently its water-holding capacity has been severely diminished. Since water is the principal limiting factor for sugar cane production at Julio Buitrago, any reduction in rainfall affects cane yields directly.

A local well drilling company, Irrigacion y Perforaciones McGregor, S.A. was asked to carry out a Hidrogeological study of the Montelimar area in 1979 and concluded that the aquifer on the lower coastal plain was of such a nature that it was highly improbable to find sufficient underground water to warrant a major well drilling program.

A new evaluation of potential aquifers should be carried out as a first step to increasing the supply of irrigation water as the development of new well water supply would be a relatively quick way of achieving this objective.

The field lay-out and design of the furrow irrigation system is not optimal and an effort should be made by the management of Montelimar to improve this in order to increase the efficiency of furrow irrigation. Main canals could be lined and proper maintenance and weed control of the irrigation system would improve performance and reduce water losses through excessive infiltration in canals that are obstructed by weeds. Larger volumes of water should be assigned to each irrigator to reduce water losses. In order to do this, an improved field design must first be introduced.

The improvement of the traditional sprinkler system as used in Montelimar, the electrification and improvement of the pumping stations, and the rationalization of labor requirements for this system should all be implemented.

Another aspect of improved agricultural yields at Montelimar that requires immediate attention is weed control. Many fields observed had moderate to severe infestation of weeds and grass weeds in particular are not being controlled effectively.

Cane varieties have not been introduced into Nicaragua for some time, and it is important as a long term strategy that a program be started to introduce and evaluate improved varieties from sugar producing areas that have similar climatic conditions.

b. Reduce "Standing Cane" Costs

The principal expense element in the production of cane is labor. The minimum wage for agricultural labor at Ingenio Julio Buitrago is roughly $5.60 (or 230%) higher per day than the minimum wage established by Law for Nicaragua. As can be seen, unionized labor greatly increases the agricultural cost of operations and the figures clearly indicate the advantage that independent cane farmers have over estate-owned sugar cane operations with regards to production costs.

Two major steps that have to be taken with regards reducing agricultural operational costs will have to be a new negotiation with the unions to bring labor costs down to a point where they are more in line with prevailing labor costs in other economic activities and secondly a review of all agricultural practices must be carried out to rationalize use of labor and re-establish productivity "norms" for all major manual operations.

Proper maintenance of agricultural equipment, with the introduction of a closely monitored preventive maintenance program should reduce agricultural equipment operating costs and prolong the useful life of the major pieces of equipment.

c. Increase Area To Maximum Potential

This aspect will depend primarily on the success of developing new and additional water resources. The area of expansion is however limited and not much growth can be expected in the short run.

d. Improve Harvesting Costs

The "linga" system of cane harvesting, despite its apparent agronomic advantages, is not a cost effective way of bringing cane to the factory from the fields. Just the quantity of people required to man a transfer station (9 workers) is most costly. The present practice at Julio Buitrago is to assign a daily quota of cane to be delivered by each farm during the crop. The machine loading of cane with the Vanguard Cane Loaders can help reduce harvesting costs substantially.

The practice of assigning daily cane quotas to each farm is traditional of the "old harvesting ways" when all operations were carried out manually and reduced the transportation requirements of personnel as most harvesting workers lived close to their work centers. The ideal module for harvesting at Montelimar would be to have two cane loaders assigned to one harvesting front, with a third machine standing by.

Another consideration to be given to reducing harvesting costs is to reduce the harvesting period to fit the anticipated cane supply for the year. This shorter crop season would permit harvesting cane during the period when sucrose content was at its highest, improving sugar rendement. Harvesting equipment would be operating at an efficient rate per day and block harvesting of cane would permit harvesting farms with adequate water supply earlier in the season to insure a satisfactory irrigation of the new crop while farms with poor water supply ratios could be harvested later in the season just prior to the beginning of the rains and thus avoid undue water deficiency stress to the ratoon crop. All these facts would help to reduce harvesting costs.

e. Reduce Agricultural Overhead Costs

Total employment of agricultural overhead personnel in July 1991 was reported to be 67 persons, lead by one field manager. Assuming a total of 5,000 manzanas in production, this overhead translates into one overhead staff personnel for each 74.6 manzanas. Scaling this figure down to be more comparable on an international scale, a more appropriate staffing would bring this level down to 32

persons (including field manager, department managers, section heads, supervisors, and foremen). Thus, tne agricultural overhead costs associated with the salaries, payroll taxes, and fringe benefits of these excess employees represent potential agricultural overhead cost savings.

V. FACTORY/SUGAR PRODUCTION

A. Introduction

In 1965, a 2,800 tpd BMA bagasse diffuser was installed at the Montelimar sugar mill, which, at the time, put Julio Buitrago at the cutting edge of sugar technology. Concurrently, capacity was increased significantly in the other factory stations, largely with German-made equipment. A complete list of current equipment and installations is presented as Appendix G. The level of processing capacity reached with the diffuser appears to match all accessible cane production capability. However, this capability is also largely dependent on rainfall.

The factory was erected so that it is located as favorably as possible with respect to cane transportation. The location of the factory also allows for the use of river water in condenser cooling, provided it is returned upstream afterwards, so all of it can still be employed in irrigation. The site of the factory, selected on the edge of a ravine, allows for some process flow by gravity and implies a general lightening of the pumping load.

During the eighties, in spite of the politicized operating environment fostered by the incorporation of the property into the public sector, physical production and technical performance do seem to have been maintained. This may be a credit to the quality of the existing installations as well as to an interest by the government in preserving them. A new 60,000 lb/h boiler was installed in 1985. From the present level of manning (0.64 t of sugar per man-day or 1.42 man-days per t) it appears that costs were not watched as tightly as might have been. Another problem area during the past decade appears to have been the continuity in management and technical staff. The scarcity of records and technical information, and a somewhat uneven familiarity with the plant on the part of the team that has been running it for more than a year, point to the need for some strengthening in the management sector.

B. Production Conditions

Cane, the most important input to production, is of a less than ideal quality at Julio Buitrago. Over the past 30 years, average pol never has reached 13%, whereas it has gone below 11% on several occasions. Average fiber, on the other hand, ranges from 13% to 16%. Average mixed juice purities never yet have reached 81. A clue to the low purities may be found in the ash values in excess of 3%, reported for first and mixed juices, a condition sometimes associated with very sparsely irrigated cane. In view of these cane quality conditions, it would be unrealistic to expect the industrial yield to exceed 200 lb of sugar per ton of cane in the near future.

Next to the industrial yield of cane, the cost of labor is the most important term in the profitability equation of sugar making under Nicaraguan conditions. As grinding takes place during the smaller part of the year, there are two distinct modes for the factory, crop or production and off-crop or equipment repair. Work during the crop season takes place in two 12 hour shifts, of which 8 hours are paid straight and 4 at double rate. All hours worked on a Sunday are paid at double rate. As a result, shift workers make just about as much on overtime as on base pay. Non-Shift workers, during the crop season, are entitled to 3 hours overtime per day, at double rate. During the off-crop season, overtime does not constitute a fixed part of the wage package, but is employed when needed, usually, to finish pending repair jobs before the beginning of the new crop.

For foundry and major mechanical work, there are no suitable commercial installations in Nicaragua. Metalurgica Sardi in San Salvador has been doing some work for Julio Buitrago. As would be expected under these conditions, the mill has a very large and complete machine shop for its size.

C. Plant and Operations

1. Cane Receiving

All cane entering the Julio Buitrago mill yard has been burned and hand cut. There are, however, two systems by which cane is loaded and hauled. About 55% is loaded mechanically into 8 - 10 t Hilo type carts or trucks and transported directly to the mill. The remaining 45% is loaded manually to 2 - 4 t ox carts, from which the sling-held bundles are transferred to 15 or 25 t road units at appropriately located loading stations. In order to account for trash, a flat 3% deduction is applied to all cane received to obtain the amount of net cane ground.

The mechanically loaded cane is washed on the truck after being weighed. The truck is placed for a few minutes under a rack sustaining three overflow troughs that dispense a total flow of 500 gpm of water. Results, apparently, are less than satisfactory, the method just concentrating the dirt in the lower part of the load.

2. Cane Preparation and Juice Extraction

The first of the two sets of cane knives, mounted on the auxiliary carrier, rotates with the flow of cane. The second, on the main feed carrier, rotates against it. A rubber belt conveys the prepared cane to the mill feed chute. On the belt, there is installed a continuous cane scale. There is no magnetic tramp iron separator.

In the bagasse-diffusion type process of juice extraction, the first juice, constituting about 50% of mixed juice, is obtained at the first mill. The remainder of mixed juice is made up of diffusion juice, extracted from first mill bagasse by

multi-stage percolation. During that process, which takes about 20 to 25 minutes, and during which the circulating juice repeatedly is taken through a heater to maintain it at 160 deg F, the 5 foot mat of bagasse travels along the 105 foot tray of the diffuser, dragged across the perforated bottom by a slat conveyor. This installation has been working satisfactorily for over 25 years, obtaining bagasse with less than 2% pol almost throughout. The bottom plate will be replaced for the first time this year.

At the exit of the tray, the diffuser bagasse is pre-dewatered by an idling adjustable-weight drum. Final dewatering takes place at the second mill, which is a piece of equipment about 50 years old. The records show some mechanical problems with this mill (cracked base plate), as well as pitting in the integrated sets of intermediate and low speed reducing gears at both mills.

3. Juice Treatment and Evaporation

On leaving the scale, mixed juice runs into the sulphitation and liming section by gravity, making use of the 15 foot drop between the mill and boiler building and the fabrication department. The absorption of Sulphur Dioxide by the mixed juice is not carried out in a conventional elevated counter current column, but in a pair of multi-jet ejectors which are connected to the Sulphur Dioxide Source and through which the juice is continuously recycled.

Liming, as elsewhere in Nicaragua, is done with hydrated lime, in the case of Julio Buitrago, imported from Costa Rica. The entire chemical juice treatment section seems to be undersized and in a somewhat dilapidated condition. Pump sizes could not be verified, as most of the units were dismantled and off their bases.

Limed juice heating and clarification apparently takes place in adequate installations, something that cannot be said about mud filtration. The capacity of the rotary vacuum filter seems to be barely adequate for the average daily 1991/92 grinding rate.

One of the main reasons for the factory's self-sufficiency in fuel, besides the relatively high cane fiber, is the use of quintuple effect evaporation. The question might be asked, why diffuser juice heating is done with Pre-Evaporator vapors rather than vapors from the First Body. With the evaporating capacity available, the low syrup Brix is all the more surprising.

There is no condenser water cooling pond or tower. Injection water for the evaporator as well as pan condensers is taken out of and returned to a canal of about 3,000 gpm, from which, also, irrigation needs both up and downstream from the mill are satisfied. The multi-jet condenser of the evaporator is served by an independent line, supplied by two pumps.

If, due to upstream irrigation demands, the volume of cold injection water becomes insufficient, condenser tail water from the discharge canal is recycled into the injection water suction box. It was reported that, if irrigation demands are concentrated upstream, vacuum in the condensers will not go beyond 22" Hg. It also was reported that, years ago, condenser discharge water was pumped back upstream for irrigation purposes, thus making available the entire 3,000 gpm for cooling. At some point, the pump or pumps were put to other uses. It seems that such pumping installation is cheaper than a cooling pond or tower, and that its reactivation should, indeed, be pursued. It might even be worthwhile to consider switching part of the apparently excessive present injection pump capacity to send warm water uphill, thus freeing all of the cold water for the condensers.

4. Sugar Boiling and Centrifuging

Three different boiling systems can be and have been used, according to product needs. For the exclusive production of raw sugar, a simple three-boiling system is employed in which both "A" and "B" sugars are bagged and "C" sugar magma is used as the footing for "A" and "B" strikes. With this system, no sulphitation takes place. For the simultaneous production of mill white and export raws, Julio Buitrago uses its "normal" system, the production, from sulphitated juice, of mill white "A" sugar, while "B" sugar is bagged as raw. Again, "C" sugar magma serves as the footing for both commercial strikes. This system, of course, presupposes the acceptance of a sulphitation-based product in the raw sugar market. The third system, for the production of mill white sugar only, is based on the use of part of the "C" sugar magma as "B" strike footing and on melting all of the "B" sugar, along with the remaining "C" magma. Both melts are then fed into "A" strikes, on a directly grained footing.

Pan boiling work at Julio Buitrago is hampered by the very problem of high injection water temperatures and the ensuing low levels of vacuum described with respect to evaporation. In addition, there is the problem of an insufficient pan floor height for proper massecuite handling and the incompatibility between strike receiver and crystallizer volumes on one side and pan volumes on the other.

Not only do strike receivers lack sufficient unit size to utilize the vacuum pans at their full capacity, but "C" crystallizers also are deficient in total volume to insure an optimal curing of massecuites. "A" Massecuites from two pans are discharged into a strike receiver and from one pan directly into the centrifugal mixer. "B" Massecuites have to negotiate an almost level 20 foot stretch of tube, while "C" Massecuites are pumped from the strike receiver into the first of the six continuous crystallizers.

In spite of these adverse conditions, and of the condition of low cane purities mentioned earlier, it is surprising that fabrication results at Julio Buitrago are as reasonable as they are.

5. Sugar and Molasses Storage

Sugar is stored in two 150,000 bag brick warehouses, most of the cement floor being covered with wooden planks and most of the asbestos cement roof insulated by an aluminum foil ceiling. Sugar is distributed by belt conveyor and reclaimed either by the same conveyor, which on the far side of the warehouse ends at a truck loading dock, or through a series of side doors.

Molasses is stored in two steel tanks, of 275,000 gal and 100,000 gal respectively, and in an 80,000 gal brick-lined covered pit.

6. Steam Generation and Distribution

With its 120,000 lb/h capacity, the boiler station at Julio Buitrago is generously dimensioned for as much cane as the factory will ever have to grind. Boiler "D", built in 1984 by Cobrasma, the Brazilian branch of B&W, is the most recently installed piece of major equipment at Montelimar. None of the two B&W units actually in use is equipped with an economizer. Both have a flue gas scrubber.

The Fiber content of cane at Julio Buitrago guarantees an ample supply of bagasse. The fully mechanized bagasse storage and reclaim installation should guarantee a steady steam pressure and an even supply of steam to the prime movers.

The self-sufficiency of a cane sugar factory with respect to fuel is very sensitive to the time lost in grinding, as supplementary fuel, either in the form of bagasse or of fuel oil, is needed to maintain the power and process load while no bagasse is forthcoming from the mill.

7. Electric Power Generation and Distribution

The capacity of this station has been deficient for some time which is the reason an additional turbo-generator has been acquired and is on site, ready to be installed. Its going on line will end the need of power purchases from INE during the crop. Unlike the existing units, however, the new machine, a Worthington, bought used in the U.S., does not generate at 480 V but at 2,400 V. This will necessitate the installation of the corresponding transformer. Commissioning the Worthington will allow the retirement of the General Electric machine, whose efficiency and dependability are very poor.

As a mill-dependent village has grown around Julio Buitrago, there should be, if not already there is, an awareness of the potential for a liability to supply power free or at low rates to village residences and businesses, be they or not linked to the company in any way.

8. General Services

Mention was already made of the ample 60'x 270' machine shop. Several of the machine tools have not been used for a long time. Presently new evaporator tube sheets were being bored.

An area that would bear investigation beyond the scope of this report, is the Parts and Materials Department. A large amount of equipment no longer in use, as well as obsolete spares, seem to be spread over the entire industrial area. Mill roller shafts (about 20) and shells (about 10 new ones) are a case in point. There also is a brick-lined oven for the shrinking-on of roller shells, which must date from pre-diffuser days. Consideration may be given to selling the machine shops as part of the 25% to be owned by the employees.

9. Alcohol Production

Work of the distillery is completely independent of the sugar operation, a distillery run being scheduled whenever a sufficient volume of the product is on order. Production costs are estimated at C 3.25 per l. In the past, orders were mostly for industrial grade alcohol, preferably for some specialty contracts above the C 1.50 per l commodity price. Quite recently, the license to manufacture potable alcohol, which at 80 Proof can be sold for C 7.50 per l, has been granted to Montelimar. This is likely to change past patterns of production considerably.

D. Results and Future Perspectives

1. Technical and Financial Results

The technical and financial results have already been discussed briefly and will be discussed more in-depth in Chapter VII. Financial results, the profits or cash flow of the company, can only be analyzed in terms of the entire operation, comprising both the agricultural and the industrial sector. However, the figures from previous financial statements are not meaningful and have been recreated for the purposes of the later financial analysis section.

2. Future Perspectives

In view of the information obtained at Montelimar and presented in this report it is reasonable to expect, in the short and medium term, the following variations or changes in the cost-determining parameters:

- Yearly cane supply will average around 300,000 tons, with a likely deviation of 60,000 tons. The 1991/92 volume will be at the lower end of this range. Agricultural limitations appear to be ruling out the possibility for any significant long term increases.

- Crop and off-crop personnel will decline within the next two years. Average grinding rate is near nominal factory capacity, and in view of the stated ceiling of cane supply, no factory expansion is justified. Under these circumstances, a greater labor efficiency can only be achieved by reducing the number of personnel.

- The need to purchase electric power from INE during the crop will disappear beginning with the 1992/93 grinding season. Installation of the Worthington turbo-generator will make Julio Buitrago self-sufficient in this respect, implying a substantial reduction in direct costs. The increase in electric power rates, especially the maximum load component, at the beginning of 1992 will make this a very timely change.

- The number of periods will vary directly with the amount of cane available, since the grinding rate per day, and thus per period, will remain constant. The range of variation will be between 4 and 6 periods, the average crop length being near 5 periods or 140 days.

- Sugar and molasses recovery from cane will not change significantly, in view of what has been said about the limitations of cane quality.

- The white fraction of sugar is likely to increase, as Nicaragua's U.S. quota declines and domestic demand for mill white sugar increases. A 60-40 split, or even a 75-25 one might be a more reasonable split in the near to medium future.

- The same holds for all of the remaining input costs quoted in Cordobas, which would be market- rather than technology-driven.

In general, for future operations, it seems appropriate for Montelimar to continue to lower costs by increasing factor efficiency, concentrating on activities in which it

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has an edge, such as making sugar and potable alcohol in essentially depreciated plants, and discontinuing activities in which it has not, such as mechanical fabrication. Much of the factory's core equipment (mill, diffuser, juice heaters, pans, centrifugals and boilers) for these processes is only about 30 years old and should continue to perform well in the future.

VI. MANAGEMENT, LABOR, LEGAL & OTHER ISSUES

This section of the report describes the management, labor and legal aspects relating to the valuation of Julio Buitrago.

A. Legal Entity

The Empresa Azucarera de Reforma Agraria Julio Buitrago Urroz is a public enterprise assigned to CONAZUCAR, the holding company for the public sector sugar mills.

B. Organization and Management

Direction of Julio Buitrago is currently the responsibility of a four-person administrative board composed of three members nominated by the government and one by the workers. The organization chart for Julio Buitrago is presented on the following page.

Current management assumed responsibility for mill operations approximately two years ago (1990). The Executive Director and division management have university or master degrees. Department managers generally have university degrees or extensive sugar mill experience. For the most part, top management of the mill came out of CONAZUCAR and its predecessor, the sugar division of the Ministry of Agriculture. While the top management team has many years experience in the *sugar industry*, their previous experience in *sugar mill management* appears limited.

