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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Austria

Philippine Industrial Investment Opportunity Study
April 1990

MANUFACTURE AND EXPORT OF ORNAMENTAL CERAMICS

FINAL REPORT

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April 19,1990

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Development Organization
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Attention: Mr. S. Morozov
Chief, Contracts Section

Gentlemen:

Re: Follow-up Services to Manila Investors' Forum
Amendment No. 1 Project No. UC/PHI/88/082
Contract No. 88/46/RK

We are pleased to submit our final report on the Philippine Industrial Investment Opportunity Study on the Manufacture and Export of Ornamental Ceramics.

This study was conducted in accordance with the UNIDO Manual for the Preparation of Industrial Feasibility Studies. The report covers the following major topics:

- Project background and history
- Market and plant capacity
- Material inputs
- Plant location
- Project engineering
- Plant organization and overhead cost
- Manpower
- Project implementation
- Financial evaluation

The technical aspects of the study were prepared in association with the Industrial Technology Development Institute (ITDI). The financial projection utilized the UNIDO Computer Model for Feasibility Analysis and Reporting (COMFAR).

This study was prepared mainly to provide preliminary broad indications of the viability of the project and is not meant to serve as a detailed project feasibility study necessary for project implementation. Moreover, it is understood that the results of the study may not be realized if there are changes in the environment that may require revision in any of the critical assumptions used.

We will be glad to discuss any question you may have on this report.

Very truly yours,

SGV & Co.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Austria

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MANUFACTURE AND EXPORT OF ORNAMENTAL CERAMICS

FINAL REPORT

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I. EXECUTIVE SUMMARY

This opportunity study examines the prospect of putting up an ornamental ceramics manufacturing plant. The proposed project is envisioned to sell 70 per cent of its production to the export market. It qualifies as a non-pioneer export producer, entitling it to investment incentives administered by the Board of Investments (BOI).

Under Executive Order 226, an enterprise which intends to export at least 50 per cent (if Philippine national) or 70 per cent (if foreign-owned) of its intended production is eligible for incentives as an export producer. The incentives include tax credit on domestic capital equipment, tax and duty-free importation of capital equipment, four-year income tax holiday from start of commercial operation, tax credit for taxes and duties on raw materials of export products, exemption from taxes and duties on imported supplies and spare parts in a bonded manufacturing warehouse, and exemption from wharfage dues and export tax. Also, the National Internal Revenue Code provides that the value added tax on export sales by a VAT-registered entity is zero-rated.

MARKET AND PLANT CAPACITY

Domestic consumption of ornamental ceramics in 1988 is estimated at 10,250 metric tons valued at ₱ 85.8 million. The Philippine ceramic industry is a net exporter of ornamental ceramic products. In 1988, out of the estimated 14,900 metric tons domestic production volume, 31 per cent or 4,670 metric tons were channeled to exports. Importation is minimal.

Philippine exports of ornamental ceramics to the world market is less than one per cent of total world importation volume and value. Most of the country's ceramic exports go to the United States where the products enjoy the U.S. Generalized System of Preferences (GSP). This provides for duty free entry from the Philippines to the United States of specified commodities including ceramic products.

Domestic demand for ornamental ceramics is projected to grow at a rate of 15 per cent per year from 1989 to 1995, and 10 per cent per year from 1995 to 2005. World importation for ornamental ceramics, on the other hand, is projected to grow by 4.7 per cent per annum based on historical trends.

The representative ornamental ceramic product assumed for financial projection purposes is a miniature earthenware house which weighs 214 grams and measures 5.5"l x 5.25"h x 3.4"w. Its price is ₱34 per piece in the domestic market and US$1.55 per piece in the export market. The project will continue to design and develop new products to respond to changing preferences of major buyers and country markets.

The proposed plant is capable of producing 349 metric tons of finished products per annum or 1.632 million pieces of earthenware miniature houses at full capacity. On the first year of operation, the plant is assumed to operate four shuttle kilns of three-cubic meter capacity each. Two shuttle kilns will be added per year on the second and third years of commercial operation. The plant will reach 100 per cent utilization in its fourth year of commercial operation with a total of nine shuttle kilns.

The plant will operate eight hours a day. As observed by the president of the Ceramic Export Manufacturers Association, Taiwanese ornamental ceramic manufacturers operate their kilns for only eight hours per day which greatly reduces the wear and tear of the equipment. The shuttle kiln will be operated at three hundred and thirty days a year. The main work force, however, is assumed to work for three hundred days a year.

MATERIAL INPUTS

The direct raw materials needed for the manufacture of ornamental ceramics are WEB-Premium RCP earthenware body, WEB-Regular RCP earthenware body, RCP glaze, sodium silicate and coloring oxides. Plaster of paris is an indirect material used for the plaster molds of the ornamental ceramics products. Except for the coloring oxides and plaster of paris which are imported, all materials are locally available from the Refractories Corporation of the Philippines. Total direct and indirect raw material requirements at full capacity are estimated at ₱ 4.8 million and P1.1 million, respectively (all revenue and cost estimates are assumed at 1989 constant prices).

The plant will utilize annually 665 metric tons of LPG fuel and 384 cubic meters of water costing ₱ 3.87 million and ₱2,419, respectively, at full capacity in 1995. Electrical consumption is estimated at 203,856 kilowatt-hours for a total cost of ₱ 226,790 at full capacity.

PLANT LOCATION

The proposed site for the ceramic plant is in Bauan, Batangas. Major considerations in the choice of location include the price of land, accessibility to major shipping ports and LPG supplier, and reliability of water and power supply.

PROJECT ENGINEERING

The plant will occupy a 7,500-square meter lot which will accommodate the administrative office and manufacturing space requirement of 5,300 square meters and the two LPG storage tanks each of which has a capacity of four metric tons.

Production Process

Earthenware ornamental ceramics is produced by mixing the RCP body with water and sodium silicate in calculated quantities. The obtained homogenous slurry is then molded with the aid of plaster molds and filling guns. The wares are dried and baked at 1050^{o}C, underglazed and glazed, and rebaked at the same temperature.

