

PN.ABG.520

68977

**BUSINESS VALUATION STUDY  
FOR  
INDUSTRIA NACIONAL DEL CEMENTO**

**Report by**

**Kay T. Syrrist  
Michael Graham**

**CENTER FOR PRIVATIZATION  
2000 Pennsylvania Avenue, N.W.  
Washington, D.C. 20006**

**Project No. 122**

**June 1989**

**Prepared for the**

**BUREAU FOR PRIVATE ENTERPRISE  
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT**

The Center for Privatization was established in 1985 to provide expert advisory services to developing countries and their indigenous private sectors in planning and implementing programs to divest and privatize their state owned or-controlled enterprises and activities. The Center is fully funded under a major contract between the Scientex Corporation and the U.S. Agency for International Development. Participating subcontractor companies include:

Arthur Young International  
Equity Expansion International  
Ferris, Baker Watts, Incorporated  
International Phoenix Corporation  
Public Administration Service

The Center draws upon its consortium of six companies, and others when appropriate, to provide a wide range of qualified specialists in fields including agriculture, industry, financial transportation, utilities and other services with experience in areas related to privatization, such as:

Corporate Restructuring  
Employee Stock Ownership  
Equity Placement  
Financial Analysis and Valuation  
Legal and Regulatory Studies  
Macro/Micro Economic Analysis  
Project Design and Evaluation  
Strategic Planning  
Taxation

---

2000 Pennsylvania Avenue NW, Suite 2500 \*\*\* Washington, DC 20006

Telephone (202) 872-9250 Fax (202) 872-9256 Telex 897124 (CENTR US)



A MEMBER OF ARTHUR YOUNG INTERNATIONAL

---

# Arthur Young

June 30, 1989

VALUATION SERVICES GROUP  
One Sansome Street  
Suite 3300  
San Francisco, California 94104-4405  
Telephone: (415) 951-3000

Mr. William Wilka Tapiero  
Sub Secretario de Estado de Comercio  
Ministerio de Industria Y Comercio

Dear Mr. Wilka:

At your request, we have performed a valuation consulting engagement regarding Industria Nacional del Cemento "INC". The purpose of this analysis is to recommend a range of the fair market values for the Company to assist in business planning. This range assumes zero leveraged debt of the Company, and complete debt forgiveness by creditors.

Fair market value is defined as the amount for which property would be exchanged between a willing buyer and a willing seller, neither under abnormal pressure, each having full knowledge of all relevant facts, and with equity to both. The business is appraised as a going concern.

In conjunction with our work, we were provided with information that we accepted as fairly reflecting business operations.

The historical financial data for fiscal years ended 1984-1988 used in our valuation engagement are unaudited and accordingly, we do not express an opinion on such data.

We have used certain forecasted data supplied by management of INC in our valuation. We have not examined the forecasted data or the assumptions underlying the forecasted data and do not express an opinion or any other form of assurance on the forecasted data and related assumptions. Furthermore, there will usually be differences between forecasted and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. We have no responsibility to update our recommendation for events and circumstances occurring after the date of valuation.

Our analysis reflects only information that was known or available to us as of June 1, 1989. Events occurring subsequent to that date did not enter into our analysis, nor did they affect our recommendation of value.



The recommended value range for Industria Nacional del Cemento as of June 1, 1989 is:

**Rounded \$36,600,000 to \$42,900,000**

The following report provides a summary of the estimated fair market values of the Company's equity assuming no interest bearing debt. All value recommendations contained herein are subject to the attached Statement of Limiting Conditions. All data utilized in this analysis is reported in US dollars assuming an exchange rate of 1:1000 (\$1 US = 1000 Guaranies). In the appendix of this report, we have included a value-in-use study of the fixed assets of INC. This study does not include the economic obsolescence due to the over capacity of the plant. We do not utilize this study in deriving the fair market value range recommendation for INC as a going concern.

We appreciate the opportunity to work with you and your management personnel in the preparation of this valuation study. If you have any questions or comments regarding this analysis, please do not hesitate to call us.

Very truly yours,

ARTHUR YOUNG

Michael Graham  
Principal

Kay T. Syrrist  
Project Manager

A handwritten signature in cursive script that reads "Michael Graham".

A handwritten signature in cursive script that reads "Kay T. Syrrist".

## STATEMENT OF LIMITING CONDITIONS

1. Nothing has come to our attention to cause us to believe that the facts and data set forth in this report are not correct.
2. Neither Arthur Young nor any of its employees has a financial interest in the property appraised.
3. The fee for this report is not contingent upon values reported.
4. No investigation of the title of the property has been made, and owner's claim to the property has been assumed to be valid. No consideration has been given to liens or encumbrances which may be against the property except as specifically stated in this report.
5. No responsibility is assumed for information furnished by others and believed to be reliable.
6. No responsibility is assumed for matters of a legal nature.
7. This report is for the purposes stated and should not be used for any other purpose.
8. Neither all nor part of the contents of this report shall be disseminated to the public through advertising, public relations, news, sales or any other public media without prior approval of Arthur Young.
9. In the course of our analysis, we were provided with both written and verbal information, including financial and operating data, which we accepted as accurate without verification.
10. The estimates of future operations herein are solely for use in the valuation and are not intended for use as forecasts or projections of future operations. In addition, there will usually be differences between estimated and actual results because events and circumstances frequently do not occur as expected and those differences may be material.
11. The value recommendations contained herein are not intended to represent the value of the subject assets at any time other than the date of valuation. Changes in market conditions could result in current value recommendations substantially different than those presented at the stated valuation date. We assumed no responsibility for changes in market conditions or for the inability of the owner to locate a purchaser at the appraised value.

## TABLE OF CONTENTS

---

	<u>Page</u>
Transmittal Letter	i
Statement of Limiting Conditions	iii
I. OVERVIEW	1
II. HISTORY AND NATURE OF THE BUSINESS	4
III. METHODOLOGY	11
IV. VALUATION - MARKET APPROACH	15
V. VALUATION - INCOME APPROACH	18
VI. CONCLUSION OF RECOMMENDED RANGE OF VALUES	20
Appendix (Fixed Asset Value-In-Use-Study)	

Overview

## I. OVERVIEW

### OBJECTIVE

Arthur Young has been engaged to perform an analysis of the fair market value of Industria Nacional del Cemento (the "Company") as of June 1, 1989. The purpose of this engagement was to provide assistance for business planning purposes.

Fair market value is defined as the amount at which property would be exchanged between a willing buyer and a willing seller, neither being under abnormal pressure, each with knowledge of all relevant facts, and with equity to both.