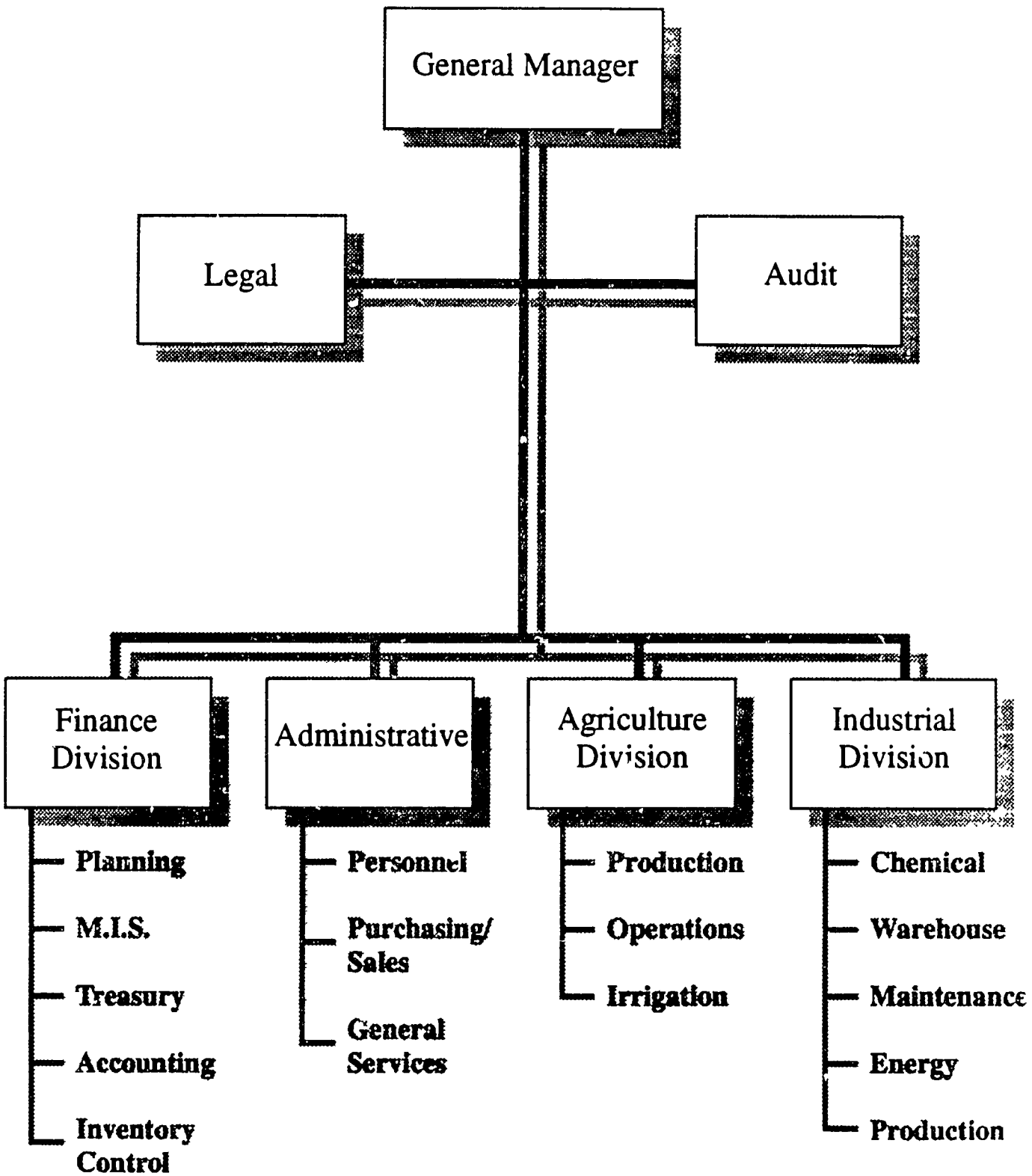
Management-labor relations were strained under the previous management team. The current management appears to have done a good job in improving this critical area while significantly reducing the level of employment at the mill. However, the industry experts performing the technical evaluation of the mill observed that operations management could be strengthened. Financial management also needs strengthening to develop and implement the financial reporting systems required to operate the sugar company with a "bottom line," profit orientation.

Employment levels during 1991/92 were approximately as follows:

	CROP	OFF-CROP
Administration	186	164
Agriculture	286	169
Industrial	1,102	851
Total	1,574	1,184

Ingenio Julio Buitrago

(Montelimar)



Management indicated that employment levels were nearly double those shown above prior to 1990/91. There are approximately 60-70 retired employees. The accrued but unrecorded severance benefits owed current employees was estimated at roughly $400,000.

C. Information System

The existing information system at the mill is run on a relatively old IBM minicomputer and assorted microcomputers. The financial software was adopted from another sugar mill and modified. Enhancements to the existing hardware and software will probably be required to improve financial reporting.

D. Labor Relations

Julio Buitrago has one union, (CTN). Labor relations have been positive during the past two years. This contrasts with the 1980s during which time Julio Buitrago experienced a difficult management-labor relationship.

Current labor leadership explained that the previous labor leadership at the mill had strong sandinista ties whereas the rank and file was independent. When the current government entered office in May 1990, the CTN demanded and obtained the replacement of division management which had operated the mill on political rather than technical criteria.

Under current management there has been one strike which lasted four days. A labor leader explained that the strike was caused by newspaper articles which stated that Julio Buitrago was to be turned over to the Sandinistas.

The labor leader also indicated that the union rank and file supports the government's efforts to privatize Julio Buitrago. The union members recognize the need to improve the efficiency of the mill in order for it to be a viable company and to preserve union jobs. Privatization is viewed as a way to bring new technology and stronger management to Julio Buitrago.

E. Land Titles

The lands conforming the Julio Buitrago sugar company were expropriated from the Somoza family which had acquired it at an auction of confiscated enemy property during World War II. The CONAZUCAR Legal Department has not identified any conflicting claims against the land. The CONAZUCAR Legal Department is coordinating with the Nicaraguan Attorney General's Office (Procuraduria) in this matter.

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Previously, title to 162.07 manzanas of farm No. 726 was intended to be transferred to Hotelinsa. This area corresponds to the property on which the Complejo Turistico Montelimar is built. However, the entire farm No. 726, including cane fields belonging to the sugar mill, were transferred to Hotelinsa by error. This error is in the process of being corrected and title to farm No. 726, less the 162.07 manzanas, will be given to the sugar mill.

The property of the sugar mill can be broken down as follows:

	Mzas
Sugar cane	4,818
Cattle, forestry, roads, and installations	4,752
Other	9,487
Total	19,057

Invaded areas will probably be turned over to the *Instituto Nacional de Reforma Agraria* (INRA) for titling and disposition. The dimensions and boundaries of the remaining areas subject to privatization must be clearly identified prior to preparation of bidding documents.

F. Pending Litigation

The Legal Department of CONAZUCAR was requested to perform a search for any existing or potential litigation against Julio Buitrago. CONAZUCAR has not notified us of any such pending litigation.

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VII. CURRENT FINANCIAL CONDITION

A. Earnings and Cash Flows

An estimated 1991/92 statement of profit and loss for Ingenio Julio Buitrago appears on the following page. The statement of profit and loss is estimated based on cost, production, and price information provided by IJB management and CONAZUCAR. The statement of profit and loss was not prepared by IJB management.

IJB is projected to have an after-tax loss of 6.8 million cordobas on sales of 33.5 million cordobas for fiscal year 1991/92 (July 1, 1991 - June 30, 1992). Cash flow for the year is estimated to be (8.1) million cordobas. These figures exclude an estimated 425,000 cordobas for one-time severance payments to employees terminated during the year.

The largest cost item for the mill is salaries and benefits which constitute 60% of total cash operating costs for the year. These high costs combined with a poor agricultural yield, 47.9 tons of cane per manzana versus the five year average of 52.1, contributed to the poor financial performance.

B. Balance Sheet

An estimated balance sheet for IJB appears on the following page. The balance sheet is a reformatted version of a balance sheet prepared by IJB management.

The unadjusted balance sheet for IJB indicates a book value of 43.3 million cordobas at February 29, 1992. However, the accounting practices of the mill are extremely problematic and do not accurately reflect the mill's financial position. In particular, 73.6 million cordobas of the 94.5 million of total assets are listed as inventory. This is an unreasonable amount since total annual sales for IJB are 33.5 million cordobas. In addition, the value of fixed assets have been readjusted numerous times for currency devaluations and no longer accurately reflect the value of these assets.

The current liabilities of the mill are estimated at 51.2 million cordobas. Of this, approximately 23.9 million cordobas is owed to CONAZUCAR, the state sugar company, for imported items and debt financing. For purposes of the financial valuation, IJB's debt is assumed to be relieved by the government prior to privatization. This is due to the uncertainty concerning IJB's ability to earn positive profits and cash flows on an operating basis before debt payments.

INGENIO JULIO BUITRAGO
1991/92 Financial Highlights
(000's Cordobas)

UNADJUSTED STATEMENT OF PROFIT AND LOSS
Fiscal Year 1991/1992 *

Sales	33,489
Operating Costs (Cash Basis)	36,302
Depreciation	1,892
Operating Income	(4,705)
Interest Expense	2,045
Profit Before Tax	(6,750)
Tax	0
Net Profit	(6,750)

* Annualized for the fiscal year 7/1/91 to 6/30/92 based on data from 7/1/91 to 3/8/92. Profit and loss information was provided by management of Julio Buitrago and has not been audited by Price Waterhouse or any other firm. Management accounting prac ıs may not be in accordance with Generally Accepted Accounting Principles.

UNADJUSTED BALANCE SHEET
As of February 29, 1992 *

ASSETS		LIABILITIES & STOCKHOLDERS' EQUITY	
Current Assets		**Current Liabilities**	51,233
Cash	974		
Accounts Receivable	6,711	**Long-Term Debt**	0
Inventory	73,645		
Pre-Paid Expenses	5,121	**Total Liabilities**	51,233
Total Current Assets	86,450		
Fixed Assets		**Stockholders' Equity**	43,312
Property, Plant & Equipment	14,480		
Less Accumulated Depreciation	6,415		
Net Fixed Assets	8,065		
Other Assets	30		
		Total Liabilities & Stockholders' Equity	94,545
Total Assets	94,545		

* Balance sheet information was provided by management of Julio Buitrago and has not been audited by Price Waterhouse or any other firm. Management accounting practices may not be in accordance with Generally Accepted Accounting Principles.

VIII. FINANCIAL VALUATION

A. Assets to be Valued

The assets that are included in the financial valuation are the productive assets of the enterprise only. These assets include the sugar mill, alcohol distillery, 4,818 manzanas of land under cultivation, 5,000 manzanas connecting and adjoining the cultivated land, and all equipment and inventories associated with these assets.

IVJ also owns several other assets that are not required for production and are therefore not included in the financial valuation. These assets include 9,239 manzanas of uncultivated land and the livestock owned by IVJ.

B. Valuation Methodologies

Two methods were used to estimate the value of IJB: the Discounted Cash Flow ("DCF") method and the liquidation value of IJB assets.

The ***DCF method*** is considered the best method for estimating the value of IJB as an ongoing enterprise. The DCF approach assumes that the price an investor is willing to pay for an enterprise depends on the amount of net cash flows which the enterprise is expected to generate in the future and the riskiness of actually receiving those cash flows. DCF analysis requires projecting expected future cash flows and converting the cash flows into their present values using a discount rate that reflects the riskiness of the cash flows. The sum of the present values of the cash flows is the net present value ("NPV") of the enterprise.

The ***liquidation value*** of IJB is the price that could be achieved through an orderly sale of all the assets available to be privatized. The liquidation value is generally considered the minimum acceptable value of an enterprise. However, an enterprise may be sold as a going concern for less than the liquidation value due to employment objectives, anticipated future tax revenues, and other considerations.

A third commonly used method that is not included in our analysis is the comparable company method. Comparable company analysis estimates the value of a company based on the market value of other similar companies. However, due to worldwide trade distortions and the unique circumstances of the sugar industry in Nicaragua, comparable company analysis was determined to be inappropriate for estimating the value of IJB.

C. Discounted Cash Flow Valuation

The discounted cash flow analysis tests three scenarios which are summarized below. Appendix H contains a detailed description of the assumptions and the results of the DCF analysis for each scenario.

1. Scenario 1, the "Base Case", is based on the historical performance of IJB and assumes that the mill will continue to perform as it has in the past.

2. Scenario 2 assumes that management is able to make reasonable improvements in the operations of the mill in order to achieve efficiency and productivity levels that are consistent with industry norms. Scenario 2 differs from Scenario 1 as follows:

   - The agricultural yield is increased to achieve reasonable yields as a result of various improvements in the irrigation system and field cultivation practices.

   - The number of field workers is reduced to achieve reasonable field productivity levels.

   - The number of factory workers is reduced to achieve reasonable factory productivity levels.

   - The number of administrative workers is reduced according to work force reductions expected by management.

   - Crop-period factory electric costs are reduced to zero after 1991/92 as a result of the installation of a new turbo-generator.

   - The average price of sugar and cost of packing materials are increased to reflect the packaging of sugar in 5-pound bags.

   - Capital costs are increased in order to achieve the improvements described above.

3. Scenario 3 assumes, in addition to the assumptions in Scenario 2, that management is able to improve the profit margins of its alcohol business by utilizing its new license to produce and sell potable alcohol.

All of the scenarios assume that IJB will not have to repay any of the debt on its balance sheet after privatization.

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The results of the DCF analysis for the three scenarios are summarized below. The range of results for each scenario reflects the sensitivity of IJB's value to different sugar price and discount rate assumptions. The sugar price of $13.78 per quintal was the weighted average price to producers for 1991/92. The price of $15.81 would be the average price assuming the world market price returned to its historical average (see Section III for a further discussion of sugar prices). The price of $16.60 represents a 5% increase over $15.81. All negative results are recorded below with a dash.

Value of Ingenio Julio Buitrago
(Millions of Cordobas)

	Pessimistic	Mid-Range	Optimistic
Avg. Sugar Price *	$13.78	$15.81	$16.60
Discount Rate	22%	18%	14%
Scenario 1	--	--	5.9
Scenario 2	.7	23.7	43.0
Scenario 3	19.4	46.5	72.1

* The average sugar price is increased by 1.25 cordobas per quintal for Scenarios 2 and 3 to reflect packaging in 5-pound bags.

D. Valuation Based on Asset Liquidation

The asset liquidation analysis estimates the price that could be realized if mill operations were terminated and the assets were sold piecemeal. The price estimates are based on asset lists provided by IVJ management, the experience of the industry experts, and local asset valuation specialists. These estimates should not be considered definitive values, but rather reasonable approximations of liquidation value.

FACTORY EQUIPMENT		
Cane Receiving	US$	39,000
Cane Preparation and Juice Extraction		285,000
Juice Treatment		98,500
Evaporation, Boiling, and Centrifuging		645,500
Sugar and Molasses handling and Storing		60,000
Steam Generation and Distribution		496,500
Power Generation and Distribution		411,500
Alcohol Production		135,750
Machine Shop		75,000

		2,246,750
FIELD EQUIPMENT		
Tractors	US$	425,000
Harvest and Transport Equipment		592,000
Vehicles		176,750
Pumps		138,000
Motors		182,000
Other Equipment		109,500

		1,623,250
LAND IN CULTIVATION		
4,818 manzanas @ $1,292 *	US$	6,224,856
5,000 manzanas @ $400		2,000,000

		8,224,856
TOTAL ESTIMATED LIQUIDATION VALUE	US$	12,094,856
		==========
	Cordobas	60,474,280
		==========

* Includes irrigation and other infrastructure.

The estimated liquidation value above does not reflect the time and transactions costs that may be required to carry out an orderly liquidation of the mill's factory and field equipment. In addition, it may not be possible to sell all the equipment, particularly given currently low world sugar prices and the low level of new investment in the industry. Thus, the net present value of the cash that could be realized from liquidation may be lower than 60 million cordobas.

E. Summary and Conclusions

IJB is currently operating at a loss and if it continues to be operated as it is now, the mill's value as an ongoing concern is close to zero. However, the results of the DCF analysis indicate that the mill could have a positive value of up to 72.1 million cordobas ($14.4 million), depending on the operating assumptions, average sugar price, and discount rate used to calculate the net present value. An

emphasis on Scenarios 2 and 3, an 18% discount rate, and an average sugar price at the historically-based level ($15.81) suggest a range of values for IJB of 23.7 to 46.5 million cordobas ($4.7 to $9.3 million).

The liquidation value of IJB's assets is estimated at approximately 60 million cordobas ($12 million), excluding the time and transactions costs that may be required to carry out a liquidation. The cash liquidation value of a company can be considered its minimum value because an investor (or the Government) should, at least, be able to realize this value by selling the mill's assets. However, an enterprise may be sold as a going concern for less than the liquidation value due to employment objectives, anticipated future tax revenues, and other considerations.

A primary Government objective of privatization is for IJB to continue as a going concern. Thus, a reasonable range for the value of IJB is the going concern value of 23.7 to 46.5 million cordobas ($4.7 to $9.3 million). These estimated values are based on numerous assumptions (described in Appendix H) and are particularly sensitive to variations in the discount rate and the average price of sugar.

IX. PRIVATIZATION STRATEGY

The Government of Nicaragua has decided to privatize Ingenio Julio Buitrago in order to improve the management and operations of the mill and reduce or eliminate the burden on Government resources. This section of the report describes the options and PW/IPG recommendations for successful privatization.

A. Privatization Objectives

In determining a privatization strategy, it is essential to address the objectives of the Government in pursuing privatization. The principal objectives of CORNAP in privatizing IJB are as follows:

- Reduce or eliminate Government financial losses resulting from the negative cash flow of the mill.
- Avoid future Government investments in the mill.
- Improve management and operations of the mill.
- Maintain employment at the mill.
- Maximize the cash generated from the sale of IJB.
- Transfer ownership of the mill to the private sector as quickly as possible.

B. Privatization Options

The methods of privatization that have been used internationally can be categorized as follows:

- Public offering of shares
- Sale of shares in the existing enterprise
- Sale of enterprise assets for formation into a new company
- Infusion of new private investment (joint venture)
- Management/employee buyout
- Breakup and liquidation of individual assets separately
- Management contract or lease

Three of these options are not considered appropriate for the privatization of IJB. A public share offering is not considered appropriate due to the lack of an equity market in Nicaragua. Although a public share offering would be possible, it would be extremely difficult and time consuming.

The sale of shares in the existing enterprise is not considered feasible due to the large magnitude of IJB liabilities. As noted in Section VII, IJB is currently operating at a loss before debt service. Even if IJB is able to improve operations and become profitable, its estimated value as an ongoing concern is $4.7 to $9.3 million which is lower than the $10.2 million of liabilities on its balance sheet as of February 29, 1992. IJB's status as a public enterprise under the Reforma Agraria also makes the sale of shares in the existing enterprise unfeasible.

The breakup and liquidation of individual assets is not considered appropriate due to the Government objective of maintaining employment at the mill.

Thus, there are four potential options that may be appropriate for the privatization of IJB: sale of assets, joint venture, management/employee buyout, and management contract or lease.

Option 1: Sale of Assets

Under Option 1, CORNAP would sell the assets of IJB as a going concern to an investor group with experience in the industry. The liabilities of IJB would remain with the Government. The responsibility for severance benefits would also remain with the Government, but would partially offset employees' payment for their option to buy 25% of the State's holding in IJB. The investors would form a new company with IJB's assets, which would be set up at the time of the sale, and continue to operate the mill.

As a first step in this sale, CORNAP would negotiate with the workers to determine if they are interested in exercising their 25% option in specific assets. Assets purchased by employees would be set up in an employee-owned company. The remaining assets would be sold to investors as described above.

The advantages of this approach are as follows:

- Ownership of IJB is transferred to a private owner which eliminates the responsibility of the Government for financial losses and further capital investments.

- Private, experienced owners have a strong incentive and the capability to improve management and operations.