PLANT ORGANIZATION AND MANPOWER

The organization is headed by a general manager who has overall resposibility for the operation of the enterprise. The plant is divided into three major groups of personnel -- the finance and administrative group, the marketing group and the production/plant group. Each group is headed by a manager.

The direct labor force consists of 181 skilled and 179 unskilled workers. There are 16 indirect plant workers. Total administrative personnel is 24 while marketing personnel is five. Total manpower requirement for the project is 405. Salaries plus benefits of the direct and indirect plant workers is estimated at ₱ 12.86 million and ₱ 1.54 million, respectively. Salaries and benefits of the administrative personnel amounts to ₱ 2.31 million while that of the marketing personnel is estimated at ₱ 0.81 million.

PROJECT IMPLEMENTATION

A one-year preproduction/construction period is assumed. Land development, building construction, civil works, acquisition and installation of machinery and equipment, manpower training, and start-up operations are the major activities during this period.

During the first year of operations, the capacity utilization of the plant is projected at 44 per cent, reaching full utilization in its fourth year of operation.

FINANCIAL EVALUATION

Total Investment Costs

Total investment outlay for the project is about ₱ 35.60 million (US$ 1.62 million at 1989 prices) with BOI incentives and ₱ 36.60 million (US$ 1.66 million) without BOI incentives. The breakdown of investment cost (in thousand pesos) is as follows:

	With Incentives	Without Incentives
Land, site preparation & development	₱ 3,750	₱ 3,750
Buildings & civil works	18,550	18,550
Auxiliary & service facilities	2,238	2,612
Incorporated fixed assets	555	555
Plant, machinery & equipment	3,514	4,020
Total Fixed Investment Cost	28,607	29,487
Pre-production capital expenditures	4,136	4,196
Working Capital	2,855	2,912
Total Initial Investment Cost	₱ 35,598	₱ 36,595

About 95 per cent of total investment cost is local cost. This is mainly composed of plant and auxiliary equipment (82 per cent of total equipment cost) including shuttle kilns which are manufactured locally.

Project Financing

The project will be financed through equity contributions and long-term loans at a debt-to-equity ratio of 60:40. Breakdown of the financing sources (in thousand pesos) is as follows:

	With Incentives	Without Incentives
Equity		
Foreign	₱ 5,696	₱ 5,855
Local	8,543	8,783
Total Equity	₱ 14,239	₱ 14,638
Loan (Local)	₱ 21,359	₱ 21,957
Total Sources of Financing	₱ 35,598	₱ 36,595

The loans will be obtained from local sources and are assumed to bear interest of 20 per cent per annum. The loans are assumed to have a term of seven years inclusive of a two-year grace period on principal payments. The principal will be paid in five equal annual amortizations.

Total Production Cost

The breakdown of estimated annual production cost (in thousand pesos, at full capacity) is provided below.

	With Incentives	Without Incentives
Factory Costs		
Raw materials	₱ 4,792	₱ 4,841
Other raw materials	1,095	1,319
Utilities	299	299
Energy	3,866	3,866
Direct Labor	12,857	12,857
Repairs and Maintenance	94	106
Spares	234	265
Factory Overhead	7,643	7,656
Sub-total	30,880	31,209
Administrative Overhead	2,698	2,698
Sales and Distribution	2,471	2,471
Depreciation	2,953	3,090
Financial Costs	2,563	2,635
Total Production Costs	₱ 41,565	₱ 42,103

Commercial Profitability

At full capacity, the project (with BOI incentive) is estimated to have a net income of 25 per cent of gross revenue (₱ 14 M). It will initially incur a loss during the first year of operation, but will have a positive net income from the second year onwards. The decrease in the project's net income on the fifth year of commercial operation is due to the termination of the four-year tax holiday.

I. With Incentives (In thousand pesos)

YEAR	GROSS REVENUE	NET INCOME(NI)	NI/REVENUES (%)
1	24,464	(1,891)	(7.73)
2	36,697	3,808	10.38
3	48,930	10,218	20.88
4	55,602	14,037	25.25
5	55,602	9,633	17.32
10	55,602	11,644	20.94
15	55,602	12,107	21.77

II. Without Incentives (In thousand pesos)

YEAR	GROSS REVENUE	NET INCOME(NI)	NI/REVENUES (%)
1	24,465	(2,320)	(9.48)
2	36,697	2,156	5.88
3	48,930	6,298	12.87
4	55,602	8,774	15.78
5	55,602	9,298	16.72
10	55,602	11,397	20.50
15	55,602	11,892	21.39

A summary of the financial indicators of the project is presented below. The financial internal rate of return on the project is estimated at 32 per cent with BOI incentives and 28 per cent without BOI incentives.

	With Incentives	Without Incentives
IRR on Total Project	32.40%	28.08%
IRR on Equity	41.26%	33.44%
Net Present Value at 20%	₱ 22.21M	₱ 15.2M
Payback Period	4 yrs. & 4 mos.	4 yrs. & 11 mos.
Break-even sales excluding finance (% of sales at full capacity)	35.92	37.04

To test the sensitivity of the project's internal rate of return (IRR) at unfavorable conditions, variations of the selling price, operating costs and initial investment costs were considered using the UNIDO COMFAR graphics. The result of the sensitivity analyses is presented below.

Assumed Cases	Internal Rate of Return	
	With Incentive	Without Incentive
10% decrease in Selling Price	20.31%	16.20%
10% increase in Production Cost	24.49%	20.26%
10% increase in initial investment	29.78%	25.80%

Financial Cashflow

The cashflow summary for selected years is presented below.

I. With Incentives

Year	Inflow	Outflow	Net Inflow (Outflow)	Cumulative Cashflow *
1	26,284	26,883	(599)	(599)
2	37,431	37,004	427	(172)
3	49,664	42,683	6,981	6,809
4	56,003	44,187	11,816	18,625
5	55,602	47,217	8,385	27,010
10	55,602	42,319	13,283	88,598
15	55,602	42,568	13,034	154,120

II. Without Incentives

Year	Inflow	Outflow	Net Inflow (Outflow)	Cumulative Cashflow *
1	26,289	27,207	(918)	(918)
2	37,432	38,649	(1,217)	(2,135)
3	49,664	46,595	3,069	934
4	56,003	49,437	6,566	7,500
5	55,602	47,533	8,069	15,569
10	55,602	42,515	13,087	76,041
15	55,602	42,782	12,820	140,494

* available for cash dividends to the extent of retained earnings.