### SCOPE OF WORK

The scope of our analysis included:

- o Analysis of the Company's financial data, including historical financial statements, management forecasts of future financial performance, review of operating performance, marketing programs, and capital expenditures
- o Interviews with key management concerning the market strategies, current financial condition, and future prospects of the Company
- o Analysis of the economic environment affecting the industry in which the Company operates
- o Consideration of several different valuation methods including the market comparison and discounted cash flow approaches

- o Analysis of certain tangible properties of the Company

The following report provides a brief overview of the Company's operations, a description of the valuation methodology, our valuation analysis and our range of recommended fair market values.

Background  
Information

## II. HISTORY AND NATURE OF THE BUSINESS

Industria Nacional del Cemento was formed in 1969 to process cement for the government of Paraguay. At that time, the plant had a production capacity of 200,000 tons per year. In 1981, the government authorized the enlargement of the plant (to a 460,000-ton capacity) and the transformation from a wet to a dry system. This enlargement and transformation is to be completed in July, 1989.

In 1982, a new plant with a 600,000-ton capacity was authorized to be built by the government. The new plant was completed in 1985. The total combined capacity of the two plants is 1,060,000 tons.

The plants are both located in Vallemi. The mill is located in Villeta, and it has a capacity of 600,000 tons. If all the ovens are in operation and 1,060,000 tons are produced, a new mill would be required to increase the milling capacity from 600,000 tons to 1,060,000 tons.

### CEMENT MANUFACTURING PROCESS

The principal steps in manufacturing portland cement at Paraguay's two portland cement plants include quarrying, crushing, grinding, burning raw materials, and finish grinding. These two cement plants are located in the town of Vallemi, on the river, north of the capital of Asuncion, Paraguay. A finish grinding mill (located in the town of Villeta) near the capital is also on the river.

#### Quarrying

Although a few limestone and gypsum deposits are mined

underground by room and pillar methods, most raw materials for the cement industry are quarried using surface mining methods. Paraguay uses the surface mining method to quarry rock.

The first step in quarrying rock is to remove any vegetation and waste material with bulldozers and scrapers. Only then can blastholes be drilled into the rock using a pattern designed to provide good fragmentation. These holes are drilled through the use of both rotary and percussion drills which drill vertical blastholes 2 to 12 inches in diameter and 10 to 70 feet deep.

Multirow blastholes are charged, and fuses with electric blasting caps are then used to detonate the charges.

A front-end loader is used to load the broken limestone into trucks.

### **Crushing**

The rock is transported by truck from the quarry to a crusher where the rock is crushed, screened, and further reduced to mill feed size. The crushed rock is transported to the grinding mills by conveyers at the plant. About 1.8 tons of raw materials are required to manufacture 1 ton of finished cement; one of the raw materials, clinker, comprises 1.7 tons of the raw materials used to make cement, and 0.1 ton of additional raw materials is added during the clinker-grinding process.

### **Grinding**

Two processes can be used in grinding raw materials. The wet process, in which water is added to produce a slurry during

grinding, was abandoned by the Company in 1986. The dry process, in which materials are dried and pulverized into a powder, is currently used at the plants today.

It should be noted that the properties of cement are influenced by the particle size and mixture of raw materials fed to the kiln. The objective of grinding is to attain the optimum fineness required for the raw materials to combine with the clinker during the burning stage of production. The optimum fineness is derived from a certain percent of material passing a certain sized mesh sieve. Generally, the larger the particles, the higher the temperature necessary for them to combine.

For raw material, storage bins are separated according to the main chemical components. The chemist controls the setting on automatic feeders under the bins in order to proportion raw materials and maintain a uniform composition of raw materials to the grinding mill. The grinding mill or ball mill is a horizontal rotating drum with an alloy steel liner driven by an electric motor and drive. The ball mill has approximately 45 percent of its volume filled with steel balls up to 5 inches in diameter. Raw materials are reduced in size by impact and attrition by the grinding media in cascading and cataracting motions while the mill is rotating. The raw material must be dried in a rotary dryer for dry process grinding in ball mills. Waste heat from the kiln is used to accomplish this part of the process.

### **Burning**

Burning is the most important operation in manufacturing cement because fuel consumption is the major expense in the process. Capacity of a plant is measured by kiln output, while strength

and other properties of cement depend on the quality of clinker produced.

The burning process is accomplished by three rotary kilns at the plants with a capacity of approximately 1.1 million tons annually. A rotary kiln is a refractory-lined steel cylinder shell that rotates around an axis. Blended dry mix enters the upper or feed end of the rotary kiln and is conveyed by the slope and rotation of the kiln to the firing or discharge end of the kiln. In a temperature zone of up to 1,800 degrees, alkalis vaporize, combustion of any organic material takes place, and calcium carbonate is transformed to CaO. Clinkering takes place in the burning zone at about 2,700 to 2,900 degrees. At this point, iron oxide is added as flux in the raw mix, which lowers the temperature required to form clinker.

The suspension preheater consists of four vertical stages of cyclones through which pass kiln exit gases, initially at about 1,800 degrees. Raw feed entering the top descends through the cyclones counter current to the hot gases, and then enters the kiln at about 1,350 to 1,450 degrees.

The temperature of clinker discharged from the kiln is reduced in a clinker cooler, serving the dual purpose of lowering the clinker temperature and recuperating the clinker heat for re-use as combustion air inside the kiln. The clinker is air quenched in a reciprocating grate cooler where cooling air passes through a slowly moving bed of hot clinker.

The kiln gases pass through bag collectors where entrained dust particles are collected. The dust collected may be returned to the kiln feed or insufflated near the burner, provided the alkali content is too high.

## **Finish Grinding**

Clinker from indoor or outdoor storage or directly from the coolers is barged to the Villeta Plant for grinding or fed along with 3 to 5 percent gypsum or anhydrite to grinding mills at the Vallemi Plant essentially similar to the ball mills described under raw material grinding. Fineness is controlled with air separators in closed circuit with the grinding mills.

The cement particles average about 10 micrometers, and the fineness is usually indicated by specific surface area per gram measured using an air permeability test. The cement is then dry pumped to cement coolers and then to silos for storage.

At the plants a computer is used to control most operations, from preblending raw materials to calculating heat consumption. The computer makes possible a greater degree of automation and the use of more sophisticated sensing and sampling techniques. The computer is used to control the kiln and clinker cooler functions and the grinding operation.

## **Other Factors**

There are two types of cement produced by INC. The second type has a faster drying time and sells for slightly more than the first type. Each type comprises approximately 50% of sales revenue for INC.