- IJB continues to be operated as a going concern and employment is maintained, although probably at a lower level.

- Cash is generated for the Government in the short-term.

The disadvantages of Option 1 are as follows:

- The Government may receive a lower price if the mill is expected to continue as a going concern rather than be liquidated. As noted in Section VIII, the ongoing concern value of IJB is estimated at $4.7 to $9.3 million while the cash liquidation value is estimated at $12.1 million.

- Private investor interest in IJB may not be strong given IJB's current financial position. A sale of assets may be difficult and time consuming compared to contracting out management and may result in a lower sales price than if sold after operations are improved via a management contract.

Option 2: Infusion of New Private Capital (Joint Venture)

Under Option 2 a new company would be formed with the assets of IJB and new capital invested by a private investor group. The new company would be jointly owned by the private investor group and the Government with the private group holding majority control. As in Option 1, the sale of specific assets would be negotiated with employees and all liabilities would remain with the government.

The principal advantage of Option 2 over Option 1 is that private investors may be more interested in participating if their funds are infused into the company to improve performance rather than paid to the Government as under Option 1. The private owners could buy out the Government's share at a later date if the mill becomes successful. In this case, the Government may receive a higher price than in Option 1.

The principal disadvantages of Option 2 compared to Option 1 are that the Government continues to bare partial responsibility for financial losses and the Government receives less or no cash as a result of privatization.

Option 3: Management/Employee Buyout

Option 3 is similar to Option 1 except that the private investors that purchase the assets of IJB would be IJB management and/or employees. The purchase would likely have to be financed with Government support.

The principal advantages of Option 3 are as follows:

- As owners of the mill, management and/or employees would have an extremely strong incentive to improve management, operations, and worker productivity.

- Management/employee ownership may be more acceptable politically.

The principal disadvantages of Option 3 compared to Option 1 are as follows:

- Ownership by current management and employees would bring no added industry experience to the management and operations of the mill.

- The Government may have to support the financing of the buyout which would could result in a reduction or elimination of net cash proceeds from privatization.

Option 4: Management Contract or Lease

Under Option 4, CORNAP would lease or contract out management of IJB to a private firm with expertise in sugar mill operations. Ownership of IJB would remain with CORNAP and the mill would continue as a going concern. Ownership of IJB could be transferred to the private sector several years later after operations, management, and financial performance had been improved. Liabilities would remain with IJB until its sale in the future.

The advantages of this approach are as follows:

- Private, experienced management is introduced immediately.

- Private managers, with proper incentives, have a strong interest in improving management and operations.

- IJB continues to be operated as a going concern and employment is maintained, although probably at a lower level.

The disadvantages of Option 4 are as follows:

- Ownership of IJB remains with CORNAP and the Government continues to be responsible for financial losses and further capital investments.

- The private management fee may be substantial, further increasing costs to the Government.

- Cash proceeds from privatization are delayed.

- Continued interest charges from accumulated debt will delay returning IJB to profitability.

C. Recommendations

Given the uncertainty concerning the attractiveness of IJB to private parties, we recommend that CORNAP pursue a ***flexible strategy*** which maximizes the chances of achieving a successful privatization. Based on the Government objectives outlined above we recommend the following approach:

1. Solicit the participation of private investors in IJB through a sale of assets or joint venture (Options 1 or 2). These options would reduce or eliminate Government financial exposure and inject private capital and technical expertise to the mill.

2. If private investment proves infeasible, solicit a private manager for a management contract or lease (Option 4). Management compensation should be closely tied to profitability. This option would at least bring improved management to the mill in a relatively short time period and prepare the mill for future privatization.

3. If the financial condition of the mill is such that no private manager is interested in an incentive-based contract, "corporatize" the mill and minimize financial losses to the Government.

   "Corporatization" would involve establishing the mill as an independent financial entity, rather than a cost center under CONAZUCAR as it is presently. As an independent corporation, management would have more control and more accountability for profitability. In addition, the system of financial reporting and control could be improved so that management would have more accurate information to make decisions and private investors would have a more reliable basis for considering an acquisition.

   Minimizing financial losses would involve reducing costs, improving productivity and efficiency, and limiting capital investments. This may require replacing current management.

   This option would at least make management more accountable for profitability, limit financial losses, and prepare the mill for future privatization.

A management/employee buyout is not recommended due to the disadvantages discussed above.

Some additional recommendations concerning the privatization process are as follows:

- Julio Buitrago properties that have been invaded will detract from the attractiveness of the mill as an acquisition. This land should be clearly identified and turned over to INRA for disposition and titling.

- The cattle and dairy farms (El Zapaton and San Antonio) are not essential to the economic viability of Julio Buitrago. CORNAP should negotiate the sale of these farms to employees or others.

- The distillery, including its permit to sell potable alcohol, is considered essential to the long-term financial viability of Julio Buitrago and should be sold with the factory.

- Julio Buitrago management has discussed with the sugar company workers the option of accepting their 25% participation in the company via the sale of the mill repair shop. Contracting repair services on an as-needed basis would reduce company costs. CORNAP should attempt to negotiate the privatization of the repair shop facilities directly with the employees. Current Julio Buitrago repair shop employees would become employees of a new employee-owned company. Remaining Julio Buitrago employees would receive shares in the employee-owned company. Employees would apply their accumulated severance payments which the government will owe the employees against the cost of their investment in the company in a non-cash transaction.

  A similar option open to Julio Buitrago employees is to accept some part of their 25% participation in the form of an employee-owned and operated farm. Current Julio Buitrago agriculture employees would become employees of a new employee-owned company. Remaining Julio Buitrago employees would receive shares in the employee-owned farm. The employee-owned farm(s) would essentially be a colono and would sell cane to the mill under a traditional long-term colono contract.

- CORNAP should condition the sale of farms to employees (colonos) on their agreement to a long-term contract (at least 10 years) to supply the mill with cane. This is important because Julio Buitrago has limited opportunity to expand cultivated lands.

- The Julio Buitrago cane fields adjoin the Complejo Turistico Montelimar and has beach front next to this development. This adjoining beach front runs for approximately 16 kilometers. CORNAP should be aware during price negotiations that investors may be interested in the long-term real estate value of the Julio Buitrago

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property and should negotiate restrictions on the future use of the IJB cane fields for a reasonable period of time to ensure its employment objective.

D. Privatization Action Plan

The steps that CORNAP should follow to implement this privatization strategy are as follows:

- PW/IPG continues to identify potential investors.

- CORNAP/CONAZUCAR should resolve the following issues with the IJB union:

  - The basis for calculating the employees' 25% share of IJB (e.g., book value, asset value, discounted cash flow value).

  - The timing of the sale of assets to the employees in relation to the privatization of the remaining assets.

  - The terms of payment for the employees' 25% purchase (e.g. termination payment, government financing).

  If the sale to the employees precedes the sale of the remaining assets, this information should be available for inclusion in the bidding documents.

- If an asset sale, CORNAP identifies the specific assets to be included in the bidding documents.

- CORNAP/CONAZUCAR organizes preliminary meetings of professional Board of Directors of sugar industry mill owners to determine issues regarding the future functioning of the industry, such as the distribution of the U.S. quota. This information may be required for the bidding documents.

- PW/IPG prepares prospectus and bidding documents and does mailing to interested parties.

- CORNAP develops privatization selection criteria.

- CORNAP forms evaluation committee and reviews bids. PW/IPG provides assistance on request to analyze bids.

- CORNAP initiates negotiations with the most attractive bidder(s).

APPENDIX A

HISTORIC PRODUCTION, CONSUMPTION, EXPORTS, AND IMPORTS

[illegible]

[illegible]

VICE PRESIDENCIA AGRICOLA

ZAFRA	INICIO ZAFRA	PRODUCCION TOTAL	CONSUMO	EXPORTACIONES	IMPORTACIONES
70/71	---	3,688,583.00	1,518,871.00	2,169,712.00	
71/72	---	3,607,066.00	1,658,330.00	1,942,736.00	
72/73	---	3,124,031.00	1,808,128.00	1,694,940.00	374,000.00 *
73/74	963.00	3,535,729.00	1,884,107.00	1,451,380.00	
74/75	201,205.00	4,174,945.00	1,985,544.00	1,461,160.00	
75/76	929,446.00	5,349,439.00	2,143,552.00	3,378,800.00	
76/77	756,533.00	4,777,474.00	2,270,377.00	2,182,720.00	
77/78	1,180,910.00	4,611,793.00	2,271,954.00	2,217,900.00	
78/79	1,302,849.00	4,669,073.00	2,516,327.00	2,239,700.00	
79/80	1,215,895.00	3,740,216.00	2,588,288.00	1,754,377.00	
80/81	613,446.00	4,260,838.00	2,546,267.00	1,890,737.00	330,000.00 (*)(**)
81/82	767,280.00	4,950,576.00	2,603,194.00	2,036,239.00	
82/83	1,078,423.00	4,957,696.00	2,883,763.00	2,743,990.00	
83/84	408,366.00	5,191,608.00	3,193,059.00	1,882,392.00	
84/85	524,523.00	4,353,953.00	2,886,564.00	1,492,030.00	220,460.00 (*)
85/86	720,342.00	4,674,224.00	3,247,923.00	1,539,697.00	
86/87	606,946.00	4,152,545.00	2,958,953.00	1,091,842.00	95,314.00 (*)
87/88	804,010.00	3,103,962.00	3,309,346.00	857,682.00	264,000.00 (**)
88/89	4,944.00	3,483,798.00	1,666,738.00	1,693,464.00	176,460.00 (*)
89/90	305,000.00	4,360,584.00	2,089,326.00	2,531,040.00	636,102.00 (**)
90/91	263,629.00	4,772,923.00	2,286,314.00	2,600,704.00	150,000.00

CLAVES: (*) DONACIONES VARIAS; (*) ORIGEN: CUBA; (**) ORIGEN: VARIOS.
26/12/91
CGS*

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APPENDIX B

NICARAGUAN SUGAR INDUSTRY

STATISTICS

Nicaragua Sugar Cost Estimate Crop 1991 1992

Company	Cane Own Plus Colono Purchases US$/Ton	Factory Plus Refinery US$/Ton	Finanzas US$/Ton	Admin Plus Recursos Humanos US$/Ton	Direccion General US$/Ton	Total Expenses US$/Ton of Cane	Quintales Sugar per Ton Cane	Total Expenses US$/ Quintal
San Antonio	15.97	5.20	0.65	3.86	0.20	25.88	1.80	14.38
Benjamin Zeledon	19.61	5.30	0.58	2.45	0.79	28.73	1.95	14.73
German Pomares	14.05	7.06	0.00	3.92	0.00	25.03	1.60	15.64
Victoria de Julio	19.05	10.26	0.00	5.66	0.00	34.97	2.20	15.90
Javier Guerra	17.25	10.17	0.00	0.00	5.45	32.87	2.05	16.03
Julio Buitrago	21.33	7.63	0.84	3.43	0.69	33.92	2.00	16.96
Camilo Ortega	18.80	7.31	0.19	3.19	1.02	30.51	1.30	23.47
Promedio Industria	17.22	6.83	0.43	3.73	0.62	28.83	1.89	15.29

APPENDIX C

WORLD SUGAR PRODUCTION

Table 23--Sugar: World production, supply and distribution, by selected countries and regions

Region/ country	Marketing year	Beginning stocks	Sugar production	Imports	Total supply/ distribution	Exports	Domestic consumption	Ending stocks	Population	Per capita consumption
		1 000 metric tons, raw value							Thousands	Kilograms
North America:										
Canada	1989/90	100	121	824	1 045	33	862	150	26 538	32.5
	1990/91	150	138	900	1 188	25	913	250	26 835	34.0
	1991/92	250	145	860	1 255	15	940	300	27 129	34.6
Mexico	1989/90	605	3,100	1 100	4 805	17	4 038	750	87 870	46.0
	1990/91	750	3,600	1 400	5 750	285	4 240	1 225	89 847	[illegible]
	1991/92	1 225	3 450	400	5 075	50	4 360	665	91 859	[illegible]
United States 2/	1989/90	1 110	6 008	2,303	9 421	584	7 739	1 098	250 410	30.9
	1990/91	1 098	6,273	2,571	9 942	610	7 959	1 373	252 502	31.5
	1991/92	1,373	6,532	1,768	9 673	322	8 029	1 322	254 521	31.5
Total North America	1989/90	1,815	9,229	4,227	15,271	634	12,639	1 998	364 818	34.6
	1990/91	1,998	10,011	4 871	16 880	920	13,112	2 848	369 184	35.5
	1991/92	2,848	10,127	3,028	16,003	387	13 329	2,287	373 509	[illegible]
Caribbean:										
Barbados	1989/90	4	69	0	73	57	12	4	263	45.6
	1990/91	4	66	0	70	54	12	4	264	45.5
	1991/92	4	65	1	70	54	12	4	266	[illegible]
Cuba	1989/90	340	8,000	0	8,340	7 065	800	475	10 620	75.3
	1990/91	475	7 623	0	8,098	6 500	850	748	10 732	79.2
	1991/92	748	6,000	0	6,748	5 000	925	823	10 843	85.3
Dominican Republic	1989/90	130	632	20	782	398	256	128	7 241	[illegible]
	1990/91	128	656	19	803	350	263	190	7 385	[illegible]
	1991/92	190	700	0	890	400	270	220	7 530	35.9
Haiti	1989/90	8	35	39	82	4	65	13	6 142	10.6
	1990/91	13	30	39	82	8	60	14	6 287	9.5
	1991/92	14	30	40	84	5	60	19	6 432	[illegible]
Jamaica	1989/90	19	219	45	283	149	120	14	2 441	49.2
	1990/91	14	233	31	278	142	121	15	2 456	49.3
	1991/92	15	240	21	276	145	121	10	2 474	48.9
Trinidad/Tobago	1989/90	3	121	5	129	65	61	3	1 345	45.4
	1990/91	3	110	16	129	58	61	9	1 374	44.4
	1991/92	9	110	16	135	61	62	12	1 404	44.2
Other	1989/90	80	131	77	288	105	154	29	5 231	29.4
	1990/91	29	156	78	263	75	159	29	5 254	[illegible]
	1991/92	29	168	81	278	81	161	36	5 278	[illegible]
Total Caribbean	1989/90	584	9,207	186	9 977	7 843	1 468	666	33 283	[illegible]
	1990/91	666	8 874	183	9,723	7 187	1 526	1 009	33 752	[illegible]
	1991/92	1,009	7,313	159	8 481	5 746	1 611	1 124	34 227	[illegible]
Central America:										
Belize	1989/90	13	102	0	115	100	8	7	220	[illegible]
	1990/91	7	102	0	109	94	8	7	228	[illegible]
	1991/92	7	100	0	107	92	9	6	230	[illegible]
Costa Rica	1989/90	64	245	0	309	88	169	72	3 033	55.7
	1990/91	72	265	0	337	92	180	65	3 111	57.9
	1991/92	65	270	0	335	90	182	63	3 190	[illegible]
El Salvador	1989/90	20	211	0	231	52	164	15	5 310	30.9
	1990/91	15	270	0	285	89	181	15	5 419	33.4
	1991/92	15	250	0	265	70	181	14	5 530	32.7
Guatemala	1989/90	28	875	0	903	502	363	38	9 098	39.9
	1990/91	38	1,015	0	1 053	631	358	64	9 338	38.3
	1991/92	64	1,050	0	1 114	635	385	94	9 577	40.2
Honduras	1989/90	15	199	5	219	30	173	16	5 260	32.9
	1990/91	16	186	0	202	20	170	12	5 417	31.4
	1991/92	12	200	0	212	13	175	24	5 576	31.4
Nicaragua	1989/90	30	198	10	238	114	105	19	3 723	28.2
	1990/91	19	240	0	259	110	115	34	3 827	[illegible]
	1991/92	34	270	0	304	100	125	79	3 934	[illegible]

Continued

Table 23—Sugar: World production, supply and distribution, by selected countries and regions—continued

Region/ country	Marketing year	Beginning stocks	Sugar production	Imports	Total supply/ distribution	Exports	Domestic consumption	Ending stocks	Population 1/	Per-capita consumption
		1,000 metric tons, raw value							Thousands	Kilograms
Panama	1989/90	22	114	16	152	70	76	6	2 425	31 3
	1990/91	6	126	18	150	60	78	12	2 476	31 5
	1991/92	12	135	0	147	40	80	27	2 527	31 7
Total Central America	1989/90	192	1 944	31	2.167	936	1 058	174	29 068	36 4
	1990/91	173	2.204	18	2 395	1 096	1 090	209	29 816	36 6
	1991/92	209	2.275	0	2.484	1 040	1 137	307	30.571	37 2
South America:										
Argentina	1989/90	267	944	0	1 211	129	825	257	32.291	25 5
	1990/91	257	1 240	0	1 497	387	910	200	32.664	27 9
	1991/92	200	1 450	0	1.650	280	1.110	260	33.035	33 6
Bolivia	1989/90	81	180	0	261	74	175	12	6.707	26 1
	1990/91	12	225	0	237	30	175	32	6.847	25 6
	1991/92	32	230	0	262	20	180	62	6.987	25 8
Brazil	1989/90	1.382	7.793	289	9.464	1.500	6.800	1.164	152.505	44 6
	1990/91	1.164	7.900	81	9.145	1.300	6.800	1.045	155.356	43 8
	1991/92	1.045	9.000	0	10.045	1.700	7.050	1.295	158.202	44 6
Chile	1989/90	103	448	31	582	0	492	90	13 083	37 6
	1990/91	90	370	132	592	0	502	90	13.287	37 8
	1991/92	90	380	130	600	0	520	80	13 489	38 5
Colombia	1989/90	15	1 611	0	1 626	426	1 184	16	33.076	35 8
	1990/91	16	1 602	0	1 618	255	1.291	72	33.778	38 2
	1991/92	72	1.650	0	1.722	300	1.325	97	34 478	38 4
Ecuador	1989/90	19	331	52	402	9	373	20	10.507	35 5
	1990/91	20	352	52	424	17	380	27	10 752	35 3
	1991/92	27	360	55	442	17	400	25	10.999	36 4
Guyana	1989/90	4	130	32	166	130	32	4	765	41 8
	1990/91	4	147	30	181	140	32	9	764	41 9
	1991/92	9	175	25	209	166	32	11	765	41 8
Paraguay	1989/90	32	120	0	152	8	100	44	4 660	21 5
	1990/91	44	100	0	144	8	101	35	4 799	21 0
	1991/92	35	110	0	145	6	103	36	4.937	20 9
Peru	1989/90	63	620	130	813	79	700	34	21 906	32 0
	1990/91	34	560	200	794	65	680	49	22.362	30 4
	1991/92	49	600	150	799	55	700	44	22.818	30 7
Suriname	1989/90	3	1	10	14	0	12	2	397	30 2
	1990/91	2	1	10	13	0	11	2	402	27 4
	1991/92	2	1	12	15	0	12	3	408	29 4
Uruguay	1989/90	19	75	37	131	17	100	14	3 037	32 9
	1990/91	14	70	42	126	8	102	16	3.053	33 4
	1991/92	16	85	25	126	6	102	18	3.071	33 2
Venezuela	1989/90	192	495	180	867	0	715	152	19 698	36 3
	1990/91	152	515	180	847	0	715	132	20.189	35 4
	1991/92	132	520	220	872	0	715	157	20.681	34 6
Total, South America	1989/90	2.180	12.748	761	15.689	2.372	11.508	1.809	298.729	38 5
	1990/91	1.809	13.082	727	15.618	2.210	11.699	1.709	304 354	38 4
	1991/92	1.709	14.581	617	16.887	2.550	12.249	2.088	309.976	39 5
EC 3/:										
Belgium/ Luxembourg	1989/90	131	1.039	53	1.223	583	520	120	10.293	50 5
	1990/91	120	1.119	430	1.669	1.000	559	110	10.310	54 2
	1991/92	110	970	100	1.180	500	565	115	10.326	54 7
Denmark	1989/90	47	529	0	576	289	254	53	5 179	49 0
	1990/91	53	591	1	645	325	260	60	5.181	50 2
	1991/92	60	500	0	560	250	260	50	5.183	50 2
France(excluding overseas departments)	1989/90	642	4.204	358	5.204	2.753	2.026	425	56 358	35 9
	1990/91	425	4 744	355	5 524	2.703	2.045	776	56.596	36 1
	1991/92	776	4 400	355	5.531	2.700	2.045	786	56 830	36 0

Continued-

APPENDIX D

EXPORT VOLUMES AND PRICES

CORPORACION NICARAGUENSE DE LA AGROINDUSTRIA AZUCARERA

(C O N A Z U C A R)

EXPORTACIONES: VOLUMENES (QQ's) Y PRECIOS PROMEDIO (US$).