II. PROJECT BACKGROUND AND HISTORY

PROJECT BACKGROUND

The export potential of Philippine ceramics has long been recognized. Local manufacturers, however, have yet to take full advantage of emerging opportunities. In this light, the United Nations Industrial Development Organization (UNIDO) has engaged the services of SGV & Co. to prepare an investment opportunity study on the manufacture and export of ornamental ceramics. The study, which was proposed by the Ceramics Export Manufacturers Association (CREMA) and endorsed by the Board of Investments (BOI), seeks to assess the viability of large-scale production and export of high quality ornamental ceramics. Creative craftmanship and availability of raw materials give the country an edge to become one of the world's leading ceramic exporters.

Initially, the Board of Investments and the Ceramic Export Manufacturers Association, in consultation with UNIDO, considered the following alternative projects but decided against them because of the reasons indicated:

- o training center for the manufacture of ceramics - this was more of a developmental-type of project rather than a profit-oriented industrial project; it is not in accordance with the overall objective of attracting investors;

- o manufacture of both dinnerware and ornamental ceramics - proponents would generally undertake either one but not both particularly because the major machinery required for the manufacture of dinnerware (which is a tunnel kiln) is different from the one required for the manufacture of ornamental ceramics (shuttle kiln);

- o manufacture of dinnerware - highly capital intensive and needs very advanced technology; it does not capitalize on the comparative advantage of Philippines of being able to produce artistically-designed ceramic products at relatively low labor cost.

The proposed facility to manufacture and export ornamental ceramics can serve as a catalyst for the transformation of the local ceramic manufacturing industry into an export-oriented sector, with the attendant multiplier effects on ancillary industries including ceramic raw material preparation and processing, and manufacture and printing of export-quality packaging materials for finished ceramic products. It will also provide the opportunity to upgrade local ceramic manufacturing technology and manpower skills.

Specifically, the opportunity study aims to:

- o determine the indicative size of domestic and export markets for ornamental ceramics;
- o identify material inputs, manpower and technology requirements necessary for a production facility that will meet the emerging demand; and
- o estimate the financial requirements of the facility and determine its operational and financial viability.

The proposed project is envisioned to manufacture ornamental ceramics and sell 70 per cent of its production to the export market. It qualifies as a non-pioneer export producer and is eligible to investment incentives administered by the BOI. Under Executive Order 226, an enterprise which intends to export at least 50 per cent (if Philippine national) or 70 per cent (if foreign-owned) of its intended production is eligible for incentives as an export producer. The incentives that the ceramics project can avail of include the following:

- o tax credit on domestic capital equipment,
- o tax and duty free importation of capital equipment,
- o four-year income tax holiday from start of commercial operation,
- o tax credit on taxes and duties on raw materials for export products,
- o exemption from taxes and duties on imported supplies and spare parts in a bonded manufacturing warehouse, and
- o exemption from wharfage dues and export tax.

Also, the National Internal Revenue Code provides that the value added tax on export sales by a VAT-registered entity is zero-rated.

III. MARKET AND PLANT CAPACITY

DEMAND AND MARKET STUDY

Product Description

This study covers the ornamental ceramics industry. Ornamental ceramics includes a large variety of products whose usefulness is clearly subordinate to their ornamental character. Often referred to as novelties, it consists of statuettes and other ornaments, articles of personal adornment, and articles of furniture made of porcelain, china or other ceramic materials. A brief description of each major type of ceramic products follows.

1. Earthenware

A ceramic body of clay mixed with talc and silica baked at 900^{o} to 1100^{o}C, underglazed and glazed, and rebaked at the same temperature range. Earthenware has a warm, soft appearance and a water absorbability of six per cent to 12 per cent.

2. Porcelain

A base of high-quality clay mixed with silica and feldspar baked at 900^{o}C, underglazed and glazed, and rebaked at a higher temperature of 1300^{o} to 1350^{o}C. Porcelain has a cool, hard appearance and is almost impervious to water. It resists abrasion to the maximum degree.

3. Stoneware

In stoneware, the characteristics of earthenware and porcelain overlap, and the base features a low water absorbability of zero per cent to three per cent, high strength and an opaque appearance. The base is baked at 900^{o}C, underglazed and glazed and rebaked at 1100^{o} to 1250^{o}C.

Domestic Market

The apparent domestic consumption of ornamental ceramics in 1988 is estimated at 10,250 metric tons. (See Table 1.) Export, which accounts for about 31 per cent of domestic production (14,900 metric tons), is estimated at 4,670 metric tons. Imports on the other hand, is negligible.

Table 1
Estimated Apparent Domestic Consumption
of Ornamental Ceramics,1988

	Metric Tons	Thousand Pesos
Production	14,900	₱227,400
Add: Import	20	870
Total Available for Consumption	14,920	228,270
Less: Export	4,670	142,470
Apparent Domestic Consumption	10,250	₱85,800

SOURCE: Interviews
Philippine Foreign Trade Statistics

The 14,900 metric ton domestic production of ornamental ceramics is based on the total clay usage of the sector as estimated by the Refractories Corporation of the Philippines (RCP), the biggest local formulator of beneficiated raw materials needed for the production of ornamental ceramics.

Ceramic ornamental manufacturing in the Philippines is a fragmented industry, with about 240 manufacturers dispersed throughout the country, many of which are not registered with any government agency. Based on interviews with local manufacturers and Refractories Corporation of the Philippines, total estimated production capacity of ornamental ceramics manufacturers is 22,400 metric tons with an average capacity utilization rate of 66 per cent in 1988.

For this study, eleven large ornamental ceramics manufacturers were interviewed, nine of which are members of the Ceramics Export Manufacturers Association (CREMA). Of the respondents, five firms cater mainly to the export market. (See Annex 1.)

A survey was conducted by the Industrial Technology Development Institute (ITDI) in 1988 covering 105 ornamental or artware ceramics manufacturers. The results indicated that 69 are operating, 27 have closed shop, and nine cannot be located in their recorded addresses.