The sources of limestone are plentiful, and include 13 quarries with an expected remaining life of over 1,000 years. Only one quarry is currently being utilized, and it has a remaining life of 42 years, according to management.

The overall demand for cement has been significantly less than

the production capacity. Various estimates of demand have ranged from 220,000 tons to 350,000 tons, far below the capacity of the business. Thus, there is a high degree of economic obsolescence in the business. Due to the excess capacity of cement production available in the neighboring markets surrounding Paraguay our analysis assumes no viable export markets for INC. In the following sections, we have prepared various models to illustrate the value as a function of the future earnings and cash flow.

General  
Valuation  
Theory

### III. METHODOLOGY

It is widely recognized that the book value of capital stock is not, by itself, a sufficient measure of the worth of that stock. The primary factors to be considered are:

- o The nature of the business and the history of the enterprise from its inception
- o The economic outlook in general, and the condition and outlook of the specific industry in particular
- o The book value of the stock and the financial condition of the business
- o The earning capacity of the company
- o The dividend-paying capacity
- o Whether or not the enterprise has goodwill or other intangible value
- o The market prices of stocks of corporations engaged in the same or a similar line of business which have their stocks actively traded on an exchange or over-the-counter market.

Traditionally, the development of a market value recommendation is based on the utilization of three basic approaches to value: the Cost Approach, the Market Comparison Approach, and the Income Approach. Value indications derived through these approaches are then analyzed in order to formulate an objective recommendation as to the market value for the equity of the Company.

In the Cost Approach, the fair market value of the underlying assets of the enterprise is considered individually, and the sum of these asset components is a representation of the business enterprise value before consideration of the liabilities. Deducting stated liabilities results in an indication of the market value for the equity of the

enterprise. The simplest form of the Cost Approach relies on reported balance sheet values.

Use of the Market Comparison Approach to valuation is contingent on the availability of reasonably comparable business enterprises exchanged in a free and active marketplace, that can be adjusted for comparability differences to the subject company. Lacking directly comparable exchanges of business enterprises, an alternate market comparison approach is employed. This approach utilizes financial and market data of companies engaged in similar business pursuits to the subject company, from which prevailing investor attitudes and expectations are developed. Again, comparability differences are noted and adjustments are made in order to develop representative market multiples which, in turn, are applied to the Company's business income streams or other measures to develop value indications.

In the Income Approach to valuation of an enterprise, the cash flows of the firm are estimated for a period of years. Cash flows here represent the after-tax cash that could be taken out of the business without impairing future profitability. In estimating cash flow, the future sales and operating costs of the firm are estimated based on past experience as well as anticipated future developments that could change the firm's operating performance. The available cash flows and the residual value of the firm are then discounted to derive an indication of present value.

Industria Nacional del Cemento is an operating company and, therefore, the value of the equity is a function of earnings and cash flow. Since the Cost Approach is more appropriate for a pure investment holding company, and does not show the earning potential from operations, we rejected it for purposes

of this analysis as an indicator of value. We therefore focused on the Market Comparison Approach and the Income Approach.

The value recommendations for the business that are derived via the Market Comparison Approach and the Income Approach include, by definition, all tangible and intangible assets such as the equipment, buildings, assembled workforce, trademarks, etc. We have included a valuation study of the fixed assets in an appendix to this report. The valuation of the fixed assets (Value-in-Use) does not include the economic analysis of the product demand. Therefore, the value of the fixed assets as depicted would have to be reduced by an economic obsolescence factor reflecting the current overcapacity of the plant versus national demand for cement.

The overall value for the business assumes zero leveraged (interest bearing) debt of the Company, and complete debt forgiveness by creditors.

Market Approach

## IV. VALUATION - MARKET APPROACH

### MARKET COMPARISON APPROACH

In this approach, the prices paid for U.S. stocks of publicly held companies engaged in similar pursuits are analyzed and compared to the subject company. Certain relevant ratios (multiples) are extracted and applied to the subject company (INC), thereby developing indications of value. In selecting appropriate market multiples, consideration was given to four major factors:

- o Stock market environment
- o Representative industry groupings
- o Reasonably similar companies
- o Economic climate

### Price-to-Earnings Ratio

The price-to-earnings (P/E) ratio measures the market price per share of common stock divided by the earnings per share of common stock. It is a function of anticipated growth and risk factors affecting the subject business, the industry, and the overall economy.

### Recent Year's Earnings

The recent year's price-to-earnings ratios of the similar U.S. companies in this industry are 12. This multiple would give an indication of value for similar business in the U.S. However, due to the great market differences in Paraguay and the U.S. this may not be applicable. Given the higher risk of INC due to the overcapacity problems, we selected a market multiple of 7. This multiple was applied to the Company's 1988

adjusted after tax earnings of \$44,117,400 to provide an estimated value of \$28,821,800 (minority basis).

#### **MARKET APPROACH CONCLUSION**

The value of the subject business would include a control premium. This premium represents the opportunity for controlling shareholders (majority interests) to alter the capital structure, dividend policy, strategic plans, management structure, and other important matters relating to the operations of a company. A net premium of 30 percent is considered appropriate for the subject company.

With application of the 30 percent control premium to the aforementioned value indication, we derive a value of  $1.30 \times \$28,821,800 = \$37,468,340$  or rounded = \$37,500,000

Income Approach

## V. VALUATION - INCOME APPROACH

This approach utilizes a four-step methodology. First, estimates were made of the revenues and earnings of the business. These estimates were based on the 1990-1995 forecast prepared by management of Industria Nacional del Cemento, which forecast is included in the following exhibits.

Second, estimated unlevered cash flows (debt-free net income plus depreciation and amortization) were reduced by the capital expenditures and working capital necessary to support future sales. The result is an estimate of the debt-free net cash flow available from the business.

Third, the debt-free cash flow stream was discounted to the present at a market rate based on a weighted average cost of capital study. This weighted average was developed by selecting current market rates for debt and equity that are reflective of the risks associated with an investment in the subject industry. We recognized that no public market exists in Paraguay, and, therefore, we have relied on the estimates of local business professionals to estimate these rates of return.

Fourth, to estimate income generated beyond 1995 and into the future (indefinitely), a future enterprise value was calculated. The terminal value concept (also known as "residual" value) is used as a proxy to estimate income indefinitely as an annuity-in-perpetuity. By capitalizing beyond 1995 net cash flow at a rate (using the weighted average cost of capital less a long-term expected growth rate as a capitalization rate), the terminal value was estimated. This amount was discounted and then added to the discounted amounts for the interim years.