ZAFRA	VOLUMEN TOTAL EXPORTADO (QQ)	PRECIO PROMEDIO EXPORTACION (US$)	QUOTA (QQ)	PRECIO PROM. QUOTA (US$).
79-80	1,754,377	15.80		
80-81	1,890,737	24.75		
81-82	2,036,239	19.11		
82-83	2,743,990	12.73		
83-84	1,882,392	9.16		
84-85	1,492,030	7.10		
85-86	1,539,697	11.37		
86-87	1,091,842	12.59		
87-88	857,682	7.18		
88-89	1,693,464	10.19		
89-90	2,531,040	15.24	1,063,720	17.18
90-91	2,600,704	11.88	909,883	19.28

VICE PRESIDENCIA AGRICOLA

Managua, 4 de sept./91

APPENDIX E

SUGAR PRICES (BY TYPE)

PRECIOS DEL AZUCAR

	REFINADO	SULFITO	CRUDO
PRECIO PRODUCTOR	102.42	86.34	78.75
F.D.T. (2%)	2.05	1.72	1.57
COMISION (1.5%)	1.54	1.29	1.18
TRANSPORTE	1.68	1.68	1.68
CARGUE	0.15	0.15	0.15
SUB TOTAL	**107.84**	**91.18**	**83.33**
IMPUESTO	2.16	1.82	1.67
PRECIO DE VENTA	**110.00**	**93.00**	**85.00**

04 de marzo de 19[illegible]1

APPENDIX F

OPERATING STATISTICS

Tons Cane per Manzana

	88/89	89/90	90/91	Average for 3 Years
San Antonio	36.9	46.8	51.2	45.0
Victoria de Julio	42.9	33.2	41.1	39.1
Benjamin Zeledón	42.8	41.0	38.1	40.6
Javier Guerra	47.3	45.3	45.5	46.0
Julio Buitrago	55.7	62.4	57.5	58.5
German Pomares	44.6	54.3	53.4	50.8

Lb Sugar per Ton Cane

	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	AVG
Benjamin Zelaldon	188.8	190.0	200.5	196.4	195.4	212.8	196.7	190.6	204.1	183.0	174.8	193.9
Javier Guerra		213.3	208.5	216.9	224.8	209.6	215.3	198.1	209.8	205.8	194.3	209.6
Julio Bustage	173.8	174.6	186.0	199.4	213.4	211.6	211.5	184.2	215.0	202.8	183.8	196.0
German Pomares	162.6	153.1	178.0	171.3	184.6	183.2	155.8	153.3	155.9	150.7	141.8	162.8
Victoria De Julio					138.4	193.0	222.7	195.8	199.2	217.8	219.3	198.0
San Antonio	184.4	188.8	190.5	182.3	183.1	176.1	162.4	140.0	162.4	194.8	161.7	173.6

Number of Days of Harvest

	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	AVG
Benjamin Zelaldon	159	143	179	177	138	123	156	78	103	122	119	136
Javier Guerra		110	136	181	166	122	127	103	121	150	149	137
Julio Bustage	168	170	127	124	136	126	139	91	104	130	140	132
German Pomares	195	208	191	202	192	165	217	191	157	184	230	194
Victoria De Julio					31	64	71	93	74	99	109	77
San Antonio	210	190	193	219	190	197	219	197	147	169	226	196

Time Lost % Time Available

	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	AVG
Benjamin Zelaya	26.2	21.6	21.2	30.8	31.7	25.2	29.9	24.6	16.8	27.7	23.7	25.4
Javier Guerra	-	22.5	20.9	13.5	20.4	10.3	12.1	14.1	9.8	10.5	11.0	14.5
Julio Ruitrago	37.9	21.4	19.5	18.3	20.7	13.3	17.6	22.7	14.1	32.5	17.4	20.5
Herman Fonseca	30.2	20.9	25.8	25.0	22.6	26.0	31.7	39.4	37.0	30.7	41.8	30.1
Victoria De Julio					70.7	61.7	56.8	35.2	21.5	37.0	22.7	42.1
San Antonio	23.1	15.0	20.1	27.6	30.0	23.6	37.1	36.1	27.2	21.6	34.2	26.9

Overall Recovery

	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	AVG
Benjamin Zelaya	77.0	82.1	82.5	79.9	81.2	82.5	81.1	77.7	82.1	77.5	80.0	80.3
Javier Guerra	-	78.2	80.5	82.1	83.1	84.8	83.8	82.5	83.9	79.3	83.4	82.2
Julio Ruitrago	78.9	79.1	80.1	80.7	82.8	85.2	84.8	82.1	85.3	84.9	81.4	82.3
Herman Fonseca	71.5	74.9	77.1	76.0	75.9	79.5	75.5	77.6	79.3	78.0	71.1	76.1
Victoria De Julio					57.1	72.3	78.6	77.2	78.7	80.8	85.3	75.7
San Antonio	79.1	79.4	78.3	78.9	78.5	77.0	74.9	80.7	83.0	83.1	75.4	78.9

APPENDIX G

LIST OF JULIO BUITRAGO

AGRICULTURAL AND FACTORY ASSETS

J. BUITRAGO (MONTELIMAR) - MAIN FACTORY INSTALLATIONS

CANE RECEIVING

1 Truck Scale, 50 t, 60'x 10', Toledo
1 Truck Scale, 30 t, 40'x 9', Toledo (not in use)

1 Wash Rack for Loaded Cane Trucks, 3 Overhead Troughs
1 Pump, Wash Water for Cane Trucks, 2,050 l/min, KSB, Motor

1 Hammerhead Crane at Cane Table #1, 5 t Cap., 60' Rad., 360 Deg., 35' Lift, John M. Henderson & Co., 1952

1 Hilo Type Unloader at Cane Table #2, 15 t Cap., 10' Lift

1 Stiffleg Gantry for Handling Bundles, Cane Table #2 5 t Cap., 30' Lift, 75 Deg.

Paved Storage Area for Cane Bundles, 6,250 ft2

1 Cane Table (#1), 14'x 35', Perforated Plate in Upper one third of Bottom, Water Jets (not in use), 6 Strands of Pronged Chain, Chain Drive, Gearbox, 10 HP Motor, for Bundles of Hand-Loaded Cane

1 Cane Table (#2), 23'x 33', Perforated Plate in Upper one third of Bottom, Water Jets (not in use), 9 Strands of Winged Chain, Chain Drive, Gearbox, Motor, for Mechanically Loaded Cane in Bulk
1 Kicker at Table #2, 16 pairs of Arms, Chain Drive, Gearbox, Motor

1 Cane Wash Water Pump, 1,200 gpm, 50 HP (not in use)

CANE PREPARATION AND JUICE EXTRACTION

1 Cane Carrier (#1), Apron Slat, 2.00 m x 60' (25' Section inclined), 8" Slats on 6" Centers, 3 Strands of Roller Chains, Chain Drive, Gearbox, 30 HP Motor, 1962
1 Cane Carrier (#2), Apron Slat, 2.00 m x 50', all inclined, 8" Slats on 6" Centers, 3 Strands of Roller Chains, Chain Drive, Gearbox, 30 HP Motor, 1962

1 Set of Rotating Cane Knives (#1), 34 Blades, 3" Setting, 570 rpm, V-Belt Drive, 250 HP Motor, Mounted on top of inclined portion of Carrier #1, rotating with moving cane, 1962
1 Set of Rotating Cane Knives (#2), 64 Blades, 3/4" Setting, 450 rpm, V-Belt Drive, 250 HP Motor, Mounted on top of Carrier #2, rotating against moving cane, 1962

1 Cane Leveller, 70 rpm, Chain Drive, Gearbox, 25 HP Motor, Mounted at the head of Carrier #2, 1962

1 Cane Carrier (#3), Rubber Belt, 2.00 m x 30', Flender Gearbox, V-Belt Drive, 10 HP Motor, 1962

1 Continuous Belt Scale for Prepared Cane, Adequate, Installed on Cane Carrier #3, 1962

1 Cane Mill (#1), 78", Cast Steel Housing, Triangular Design, d 17.5" x 22" Bearings, d1 3.4" Hydraulic Pistons, BMA, 1962, including

3 Cast Iron Rollers, d 35", 2" Grooving

1 Steam Turbine, Driving Mill #1, 460 HP, 4,600 rpm, KKK, 1962 coupled to

1 High-Speed Gearbox, 4,600/1,500 rpm, KKK

1 Int. & Low-Speed Gearbox, 1,500/6.5 rpm, Jahnel

1 Mill Bagasse Drag Conveyor, 2.00 m x 30', inclined, Chain Drive, Jahnel Gearbox, V-Belt Drive, 15 HP Motor

1 Bagasse Diffuser, 2,800 tpd, BMA, 1962, consisting of

Diffusion Chamber, 2.00 m x 32.00 m, Perforated Bottom, Sidings, Cover,

Handling Equipment for 1.50 m Layer of Bagasse at 1.50 m/min Drag-Type Conveyor, including Slats, Chains, Sprockets, 1.64/1, 2,340/1, 1.51/1 Jahnel Gearboxes, 30 HP Motor

2 Vertical Decompactation Screws, 42.5 rpm, Flender Gearboxes, 15 HP Motors, after 4th Juice Recirculation

2 Vertical Decompactation Screws, 42.5 rpm, Flender Gearboxes, 15 HP Motors, after 8th Juice Recirculation

1 Idling Dewatering Roll, d 120", Adjustable Weight

1 Bagasse Discharge Kicker, Chain Drive, Flender Gearbox, V-Belt Drive, 30 HP Motor

Diffuser Water and Juice Circulation System made up of Collecting Trays, Distribution Troughs, and

2 Pumps, 6,800 l/min, 25 m, 82.0 kw, Recirculation Juice

8 Pumps, 2,800 l/min, 8 m, 12.2 kW, Trays 1-3, 5-8, 11

1 Pump, 2,800 l/min, 80 m, 18.0 kW, Tray 4

1 Pump, 2,050 l/min, 80 m, 20.5 kW, Tray 9

1 Pump, 2,050 l/min, 8 m, 12.2 kW, Tray 10

as well as

1 Juice Heater, 225 m2, 58 tpp (35mm x 4.00 m), 10 Passes for Recirculation Juice, BMA, 1962

1 Juice Heater, 40 m2, 10 tpp (44mm x 4.00 m), 8 Passes for Juice from 4th Tray, BMA, 1962

1 Juice Heater, 154 m2, 24 tpp (35mm x 4.00 m), 16 Passes for Juice from 9th Tray, BMA, 1962

1 Diffuser Bagasse Drag Conveyor, 65" x 28', inclined, Chain Drive, Flender Gearbox, V-Belt Drive, 20 HP Motor
1 Diffuser Bagasse Dewatering Mill (#2), 72", Cast Steel (?) King Bolt Housing, d 14.5" x 18" Bearings, d 11" Hydraulic Pistons, Bancroft 1930 (?), complete with
  3 Cast Iron Rollers, d 34.5
  1 Mill Driven Lower Feed Roller
  1 Vertical 10' Feed Chute

1 Steam Turbine, Driving Mill #2, 460 HP, 4,600 rpm, KKK, 1962 coupled to
  1 High-Speed Gearbox, 4,600/1,500 rpm, KKK
  1 Int. & Low-Speed Gearbox, 1,500/6.5 rpm, Jahnel

1 Bagasse Carrier (#1), Rubber Belt, 1.50 m x 15', Flender Gearbox, V-Belt Drive, 5 HP Motor, 1962
1 Continuous Belt Scale for Mill-Dry Bagasse, Adequate, Installed on Bagasse Carrier #1, 1962

2 Dewatering Mill Press Water Pumps, Motors

1 Imbibition Water Scale, 2,240 lb/1,016 kg, Fletcher-Stuart
2 Imbibition Water Pumps, Motors

1 Raw Juice (Mill Juice & Diffuser Draft) Cush-Cush Screen, Drag Conveyor, 30" x 35' (15' inclined), and Scroll, Chain Drive, Gearbox, Motor
3 Pumps, Raw Juice to Juice Scale, 2,050 l/min, 30 m, KSB, Motors
1 Parabolic Screen above Raw Juice Scale, 4 m2, DSM
1 Raw Juice Scale, 7,840 lb/3,556 kg, Fletcher-Stuart
1 Raw Juice Surge Tank, 2,350 gal

1 Remote Control Overhead Crane, 20 t, Riveted Construction, Marks Bros.
1 Remote Control Overhead Crane, 10 t, Welded Construction, BMA, 1962

1 Lathe for Mill Roller Grooving, Niles Dement
1 Milling Machine for Chevron Cutting
1 Radial Drill, WMW

1 Hydraulic Press for Shell Removal
1 Oven for Shrinking-on Mill Roller Shells

JUICE TREATMENT

1 Compressed-Air Operated Fixed Sulphur Burner, Cast Iron, complete with
Fly Ash Arrestor and 60" Water Jacket (d 12" on d 10" Gas Pipe)
2 Vertical Raw Juice Sulphitation Tanks, d 4', h 12', each one equipped with
1 Juice Recirculation Pump, Motor
1 Multi-Jet Gas Aspirator, 6 Nozzles, placed 15' above Tank

Covered Hydrated Lime Storage and Process Area, 30'x 40'
1 Hydrated Lime Dissolving Tank, Stirrer, Motor
1 Rotating Screen for Concentrated Milk of Lime, Motor
2 Milk of Lime Dilution and Recirculation Tanks, Stirrers, Motors
2 Milk of Lime Circulation Pumps, Motors

1 Sulphitated Juice Liming Tank, 1,500 gal, Stirrer, Motor
2 Limed Juice Pumps, 600 gpm, 300', Cuban Manufacture, Motors

2 Limed Juice Heaters, 100 m2, 16 tpp (35mm x 4.00 m), 16 Passes, BMA, 1962
1 Limed Juice Heater, 153 m2, 16 tpp (35mm x 4.00 m), 24 Passes, BMA, 1962

1 Flash Tank
1 Flocculant Distribution Tank

3 Continuous Clarifiers, on Concrete Bases
h 19', d 15', 25,600 gal, Poly-Cell, Bach-Mirrlees
h 20', d 18', 39,080 gal, Rapidorr, including Scraper, Gearbox, Motor, 2 Diaphragm Mud Pumps, Motors
22,000 gal, BMA, including Scraper, Gearbox, Motor, Diaphragm Mud Pump, Motor

2 Clarifier Liquidation Pumps, Motors

1 Mud Collecting Tank, 3,000 gal
1 Mud Overflow Tank, 1,040 gal
1 Bagacillo Blower and Cyclone Separator, Motor (on Bagasse Conveyor #2)
1 Horizontal Mud and Bagacillo Mixer, Stirrer, Motor

1 Rotary Mud Filter, l 16', d 8', 402 ft2, complete with Condenser, Filtrate Separators, Pumps, Vacuum Pump, Motors

1 Filter Cake Transporting Scroll, 40', Drive, Gearbox, Motor
1 Filter Cake Loading Bin, 5 cubic yards

JUICE EVAPORATION, SUGAR BOILING AND CENTRIFUGING

1 Clarified Juice Tank, 12' x 16' x 4', 5,500 gal
2 Clarified Juice Pumps, 2,050 l/min, 30 m, KSB, Motors

2 Clarified Juice Heaters, 153 m2, 16 tpp (35mm x 4.00 m), 24 Passes, BMA, 1962

1 Quintuple Effect Evaporator, 46 mm x 2.66 m Copper Tubes, Total Area of 4,243 m2, composed of
- 1 First Effect Body, 1,650 m2, 4,300 Tubes
- 1 Second Effect Body, 1,020 m2, 2,654 Tubes
- 1 Third Effect Body, 465 m2, 1,220 Tubes
- 1 Fourth Effect Body, 554 m2, 1,454 Tubes
- 1 Fifth Effect Body, 554 m2, 1,454 Tubes
- 1 Multi-Jet Condenser

1 Syrup Collecting Tank
2 Syrup Pumps, 36 m3/h, 20 m, KSB, Motors

4 Syrup Storage/Pan Feed Tanks, Horizontal Cylinders, 19m3 (d 2.30 m, h 5.00 m), Pan Floor

3 "A" Molasses Storage Tanks, Vertical Cylinders, 34 m3, Ground Floor
2 "A" Molasses Dilution and Pan Feed Tanks, 23.50 m3
2 "A" Molasses Dilution and Pan Feed Tanks, 5.50 m3

1 "B" Molasses Storage Tank, Vertical Cylinder, 34 m3, Ground Floor
1 "B" Molasses Dilution and Pan Feed Tank, 23.50 m3
2 "B" Molasses Dilution and Pan Feed Tanks, 5.50 m3

1 "A" Wash Tank, 16.00 m3
2 Melt Tank, 16.00 m3
1 Melt Tank, 6.75 m3

5 Vacuum Pans, Honolulu Type Body, Floating Calandria, Buckau Wolf
- #1 34.5 m3, 157 m2, 465 Copper Tubes, 3.5" x 1.25 m, Multi-Jet Condenser, (used for "C" Strikes)
- #2 34.5 m3, 157 m2, 465 Copper Tubes, 3.5" x 1.25 m Multi-Jet Condenser, (used for "A" Strikes)
- #3 45.4 m3, 106 m2, 413 Copper Tubes, 3.5" x 0.95 m Multi-Jet Condenser, (used for "A" Strikes)
- #4 33.2 m3, 165 m2, 498 Steel Tubes, 3.5" x 1.23 m Multi-Jet Condenser, (used for "A" Strikes)
- #5 33.2 m3, 165 m2, 498 Steel Tubes, 3.5" x 1.23 m Multi-Jet Condenser, (used for "B" Strikes)

.60

4 Seed Crystallizers (Pan Floor), for "C" Magma, Cut-overs, 16.5 m3 Cap., Stirrer, Worm Gear, Gearbox, Motor,

1 "A" Strike Receiver (Crystallizer Floor), 26.5 m3, with Stirrer, Worm Gear, Gearbox, Motor
2 "B" Strike Receivers (Crystallizer Floor), 23.7 m3, 20.0 m3 each with Stirrer, Worm Gear, Gearbox, Motor
1 "C" Strike Receiver (Crystallizer Floor), 23.7 m3, with Stirrer, Worm Gear, Gearbox, Motor

1 Magma Pump for "C" Massecuite, 37 gpm, 98', Gearbox, Motor

6 Continuous Crystallizers for "C" Massecuite, 23.7 m3 each, Rotating Cooling Element, Worm Gear, Gearbox, Motor

1 Massecuite Mixer for "A" Centrifugals, 27.3 m3, Stirrer, Worm Gear, Gearbox, Motor
4 Batch Type "A" Centrifugals, 650 kg, 1200 rpm, fully automatic, BMA, 1965 (operated as semi-automatic units)
1 Batch Type "A" Centrifugal, 30" x 40" Diam., 350 kg, 1200 rpm, semi-automatic, Buckau (not in use)
1 Gear Pump for "A" Molasses, 45 gpm, 39', V-Belt Drive, Motor
2 Motorized Piston Pumps for "A" Molasses, Gearboxes, Motors
1 Grasshopper-Type "A" Sugar Conveyor, Motor