Seventy eight per cent or 54 of the operating firms are located in Metro Manila, three are in Luzon outside Metro Manila, five in Visayas and seven in Mindanao. Most started as hobby shops and operate on small-scale, job order basis.

Ceramics Export

The Philippine ornamental ceramics industry channeled about 31 per cent of its estimated 1988 domestic production volume to exports. In 1988, about 42 per cent of the 4,668 metric tons of ceramics exported by the Philippines went to the United States as indicated by foreign trade statistics. (See Table 2.) Other major country destinations of ceramic exports include Germany, Australia, United Kingdom, Canada and Japan. From 1984 to 1989, the volume of Philippine ceramic exports grew at an average rate of 16 per cent per year. During the period, the value of ornamental ceramics grew by an average rate of 65 per cent per annum which indicates that the country is moving towards higher value ornamental ceramics exports.

Table 2
Philippine Export of Ornamental Ceramics by Country of Destination
(Volume in Metric Tons; F.O.B. Value in Thousand US$)

Country of Destination	1984		1985		1986		1987		1988		1989	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
USA	789	324	989	410	910	501	1,606	1,207	1,978	2,877	1,652	5,357
Germany	150	62	142	46	131	69	482	381	508	802	293	1,278
Australia	521	320	305	196	282	148	312	303	590	671	737	967
U.K.	51	32	*	**	27	32	120	143	250	523	217	1,336
Canada	29	18	32	17	42	29	111	79	189	267	86	330
Japan	29	29	11	9	133	49	104	125	259	235	334	482
Others	58	139	175	85	385	222	713	419	894	1,101	563	1,378
Total	1,827	925	1,655	764	1,910	1,050	3,448	2,657	4,668	6,476	3,882	11,128
% Change	-	-	(9.4)	(21.7)	15.4	37.4	80.5	53.1	35.4	43.7	(16.8)	71.8

* Less than one metric ton
** Less than US$1,000

Note: Above data were converted from pieces to metric tons based on the following 1988 weighted average conversion factor of 677 pieces per metric ton.

SOURCE: Philippine Foreign Trade Statistics

The Philippine share of world ceramic import volume is less than one per cent of the total world importation volume and value. (See Table 3.) In 1985, total world imports was 267,407 metric tons valued at US$951 million. Philippine exports was only 1,655 metric tons with equivalent value of about US$0.76 million representing 0.62 per cent and 0.08 per cent of total world import volume and value, respectively.

Table 3
World Imports and Philippine Exports of Ornamental Ceramics
(Volume in Metric Tons; Value in Thousand US$)

	Philippine Exports		World Imports		% Philippine Share	
Year	Volume	Value	Volume	Value	Volume	Value
1982	1,514	852	234,309	820,772	0.65	0.10
1983	1,170	684	262,101	815,583	0.45	0.08
1984	1,827	925	313,682	920,364	0.58	0.10
1985	1,655	764	267,407	950,844	0.62	0.08
1986	1,910	1,050	n.a.	1,199,269	n.a.	0.09
1987	3,448	2,657	n.a.	n.a.	n.a.	n.a.
1988	4,668	5,147	n.a.	n.a.	n.a.	n.a.

n.a. - not available

SOURCE: World Trade Annual Vol. III, 1986 to 1988, United Nations
Philippine Foreign Trade Statistics

The breakdown of world ornamental ceramics importation by country is shown in Table 4. During the years 1982 to 1986, the relative share of the United States in world importation of ceramics ranged from 41 per cent to 52 per cent. The second largest ceramic importer is the European Community (EC) which accounted for about 26 per cent to 34 per cent of total world importation of ceramics during the same period. Of the EC countries, West Germany, U.K. and France are the large ceramic importers. Other big ceramic importers include Canada and Sweden.

Table 4
World Importation of Ornamental Ceramics
(In US$000)

Country	1982	1983	1984	1985	1986
USA	334,813	359,116	455,257	497,584	591,896
Canada	34,711	35,637	40,991	39,184	47,043
Sub-total	369,524	394,753	496,248	536,768	638,939
West Germany	77,627	77,023	76,063	71,527	95,331
U.K.	44,487	48,407	51,126	43,177	62,946
France	48,217	43,499	40,614	40,413	61,747
Netherlands	25,221	24,492	24,675	22,922	31,394
Italy	30,029	23,103	24,856	23,432	28,325
Belgium-Luxembourg	21,935	18,163	17,59[illegible]	15,986	23,543
Others	33,716	28,893	27,231	27,507	39,550
Sub-total (EC)	281,232	263,580	262,156	244,964	342,836
Austria	8,695	10,111	10,371	10,891	15,091
Australia	21,770	16,589	20,321	18,603	16,135
Hongkong	13,999	10,994	12,082	13,095	19,209
Japan	11,447	17,045	12,736	13,910	22,522
Sweden	24,911	20,339	22,272	20,996	27,694
Switzerland	16,344	15,964	15,962	16,639	24,233
Others	72,850	66,208	68,216	74,978	92,610
World Market	820,772	815,583	920,364	950,844	1,199,269

EC - European Community

SOURCE: Commodity Trade Statistics, United Nations

Demand Projections

Table 5 shows the domestic demand projections for ornamental ceramics assuming an average annual growth rate of 15 per cent per annum for the years 1989 to 1995 and 10 per cent per annum for the years 1995 to 2005. The growth rates were based on projected trends indicated by respondents interviewed.

Table 5
Projected Domestic Demand for Ornamental Ceramics

Year	Metric Tons
1989	5,370
1990	6,170
1991	7,100
1992	8,160
1995	12,420
2000	20,000
2005	32,210

The results of interviews revealed that three manufacturers indicated that the domestic market will grow by 30 per cent; one expects the market to grow by 20 per cent and another estimates the local market to grow at 10 per cent per annum until 1995.

There are several factors affecting the growth of the domestic ornamental ceramics market. Among them are better exposure or increasing awareness of ceramic products, both from media and display areas, preference for using ornamental ceramics as giveaways during weddings, debut parties and holiday seasons, continued product innovation and designs, and the increasing consumer demand due to tourism and retail business boom.