The resultant amount represents the value of the business before deduction of the debt. In other words, the value recommendation assumes zero leveraged debt of Industria Nacional del Cemento. The range of value recommendations is included in the following matrix. The detailed calculations which support the matrix are attached.

Summary  
Recommendations

VII. CONCLUSION OF RECOMMENDED RANGE OF VALUES

In summary, the range of recommended values for the business enterprise known as Industria Nacional del Cemento as of June 1, 1989 is \$36,600,000 to \$42,900,000 As noted previously, this range of recommended values assumes zero leveraged debt.

		Growth Rate in Number of Bags of Cement Sold Per Annum		
		6.0%	8.0%	10.0%
Expected Rate of Return	25%	\$36,581,000	\$39,383,000	\$42,874,000
	28%	\$30,766,000	\$32,654,196	\$34,917,000
	30%	\$27,775,000	\$29,267,000	\$31,021,000

 = *Most Likely Scenarios*

Scenario I

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
 NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

=====

COST PER BAG

BUSINESS VALUATION ASSUMPTIONS

.....

ESTIMATED	1990	
COST PER BAG IN VALLEMI:	-----	
OIL AND LUBRICANTS	\$0.87	22.77%
ELECTRIC ENERGY	0.12	3.14%
LABOR	0.20	5.24%
MATERIALS	0.70	18.32%
EXPLOSIVES	0.03	0.79%
GENERAL FACTORY COSTS	0.07	1.83%
	.....	.....
TOTAL CLINKER COST	1.99	0.52
	-----	-----
TRANSPORTATION	0.38	9.95%
	.....	.....
TOTAL CLINKER COST	.....	.....
SHIPPED TO VILLETA	2.37	62.04%

ESTIMATED		
COST PER BAG IN VILLETA:		
OIL AND LUBRICANTS		
AND ELECTRIC ENERGY	0.08	2.09%
LABOR	0.10	2.62%
MATERIALS	0.92	24.08%
GENERAL FACTORY COSTS	0.04	1.05%
	.....	.....
	1.14	29.8%
	-----	-----
TOTAL CEMENT COST	3.51	0.92
	.....	.....

ESTIMATED		
COST PER BAG IN ASUNCION		
GENERAL SALES	0.31	8.12%
	.....	.....
TOTAL COST PER BAG	\$3.82	100.00%
	=====	=====

.....

Data from INC management forecast, Plan de Amortizacion de la deuda externa.

.....

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
 NATIONAL CEMENT INDUSTRY ALL DATA IN U.S \$'S

=====

ESTIMATED COST PER BAG  
 BUSINESS VALUATION ASSUMPTIONS

.....

YEAR	1990	1991	1992	1993	1994
	.....	.....	.....	.....	.....
COST PER BAG IN VALLEMI	\$2.37	\$2.49	\$2.61	\$2.74	\$2.88
COST PER BAG IN VILLETTA	1.14	1.20	1.26	1.32	1.39
COST PER BAG IN ASUNCION	0.31	0.33	0.34	0.36	0.38
	.....	.....	.....	.....	.....
TOTAL COST PER BAG	\$3.82	\$4.01	\$4.21	\$4.42	\$4.64

Note: ASSUMED ANNUAL GROWTH RATE 5.0%  
 Data from INC management forecast, Plan de Amortizacion de la deuda externa.

-----

ESTIMATED SALES PRICE PER BAG  
 BUSINESS VALUATION ASSUMPTIONS

-----

YEAR	1990	1991	1992	1993	1994
	.....	.....	.....	.....	.....
PRICE PER BAG RETAIL	\$5.15	\$5.41	\$5.68	\$5.96	\$6.26

Note: ASSUMED ANNUAL GROWTH RATE 5.0%  
 Data from INC management forecast, Plan de Amortizacion de la deuda externa.

-----

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
 NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

=====

ESTIMATED SALES PRICE PER BAG  
 BUSINESS VALUATION ASSUMPTIONS

.....

YEAR	1990	1991	1992	1993	1994
	.....	.....	.....	.....	.....
ESTIMATED DEPRECIATION COST	\$1,245,320	\$1,379,476	\$1,462,244	\$1,549,979	\$1,642,977
ESTIMATED CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,642,977
ESTIMATED WORKING CAPITAL	2,350,340	909,764	1,012,534	1,126,966	1,254,310

Note : ASSUMED SALES TO W.C. RATIO           3.20 TIMES  
 : ASSUMED STARTING W.C. AT \$5,721,760  
 : ASSUMED GROWTH RATE IN CAPITAL EXPENDITURES AT           5.0%  
 : ASSUMED DEPRECIATION AS % OF TOTAL COST PER BAG           6.52%

.....

ESTIMATED NUMBER OF BAGS SOLD PER YEAR  
 BUSINESS VALUATION ASSUMPTIONS

.....

YEAR	1990	1991	1992	1993	1994
	.....	.....	.....	.....	.....
NATIONAL CEMENT DEMAND IN TONS PER YEAR	250,000	265,000	280,900	297,754	315,619
= NUMBER OF BAGS	5,000,000	5,300,000	5,618,000	5,955,080	6,312,385

Note: ASSUMED ANNUAL GROWTH RATE           6.0%

Data from from field interviews with Paraguayan construction firms, architect firms and lending institutions

.....

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
 NATIONAL CEMENT INDUSTRY ALL DATA IN U.S \$'S

INDUSTRIA NACIONAL DEL CEMENTO  
 BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$28,659,800	\$31,898,300	\$35,502,800	\$39,514,600
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,113,000	1,179,780	1,250,567	1,325,601
MATERIALS	3,500,000	3,895,500	4,129,230	4,376,984	4,639,603
GENERAL/ALL OTHER	5,450,000	6,065,850	6,429,801	6,815,589	7,224,524
TOTAL CLINKER COST	9,950,000	11,074,350	11,738,811	12,443,140	13,189,728
TRANSPORTATION	1,900,000	2,014,000	2,134,840	2,262,930	2,398,706
VILLETIA:					
LABOR	500,000	556,500	589,890	625,283	662,800
MATERIALS	4,600,000	5,119,800	5,426,988	5,752,607	6,097,764
GENERAL/ALL OTHER	600,000	667,800	707,868	750,340	795,360
TOTAL CEMENT COST	17,550,000	19,432,450	20,598,397	21,834,301	23,144,359
ASUNCION:					
SALES COST	1,550,000	1,725,150	1,828,659	1,938,379	2,054,681
TOTAL COST	19,100,000	21,157,600	22,427,056	23,772,679	25,199,040
EARNINGS BEFORE INTEREST AND TAXES					
INTEREST AND TAXES	6,650,000	7,502,200	9,471,244	11,730,121	14,315,560
TAXES 20.0%	1,330,000	1,500,440	1,894,249	2,346,024	2,863,112
EARNINGS BEFORE INTEREST	5,320,000	6,001,760	7,576,995	9,384,097	11,452,448
ADD: DEPRECIATION	1,245,320	1,379,476	1,462,244	1,549,979	1,642,977
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,642,977
LESS: WORKING CAPITAL ADDITIONS	2,350,340	909,764	1,012,534	1,126,966	1,254,310
DEBT FREE NET CASH FLOW	3,214,980	5,421,471	6,924,205	8,649,484	10,198,138
REQUIRED INVESTMENT RETURN 25.0%					
RATE OF RETURN FACTOR	0.8944	0.7155	0.5724	0.4579	
PRESENT VALUE OF DEBT					
FREE NET CASH FLOW	2,875,565	3,879,289	3,963,646	3,961,003	