1 Massecuite Mixer for "B" Centrifugals, 18.5 m3, Stirrer, Worm Gear, Gearbox, Motor
2 Batch Type "B" Centrifugals, 770 lb, 1700 rpm, 24" x 45" Diam., fully automatic, BMA, 1957 (operated as semi-automatic units)
1 Batch Type "B" Centrifugal, 30" x 40" Diam., 350 kg, 1200 rpm semi-automatic, Buckau
1 Gear Pump for "B" Molasses, 53 gpm, 66', V-Belt Drive, Motor
2 Motorized Piston Pumps for "B" Molasses, Gearboxes, Motors
1 Grasshopper-Type "B" Sugar Conveyor, Motor
1 "B" Sugar Belt Conveyor, Gearbox, Motor
1 Sugar Melter, Stirrer, Gearbox, Motor
1 Melt Pump, Motor

4 Continuous "C" Centrifugals, 3,200 ft3/d each, BMA
2 Gear Pumps for Final Molasses
1 Scroll Type "C" Sugar Conveyor-Mingler, Gearbox, Motor
2 "C" Magma Pumps, 92 gpm, 56', Gearboxes, Motors

Injection Water Pumps

1	750 m3/h, 21 m, KSB, Motor		(Evaporator)
1	700 m3/h, Fairbanks-Pomona, Motor		(Evaporator)
1	1,070 m3/h, 30 m, KSB, Motor		(Pans)
1	1,100 m3/h, Fairbanks-Pomona, 50 HP Motor		(Pans)
4	250 m3/h, 30 m, KSB, Motors		(Pans)
1	250 m3/h, 30 m, ITUR, Motor		(Pans)

SUGAR AND MOLASSES HANDLING AND STORAGE

1 Wet White Sugar Bucket Elevator, 30', 7t/h, Drive, Gearbox, Motor
1 Rotary Drum Pre-Drier, 120 t/d, with Exhaust-Operated Air Heater, Drive, Gearbox, Motor
[illegible] Vertical, Exhaust-Operated Sugar Drier, 100 t/h, Buettner, Drive, Gearbox, Motor
1 Hot-Air Suction Fan for Driers, Ducts, Dust Collector, V-Belt Drive, Motor

1 Dry White Sugar Bucket Elevator, 50', 6t/h, Drive, Gearbox, Motor
1 Set of Vibrating Screens, Motor
1 White Sugar Conical Storage Bin, 120 t

1 Redler Type White Sugar Elevator, 40', Drive, Gearbox, Motor
1 White Sugar Bagging Hopper
1 White Sugar Bagging Scale

1 Raw "A" Sugar Bucket Elevator, Drive, Gearbox, Motor
1 Raw "A" Sugar Conical Storage and Bagging Bin, 50 t
1 Raw "A" Sugar Bagging Scale

1 Raw "B" Sugar Bucket Elevator, 45', Drive, Gearbox, Motor
1 Raw "B" Sugar Conical Storage and Bagging Bin, 50 t
1 Raw "B" Sugar Bagging Scale

1 Sugar Warehouse #1, 250' x 80' (approximately),
1 Sugar Warehouse #1, 250' x 75' (approximately),
Capacity of each, about 150,000 one-cwt bags

1 Bag Conveyor (#1), from Bagging Scales to Warehouse #1, 150' Rubber Belt, Drive, Gearbox, Motor
1 Bag Conveyor (#2), from End of Conveyor #1 to Warehouse #2 and Auxiliary Loading Point, along Outside of Warehouse #1, 80' Rubber Belt, Drive, Gearbox, Motor
1 Bag Conveyor (#3), along Inside of Warehouse #1, to Main Loading Dock, Rubber Belt, 250', Drive, Gearbox, Motor

1 Moveable Inclined 30' Conveyor Belt for Recovery of Bags, Drive, Gearbox, Motor

1 Cylindrical Steel Tank for Final Molasses (#1), d 22', h 32', 100,000 gal Capacity
1 Cylindrical Steel Tank for Final Molasses (#2), d 36', h 32', 275,000 gal Capacity
1 Brick-Lined Pit for Final Molasses, 36' x 50' x 6', 80,000 gal Capacity

Final Molasses Pumps, Motors

STEAM GENERATION AND DISTRIBUTION

1 Drag-Type Bagasse Elevating Conveyor (#2), 60" x 25', Chain Drive, Gearbox, 5 HP Motor
1 Drag-Type Bagasse Distribution Conveyor (#3), 40" x 90', Chain Drive, Gearbox, 25 HP Motor
1 Drag-Type Bagasse Conveyor (#10), Distributor to New Boiler, 32" x 45', Chain Drive, Gearbox, 35 HP Motor
1 Rubber Belt Excess Bagasse Conveyor (#4), Distributor to Storage, Gearbox, 7.5 HP Motor

1 Fully Mechanized Enclosed Bagasse Storage, 60' x 100' 30' of Useful Height, 600 t Approximate Capacity
1 Rubber Belt Bagasse Storage Feed Conveyor (#5), 100', Gearbox, 10 HP Motor
1 Moveable and Adjustable Bagasse Distribution and Reclaiming Rake (#6), 60', Chain Drive, Gearbox, 20 HP Motor, Drives for Lateral and Vertical Displacement
1 Rubber Belt Bagasse Storage Reclaim Conveyor (#7), 100', Gearbox, 10 HP Motor
1 Scroll Conveyor for Reclaimed Bagasse (#8), 9' x 3' Diam. Gearbox, 7.5 HP Motor
1 Drag-Type Bagasse Return Conveyor (#9), 35', Inclined, Chain Drive, Gearbox, 7.5 HP Motor

1 Boiler ("A"), 60,000 lb/h, 250 psig, 518 F, Babcock & Wilcox, 1962, including
- 4 Drums
- Superheater
- 3 Feed Chutes, Horseshoe Furnace
- 1 Forced Draft Fan, 50 HP Motor
- 1 Induced Draft Fan, 150 HP Motor
- Air Pre-Heater
- Flue Gas Scrubber

1 Boiler ("B"), 30,000 lb/h, 100 psig, 350 F, (not in use) Babcock & Wilcox, 1932, including
- 3 Drums
- Superheater
- 2 Feed Chutes, Horseshoe Furnace
- 1 Forced Draft Fan, 15 HP Motor
- Economizer

1 Boiler ("C"), 30,000 lb/h, 100 psig, 350 F, (not in use) Babcock & Wilcox, 1932, including
- 3 Drums
- Superheater
- 2 Feed Chutes, Horseshoe Furnace
- 1 Forced Draft Fan, 30 HP Motor
- 1 Induced Draft Fan, 50 HP Motor
- Air Pre-Heater

1 Concrete Stack, d 18'/12', h 270', Serving Boilers "A", "B", and "C"

1 Boiler ("D"), 60,000 lb/h, 250 psig, 518 F, Babcock & Wilcox (Brazil), 1984, including
- 4 Drums
- Superheater
- 3 Feed Chutes, Horseshoe Furnace
- 1 Forced Draft Fan, 50 HP Motor
- 1 Induced Draft Fan, 175 HP Motor
- Air Pre-Heater
- Flue Gas Scrubber

1 Steel Stack, d 10'/8', h 118', Serving Boiler "D"

1 Automatic Pressure Reducing Valve 250/15 psig

2 Horizontal First Condensate Collecting Tanks, 3,300 gal each
First Condensate Pumps

1 Boiler Feed Water Make-Up Treatment Installation

1 Boiler Feed Water Storage Tank, d 13', h 32', 33,100 gal (125 m3) Capacity
3 Boiler Feed Water Storage Tank, d 10', h 32', 18,600 gal (70 m3) Capacity each

1 Boiler Feed Water Pump , 300 gpm, 700', Goulds, 125 HP Motor
2 Boiler Feed Water Pumps, 150 gpm, 700', KSB, 60 HP Motors
1 Boiler Feed Water Pump, 150 gpm, 700', KSB, 75 HP KKK Turb.

ELECTRIC POWER GENERATION AND DISTRIBUTION

1 Electric Generator, 1,000 kW, 480 V, 60 Hz, 3,600 rpm, General Electric, 1936, driven by a
Steam Turbine, 200/20 psig, 4 Stages, 3,600 rpm, 40 lb/kWh, General Electric, 1936

1 Electric Generator, 1,500 kW, 480 V, 60 Hz, 1,800 rpm, Siemens, 1960, driven by a
Steam Turbine, 14/2 kg/cm2, 270 C, 12 Stages, 7,000 rpm, 28 lb/kWh, Siemens, 1960, through a
Speed Reducer, 7,000/1,800 rpm, 2,500 HP, Siemens, 1960

1 Electric Generator, 1,500 kW, 2,400 V, 60 Hz, 1,200 rpm, Worthington, driven by a
Steam Turbine, 240/5 psig, 486 F, 4,213 rpm, Worthington, through a
Speed Reducer, 4,213/1,200 rpm, 2,500 HP, Worthington (used equipment, to be installed for 1992/93 Crop)

1 Electric Generator, 400 kW, 240/480 V, 60 Hz, 1,200 rpm, Caterpillar, driven by a
Diesel Engine, 540 HP, 1,200 rpm, Caterpillar (Emergency Unit)

1 Transformer 24,900/ 480 V, 1,920 kVA, 1973, Public Grid to Factory Distribution Grid
3 Transformers 2,400/ 480 V, 150 kVA, Factory Grid to Village Distribution Grid
3 Transformers 12,400/ 480 V, 100 kVA, Factory Grid to Field Distribution Grid
3 Transformers 12,400/2,400 V, 167 kVA, Village Grid to Field Distribution Grid
1 Transformer 2,400/ 480 V, 2,000 kVA, New Worthington Generator to Factory Distribution Grid (to be installed for 1992/93 Crop)

GENERAL SERVICES

Air Compressors, Compressed Air Tanks, for Sulphitation, Agitation of Syrup and Magma Storage Tanks, Instruments

Well Water Pumps, Motors
Drinking Water Reservoir and Distribution Pumps, Motors
Fire Control System and Pumps, Motors

Mill and Turbo-Generator Cooling Systems

Chemical Control Laboratory

Engineering Office

Machine Shop

Parts and Materials Warehouse

Gate Control

MACHINE SHOP TOOLS

4 Lathes
- 1 Wotan, 1920 (?), 5.30 m x 2.00 m (overall dimensions)
- 1 Wotan, 1930 (?), 2.60 m x 1.80 m (overall)
- 1 Meuser, 1960 (?), 4.60 m x 1.60 m (overall)
- 1 Juarusti (not in use)

2 Milling Machines
- 1 Lagun FU3-L, 2.00 m x 1.50 m (overall)
- 1 Lagun FU5-L (not in use)

2 Planers
  1 Wotan, 1930 (?), 2.10 m x 1.50 m (overall)
  1 Georg Noll, Duesseldorf-Germany (1930 (?), 1.60 m x 1.50 m (overall)

1 Radial Drill, Richford, 2.40 m x 2.50 m (overall)

2 Boring Machines
  1 Zudam TZ, Spain 1980, 1.90 m x 0.60 m (overall)
  1 Unidentified (not in use)

1 Cutter, Wieger, Neuss-Germany, 1960, 3.30 m x 1.50 m (overall)

2 Cold Rolling Mills
  1 Siegen-Germany, 4.50 m x 2.40 m (overall)
  1 Siegen-Germany, 1.75 m x 1.40 m (overall)

2 Hydraulic Presses
  1 Built in Montelimar, 4.70 m x 3.40 m (overall)
  1 Unidentified (not in use)

2 Overhead Traveling Cranes, Remote Control, Track 60'x 270'
  5 t, Schiess-Defries, 1952
  3 t, Built on Site

DISTILLERY INSTALLATIONS

3 Vertical Molasses Tanks, 580 m3, 800 m3, 980 m3
2 Horizontal Molasses Tanks, 90 m3 each

1 Brick-Lined Covered Molasses Pit, 15.85 m x 6.75 m x 2.55 m, 273 m3 Capacity, (at 0 m)
1 Gear Pump for Molasses, Kinney SB 534, Motor
1 Molasses Dilution Tank, 12,000 l (Pre-Fermenter), Vertical Cylinder, (at -10.94 m)
1 Diluted Molasses Pump, BSC 50-30, 10 HP Motor

2 Yeast Starting Tanks, 230 l, 750 l, Vertical Cylinders, External Water Cooling
2 Yeast Multiplying Tanks, 7,000 l, Vertical Cylinders, External Water Cooling
1 Yeast Pump, 2.5 HP Motor (all at 0 m)

8 Fermentation Vats, 50,000 l, Covered Vertical Steel Cylinders, External Water Cooling
1 Distilling Column Feed Tank, 220 l, (all at 0 m)

1 Distilling Apparatus, Nom. Capacity 4,500 l/d, 94.5 deg G-L, Copper, Walter E. Lummus Co., 1923, composed of
- 1 Distilling Column, d 1.07 m, h 9.50 m, 8 Sections, (at -16.36 m), including
  - 1 Distilling Column Heads Condenser
  - 1 Distilling Column Vapor/Beer Heat Exchanger, d 0.70 m, h 1.51 m, 183 Copper Tubes, d 33 mm
- 1 Rectifying Column, d 1.07 m, h 8.64 m, 10 Sections, 40 Plates, (at -10.94 m), including
  - 1 Rectifying Column Heads Condenser
  - 2 Rectifying Column Vapor Condensers
  - 1 Rectified Alcohol Cooler

1 Low Grade Alcohol Tank
1 Duplex Steam Pump for Low Grade Alcohol (at -10.94 m)

4 Alcohol Storage Tanks, Steel, d 7.30 m, h 5.75 m, 240,000 l Capacity each

1 Package-Type Oil-Burning Boiler, 150 psig, 8,369,000 BTU/h, CB-655-220 Cleaver Brooks, 1970, 56 gal/h Bunker "C" Fuel (at -16.36 m)

1 Brick-Lined Fuel Oil Storage Pit, 8,445 gal
1 Fuel Oil Feed Tank, 540 gal
1 Fuel Oil Feed Pump, Motor

1 Water Softening Plant, 4,000 l/h, R. Reichling consisting of
- 1 Lime Saturator
- 1 Velox Reactor
- 1 Filter
- 1 Necrolite Decalcifier
- 1 NaCl Dissolver

1 Softened Water Storage Tank, 20,000 l
1 Boiler Feed Water Pump, Motor

1 Air Compressor
1 Compressed Air Storage Tank, 5,500 l

2 Cold Water Pumps, BSC 200-30, 25 HP Motors
1 Elevated Cold Water Tank

2 Well Pumps, 15 HP Motors
1 General Water Pump, 15 HP Motor

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Agricultural Equipment Evaluation.

Equipment.			Qty.	Date In.
Caterpillar D-4D			1	?
Caterpillar D-6C			1	?
International TD-7E			1	1984
International TD-15			1	1984
Total Track Tractors			4	
Kirovet K-700A	4WD	215 HP	5	1982
Belaruz T-150	2WD	155 HP	8	1987
Belaruz MTZ-82	2WD	80 HP	9	1983-84
Belaruz MTZ-80	2WD	80 HP	6	1983
John Deere 3130			1	?
John Deere 4020		115 HP	1	1965
John Deere 4230		117 HP	1	1979
John Deere 4640		185 HP	5	1981
John Deere 2140			1	?
John Deere 3020		75 HP	1	1966
John Deere 4560		165 HP	2	1991
John Deere 4255		120 HP	2	1991
Total Wheel Tractors			42	
Heavy Harrow Marchesan		12 x 32"	1	1985
Heavy Harrow Rome		16 x 30"	2	1981
Heavy Harrow Tatu		14 x 30"	1	1981
Heavy Harrow Rome		12 x 30"	1	1981
Heavy Harrow Taino		24 x 28"	2	1988
Heavy Harrow Rome		20 x 24 "	1	1981
Medium Harrow Rome		40 x 25"	1	?
Light Harrow CIMA		58 x 24"	1	?
Light Harrow CIMA		58 x 21 "	1	?
Light Harrow CIMA		28 x 21 "	2	?
Light Harrow T.White		32 x 18"	1	?
Total Harrows			14	
Fertilizer/Cultivator Taino F-350			6	1986/88
Cultivator 14 disc Taino 2P206-M			5	1987
Trash rakes JB Mod. 83			4	1987
Trash rakes Taino RL-1335			3	1987
Sub-soiling chissels			5	1983/87
Furrowing plows Taino			2	1986
Furrowing plows I.J.B.			3	1983
Total implements			28	

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Harvesting and Transport Equipment Evaluation.

Equipment.	Qty.	Year Purchased
Claas CC1400 Cane Harvester	8	1990
Vanguard Cane Loader 1000C	2	1975
Vanguard Cane Loader 1600	2	1982
Vanguard Cane Loader 1600-82	1	?
Kamaz 54112 Truck (5th.wheel)	6	1985/88
White NTC-290 (5th.wheel)	4	1988
Vanguard 2800-T Cane Trailer	22	1985
Ememsa Cane Trailer	5	1987
Vanguard Cane Cart. 1420-73	19	1969
Kamaz 53-212 double axle truck	4	1988
Toyota 6000 single axle	6	1981
Hino TE-220	4	1981
Vanguard Dollys	4	
White Dollys	2	
Russian Built Dollys	4	
Mitsubishi L-200 pick-up	10	1990
Toyota HJ-47	3	?
Toyota HJ-45	4	?
Waz 330307	2	?
Mitsubishi Montero Jeep	2	1990
Toyota BJ40LV-KC Jeep	2	1981
Toyota BJ42LV	1	?
Toyota Tercel	1	1990
Lada Samara	1	1985?
Honda XL-125 SD (motorcycle)	11	1991
IFA Motorcycles	4	?
Radjoot Motorcycles	9	?
Caterpillar motorpatrol 1306	1	1980
MZY Front End Loader	1	1984

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Pumps and Motors/Irrigation Equipment.

Equipment	Qty.	Date Purchases
Berkely Pumps	13	
Iridelco	2	
Jaccuzzi	5	
KSB	2	
PACD	1	
Pomona	3	
Sagua	16	
Speck	4	
Total Bombas	46	
Caterpillar D-333	2	
Century	8	
Detroit	3	
Fiat	3	
Forschirt	3	
General Electric	1	
Lincoln	1	
Lister	3	
Lohery Shone ?	1	
Lovis Allis ?	1	
Petter	1	
Perkins	1	
Taino	18	
U.S.Motors	5	

APPENDIX H

FINANCIAL ANALYSIS

APPENDIX H

Appendix H presents the cash flow projections and assumptions used to value IJB on a Discounted Cash Flow basis. Three scenarios are analyzed:

1. Scenario 1, the "Base Case", is based on the historical performance of IJB and assumes that the mill continues to perform as it has in the past.

2. Scenario 2 assumes that management is able to make reasonable improvements in the operations of the mill in order to achieve efficiency and productivity levels that are consistent with industry norms.

3. Scenario 3 assumes, in addition to the assumptions in Scenario 2, that management is able to improve the profit margins of its alcohol business by utilizing its new license to produce and sell potable alcohol.

The financial projections are based on management's expectations of future performance; financial information on IJB for the first 9 of 13 periods for fiscal year 1991/92; performance indicators from 1987/88 through 1991/92; interviews with management of IJB and CONAZUCAR, the state sugar corporation; and industry experts in cane cultivation and processing.