Table 6 shows the projected world importations of ceramics assuming a 4.5 per cent growth rate per annum based on historical trends. The projected 1992 world aggregate importation for ceramics is about 0.36 million metric tons.

Table 6
Projected World Importation of Ceramics

Year	Metric Tons
1989	318,890
1990	333,240
1991	348,230
1992	363,900
1995	415,270
2000	517,510
2005	644,910

Local ceramic export manufacturers are bullish about the Philippines' prospects in the export market. Four out of 11 respondents indicated that exports will grow by more than 50 per cent per annum while three estimated the export growth at 10 per cent to 30 per cent per annum. They say that their clients, both existing and prospective, are demanding more than what they can supply.

The Philippines is optimistic in expanding its share of the total ceramics export market. Based on the BOI Ten-Year Sector Development Program, export of ceramics (ornamental and dinnerware, combined) is targeted to be about US$10.1 million in 1989 - an increase of 36 per cent from the US$11.8 million export level in 1988. It should be noted that total actual ceramics exportation in 1988 exceeded the BOI target for the same year by US$1.1 million or 10 per cent. By 1995, BOI is targeting an export value of US$ 100 million, reflecting an average growth rate of 36 per cent per annum from 1989 (see Table 7).

The BOI export targets for the early 1990s are based mainly on orders already received by the manufacturers and anticipated renewals of contracts. The export target for the latter years are based on expectations by ceramics exporters of robust world demand for ceramic products and the increased competitiveness of Philippine ceramic products in the world market. The targets were confirmed by ceramics membership organizations such as the Philippine Chamber of Household Industries (PCHI) and the Ceramics Export Manufacturers Association (CREMA) in the sectoral meeting held last February 1990. During this meeting, the 1990 export target had been increased from US$ 23,218 to US$ 28,000. Likewise, the 1991 export target had been revised from US$ 32,505 to US$ 33,000 based on the current favorable market situation.

Table 7
BOI Ten-Year Sector Development Program

In Thousand US$

Year	Export Target	Growth Rate
1988	10,749	
1989	16,124	50%
1990	28,000	74
1991	33,000	18
1992	43,882	33
1993	59,240	35
1994	77,012	30
1995	100,116	30
1996	127,648	27.5
1997	162,751	27.5

SOURCE: BOI Ten-Year Sector Development Program, 1987-1988

Most of the Philippine ceramic products enjoy the U.S. General System of Preferences (GSP) privileges (a program of tarrif cuts intended to help developing countries increase their exports). The GSP listing is reviewed annually. A list of the ornamental ceramic products that are included in the 1989 GSP listings of the U.S. is shown in Table 8.

Effective January 1, 1989, Singapore, Korea, Hongkong and Taiwan were excluded from the U.S. GSP for all types of products. Their tarrif privileges were removed because their products had, among other reasons, already become competitive. Also, their aggregate exports under the GSP amounted to US$10 billion, representing 60% of all GSP duty-free trade. With the removal of the GSP privileges of these newly industrialized countries, Philippine ceramic products are expected to become more competitive in the US market. As indicated in the application form for exportation under the U.S. GSP, countries that are included to avail the GSP privileges are those with per capita income of below US$850 since 1984. Philippine per capita income for 1988 is even lower at US$640.

At present, it is not likely that the Philippines will be excluded from the U.S. GSP. However, should this happen, the Philippine ornamental ceramics can still compete in the world market because of established relationships and indicated competitiveness in prices.

Pintar International, manufacturer of fine-bone china indicated that they are selling their products in Harrods, Bloomingdale and I.Magnin. Standard Products Exporters,Inc. on the other hand, are selling their ornamental ceramic products in various foreign stores of prestigious name. These include Hallmark and Midwest Importers in the United States, Tearcraft and Natural Selection in the United Kingdom, and Mondiale and Selected Collections in Europe.

Table 8
Articles Eligible for the
U.S. Generalized System of Preferences

ITEM	DESCRIPTION	GENERAL RATE OF DUTY
6913.10.10	Statues, statuettes and handmade flowers, of porcelain or china, valued over $2.50 each, of original work by professional sculptors	3.1%
6913.10.20	Statuettes and other ornamental articles, NESI, of bone chinaware	6.6%
6913.10.50	Statuettes and other ornamental articles of porcelain or china, NESI	9%
6913.90.10	Ceramic statues, statuettes, hand-made flowers, not of porcelain or china, over $2.50 each, of original work by professional sculptors	3.1%
6913.90.20	Ornamental articles of ceramic tile	4.2%
6913.90.30	Ornamental articles of earthenware, having a reddish-colored body and a lustrous glaze of differing colors (rockinghamware)	2.5%
6913.90.50	Ornamental ceramic articles, not of porcelain or china, NESI	7%
6914.10.00	Ceramic Articles, NESI, of porcelain or china	9%
6914.90.00	Ceramic articles, NESI, other than of porcelain or china	8%

NESI - Not Elsewhere Specified or Included

SOURCE: Bureau of International Trade Relations

Broad Pricing Structure

The pricing of ceramics would depend on the size, design, formulation, and number and temperature of firings to manufacture the products. For this study, we assumed a representative product for revenue and costing purposes. This is an earthenware miniature house (See Figure 1) which is priced at ₱ 34 and US$1.55 per piece, for the domestic and export market, respectively. The miniature house weighs 214 grams per piece equivalent to about 4,673 pieces per metric ton. The project of course, will continue to design and develop ceramic products for target markets. The price of the ornamental ceramics assumed in this study was based on indications given by CREMA given the size and type of the product to be produced.

It was gathered from interviews that for local sales, ornamentals enjoy a gross margin of 26 per cent to 100 per cent, while for export sales, gross margin ranges from 10 per cent to 85 per cent. (See Table 9.)

Table 9
Gross Margin on Sales of
Selected Ornamental Ceramic Manufacturers

Gross Margin	Local	Export
Base: Respondents	11	11
76% - 100%	1	1
51% - 75%	1	0
26% - 50%	4	3
Not over 25%	0	1
No Data Available	5	6

SOURCE: Interviews

SALES FORECAST AND MARKETING

Sales Forecast

Estimated sales during the first year of operation is placed at 154 metric tons at 44 per cent capacity utilization. Market penetration on year one will be 0.03 per cent of total world market and 0.56 per cent of total Philippine market. In 1995, at full capacity, market penetration will be 0.06 per cent and 0.85 per cent of the world and Philippine markets, respectively. Table 10 shows sales forecast for 15 years starting from the first year of plant operation.