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

---

SUM OF CASH FLOW	\$14,679,504	v
	.....	
		\$10,198,138
ENTERPRISE VALUE		X 0.4096
END OF YEAR FOUR		.....
		= \$4,161,405
REQUIRED STABILIZED		
RATE OF RETURN		19.0%
FUTURE ENTERPRISE VALUE		\$21,902,131
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$21,902,131	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$36,581,635	
	=====	

26

Scenario II

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
 NATIONAL CEMENT INDUSTRY ALL DATA IN U.S \$'S

INDUSTRIA NACIONAL DEL CEMENTO  
 BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$28,659,800	\$31,898,300	\$35,502,800	\$39,514,600
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,113,000	1,179,780	1,250,567	1,325,601
MATERIALS	3,500,000	3,895,500	4,129,230	4,376,984	4,639,603
GENERAL/ALL OTHER	5,450,000	6,065,850	6,429,801	6,815,589	7,224,524
TOTAL CLINKER COST	9,950,000	11,074,350	11,738,811	12,443,140	13,189,728
TRANSPORTATION	1,900,000	2,014,000	2,134,840	2,262,930	2,398,706
VILLETTA:					
LABOR	500,000	556,500	589,890	625,283	662,800
MATERIALS	4,600,000	5,119,800	5,426,988	5,752,607	6,097,764
GENERAL/ALL OTHER	600,000	667,800	707,868	750,340	795,360
TOTAL CEMENT COST	17,550,000	19,432,450	20,598,397	21,834,301	23,144,359
ASUNCION:					
SALES COST	1,550,000	1,725,150	1,828,659	1,938,379	2,054,681
TOTAL COST	19,100,000	21,157,600	22,427,056	23,772,679	25,199,040
EARNINGS BEFORE INTEREST AND TAXES					
INTEREST AND TAXES	6,650,000	7,502,200	9,471,244	11,730,121	14,315,560
TAXES 20.0%	1,330,000	1,500,440	1,394,249	2,346,024	2,863,112
EARNINGS BEFORE INTEREST	5,320,000	6,001,760	7,576,995	9,384,097	11,452,448
ADD: DEPRECIATION	1,245,320	1,379,476	1,462,244	1,549,979	1,642,977
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,642,977
LESS: WORKING CAPITAL ADDITIONS	2,350,340	909,764	1,012,534	1,126,966	1,254,310
DEBT FREE NET CASH FLOW	3,214,980	5,421,471	6,924,205	8,649,484	10,198,138
REQUIRED INVESTMENT RETURN 28.0%					
RATE OF RETURN FACTOR	0.8839	0.6905	0.5395	0.4215	
PRESENT VALUE OF DEBT					
FREE NET CASH FLOW	2,841,667	3,743,710	3,735,468	3,645,485	

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

---

SUM OF CASH FLOW	\$13,966,331	
	.....	
		\$10,198,138
ENTERPRISE VALUE		X 0.3725
END OF YEAR FOUR		.....
		= \$3,696,070
REQUIRED STABILIZED		
RATE OF RETURN		22.0%
FUTURE ENTERPRISE VALUE		\$16,800,318
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$16,800,318	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$30,766,649	
	*****	

Scenario III

## INDUSTRIA NACIONAL DEL CEMENTO (INC)

NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S. \$'S

## INDUSTRIA NACIONAL DEL CEMENTO

## BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$28,659,800	\$31,898,300	\$35,502,800	\$39,514,600
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,113,000	1,179,780	1,750,567	1,325,601
MATERIALS	3,500,000	3,895,500	4,129,230	4,376,984	4,639,603
GENERAL/ALL OTHER	5,450,000	6,065,850	6,429,801	6,815,589	7,224,524
TOTAL CLINKER COST	9,950,000	11,074,350	11,738,811	12,443,140	13,189,728
TRANSPORTATION	1,900,000	2,014,000	2,134,840	2,262,930	2,398,706
VILLETTA:					
LABOR	500,000	556,500	589,890	625,283	662,800
MATERIALS	4,600,000	5,119,800	5,426,988	5,752,607	6,097,764
GENERAL/ALL OTHER	600,000	667,800	707,868	750,340	795,360
TOTAL CEMENT COST	17,550,000	19,432,450	20,598,397	21,834,301	23,144,359
ASUNCION:					
SALES COST	1,550,000	1,725,150	1,828,659	1,938,379	2,054,681
TOTAL COST	19,100,000	21,157,600	22,427,056	23,772,679	25,199,040
EARNINGS BEFORE INTEREST AND TAXES					
INTEREST AND TAXES	6,650,000	7,502,200	9,471,244	11,730,121	14,315,560
TAXES 20.0%	1,330,000	1,500,440	1,894,249	2,346,024	2,863,112
EARNINGS BEFORE INTEREST	5,320,000	6,001,760	7,576,995	9,384,097	11,452,448
ADD: DEPRECIATION	1,245,320	1,379,476	1,462,244	1,549,979	1,642,977
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,642,977
LESS: WORKING CAPITAL ADDITIONS	2,350,340	909,764	1,012,534	1,126,966	1,254,310
DEBT FREE NET CASH FLOW	3,214,980	5,421,471	6,924,205	8,649,484	10,198,138
REQUIRED INVESTMENT RETURN 30.0%					
RATE OF RETURN FACTOR	0.8771	0.6747	0.5190	0.3992	
PRESENT VALUE OF DEBT					
FREE NET CASH FLOW	2,819,724	3,657,650	3,593,450	3,452,936	