The analysis does not rely on financial information from before fiscal year 1991/92 (beginning July 1, 1991) due to the distortions resulting from the numerous currency devaluations that occurred prior to that period. The cordoba - U.S. dollar exchange rate has been stable at 5:1 since the beginning of fiscal year 1991/92 and so financial information over this period is assumed to be free of exchange rate distortions.

Following are detailed descriptions of the assumptions used in each scenario. The detailed assumptions are also listed in the assumptions table at the end of Appendix H.

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Scenario 1: Base Case

The Base Case is based on the historical performance of the mill and assumes that the mill continues to perform as it has in the past. Following is a description of the Base Case.

- **Land**

	Projected (Manzanas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
4,729	4,334	4,349	4,349	4,349	4,349

IJB cultivated 4,729 manzanas in 1991/92. Management expects to cultivate 4,334 in 1992/93. Land in cultivation for years 1993/94 through 1996/97 is assumed to be the average amount cultivated in years 1987/88 - 1991/92, or 4,349 manzanas.

- **Agricultural Yield**

	Projected (Tons/Manzana)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
47.9	49.3	52.1	52.1	52.1	52.1

The agricultural yield was 47.9 tons per manzana in 1991/92, significantly lower than the five-year average of 52.1 tons per manzana. The industry expert estimates agricultural yield to improve to 49.3 in 1992/93 and then 52.1 for the following four years. Agricultural yield is not expected to return immediately to its historical levels due to the lasting effects of the 1991/92 drought.

- **Cane Harvested**

	Projected (Tons)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
226,463	213,666	226,583	226,583	226,583	226,583

Cane harvested is the product of land cultivated (manzanas) and the agricultural yield (tons per manzana). Cane harvested is expected to remain close to the 1991/92 level over the next five years as a result of an increase in the agricultural yield and a decrease in the number of manzanas in cultivation.

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- **Cane Purchased**

	Projected (Tons)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
6,703	13,528	13,528	13,528	13,528	13,528

Actual cane purchased was 6,703 tons in 1991/92. The industry expert estimates cane purchased to increase to 13,528 tons per year based on the amount of land planted by "colono" cane growers.

- **Total Cane**

	Projected (Tons)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
233,166	227,194	240,111	240,111	240,111	240,111

Total cane is the sum of cane harvested and cane purchased. Total cane is expected to increase moderately due to an increase in cane purchased from "colono" cane growers.

- **Industrial Yield**

	Projected (Quintals/Ton)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
1.89	1.97	1.97	1.97	1.97	1.97

The actual industrial yield was 1.89 quintals of sugar per ton of cane in 1991/92. The industrial yield for the next five years is estimated as the average yield from 1988/89 - 1991/92, or 1.97 quintals per ton.

- **Sugar Produced**

	Projected (Quintals)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
440,045	447,573	473,018	473,018	473,018	473,018

Sugar produced is the product of total cane and the industrial yield. Sugar produced is expected to increase from 1991/92 results due to an increase in total cane available for the mill and an increase in industrial yield.

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- **Sugar Revenues**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
30,319	35,381	37,392	37,392	37,392	37,392

Sugar revenues are the product of sugar produced and the average price of sugar. The average price for the 1991/92 crop is estimated by CONAZUCAR to be 68.90 cordobas/quintal. The average price is assumed to increase to 79.05 cordobas per quintal which is based on the historical world market price of sugar. (See Section III for further discussion of the average sugar price).

- **Molasses Revenues**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
1,670	1,571	1,683	1,683	1,683	1,683

Molasses revenues are the product of molasses output and price. Molasses output is the product of total cane and molasses yield. Molasses yield in 1991/92 was 6.14 gallons per ton and is assumed to be 6.00 gallons per ton over the next five years. The molasses price is assumed to remain constant at its 1991/92 level of 1.44 cordobas per gallon.

The molasses used in the distillery is subtracted from molasses sales for purposes of calculating molasses revenues. It is assumed that 1.1 liters of alcohol are produced per gallon of molasses.

- **Alcohol Production, Revenues and Costs**

Alcohol production is estimated at 300,000 liters in 1991/92 and is assumed to remain at that level through the projection period. The average cost of production, excluding the cost of molasses, is estimated at .60 cordobas per liter and the average price is estimated at 5.00 cordobas per liter.

- **Field Costs**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
23,528	23,306	23,333	23,333	23,333	23,333

The salaries and benefits component of field costs are projected by calculating the estimated 1991/92 salaries and benefits cost per field worker, as shown in the assumptions table at the end of Appendix H, and multiplying this factor by the weighted average number of field workers for each year. The average number of field workers is assumed to remain constant at 946.

The cost of purchased cane is the product of tons of cane purchased and the cane purchase price. The cane purchase price is assumed to equal the average price of sugar per quintal, or 68.90 cordobas in 1991/92.

All other components of field costs (Materials & Supplies, Fuel & Lubricants, and Contracted Services) are projected by calculating the estimated 1991/92 cost per manzana of land and multiplying this factor by the number of manzanas of land in cultivation each year.

- **Factory Costs**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
8,798	8,519	8,682	8,682	8,682	8,682

Factory costs are broken down between crop period costs and off-crop period costs because the length of the crop season is significant in determining total factory costs. The length of the crop season is estimated as the total cane divided by the milling rate for the year, or 4.4 periods for 1991/92. Since there are 13 periods in a year, off-crop periods are estimated as 13 less the number of crop periods, or 8.6 for 1991/92. The milling rate in 1991/92 was 53,088 tons per period and is assumed to increase to the three year average of 54,143 tons per period over the next five years.

In addition, the average level of factory employment is calculated for crop and off-crop periods as 287 and 144 respectively. These numbers are assumed to remain constant over then next five years.

Crop Costs

SALARIES & BENEFITS
Based on cost information provided by management, the cost per factory worker per crop-period is calculated for 1991/92, as shown in the assumptions table at the end of Appendix H. This factor is multiplied by the number of crop period workers and crop periods for each year to arrive at crop salaries & benefits for each year.

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ELECTRIC POWER
Based on cost information provided by management, electric power costs per crop-period are calculated for 1991/92, as shown in the assumptions table at the end of Appendix H. This factor is then multiplied by the number of crop periods for each year to arrive at crop electric power costs for each year.

PROCESS CHEMICALS, LUBRICANTS, GENERAL SUPPLIES AND SERVICES
Based on cost information provided by management, these costs are calculated per ton of cane processed for 1991/92, as shown in the assumptions table at the end of Appendix H. These factors are then multiplied by the total cane for each year to arrive at the cost for each year.

PACKING MATERIALS
Based on cost information provided by management, packing material costs are calculated per quintal of sugar produced for 1991/92, as shown in the assumptions table at the end of Appendix H. This factor is then multiplied by total sugar produced for each year to arrive at the packing material cost for the year.

Off-Crop Costs

SALARIES & BENEFITS
Off-Crop salaries & benefits are calculated with the same method used for the crop cost, except that a constant of 200,500 cordobas is added to the off-crop cost for 1991/92 only. This constant is added for 1991/92 only to account for the fact that the mill suspended its crop operations for one period during which it retained a crop-level of employment.

ELECTRIC POWER, GEN. SUPPLIES AND SERVICES
These costs are calculated for the off-crop with the same methods used to calculate the crop costs.

PARTS & MATERIALS
Parts & materials costs for 1991/92 were extrapolated based on actual cost information for the first nine periods of the year. Parts & Materials costs are assumed to remain constant over the projection period.

- **Administrative Costs**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
4,771	4,719	4,719	4,719	4,719	4,719

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The salaries & benefits component of administrative costs are projected by calculating the estimated 1991/92 salaries & benefits cost per administrative worker and multiplying this factor by the average number of administrative workers for each year. The number of administrative workers is assumed to remain constant at 175.

All other components of administrative costs (Materials & Supplies, Fuel & Lubricants, and Contracted Services) are assumed to remain constant over the next five years.

- **Depreciation**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
1,892	1,612	1,810	2,313	2,607	2,907

Total depreciation is the sum of depreciation on existing assets and depreciation on new capital investments. Depreciation on existing assets for 1991/92 through 1996/97 was provided by management. Depreciation on new capital investments is estimated by depreciating each year's investment over seven years using the straight line method.

- **Taxes**

Federal Tax

Corporations are taxed at 30% of their tax base. The tax base is calculated as the maximum of the following three items:

1. Profit before tax, adjusted for up to two years of tax loss carryforward
2. 4% of corporate net worth
3. 2% of gross revenues

The corporate net worth of the new company that is composed of IJB assets (but without IJB liabilities) will be equal to the sale price of IJB. For purposes of the tax calculation, the purchase price and corporate net worth of IJB is assumed to be 5 million U.S. dollars or 25 million cordobas.

Municipal Tax

In addition to the federal tax above, corporations are taxed at 1% of total fixed assets. Fixed assets for the beginning of fiscal year 1992/93 are estimated as the purchase price for IJB's assets, or 25 million cordobas. For each following year,

fixed assets are increased by the capital expenditures and reduced by the depreciation in the prior year.

- **Capital Expenditures**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
3,247	4,000	4,000	4,000	4,000	4,000

Capital expenditures to replace and maintain the current facilities are estimated at 3,247,030 cordobas for 1991/92. This is assumed to increase to 4,000,000 cordobas per year after 1991/92 based on management expectations.

- **Net Working Capital Needs**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
22,223	22,418	21,844	21,844	21,844	21,844

Net working capital needs are estimated as the sum of the off-crop portion of field costs, the off-crop portion of administrative costs, and the off-crop portion of factory costs. For field and administrative costs, the off-crop portion is estimated as the number of off-crop periods in 1991/92 divided by 13. The off-crop portion of factory costs is estimated as the off-crop share of total factory costs in 1991/92.

- **Discount Rate**

The cash flow projections used in our analysis are denominated in real 1991/92 cordobas and must therefore be discounted back to their present values using a real discount rate. The annual yield on a one-year, cordoba-denominated bank certificate of deposit is 14%, as of May 1992. Although these CDs are denominated in cordobas, the 14% yield is guaranteed in dollar terms in order to protect the investor from a cordoba devaluation during the term of the security. Thus, if it is assumed that cordoba inflation remains close to zero and no devaluations occur, then the 14% yield can be considered a real return.

An investment in a Nicaraguan sugar mill is considered to be more risky then a bank CD due to the added vulnerability of the sugar business to the business cycle, the government's role in setting sugar prices, and the general economic and political conditions in Nicaragua. Therefore, our analysis uses 14% as a ***minimum***

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expected real annual return. Discount rates of 18% and 22% are also used to take into account the higher returns that investors may expect as compensation for the added long-term business, economic, and political risk of investing in a Nicaraguan sugar company.

- **Terminal Value**

The terminal value represents the value of all cash flows after the end of the projection period, 1996/97. The terminal value is estimated according to the following formula:

Terminal Value In 1996/97 = 1996/97 Cash Flow x Capitalization Rate

Assuming that cash flows are constant in real terms after the end of the projection period and into perpetuity, the capitalization rate is defined as the reciprocal of the discount rate.

In the event that the 1996/97 cash flow is less than zero, the terminal value is assumed to be zero. That is, it is assumed that the investor would discontinue operations rather than run the mill at a loss into the future.

- **Inflation and Exchange Rates**

The projections are denominated in real 1991/92 cordobas, assume zero inflation, and assume a constant cordoba/$U.S. exchange rate.

- **Timing of Cash Flows**

All cash flows are assumed to be received or disbursed in the middle of the year in which they occur. Thus, all cash flows are discounted back to their present values from the middle of the fiscal year in which they occur to July 1, 1992.

- **Exclusion of Debt**

The financial projections and DCF analysis exclude all costs of debt.

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Ingenio Julio Buitrago
Discounted Cash Flow Analysis (000s Cordobas) 31-Jul-92

Scenario 1

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Land (Manzanas)	4,729	4,334	4,349	4,349	4,349	4,349
Agricultural Yield (Tons/Manzana)	47.9	49.3	52.1	52.1	52.1	52.1
Cane Harvested (Tons)	226,463	213,666	226,583	226,583	226,583	226,583
Cane Purchased (Tons)	6,703	13,528	13,528	13,528	13,528	13,528
Total Cane (Tons)	233,166	227,194	240,111	240,111	240,111	240,111
Industrial Yield (Quintals/Ton)	1.89	1.97	1.97	1.97	1.97	1.97
Sugar Produced (Quintals)	440,045	447,573	473,018	473,018	473,018	473,018
Average Personnel	1,313	1,311	1,314	1,314	1,314	1,314
Field Cost Per Ton ($U.S.)	$20.18	$20.64	$19.55	$19.55	$19.55	$19.55
Cash Operating Cost Per Quintal ($U.S.)	$16.50	$16.04	$15.25	$15.25	$15.25	$15.25

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
REVENUES		38,452	40,575	40,575	40,575	40,575
OPERATING COSTS						
Field Costs		23,444	23,470	23,470	23,470	23,470
Factory Costs		7,724	7,887	7,887	7,887	7,887
Administrative Costs		4,719	4,719	4,719	4,719	4,719
Depreciation		1,612	1,810	2,313	2,607	2,907
Total		37,498	37,887	38,390	38,683	38,984
PROFIT BEFORE TAX		953	2,688	2,185	1,891	1,591
TAX		550	1,080	951	880	804
PROFIT AFTER TAX		403	1,608	1,234	1,011	787
DEPRECIATION (+)		1,612	1,810	2,313	2,607	2,907
CAPITAL EXPENDITURES (−)		4,000	4,000	4,000	4,000	4,000
INCREASE IN NET WORKING CAPITAL (−)		(229)	(58)	0	0	0
CASH FLOW BEFORE LEVERAGE		(1,756)	(524)	(453)	(382)	(306)
NET PRESENT VALUE @ 18%	(2,684)					
TERMINAL VALUE *						0
NET PRESENT VALUE @ 18%	0					
FIRM VALUE BEFORE LEVERAGE	(2,684)					

Sensitivity Analysis of Firm Value Before Leverage

Discount Rate

			14%	18%	22%
Average Sugar Price	91/92	68.90	(18,642)	(17,342)	(16,208)
	Hist.	79.05	(2,813)	(2,684)	(2,570)
	+5%	83.00	5,586	4,097	3,162

* The terminal value is the greater of 1) zero and 2) the 1996/97 cash flow divided by the discount rate.

Ingenio Julio Buitrago
Discounted Cash Flow Analysis (000s Cordobas) 06-Nov-92

Scenario 1

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Land (Manzanas)	4,729	4,334	4,349	4,349	4,349	4,349
Agricultural Yield (Tons/Manzana)	47.9	49.3	52.1	52.1	52.1	52.1
Cane Harvested (Tons)	226,463	213,666	226,583	226,583	226,583	226,583
Cane Purchased (Tons)	6,703	13,528	13,528	13,528	13,528	13,528
Total Cane (Tons)	233,166	227,194	240,111	240,111	240,111	240,111
Industrial Yield (Quintals/Ton)	1.89	1.97	1.97	1.97	1.97	1.97
Sugar Produced (Quintals)	440,045	447,573	473,018	473,018	473,018	473,018
Average Personnel	1,313	1,311	1,314	1,314	1,314	1,314
Field Cost Per Ton ($U.S.)	$20.18	$20.64	$19.55	$19.55	$19.55	$19.55
Cash Operating Cost Per Quintal ($U.S.)	$16.50	$16.04	$15.25	$15.25	$15.25	$15.25

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
REVENUES		38,452	40,575	40,575	40,575	40,575
OPERATING COSTS						
Field Costs		23,444	23,470	23,470	23,470	23,470
Factory Costs		7,724	7,887	7,887	7,887	7,887
Administrative Costs		4,719	4,719	4,719	4,719	4,719
Depreciation		1,612	1,810	2,313	2,607	2,907
Total		37,498	37,887	38,390	38,683	38,984
PROFIT BEFORE TAX		953	2,688	2,185	1,891	1,591
TAX		550	1,080	951	880	804
PROFIT AFTER TAX		403	1,608	1,234	1,011	787
DEPRECIATION (+)		1,612	1,810	2,313	2,607	2,907
CAPITAL EXPENDITURES (–)		4,000	4,000	4,000	4,000	4,000
INCREASE IN NET WORKING CAPITAL (–)		195	(575)	0	0	0
CASH FLOW BEFORE LEVERAGE		(2,180)	(8)	(453)	(382)	(306)
NET PRESENT VALUE @ 18%	(2,672)					
TERMINAL VALUE *						0
NET PRESENT VALUE @ 18%	0					
FIRM VALUE BEFORE LEVERAGE	(2,672)					

Sensitivity Analysis of Firm Value Before Leverage

Discount Rate

			14%	18%	22%
Average Sugar Price	91/92	68.90	(19,203)	(17,879)	(16,725)
	Hist.	79.05	(2,786)	(2,672)	(2,571)
	+5%	83.00	5,931	4,368	3,381

* The terminal value is the greater of 1) zero and 2) the 1996/97 cash flow divided by the discount rate.