Dimension: 5.5" length
5.25" height
3.4" width

Weight: 214 grams

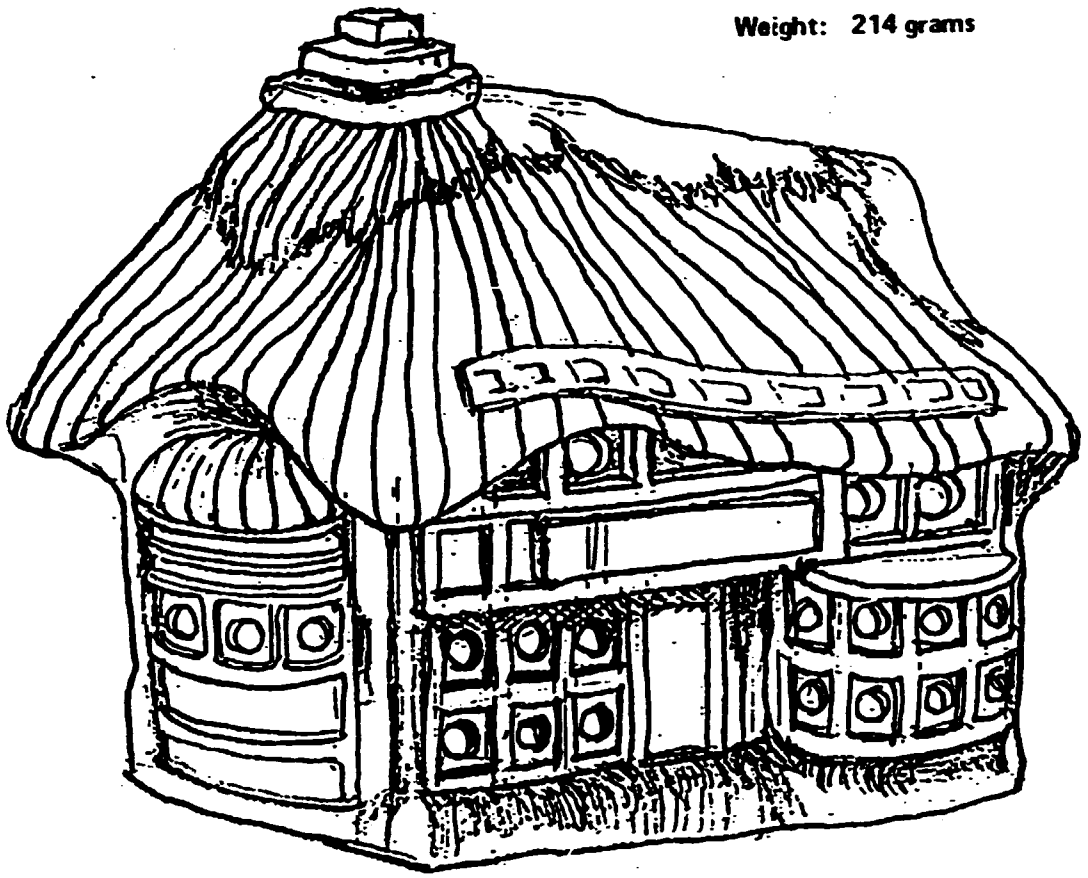


Figure 1. Ornamental Ceramic Product

Table 10
Sales Forecast for Ornamental Ceramics
(Volume in Metric Tons; Value in Thousand Pesos)

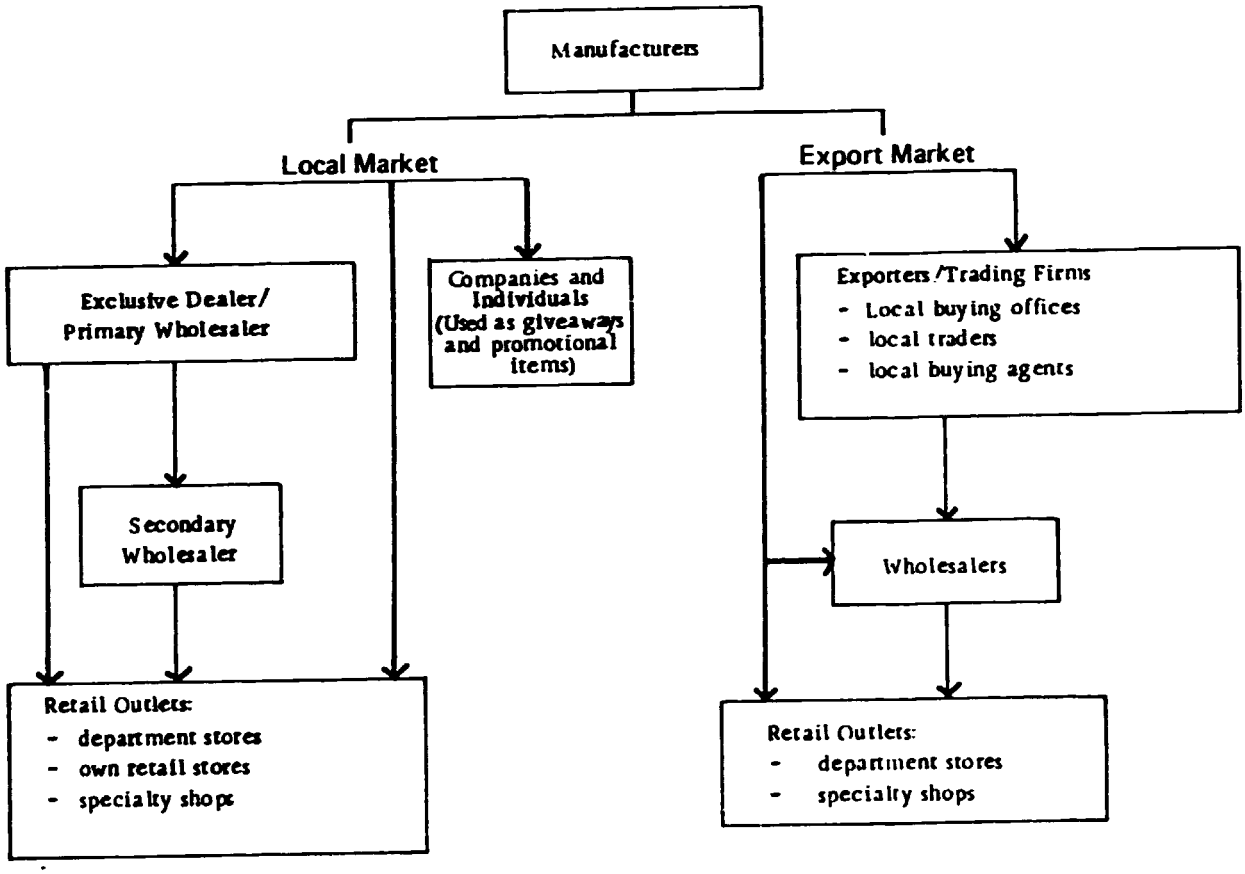
Year	Local		Export		Total	
	Volume	Value	Volume	Value	Volume	Value
1	46	7,325	108	17,091	154	24,415
2	69	10,987	162	25,635	231	36,622
3	92	14,649	215	34,181	307	48,829
4-15(Annual Sales)	105	16,646	244	38,842	349	55,488