2/1

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

=====

SUM OF CASH FLOW	\$13,523,759	
	.....	
		\$10,198,138
		X 0.3501
ENTERPRISE VALUE		.....
END OF YEAR FOUR		= \$3,420,372
REQUIRED STABILIZED		
RATE OF RETURN		24.0%
FUTURE ENTERPRISE VALUE		\$14,251,548
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$14,251,548	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$27,775,307	
	=====	

22

Scenario IV

11/2

## INDUSTRIA NACIONAL DEL CEMENTO (INC)

NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S. \$'S

## INDUSTRIA NACIONAL DEL CEMENTO

## BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$29,200,500	\$33,113,400	\$37,550,600	\$42,582,300
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,134,000	1,224,720	1,322,698	1,428,513
MATERIALS	3,500,000	3,969,000	4,286,520	4,629,442	4,999,797
GENERAL/ALL OTHER	5,450,000	6,180,300	6,674,724	7,208,702	7,785,398
TOTAL CLINKER COST	9,950,000	11,283,300	12,185,964	13,160,841	14,213,708
TRANSPORTATION	1,900,000	2,052,000	2,216,160	2,393,453	2,584,929
VILLETTA:					
LABOR	500,000	567,000	612,360	661,349	714,257
MATERIALS	4,600,000	5,216,400	5,633,712	6,084,409	6,571,162
GENERAL/ALL OTHER	600,000	680,400	724,832	793,619	857,108
TOTAL CEMENT COST	17,550,000	19,799,100	21,383,028	23,093,670	24,941,164
ASUNCION:					
SALES COST	1,550,000	1,757,700	1,898,316	2,050,181	2,214,196
TOTAL COST	19,100,000	21,556,800	23,281,344	25,143,852	27,155,360
EARNINGS BEFORE INTEREST AND TAXES					
INTEREST AND TAXES	6,650,000	7,643,700	9,832,056	12,406,748	15,426,940
TAXES 20.0%	1,330,000	1,528,740	1,966,411	2,481,350	3,085,388
EARNINGS BEFORE INTEREST	5,320,000	6,114,960	7,865,645	9,925,399	12,341,552
ADD: DEPRECIATION	1,245,320	1,405,503	1,517,944	1,639,379	1,770,529
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,770,529
LESS: WORKING CAPITAL ADDITIONS	2,350,340	1,078,817	1,223,389	1,387,314	1,573,187
DEBT FREE NET CASH FLOW	3,214,980	5,391,646	7,057,700	9,019,839	10,768,365
REQUIRED INVESTMENT RETURN 25.0%					
RATE OF RETURN FACTOR	0.8944	0.7155	0.5724	0.4579	
PRESENT VALUE OF DEBT					
FREE NET CASH FLOW	2,875,565	3,857,948	4,040,063	4,130,606	

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

=====

SUM OF CASH FLOW	\$14,904,182	v
	.....	
		\$10,768,365
ENTERPRISE VALUE		X 0.4096
END OF YEAR FOUR		.....
		= \$4,161,405
REQUIRED STABILIZED		
RATE OF RETURN		17.0%
FUTURE ENTERPRISE VALUE		\$24,478,853
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$24,478,853	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$39,383,035	
	=====	

25

Scenario V

## INDUSTRIA NACIONAL DEL CEMENTO (INC)

## NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

## INDUSTRIA NACIONAL DELCEMENTO

## BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$29,200,500	\$33,113,400	\$37,550,600	\$42,582,300
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,134,000	1,224,720	1,322,698	1,428,513
MATERIALS	3,500,000	3,969,000	4,286,520	4,629,442	4,999,797
GENERAL/ALL OTHER	5,450,000	6,180,300	6,674,724	7,208,702	7,785,398
TOTAL CLINKER COST	9,950,000	11,283,300	12,185,964	13,160,841	14,213,708
TRANSPORTATION	1,900,000	2,052,000	2,216,160	2,393,453	2,584,929
VILLETTA:					
LABOR	500,000	567,000	612,360	661,349	714,257
MATERIALS	4,600,000	5,216,400	5,633,712	6,084,409	6,571,162
GENERAL/ALL OTHER	600,000	680,400	734,832	793,619	857,108
TOTAL CEMENT COST	17,550,000	19,799,100	21,383,028	23,093,670	24,941,164
ASUNCION:					
SALES COST	1,550,000	1,757,700	1,898,316	2,050,181	2,214,196
TOTAL COST	19,100,000	21,556,800	23,281,344	25,143,852	27,155,360
EARNINGS BEFORE INTEREST AND TAXES	6,650,000	7,643,700	9,832,056	12,406,748	15,426,940
TAXES 20.0%	1,330,000	1,528,740	1,966,411	2,481,350	3,085,388
EARNINGS BEFORE INTEREST	5,320,000	6,114,960	7,865,645	9,925,399	12,341,552
ADD: DEPRECIATION	1,245,320	1,405,503	1,517,944	1,639,379	1,770,529
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,770,529
LESS: WORKING CAPITAL ADDITIONS	2,350,340	1,078,817	1,223,389	1,387,314	1,573,187
DEBT FREE NET CASH FLOW	3,214,980	5,391,646	7,057,700	9,019,839	10,768,365
REQUIRED INVESTMENT RETURN 28.0%					
RATE OF RETURN FACTOR	0.8839	0.6905	0.5395	0.4215	
PRESENT VALUE OF DEBT FREE NET CASH FLOW	2,841,667	3,723,115	3,807,485	3,801,578	

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

---

SUM OF CASH FLOW	\$14,173,846	
	.....	 v
		\$10,768,365
ENTERPRISE VALUE		X 0.3725
END OF YEAR FOUR		.....
		= \$3,696,070
REQUIRED STABILIZED RATE OF RETURN		20.0%
FUTURE ENTERPRISE VALUE		\$18,480,350
		.....
PRESENT VALUE OF FUTURE ENTERPRISE VALUE	\$18,480,350	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$32,654,196	
	=====	