Ingenio Julio Buitrago
Cash Flow Projections (Cordobas) 06-Nov-92

Scenario 1

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Land (Manzanas)	4,729	4,334	4,349	4,349	4,349	4,349
Agricultural Yield (Tons/Manzana)	47.9	49.3	52.1	52.1	52.1	52.1
Cane Harvested (Tons)	226,463	213,666	226,583	226,583	226,583	226,583
Cane Purchased (Tons)	6,703	13,528	13,528	13,528	13,528	13,528
Total Cane (Tons)	233,166	227,194	240,111	240,111	240,111	240,111
Industrial Yield (Quintals/Ton)	1.89	1.97	1.97	1.97	1.97	1.97
Sugar Produced (Quintals)	440,045	447,573	473,018	473,018	473,018	473,018
Average Personnel	1,313	1,311	1,314	1,314	1,314	1,314
REVENUES						
Sugar	30,319,101	35,380,612	37,392,110	37,392,110	37,392,110	37,392,110
Molasses	1,669,544	1,570,943	1,682,544	1,682,544	1,682,544	1,682,544
Alcohol	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Total	**33,488,645**	**38,451,555**	**40,574,654**	**40,574,654**	**40,574,654**	**40,574,654**
FIELD COSTS						
Salaries & Benefits	14,778,950	14,778,950	14,778,950	14,778,950	14,778,950	14,778,950
Materials & Supplies	4,335,243	3,973,132	3,986,883	3,986,883	3,986,883	3,986,883
Fuel & Lubricants	3,093,830	2,835,411	2,845,225	2,845,225	2,845,225	2,845,225
Contracted Services	858,540	786,829	789,552	789,552	789,552	789,552
Purchase of Cane	461,837	1,069,388	1,069,388	1,069,388	1,069,388	1,069,388
Total	**23,528,400**	**23,443,711**	**23,469,998**	**23,469,998**	**23,469,998**	**23,469,998**
$U.S. Per Ton	$20.18	$20.64	$19.55	$19.55	$19.55	$19.55
$U.S. Per Quintal	$10.69	$10.48	$9.92	$9.92	$9.92	$9.92
FACTORY COSTS						
Crop Periods:	4.4	4.2	4.4	4.4	4.4	4.4
Salaries & Benefits	2,055,042	1,963,392	2,075,017	2,075,017	2,075,017	2,075,017
Electric Power	552,513	527,872	557,883	557,883	557,883	557,883
Process Chemicals	867,377	845,162	893,213	893,213	893,213	893,213
Lubricants	100,261	97,694	103,248	103,248	103,248	103,248
Gen. Suppl. & Serv.	289,126	281,721	297,738	297,738	297,738	297,738
Packing Material	473,928	482,036	509,441	509,441	509,441	509,441
Total	4,338,247	4,197,876	4,436,539	4,436,539	4,436,539	4,436,539
Off-Crop Periods:	8.6	8.8	8.6	8.6	8.6	8.6
Salaries & Benefits	2,009,886	1,850,558	1,800,412	1,800,412	1,800,412	1,800,412
Electric Power	770,496	788,029	766,675	766,675	766,675	766,675
Gen Suppl. & Serv.	129,119	132,057	128,479	128,479	128,479	128,479
Parts & Materials	575,235	575,235	575,235	575,235	575,235	575,235
Total	3,484,736	3,345,880	3,270,801	3,270,801	3,270,801	3,270,801
Distillery Costs *	180,000	180,000	180,000	180,000	180,000	180,000
Total Factory Costs	**8,002,983**	**7,723,756**	**7,887,340**	**7,887,340**	**7,887,340**	**7,887,340**
$U.S. Per Quintal	$3.64	$3.45	$3.33	$3.33	$3.33	$3.33
GROSS MARGIN	**1,957,262**	**7,284,088**	**9,217,316**	**9,217,316**	**9,217,316**	**9,217,316**
	6%	19%	23%	23%	23%	23%
ADMINISTRATIVE COSTS						
Salaries & Benefits	3,051,268	2,999,842	2,999,842	2,999,842	2,999,842	2,999,842
Materials & Supplies	546,722	546,722	546,722	546,722	546,722	546,722
Fuel & Lubricants	177,089	177,089	177,089	177,089	177,089	177,089
Contracted Services	810,911	810,911	810,911	810,911	810,911	810,911
Other	184,600	184,600	184,600	184,600	184,600	184,600
Total	**4,770,590**	**4,719,164**	**4,719,164**	**4,719,164**	**4,719,164**	**4,719,164**
$U.S. Per Quintal	$2.17	$2.11	$2.00	$2.00	$2.00	$2.00
TOTAL CASH OPERATING COSTS	**36,301,973**	**35,886,631**	**36,076,502**	**36,076,502**	**36,076,502**	**36,076,502**
$U.S. Per Quintal	$16.50	$16.04	$15.25	$15.25	$15.25	$15.25
DEPRECIATION	1,891,705	1,611,673	1,810,284	2,313,140	2,606,942	2,907,222
PROFIT BEFORE TAX	**(4,705,033)**	**953,251**	**2,687,868**	**2,185,012**	**1,891,210**	**1,590,930**
	-14%	2%	7%	5%	5%	4%
TAXES	0	550,000	1,080,244	951,284	880,012	803,859
PROFIT AFTER TAX	**(4,705,033)**	**403,251**	**1,607,624**	**1,233,728**	**1,011,198**	**787,072**
	-14%	1%	4%	3%	2%	2%
DEPRECIATION (+)	1,891,705	1,611,673	1,810,284	2,313,140	2,606,942	2,907,222
CAPITAL EXPENDITURES (-)	3,247,030	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
INCREASE IN NET WORKING CAPITAL (-)	0	195,354	(574,583)	0	0	0
CASH FLOW BEFORE LEVERAGE	**(6,060,358)**	**(2,180,429)**	**(7,706)**	**(453,132)**	**(381,860)**	**(305,707)**

* The cost of molasses is included in field and factory costs.

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Ingenio Julio Buitrago
Working Capital Schedule (Cordobas) 06-Nov-92 Scenario 1

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Off-Crop Field Costs	15,579,307	15,876,463	15,463,562	15,463,562	15,463,562	15,463,562
Off-Crop Factory Costs	3,484,736	3,345,880	3,270,801	3,270,801	3,270,801	3,270,801
Off-Crop Admin. Costs	3,158,841	3,195,895	3,109,292	3,109,292	3,109,292	3,109,292
Net Working Capital Needs	22,222,885	22,418,238	21,843,655	21,843,655	21,843,655	21,843,655
Increase in Net Working Capital	0	195,354	(574,583)	0	0	0

Ingenio Julio Buitrago
Depreciation Schedule (Cordobas) 06-Nov-92 Scenario 1

		1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Annual New Capital Investment		3,247,030	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Cumulative New Capital Investments			3,247,030	7,247,030	11,247,030	15,247,030	19,247,030
Depreciation, Avg. Life (Yrs.):	7.0	0	463,861	1,035,290	1,606,719	2,178,147	2,749,576
Depreciation on Existing Assets		1,891,705	1,147,812	774,994	706,421	428,795	157,646
Total Depreciation		1,891,705	1,611,673	1,810,284	2,313,140	2,606,942	2,907,222

Ingenio Julio Buitrago
Tax Schedule (Cordobas) 06-Nov-92 Scenario 1

		1992/93	1993/94	1994/95	1995/96	1996/97
Profit Before Tax		953,251	2,687,868	2,185,012	1,891,210	1,590,930
Tax Loss Carryforward (2 Years)		0	0	0	0	0
Taxable Profit		953,251	2,687,868	2,185,012	1,891,210	1,590,930
2% of Gross Revenues		769,031	811,493	811,493	811,493	811,493
4% of Corporate Net Worth		1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Tax Base (Maximum of Above Amounts)		1,000,000	2,687,868	2,185,012	1,891,210	1,590,930
Corporate Tax @	30.0%	300,000	806,360	655,504	567,363	477,279
Fixed Assets (Beginning of Year)		25,000,000	27,388,327	29,578,042	31,264,902	32,657,960
Municipal Tax @	1.0%	250,000	273,883	295,780	312,649	326,580
Total Taxes		550,000	1,080,244	951,284	880,012	803,859

Scenario 2

Scenario 2 assumes that management is able to make reasonable improvements in the operations of the mill in order to achieve efficiency and productivity levels that are consistent with industry norms. Specifically, Scenario 2 differs from Scenario 1 as follows.

- **Agricultural Yield**

	Projected (Tons/Manzana)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
47.9	49.3	52.1	56.8	56.8	56.8

The agricultural yield is assumed to improve to 56.8 tons per manzana by 1994/95, or 9.0% above the five year average of 52.1 assumed in Scenario 1. The industry expert assumes that management will be able to improve the agricultural yield to 56.8 by undertaking several measures including: improvements in the irrigation system and field design, installation of a pumping station for condenser water from the factory to enhance water use efficiency, and improved weed control.

- **Field Personnel**

	Projected (Workers)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
946	866	786	786	786	786

Management expects to eliminate 160, or 17%, of field positions. This reduction is assumed to be phased in over two years.

- **Factory Personnel**

	Projected (Workers)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
CROP:					
287	256	225	225	225	225
OFF-CROP:					
144	131	118	118	118	118

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The industry expert estimates, based on industry productivity levels, that the factory could operate at its current capacity with 225 workers during the crop and 118 workers during the off-crop. Achieving these targets would require a reduction in crop workers of 62 (22%) and off-crop workers of 26 (18%). The reduction is assumed to be phased in over two years.

- **Administrative Personnel**

	Projected (Workers)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
175	160	145	145	145	145

Reductions in administrative workers are assumed to correspond to the percentage reduction in field workers of 17%. Thus, it is assumed that 17% or 30 administrative workers are eliminated. This reduction is assumed to be phased in over two years.

- **Factory Electricity Costs**

Factory electricity costs during the crop period are assumed to be reduced to zero starting in 1992/93 with the installation of a new turbo-generator that will meet all of the factory's energy needs during the crop periods.

- **Factory Packaging Costs**

Factory packaging costs are assumed to increase from 1.08 cordobas per quintal to 1.19 due to the added cost of packaging approximately half of the domestic sugar output in five-pound bags.

- **Average Sugar Price**

The average sugar price is assumed to increase from 68.90 cordobas/quintal to 70.15 cordobas/quintal due to the higher price that can be charged in the domestic market for sugar packaged in 5-pound bags. Approval by the Ministry of Economy and Development is required in order to achieve this higher price.

- **Capital Expenditures**

	Projected (000s Cordobas)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
3,247	6,235	8,425	4,000	4,000	4,000

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In addition to the capital investments assumed in Scenario 1, Scenario 2 assumes investments of 2,235,000 cordobas in 1992/93 and 4,425,000 cordobas in 1993/94.

The additional 1992/93 investments are to refurbish irrigation canals, install two pivot irrigation systems, install a turbo-generator for electric generation, purchase automatic cane loaders, and purchase a machine to package sugar in five-pound bags.

The additional 1993/94 investments are to purchase and install five pivot irrigation systems, to convert from diesel fuel to electric power to run the sprinkler irrigation system, and to refurbish two boilers.

Ingenio Julio Buitrago
Discounted Cash Flow Analysis (000s Cordobas) 06-Nov-92

Scenario 2

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Land (Manzanas)	4,729	4,334	4,349	4,349	4,349	4,349
Agricultural Yield (Tons/Manzana)	47.9	49.3	52.1	56.8	56.8	56.8
Cane Harvested (Tons)	226,463	213,666	226,583	247,023	247,023	247,023
Cane Purchased (Tons)	6,703	13,528	13,528	13,528	13,528	13,528
Total Cane (Tons)	233,166	227,194	240,111	260,551	260,551	260 551
Industrial Yield (Quintals/Ton)	1.89	1.97	1.97	1.97	1.97	1.97
Sugar Produced (Quintals)	440,045	447,573	473,018	513,286	513,286	513,286
Average Personnel	1,313	1,197	1,086	1,089	1,089	1,089
Field Cost Per Ton ($U.S.)	$20.18	$19.55	$17.48	$16.11	$16.11	$16.11
Cash Operating Cost Per Quintal ($U.S.)	$16.50	$14.99	$13.45	$12.47	$12.47	$12 47

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
REVENUES		39,011	41,166	44,576	44,576	44,576
OPERATING COSTS						
Field Costs		22,211	20,987	20,987	20,987	20,987
Factory Costs		6,866	6,608	6,800	6,800	6,800
Administrative Costs		4,462	4,205	4,205	4,205	4,205
Depreciation		1,612	2,130	3,265	3,558	3,859
Total		35,151	33,930	35,257	35,551	35,851
PROFIT BEFORE TAX		3,861	7,236	9,319	9,025	8,725
TAX		1,408	2,467	3,155	3,074	2,988
PROFIT AFTER TAX		2,452	4,769	6,164	5,951	5,737
DEPRECIATION (+)		1,612	2,130	3,265	3,558	3,859
CAPITAL EXPENDITURES (−)		6,235	8,425	4,000	4,000	4,000
INCREASE IN NET WORKING CAPITAL (−)		(981)	(1,698)	(836)	0	0
CASH FLOW BEFORE LEVERAGE		(1,190)	172	6,265	5,510	5,595
NET PRESENT VALUE @ 18%	8,924					
TERMINAL VALUE *						31,085
NET PRESENT VALUE @ 18%	14,760					
FIRM VALUE BEFORE LEVERAGE	23,683					

Sensitivity Analysis of Firm Value Before Leverage

Discount Rate

			14%	18%	22%
Average Sugar Price	91/92	70.15	5,246	2,396	656
	Hist.	80.30	32,289	23,683	18,288
	+5%	84.32	43,025	32,131	25,280

* The terminal value is the greater of 1) zero and 2) the 1996/97 cash flow divided by the discount rate.

Ingenio Julio Buitrago
Cash Flow Projections (Cordobas) 06-Nov-92

Scenario 2

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Land (Manzanas)	4,729	4,334	4,349	4,349	4,349	4 349
Agricultural Yield (Tons/Manzana)	47 9	49.3	52.1	56.8	56 8	56 8
Cane Harvested (Tons)	226,463	213,666	226,583	247,023	247 023	247 023
Cane Purchased (Tons)	6,703	13,528	13,528	13,528	13,528	13 528
Total Cane (Tons)	233,166	227,194	240,111	260,551	260,551	260 551
Industrial Yield (Quintals/Ton)	1.89	1.97	1.97	1 97	1 97	1 97
Sugar Produced (Quintals)	440,045	447,573	473,018	513,286	513,286	513 286
Average Personnel	1,313	1,197	1,086	1,089	1,089	1 089
REVENUES						
Sugar	30,319,101	35,940,078	37,983,383	41,216,855	41,216,855	41 216 855
Molasses	1,669,544	1,570,943	1,682,544	1,859,148	1,859,148	1 859,148
Alcohol	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1 500 000
Total	**33,488,645**	**39,011,021**	**41,165,927**	**44,576,003**	**44,576,003**	**44,576,003**
FIELD COSTS						
Salaries & Benefits	14,778,950	13,529,145	12,279,339	12,279,339	12,279,339	12 279 339
Materials & Supplies	4,335,243	3,973,132	3,986,883	3,986,883	3,986,883	3 986 883
Fuel & Lubricants	3,093,830	2,835,411	2,845,225	2,845,225	2,845,225	2,845 225
Contracted Services	858,540	786,829	789,552	789,552	789,552	789 552
Purchase of Cane	461,837	1,086,298	1,086,298	1,086,298	1,086,298	1 086 298
Total	**23,528,400**	**22,210,815**	**20,987,297**	**20,987,297**	**20,987,297**	**20,987,297**
$U.S. Per Ton	$20.18	$19.55	$17.48	$16.11	$16.11	$16 11
$U.S. Per Quintal	$10.69	$9.93	$8.87	$8.18	$8.18	$8 18
FACTORY COSTS						
Crop Periods:	4.4	4 2	4.4	4.8	4 8	4 8
Salaries & Benefits	2,055,042	1,751,318	1,626,755	1,765,239	1,765,239	1,765,239
Electric Power	552,513	0	0	0	0	0
Process Chemicals	867,377	845,162	893,213	969,250	969,250	969,250
Lubricants	100,261	97,694	103,248	112,037	112,037	112,037
Gen. Suppl. & Serv.	289,126	281,721	297,738	323,083	323,083	323,083
Packing Material	473,928	531,269	561,473	609,270	609,270	609,270
Total	4,338,247	3,507,164	3,482,426	3,778,880	3,778,880	3,778,880
Off-Crop Periods:	8.6	8.8	8.6	8.2	8.2	8 2
Salaries & Benefits	2,009,886	1,683,494	1,475,338	1,410,310	1,410,310	1,410,310
Electric Power	770,496	788,029	766,675	732,883	732,883	732,883
Gen Suppl. & Serv.	129,119	132,057	128,479	122,816	122,816	122,816
Parts & Materials	575,235	575,235	575,235	575,235	575,235	575 235
Total	3,484,736	3,178,816	2,945,726	2,841,244	2,841,244	2,841,244
Distillery Costs *	180,000	180,000	180,000	180,000	180,000	180,000
Total Factory Costs	**6,002,983**	**6,865,979**	**6,608,153**	**6,800,124**	**6,800,124**	**6,800,124**
$U.S. Per Quintal	$3.64	$3.07	$2.79	$2.65	$2.65	$2 65
GROSS MARGIN	**1,957,262**	**9,934,227**	**13,570,477**	**16,788,581**	**16,788,581**	**16,788,581**
	6%	25%	33%	38%	38%	38%
ADMINISTRATIVE COSTS						
Salaries & Benefits	3,051,268	2,742,712	2,485,583	2,485,583	2,485,583	2,485,583
Materials & Supplies	546,722	546,722	546,722	546,722	546,722	546,722
Fuel & Lubricants	177,089	177,089	177,089	177,089	177,089	177,089
Contracted Services	810,911	810,911	810,911	810,911	810,911	810,911
Other	184,600	184,600	184,600	184,600	184,600	184,600
Total	**4,770,590**	**4,462,035**	**4,204,905**	**4,204,905**	**4,204,905**	**4,204,905**
$U.S. Per Quintal	$2.17	$1.99	$1.78	$1.64	$1.64	$1 64
TOTAL CASH OPERATING COSTS	**36,301,973**	**33,538,829**	**31,800,355**	**31,992,327**	**31,992,327**	**31,992,327**
$U.S. Per Quintal	$16.50	$14.99	$13.45	$12.47	$12.47	$12.47
DEPRECIATION	1,891,705	1,611,673	2,129,570	3,264,568	3,558,371	3,858,650
PROFIT BEFORE TAX	**(4,705,033)**	**3,860,516**	**7,236,002**	**9,319,108**	**9,025,305**	**8,725,026**
	-14%	10%	18%	21%	20%	20%
TAXES	0	1,408,156	2,467,034	3,154,920	3,074,134	2,989 466
PROFIT AFTER TAX	**(4,705,033)**	**2,452,363**	**4,768,968**	**6,164,188**	**5,951,172**	**5,736,560**
	-14%	6%	12%	14%	13%	13%
DEPRECIATION (+)	1,891,705	1,611,673	2,129,570	3,264,568	3,558,371	3 858 650
CAPITAL EXPENDITURES (-)	3,247,030	6,235,000	8,425,000	4,000,000	4,000,000	4 000 000
INCREASE IN NET WORKING CAPITAL (-)	0	(980,780)	(1,698,116)	(836,072)	0	0
CASH FLOW BEFORE LEVERAGE	**(6,060,358)**	**(1,190,184)**	**171,654**	**6,264,829**	**5,509,542**	**5,595,210**

* The cost of molasses is included in field and factory costs.

Ingenio Julio Buitrago
Working Capital Schedule (Cordobas) 06-Nov-92 Scenario 2

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Off-Crop Field Costs	15,579,307	15,041,527	13,827,797	13,218,319	13,218,319	13,218,319
Off-Crop Factory Costs	3,484,736	3,178,816	2,945,726	2,841,244	2,841,244	2,841,244
Off-Crop Admin. Costs	3,158,841	3,021,763	2,770,465	2,648,353	2,648,353	2,648,353
Net Working Capital Needs	22,222,885	21,242,105	19,543,988	18,707,916	18,707,916	18,707,916
Increase in Net Working Capital	0	(980,780)	(1,698,116)	(836,072)	0	0

Ingenio Julio Buitrago
Depreciation Schedule (Cordobas) 06-Nov-92 Scenario 2

		1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Annual New Capital Investment		3,247,030	6,235,000	8,425,000	4,000,000	4,000,000	4,000,000
Cumulative New Capital Investments			3,247,030	9,482,030	17,907,030	21,907,030	25,907,030
Depreciation, Avg. Life (Yrs.):	7.0	0	463,861	1,354,576	2,558,147	3,129,576	3,701,004
Depreciation on Existing Assets		1,891,705	1,147,812	774,994	706,421	428,795	157,646
Total Depreciation		1,891,705	1,611,673	2,129,570	3,264,568	3,558,371	3,858,650

Ingenio Julio Buitrago
Tax Schedule (Cordobas) 06-Nov-92 Scenario 2

		1992/93	1993/94	1994/95	1995/96	1996/97
Profit Before Tax		3,860,518	7,236,002	9,319,108	9,025,305	8,725,026
Tax Loss Carryforward (2 Years)		0	0	0	0	0
Taxable Profit		3,860,518	7,236,002	9,319,108	9,025,305	8,725,026
2% of Gross Revenues		780,220	823,319	891,520	891,520	891,520
4% of Corporate Net Worth		1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Tax Base (Maximum of Above Amounts)		3,860,518	7,236,002	9,319,108	9,025,305	8,725,026
Corporate Tax @	30.0%	1,158,156	2,170,800	2,795,732	2,707,592	2,617,508
Fixed Assets (Beginning of Year)		25,000,000	29,623,327	35,918,756	36,654 188	37,095,817
Municipal Tax @	1.0%	250,000	296,233	359,188	366,542	370,958
Total Taxes		1,408,156	2,467,034	3,154,920	3,074,134	2,988,466

Scenario 3

Scenario 3 assumes, in addition to the assumptions in Scenario 2, that management is able to develop a substantial alcohol business to complement its sugar production.