Marketing

Seventy per cent of the ceramic products of the plant is intended for the export market and 30 per cent is for the local market. Plant production will be sold through marketing arrangements with foreign firms using the normal distribution channels of the ceramic industry. For better promotion of the products, the company will join (in association with other Philippine companies) world expositions, trade fairs and exhibits.

Present manufacturers rely on their own retail stores or use department stores, specialty shops, and dealers as their distribution channels in the local market. Customers (companies and even individuals) also buy or order ornamental ceramics as giveaways and promotion novelty items. For export, manufacturers sell direct to foreign clients which can be either wholesalers or retailers or sell through local buying offices, traders, or buying agents. Big ceramic manufacturers join fairs such as the Spring and Autumn Frankfurt Fair, and the Center for International Trade Expositions and Missions (CITEM) Fair which is held yearly during April and October. Manufacturers also send photos and samples in reply to letters of inquiries that they receive. Figure 2 shows a graphical presentation of the distribution channels used by local ceramic manufacturers.

Figure 2
Distribution Channels of
Local Ceramic Manufacturers



Legend: Thick lines indicate the main distribution channel used.

Sources: Interviews
Marketing in Japan: Ceramic Decorative Gift Items, ASEAN CENTRE, 1983

Production and Plant Capacity Utilization

At full capacity, the plant is capable of producing 349 metric tons of finished products per annum or 1.63 million pieces of earthenware miniature house.

On the first year of operation, the plant is assumed to operate with four shuttle kilns with a capacity of three cubic meters each. To increase capacity, two shuttle kilns will be added on the second year. Likewise, two more will be added on the third year of commercial operation. Full capacity shall be achieved on the fourth year with nine shuttle kilns.

Table 11
Plant Capacity Utilization Table

Year	No. of Kilns (3 cubic meters each)	Utilization
1	4	44 %
2	6	66
3	8	88
4	9	100

The plant will operate eight hours a day. As observed by the president of the Ceramic Export Manufacturers Association, Taiwanese ornamental ceramic manufacturers operate their kilns for only eight hours per day which greatly reduces the wear and tear of the equipment. The shuttle kiln will be operated at three hundred and thirty days a year. The main work force, however, will work three hundred days a year. The detailed production assumptions are presented in Annex 2.

IV. MATERIAL INPUTS

MATERIALS AND INPUTS

The direct raw materials needed for the manufacture of ornamental ceramics are WEB-Premium RCP earthenware body, WEB-Regular RCP earthenware body, RCP glaze, sodium silicate and coloring oxides. Plaster of paris is an indirect material used for the plaster molds of the ornamental ceramics products. Except for the coloring oxides and plaster of paris which will be imported, the raw materials will be purchased mainly from the Refractories Corporation of the Philippines. The earthenware body will be a mixture of the premium and regular quality at a ratio of 30:70.

The Philippines is rich in natural resources needed for ceramics production. Table 12 shows the country's possible and probable reserves of the above raw materials.

Table 12
Philippine Possible and Probable Reserves
of Selected Non-Metallic Mineral Ores, 1987
(In Thousand Metric Tons)

	Status of Production				
Reserves	Producing	Stopped Production	Explored	Geologically Investigated	Total
White Clay	5,038	2,235	1,340	23	8,636
Ball Clay	0	688	0	378	1,066
Silica	12	6,789	0	0	6,801
Talc	0	180	0	323	503
Feldspar	4,043	6,619	C	2,234	12,896
Gypsum Ore	0	1,826	0	23	1,849
Limestone	3,801,431	1,926,445	346,189	2,854,006	8,928,071

SOURCE: Mines and Geosciences Bureau

There are local formulators and manufacturers of the above materials except for coloring oxides and plaster of paris. These are imported through distributors. A list of major local formulators and distributors of ceramic raw materials is shown in Table 13.

Table 13
Local Formulators and Distributors
Ceramic Raw Materials

COMPANY NAME	PRODUCTS
Formulators	
Refractories Corporation of the Philippines	Clay body, kaolin, feldspar, silica, bodies and glazes, refractory bricks, monolithics
Mariwasa Manufacturing Incorporated	Clay Body
Diamond Ceramics	Clay body, Underglaze, Porcelain
Suppliers	
Bayer Philippines Inc.	Ceramic frits, colour stains
F.E. Zuellig (M), Inc. (Chemical Division)	Ceramic colours & decorations, ball china clays, plaster of paris
Ferro Far East Limited	Ceramic frits, glazes and stains, grinding balls, plaster of paris
GHV Enterprises	Ceramic colors, stains, underglaze, overglaze, kiln furniture, grinding media
Wise & Company, Inc.	Ceramic stains and colors

SOURCE: Ceramic Association of the Philippines (CAP)
Industrial Technology Development Institute (ITDI)

At present, the beneficiated raw material can be obtained only from Refractories Corporation of the Philippines (RCP) and Diamond Ceramics. Mariwasa Manufacturing Incorporated formulates clay body mainly for their own consumption.