- 35

Scenario VI

## INDUSTRIA NACIONAL DEL CEMENTO (INC)

## NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S. \$'S

INDUSTRIA NACIONAL DEL CEMENTO  
BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$29,200,500	\$33,113,400	\$37,550,600	\$42,582,300
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,134,000	1,224,720	1,322,698	1,428,513
MATERIALS	3,500,000	3,969,000	4,286,520	4,629,442	4,999,797
GENERAL/ALL OTHER	5,450,000	6,180,300	6,674,724	7,208,702	7,785,398
TOTAL CLINKER COST	9,950,000	11,283,300	12,185,964	13,160,841	14,213,708
TRANSPORTATION	1,900,000	2,052,000	2,216,160	2,393,453	2,584,929
VILLETIA:					
LABOR	500,000	567,000	612,360	661,349	714,257
MATERIALS	4,600,000	5,216,400	5,633,712	6,084,409	6,571,162
GENERAL/ALL OTHER	600,000	680,400	734,832	793,619	857,108
TOTAL CEMENT COST	17,550,000	19,799,100	21,383,028	23,093,670	24,941,164
ASUNCION:					
SALES COST	1,550,000	1,757,700	1,898,316	2,050,181	2,214,196
TOTAL COST	19,100,000	21,556,800	23,281,344	25,143,852	27,155,360
EARNINGS BEFORE INTEREST AND TAXES	6,650,000	7,643,700	9,832,056	12,406,748	15,426,940
TAXES 20.0%	1,330,000	1,528,740	1,966,411	2,481,350	3,085,388
EARNINGS BEFORE INTEREST	5,320,000	6,114,960	7,865,645	9,925,399	12,341,552
ADD: DEPRECIATION	1,245,320	1,405,503	1,517,944	1,639,379	1,770,529
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,770,529
LESS: WORKING CAPITAL ADDITIONS	2,350,340	1,078,817	1,223,389	1,387,314	1,573,187
DEBT FREE NET CASH FLOW	3,214,980	5,391,646	7,057,700	9,019,839	10,768,365
REQUIRED INVESTMENT RETURN 30.0%					
RATE OF RETURN FACTOR	0.8771	0.6747	0.5190	0.3992	
PRESENT VALUE OF DEBT FREE NET CASH FLOW	2,819,724	3,637,528	3,662,729	3,600,784	

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

=====

SUM OF CASH FLOW	\$13,720,765	v
	.....	
		\$10,768,365
ENTERPRISE VALUE		X 0.3501
END OF YEAR FOUR		.....
		= \$3,420,372
REQUIRED STABILIZED		
RATE OF RETURN		22.0%
FUTURE ENTERPRISE VALUE		\$15,547,143
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$15,547,143	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$29,267,908	
	=====	

Scenario VII

## INDUSTRIA NACIONAL DEL CEMENTO (INC)

NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

## INDUSTRIA NACIONAL DEL CEMENTO

## BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$29,741,300	\$34,351,100	\$39,675,600	\$45,825,300
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,155,000	1,270,500	1,397,550	1,537,305
MATERIALS	3,500,000	4,042,500	4,446,750	4,891,425	5,380,568
GENERAL/ALL OTHER	5,450,000	6,294,750	6,924,225	7,616,648	8,378,312
TOTAL CLINKER COST	9,950,000	11,492,250	12,641,475	13,905,623	15,296,185
TRANSPORTATION	1,900,000	2,090,000	2,299,000	2,528,900	2,781,790
VILLETTA:					
LABOR	500,000	577,500	635,250	698,775	768,653
MATERIALS	4,600,000	5,313,000	5,844,300	6,428,730	7,071,603
GENERAL/ALL OTHER	600,000	693,000	762,300	838,530	922,383
TOTAL CEMENT COST	17,550,000	20,165,750	22,182,325	24,400,558	26,840,613
ASUNCION:					
SALES COST	1,550,000	1,790,250	1,969,275	2,166,203	2,382,823
TOTAL COST	19,100,000	21,956,000	24,151,600	26,566,760	29,223,436
EARNINGS BEFORE INTEREST AND TAXES	6,650,000	7,785,300	10,199,500	13,108,840	16,601,864
TAXES 20.0%	1,330,000	1,557,060	2,039,900	2,621,768	3,320,373
EARNINGS BEFORE INTEREST	5,320,000	6,228,240	8,159,600	10,487,072	13,281,491
ADD: DEPRECIATION	1,245,320	1,431,531	1,574,684	1,732,153	1,905,368
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,905,368
LESS: WORKING CAPITAL ADDITIONS	2,350,340	1,247,901	1,441,278	1,664,733	1,922,736
DEBT FREE NET CASH FLOW	3,214,980	5,361,870	7,190,506	9,396,867	11,358,755
REQUIRED INVESTMENT RETURN 25.0%					
RATE OF RETURN FACTOR	0.8944	0.7155	0.5724	0.4579	
PRESENT VALUE OF DEBT FREE NET CASH FLOW	2,875,565	3,836,642	4,116,086	4,303,264	

43

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

---

SUM OF CASH FLOW	\$15,131,558	
	.....	
		\$11,358,755
ENTERPRISE VALUE		X 0.4096
END OF YEAR FOUR		.....
		= \$4,161,405
REQUIRED STABILIZED		
RATE OF RETURN		15.0%
FUTURE ENTERPRISE VALUE		\$27,742,700
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$27,742,700	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$42,874,257	
	=====	

Scenario VIII

45

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
 NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

INDUSTRIA NACIONAL DEL CEMENTO  
 BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$29,741,300	\$34,351,100	\$39,675,600	\$45,825,300
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,155,000	1,270,500	1,397,550	1,537,305
MATERIALS	3,500,000	4,042,500	4,446,750	4,891,425	5,380,568
GENERAL/ALL OTHER	5,450,000	6,294,750	6,924,225	7,616,648	8,378,312
TOTAL CLINKER COST	9,950,000	11,492,250	12,641,475	13,905,623	15,296,185
TRANSPORTATION	1,900,000	2,090,000	2,299,000	2,528,900	2,781,790
VILLETTA:					
LABOR	500,000	577,500	635,250	698,775	768,653
MATERIALS	4,600,000	5,313,000	5,844,300	6,428,730	7,071,603
GENERAL/ALL OTHER	600,000	693,000	762,300	838,530	922,383
TOTAL CEMENT COST	17,550,000	20,165,750	22,182,325	24,400,558	26,840,613
ASUNCION:					
SALES COST	1,550,000	1,790,250	1,969,275	2,166,203	2,382,823
TOTAL COST	19,100,000	21,956,000	24,151,600	26,566,760	29,223,436
EARNINGS BEFORE INTEREST AND TAXES	6,650,000	7,785,300	10,199,500	13,108,840	16,601,864
TAXES 20.0%	1,330,000	1,557,060	2,039,900	2,621,768	3,320,373
EARNINGS BEFORE INTEREST	5,320,000	6,228,240	8,159,600	10,487,072	13,281,491
ADD: DEPRECIATION	1,245,320	1,431,531	1,574,684	1,732,153	1,905,368
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,905,368
LESS: WORKING CAPITAL ADDITIONS	2,350,340	1,247,901	1,441,278	1,664,733	1,922,736
DEBT FREE NET CASH FLOW	3,214,980	5,361,870	7,190,506	9,396,867	11,358,755
REQUIRED INVESTMENT RETURN 28.0%					
RATE OF RETURN FACTOR	0.8839	0.6905	0.5395	0.4215	
PRESENT VALUE OF DEBT FREE NET CASH FLOW	2,841,667	3,702,554	3,879,132	3,960,483	