- **Alcohol Production**

	Projected (Liters)				
1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
300,000	400,000	500,000	500,000	500,000	500,000

IJB recently obtained a license to sell potable alcohol in the Nicaraguan market. The alcohol distillery at IJB has the capacity to produce approximately 1,000,000 liters of 95 degree g-l alcohol per year; however, to be conservative the Nicaraguan alcohol market is assumed to be able to absorb only 500,000 liters of production, phased in over two years.

- **Alcohol Price**

The producer price of potable 80 proof alcohol in Nicaragua is 7.50 cordobas per liter. Potable alcohol is made by diluting 95 degree g-l with water. Therefore, the effective sale price of 95 degree g-l alcohol is assumed to be 15 cordobas per liter

- **Alcohol Cost**

The molasses used in the distillery is subtracted from molasses sales for purposes of calculating molasses revenues. It is assumed that 1.1 liters of alcohol are produced per gallon of molasses.

Distillery costs include labor, fuel, and various materials. The incremental cost of alcohol production is estimated to be approximately .60 cordobas per liter in 1991/92 and declines as production levels increase, reaching .50 cordobas per liter at a production level of 500,000 liters per year. The incremental cost of production is the additional cost of fuel, labor, and other costs that are incurred as a result of sugar production. The incremental cost does not include labor used at the distillery that is already employed at the factory or the cost of molasses which is reflected in field and factory costs.

Ingenio Julio Buitrago — Scenario 3

Discounted Cash Flow Analysis (000s Cordobas) 06-Nov-92

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Land (Manzanas)	4,729	4,334	4,349	4,349	4,349	4,349
Agricultural Yield (Tons/Manzana)	47.9	49.3	52.1	56.8	56.8	56.8
Cane Harvested (Tons)	226,463	213,666	226,583	247,023	247,023	247,023
Cane Purchased (Tons)	6,703	13,528	13,528	13,528	13,528	13,528
Total Cane (Tons)	233,166	227,194	240,111	260,551	260,551	260,551
Industrial Yield (Quintals/Ton)	1.89	1.97	1.97	1.97	1.97	1.97
Sugar Produced (Quintals)	440,045	447,573	473,018	513,286	513,286	513,286
Average Personnel	1,313	1,197	1,086	1,089	1,089	1,089
Field Cost Per Ton ($U.S.)	$20.18	$19.55	$17.48	$16.11	$16.11	$16.11
Cash Operating Cost Per Quintal ($U.S.)	$16.50	$15.00	$13.48	$12.49	$12.49	$12.49

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
REVENUES		43,380	46,905	50,315	50,315	50,315
OPERATING COSTS						
Field Costs		22,211	20,987	20,987	20,987	20,987
Factory Costs		6,906	6,678	6,870	6,870	6,870
Administrative Costs		4,462	4,205	4,205	4,205	4,205
Depreciation		1,612	2,130	3,336	3,630	3,930
Total		35,191	34,000	35,398	35,692	35,992
PROFIT BEFORE TAX		8,190	12,905	14,916	14,623	14,322
TAX		2,707	4,168	4,839	4,758	4,671
PROFIT AFTER TAX		5,483	8,737	10,077	9,865	9,651
DEPRECIATION (+)		1,612	2,130	3,336	3,630	3,930
CAPITAL EXPENDITURES (−)		6,235	8,925	4,000	4,000	4,000
INCREASE IN NET WORKING CAPITAL (−)		(981)	(1,698)	(836)	0	0
CASH FLOW BEFORE LEVERAGE		1,840	3,640	10,249	9,495	9,581
NET PRESENT VALUE @ 18%	21,179					
TERMINAL VALUE *						53,228
NET PRESENT VALUE @ 18%	25,274					
FIRM VALUE BEFORE LEVERAGE	46,453					

Sensitivity Analysis of Firm Value Before Leverage

Discount Rate

			14%	18%	22%
Average Sugar Price	91/92	70.15	34,225	25,098	19,375
	Hist.	80.30	61,366	46,453	37,049
	+5%	84.32	72,102	54,901	44,041

* The terminal value is the greater of 1) zero and 2) the 1996/97 cash flow divided by the discount rate.

Ingenio Julio Buitrago — Scenario 3

Cash Flow Projections (Cordobas) 06-Nov-92

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Land (Manzanas)	4,729	4,334	4,349	4,349	4,349	4,349
Agricultural Yield (Tons/Manzana)	47.9	49.3	52.1	56.8	56.8	56.8
Cane Harvested (Tons)	226,463	213,666	226,583	247,023	247,023	247,023
Cane Purchased (Tons)	6,703	13,528	13,528	13,528	13,528	13,528
Total Cane (Tons)	233,166	227,194	240,111	260,551	260,551	260,551
Industrial Yield (Quintals/Ton)	1.89	1.97	1.97	1.97	1.97	1.97
Sugar Produced (Quintals)	440,045	447,573	473,018	513,286	513,286	513,286
Average Personnel	1,313	1,197	1,086	1,089	1,089	1,089
REVENUES						
Sugar	30,319,101	35,940,078	37,983,383	41,216,855	41,216,855	41,216,855
Molasses	1,669,544	1,440,272	1,421,201	1,597,805	1,597,805	1,597,805
Alcohol	1,500,000	6,000,000	7,500,000	7,500,000	7,500,000	7,500,000
Total	**33,488,645**	**43,380,350**	**46,904,584**	**50,314,660**	**50,314,660**	**50,314,660**
FIELD COSTS						
Salaries & Benefits	14,778,950	13,529,145	12,279,339	12,279,339	12,279,339	12,279,339
Materials & Supplies	4,335,243	3,973,132	3,986,883	3,986,883	3,986,883	3,986,883
Fuel & Lubricants	3,093,830	2,835,411	2,845,225	2,845,225	2,845,225	2,845,225
Contracted Services	858,540	786,829	789,552	789,552	789,552	789,552
Purchase of Cane	461,837	1,086,298	1,086,298	1,086,298	1,086,298	1,086,298
Total	**23,528,400**	**22,210,815**	**20,987,297**	**20,987,297**	**20,987,297**	**20,987,297**
$U.S. Per Ton	$20.18	$19.55	$17.48	$16.11	$16.11	$16.11
$U.S. Per Quintal	$10.69	$9.93	$8.87	$8.18	$8.18	$8.18
FACTORY COSTS						
Crop Periods:	4.4	4.2	4.4	4.8	4.8	4.8
Salaries & Benefits	2,055,042	1,751,318	1,626,755	1,765,239	1,765,239	1,765,239
Electric Power	552,513	0	0	0	0	0
Process Chemicals	867,377	845,162	893,213	969,250	969,250	969,250
Lubricants	100,261	97,694	103,248	112,037	112,037	112,037
Gen. Suppl. & Serv.	289,126	281,721	297,738	323,083	323,083	323,083
Packing Material	473,928	531,269	561,473	609,270	609,270	609,270
Total	4,338,247	3,507,164	3,482,426	3,778,880	3,778,880	3,778,880
Off-Crop Periods:	8.6	8.8	8.6	8.2	8.2	8.2
Salaries & Benefits	2,009,886	1,683,494	1,475,338	1,410,310	1,410,310	1,410,310
Electric Power	770,496	788,029	766,675	732,883	732,883	732,883
Gen Suppl. & Serv.	129,119	132,057	128,479	122,816	122,816	122,816
Parts & Materials	575,235	575,235	575,235	575,235	575,235	575,235
Total	3,484,736	3,178,816	2,945,726	2,841,244	2,841,244	2,841,244
Distillery Costs *	180,000	220,000	250,000	250,000	250,000	250,000
Total Factory Costs	**8,002,983**	**6,905,979**	**6,678,153**	**6,870,124**	**6,870,124**	**6,870,124**
$U.S. Per Quintal	$3.64	$3.09	$2.82	$2.68	$2.68	$2.68
GROSS MARGIN	**1,957,262**	**14,263,555**	**19,239,134**	**22,457,238**	**22,457,238**	**22,457,238**
	6%	33%	41%	45%	45%	45%
ADMINISTRATIVE COSTS						
Salaries & Benefits	3,051,268	2,742,712	2,485,583	2,485,583	2,485,583	2,485,583
Materials & Supplies	546,722	546,722	546,722	546,722	546,722	546,722
Fuel & Lubricants	177,089	177,089	177,089	177,089	177,089	177,089
Contracted Services	810,911	810,911	810,911	810,911	810,911	810,911
Other	184,600	184,600	184,600	184,600	184,600	184,600
Total	**4,770,590**	**4,462,035**	**4,204,905**	**4,204,905**	**4,204,905**	**4,204,905**
$U.S. Per Quintal	$2.17	$1.99	$1.78	$1.64	$1.64	$1.64
TOTAL CASH OPERATING COSTS	**36,301,973**	**33,576,829**	**31,870,365**	**32,062,327**	**32,062,327**	**32,062,327**
$U.S. Per Quintal	$16.50	$15.00	$13.48	$12.49	$12.49	$12.49
DEPRECIATION	1,891,705	1,611,673	2,129,570	3,335,997	3,629,799	3,930,079
PROFIT BEFORE TAX	**(4,705,033)**	**8,189,847**	**12,904,659**	**14,916,336**	**14,622,534**	**14,322,254**
	−14%	19%	28%	30%	29%	28%
TAXES	0	2,706,954	4,167,631	4,839,088	4,757,588	4,671,206
PROFIT AFTER TAX	**(4,705,033)**	**5,482,893**	**8,737,028**	**10,077,248**	**9,864,946**	**9,651,048**
	−14%	13%	19%	20%	20%	19%
DEPRECIATION (+)	1,891,705	1,611,673	2,129,570	3,335,997	3,629,799	3,930,079
CAPITAL EXPENDITURES (−)	3,247,030	6,235,000	8,925,000	4,000,000	4,000,000	4,000,000
INCREASE IN NET WORKING CAPITAL (−)	0	(980,780)	(1,698,116)	(836,072)	0	0
CASH FLOW BEFORE LEVERAGE	**(6,060,356)**	**1,840,346**	**3,639,714**	**10,249,317**	**9,494,745**	**9,581,127**

* The cost of molasses is included in field and factory costs.

Ingenio Julio Buitrago
Working Capital Schedule (Cordobas) 06-Nov-92 Scenario 3

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Off-Crop Field Costs	15,579,307	15,041,527	13,827,797	13,218,319	13,218,319	13,218,319
Off-Crop Factory Costs	3,484,736	3,178,816	2,945,726	2,841,244	2,841,244	2,841,244
Off-Crop Admin. Costs	3,158,841	3,021,763	2,770,465	2,648,353	2,648,353	2,648,353
Net Working Capital Needs	22,222,885	21,242,105	19,543,988	18,707,916	18,707,916	18,707,916
Increase in Net Working Capital	0	(980,780)	(1,698,116)	(836,072)	0	0

Ingenio Julio Buitrago
Depreciation Schedule (Cordobas) 06-Nov-92 Scenario 3

		1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Annual New Capital Investment		3,247,030	6,235,000	8,925,000	4,000,000	4,000,000	4,000,000
Cumulative New Capital Investments			3,247,030	9,482,030	18,407,030	22,407,030	26,407,030
Depreciation, Avg. Life (Yrs.):	7.0	0	463,861	1,354,576	2,629,576	3,201,004	3,772,433
Depreciation on Existing Assets		1,891,705	1,147,812	774,994	706,421	428,795	157,646
Total Depreciation		1,891,705	1,611,673	2,129,570	3,335,997	3,629,799	3,930,079

Ingenio Julio Buitrago
Tax Schedule (Cordobas) 06-Nov-92 Scenario 3

		1992/93	1993/94	1994/95	1995/96	1996/97
Profit Before Tax		8,189,847	12,904,659	14,916,336	14,622,534	14,322,254
Tax Loss Carryforward (2 Years)		0	0	0	0	0
Taxable Profit		8,189,847	12,904,659	14,916,336	14,622,534	14,322,254
2% of Gross Revenues		867,607	938,092	1,006,293	1,006,293	1,006,293
4% of Corporate Net Worth		1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Tax Base (Maximum of Above Amounts)		8,189,847	12,904,659	14,916,336	14,622,534	14,322,254
Corporate Tax @	30.0%	2,456,954	3,871,398	4,474,901	4,386,760	4,296,676
Fixed Assets (Beginning of Year)		25,000,000	29,623,327	36,418,756	37,082,759	37,452,960
Municipal Tax @	1.0%	250,000	296,233	364,188	370,828	374,530
Total Taxes		2,706,954	4,167,631	4,839,088	4,757,588	4,671,206

Ingenio Julio Buitrago
Cash Flow Assumptions (Cordobas) 06-Nov-92

	Scenario 1	Scenario 2	Scenario 3
PRODUCTION			
Land (Manzanas)			
1991/92	4,729	4,729	4,729
1992/93	4,334	4,334	4,334
1993/94	4,349	4,349	4,349
1994/95	4,349	4,349	4,349
1995/96	4,349	4,349	4,349
1996/97	4,349	4,349	4,349
Agricultural Yield (Tons/Manzana)			
1991/92	47.9	47.9	47.9
1992/93	49.3	49.3	49.3
1993/94	52.1	52.1	52.1
1994/95	52.1	56.8	56.8
1995/96	52.1	56.8	56.8
1996/97	52.1	56.8	56.8
Cane Purchased (Tons)			
1991/92	6,703	6,703	6,703
1992/93	13,528	13,528	13,528
1993/94	13,528	13,528	13,528
1994/95	13,528	13,528	13,528
1995/96	13,528	13,528	13,528
1996/97	13,528	13,528	13,528
Industrial Yield (Quintals/Ton)			
1991/92	1.89	1.89	1.89
1992/93	1.97	1.97	1.97
1993/94	1.97	1.97	1.97
1994/95	1.97	1.97	1.97
1995/96	1.97	1.97	1.97
1996/97	1.97	1.97	1.97
Molasses Yield (Gallons/Ton)			
1991/92	6.14	6.14	6.14
1992/93	6.00	6.00	6.00
1993/94	6.00	6.00	6.00
1994/95	6.00	6.00	6.00
1995/96	6.00	6.00	6.00
1996/97	6.00	6.00	6.00
Alcohol (Liters)			
1991/92	300,000	300,000	300,000
1992/93	300,000	300,000	400,000
1993/94	300,000	300,000	500,000
1994/95	300,000	300,000	500,000
1995/96	300,000	300,000	500,000
1996/97	300,000	300,000	500,000
PRICES			
Average Sugar Price (C$/Quintal)			
1991/92	68.90	68.90	68.90
1992/93 – 1996/97	79.05	80.30	80.30
Molasses Price (C$/Gallon)	1.44	1.44	1.44
Alcohol Price (C$/Liter)			
1991/92	5.00	5.00	5.00
1992/93 – 1996/97	5.00	5.00	15.00

Ingenio Julio Buitrago
Cash Flow Assumptions (Cordobas) 06-Nov-92

	Scenario 1	Scenario 2	Scenario 3
PERSONNEL			
Field			
1991/92	946	946	946
1992/93	946	866	866
1993/94	946	786	786
1994/95	946	786	786
1995/96	946	786	786
1996/97	946	786	786
Factory: Crop			
1991/92	287	287	287
1992/93	287	256	256
1993/94	287	225	225
1994/95	287	225	225
1995/96	287	225	225
1996/97	287	225	225
Factory: Off-Crop			
1991/92	144	144	144
1992/93	144	131	131
1993/94	144	118	118
1994/95	144	118	118
1995/96	144	118	118
1996/97	144	118	118
Administrative			
1991/92	175	175	175
1992/93	175	160	160
1993/94	175	145	145
1994/95	175	145	145
1995/96	175	145	145
1996/97	175	145	145
FIELD COSTS			
Salaries & Benefits/Personnel			
1991/92	15,623	15,623	15,623
1992/93	15,623	15,623	15,623
1993/94	15,623	15,623	15,623
1994/95	15,623	15,623	15,623
1995/96	15,623	15,623	15,623
1996/97	15,623	15,623	15,623
Materials & Supplies/Manzana	917	917	917
Fuel & Lubricants/Manzana	654	654	654
Contracted Services/Manzana	182	182	182
Purchase of Cane/Ton			
1991/92	68.90	68.90	68.90
1992/93 – 1996/97	79.05	80.30	80.30

Ingenio Julio Buitrago
Cash Flow Assumptions (Cordobas) 06-Nov-92

	Scenario 1	Scenario 2	Scenario 3
FACTORY COSTS			
Milling Rate (Tons/Period)			
1991/92	53,088	53,088	53,088
1992/93	54,143	54,143	54,143
1993/94	54,143	54,143	54,143
1994/95	54,143	54,143	54,143
1995/96	54,143	54,143	54,143
1996/97	54,143	54,143	54,143
Crop			
Salaries & Benefits/Personel-Period			
1991/92	1,630	1,630	1,630
1992/93	1,630	1,630	1,630
1993/94	1,630	1,630	1,630
1994/95	1,630	1,630	1,630
1995/96	1,630	1,630	1,630
1996/97	1,630	1,630	1,630
Electric Power/Period			
1991/92	125,798	125,798	125,798
1992/93 - 96/97	125,798	0	0
Proccess Chemicals/Ton	3.72	3.72	3.72
Lubricants/Ton	0.43	0.43	0.43
Gen Suppl & Serv./Ton	1.24	1.24	1.24
Packing Materials/Quintal			
1991/92	1.08	1.08	1.08
1992/93 - 1996/97	1.08	1.19	1.19
Off-Crop			
Salaries & Benefits/Personnel-Period			
1991/92	1,460	1,460	1,460
1992/93	1,460	1,460	1,460
1993/94	1,460	1,460	1,460
1994/95	1,460	1,460	1 460
1995/96	1,460	1,460	1,460
1996/97	1,460	1,460	1,460
Electric Power/Period	89,510	89,510	89,510
Gen Suppl & Serv./Period	15,000	15,000	15,000
Parts & Materials/Year	575,235	575,235	575,235
Distillery Costs (C$/liter)			
1991/92	0.60	0.60	0.60
1992/93	0.60	0.60	0.55
1993/94	0.60	0.60	0.50
1994/95	0.60	0.60	0.50
1995/96	0.60	0.60	0.50
1996/97	0.60	0.60	0.50
ADMINISTRATIVECOSTS			
Salaries & Benefits/Personnel			
1991/92	17,436	17,436	17,436
1992/93	17,142	17,142	17,142
1993/94	17,142	17,142	17,142
1994/95	17,142	17,142	17,142
1995/96	17,142	17,142	17,142
1996/97	17,142	17,142	17,142
Materials & Supplies/Year	546,722	546,722	546,722
Fuel & Lubricants/Year	177,089	177,089	177,089
Contracted Services/Year	810,911	810,911	810,911
Other Costs/Year	184,600	184,600	184,600

Ingenio Julio Buitrago
Cash Flow Assumptions (Cordobas) 06-Nov-92

	Scenario 1	Scenario 2	Scenario 3
DEPRECIATION			
Existing Assets			
1991/92	1,891,705	1,891,705	1,891,705
1992/93	1,147,812	1,147,812	1,147,812
1993/94	774,994	774,994	774,994
1994/95	706,421	706,421	706,421
1995/96	428,795	428,795	428,795
1996/97	157,646	157,646	157,646
Avg. Life of Capital Investments	7.0	7.0	7.0
TAX RATES			
Corporate Tax Rate	30.0%	30.0%	30.0%
Municipal Tax Rate on Fixed Assets	1.0%	1.0%	1.0%
CAPITAL EXPENDITURES			
1991/92	3,247,030	3,247,030	3,247,030
1992/93	4,000,000	6,235,000	6,235,000
1993/94	4,000,000	8,425,000	8,925,000
1994/95	4,000,000	4,000,000	4,000,000
1995/96	4,000,000	4,000,000	4,000,000
1996/97	4,000,000	4,000,000	4,000,000
DISCOUNT RATE	18.0%	18.0%	18.0%