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S. \$'S

---

SUM OF CASH FLOW	\$14,383,836	
	.....	
		v
		\$11,358,755
ENTERPRISE VALUE		X 0.3725
END OF YEAR FOUR		.....
		= \$3,696,070
REQUIRED STABILIZED		
RATE OF RETURN		18.0%
FUTURE ENTERPRISE VALUE		\$20,533,723
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$20,533,723	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$34,917,559	
	*****	

47

Scenario IX

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
 NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

INDUSTRIA NACIONAL DEL CEMENTO  
 BUSINESS VALUATION

YEAR	1990	1991	1992	1993	1994
SALES	\$25,750,000	\$29,741,300	\$34,351,100	\$39,675,600	\$45,825,300
COST OF GOODS SOLD					
VALLEMI:					
LABOR	1,000,000	1,155,000	1,270,500	1,397,550	1,537,305
MATERIALS	3,500,000	4,042,500	4,446,750	4,891,425	5,380,568
GENERAL/ALL OTHER	5,450,000	6,294,750	6,924,225	7,616,648	8,378,312
TOTAL CLINKER COST	9,950,000	11,492,250	12,641,475	13,905,623	15,296,185
TRANSPORTATION	1,900,000	2,090,000	2,299,000	2,528,900	2,781,790
VILLETTA:					
LABOR	500,000	577,500	635,250	698,775	768,653
MATERIALS	4,600,000	5,313,000	5,844,300	6,428,730	7,071,603
GENERAL/ALL OTHER	600,000	693,000	762,300	838,530	922,383
TOTAL CEMENT COST	17,550,000	20,165,750	22,182,325	24,400,558	26,840,613
ASUNCION:					
SALES COST	1,550,000	1,790,250	1,969,275	2,166,203	2,382,823
TOTAL COST	19,100,000	21,956,000	24,151,600	26,566,760	29,223,436
EARNINGS BEFORE INTEREST AND TAXES	6,650,000	7,785,300	10,199,500	13,108,840	16,601,864
TAXES 20.0%	1,330,000	1,557,060	2,039,900	2,621,768	3,320,373
EARNINGS BEFORE INTEREST	5,320,000	6,228,240	8,159,600	10,487,072	13,281,491
ADD: DEPRECIATION	1,245,320	1,431,531	1,574,684	1,732,153	1,905,368
LESS: CAPITAL EXPENDITURES	1,000,000	1,050,000	1,102,500	1,157,625	1,905,368
LESS: WORKING CAPITAL ADDITIONS	2,350,340	1,247,901	1,441,278	1,664,733	1,922,736
DEBT FREE NET CASH FLOW	3,214,980	5,361,870	7,190,506	9,396,867	11,338,755
REQUIRED INVESTMENT RETURN 30.0%					
RATE OF RETURN FACTOR	0.8771	0.6747	0.5190	0.3992	
PRESENT VALUE OF DEBT FREE NET CASH FLOW	2,819,724	3,617,440	3,731,652	3,751,296	

INDUSTRIA NACIONAL DEL CEMENTO (INC)  
NATIONAL CEMENT INDUSTRY

ALL DATA IN U.S \$'S

---

SUM OF CASH FLOW	\$13,920,111	
	.....	v
		\$11,358,755
ENTERPRISE VALUE		X 0.3501
END OF YEAR FOUR		.....
		= \$3,420,372
REQUIRED STABILIZED		
RATE OF RETURN		20.0%
FUTURE ENTERPRISE VALUE		\$17,101,858
		.....
PRESENT VALUE OF		
FUTURE ENTERPRISE VALUE	\$17,101,858	
	.....	
ESTIMATED TOTAL BUSINESS VALUE	\$31,021,968	
	=====	

---

**A P P E N D I X**

---

## **APPENDIX**

The value of the subject machinery and equipment was derived by first estimating the replacement cost new of the subject assets. Replacement cost new estimates were derived based on the prices for which new assets currently transacted for in the market. The value-in-use of these assets was estimated by deducting the observed depreciation and the functional obsolescence from the reproduction cost new. The value-in-use estimates of the equipment includes allowances for installation, wiring, assemblage, and reflect such factors as age, condition and utility, but excludes consideration of the income producing potential of the company.

### **Recommendations**

The total recommended value-in-use of the machinery and equipment of Paraguay's Portland Cement Plants is \$100,660,000 (U.S. Dollars).

The following provides a summary of the total recommended fair market value of the machinery and equipment at each location.

PARAGUAY'S PORTLAND CEMENT PLANTS

MACHINERY AND EQUIPMENT

VALUE SUMMARY BY LOCATION

(All Data in U.S. Dollars)

LOCATION	RECOMMENDED VALUE-IN-USE
Villeta - Finishing Grinding	\$ 29,120,000
Vallemi - Cement Plants	71,540,000
Total Machinery & Equipment:	\$100,660,000 =====

PARAGUAY PORTLAND CEMENT PLANTS

VALLEMI-CEMENT PLANTS

DESCRIPTION	VALUE-IN-USE
Construction	\$ 39,918,435
Infrastructure	319,664
Office Equipment	44,374
Transportation	357,201
Road Equipment	206,580
Machinery & Equipment	24,275,599
Installation	6,245,186
Instrumentation	142,456
Communications	34,305
	\$ 71,543,801
Value-In-Use Rounded:	\$ 71,540,000* =====

\* Excludes economic obsolescence due to overcapacity.

PARAGUAY PORTLAND CEMENT PLANTS  
VILLETA-FINISH GRINDING

DESCRIPTION	VALUE - IN - USE
Construction	\$ 21,337,677
Infrastructure	11,858
Office Equipment	43,955
Transportation	119,219
Road Equipment	7,590
Machinery & Equipment	5,808,273
Installation	1,746,744
Instrumentation	45,915
Communications	821
	<hr/>
	\$ 29,122,052
Value-In-Use Rounded:	\$ 29,120,000*
	<hr/>

\* Excludes economic obsolescence due to overcapacity.