Energy requirements include electricity and LPG fuel. Water is needed for the slip, glaze and mold preparation.

In our study, we assumed that the plant will acquire its imported raw material requirements through the Philippine International Trade Center (PITC), using a common bonded warehouse. As an alternative, a company may also consider putting up its own bonded warehouse.

SUPPLY PROGRAM

The estimated direct material requirements for the ceramic body during the first year of operation (1992) is 163 metric tons. This is projected to increase to 370 metric tons at full capacity by 1995. Other direct materials include the RCP glaze, sodium silicate and coloring oxides. Table 14 summarizes the material inputs for the ornamental ceramic product at full capacity. A detailed listing of raw material costs is given in Annex 3.

Table 14
Summary of Annual Material Inputs
(at full capacity)
(Volume in Metric Tons; Value in Thousand Pesos)

	Volume	Value
RCP Earthenware Body	370.32	2,549
Other Direct Materials	36.60	2,243
Indirect Material	151.92	1,095
Total	558.84	5,887

SOURCE: Industrial Technology Development Institute (ITDI)

At full capacity, about 665 metric tons of LPG fuel and 384 cubic meters of water are required per year. Total cost of LPG fuel is estimated at ₱ 3.87 million while the cost of water is estimated at ₱ 2,419.

LPG cost is estimated at ₱ 5.8141 per kilogram ex-depot (Shell Refinery, Tabangao, Batangas). Delivery of the fuel is free within a 25-kilometer radius. The plant, which is assumed to be located in Bauan, Batangas, is about 12 kilometers from Tabangao. The LPG supplier indicated that they can provide a tank plus installation services for free.

Electrical consumption is estimated at 203,856 kilowatt-hours. At an assumed cost of ₱ 1.1125/kw-hr. (average industrial selling rate plus adjustments), total electricity cost is ₱ 226,790 per annum at full capacity.

The plant is eligible for connection directly to the National Power Corporation grid due to its large power consumption. A waiver from the local power cooperative must be obtained prior to connection.

A detailed breakdown of electricity consumption by machinery is shown in Annex 4.

V. PLANT LOCATION

The proposed site for the ceramic plant is in Bauan, Batangas. It is accessible both to the Manila and Batangas ports, the country's leading major shipping outlets. Raw land along the national highway is estimated at ₱ 200 per square meter while industrial developed land is estimated at ₱ 500 per square meter. Raw land at ₱ 200 per square meter is assumed in this study. Locating in Bauan, Batangas has the advantage of being near the LPG supplier whose depot is located in Tabangao, Batangas.

An alternative site would be in Iligan, where the RCP plant is located. The industry however, generally prefers to locate in or around Metro Manila.

VI. PROJECT ENGINEERING

LAY-OUT AND PHYSICAL COVERAGE OF PROJECT

The production plant will occupy a 7,500-square meter lot to accomodate the factory building which requires 5,000 square meters, the office building which needs 300 square meters and the two four-metric ton LPG storage tank. The storage tank should be located 7.5 meters away from the building and four meters away from the walls. The space between the two tanks should be about one meter. The LPG tank, which will lie horizontally, has a diameter of 1.3 meters and a length of six meters with an elevation of one meter above ground level. Annex 5 shows a diagram of the total area and the lay-out for the plant, which includes the machinery and equipment.

TECHNOLOGIES AND EQUIPMENT

Description of Manufacturing Process

To produce an ornamental ceramic, the RCP body is fed tc the agitation tank with water and sodium silicate to produce a homogeneous slurry.

The slurry is transferred to an agitation tank and screened to ensure that the slip is free from lumps. The slip is aged in a second agitation tank for 24 hours.

The aged slurry is brought to the overhead tank (agitation tank no. 3) for utilization.

Forming by slip casting is done with the aid of filling guns. Plaster molds are supplied in the casting area to form the ceramic items. The casted ware are polished and dried in the shelves located near the kiln.

Bisque firing is done at 1050^{o}C on the dried ware for five hours. The bisque wares are decorated using the coloring oxides by brushing and spraying. Overglazing with transparent glaze is applied by dipping method and the excess glaze is removed.

The transparent glaze is prepared by mixing the RCP glaze with water for three hours.

Gloss firing follows after overglazing using the LPG-fueled shuttle kiln for five hours at 1050^{o}C.

The glost wares are brought to the inspection area with the aid of a conveyor for quality control and final inspection of the product.

The inspected ceramic ornamentals are then packed and prepared for shipment. (See Annex 6 for process flow and material balance.)

Equipment

The major equipment needed for the project are classified into two: plant equipment and auxiliary equipment. Plant equipment comprise of shuttle kilns, slip tanks, slip pump, conveyor belts, filling guns, vibrating screen, platform balance, and extruder de-airing. The shuttle kiln is said to be the heart of the ceramic plant as it determines the production capacity of the plant. The project will acquire shuttle kilns (each with a capacity of three cubic meters) on a staggered basis. Four will be purchased during the construction period, two each on the second and third year of commercial operation, and one on year four when the plant will operate at full capacity. All other production and auxiliary equipment will be acquired during the construction period. Auxiliary equipment include laboratory and other equipment not pertaining to the production process itself. (See Annex 7.)

The kilns will be acquired from local manufacturers. Some of the required equipment have to be imported. Quotations were gathered by ITDI from different local and foreign manufacturers of the required equipment. Transport and office equipment are classified as incorporated fixed assets. Detailed descriptions for some of these equipment are provided in Annex 8.

The cost of all equipment, both local and imported, is estimated at ₱ 9.35 million with BOI incentives and ₱ 10.59 million without BOI incentives. The initial capital outlay for equipment amounts to ₱ 5.75 million and ₱ 6.63 million with and without BOI incentives, respectively.

CIVIL ENGINEERING WORKS

Estimated cost for the building and other civil works amount to around ₱ 18.55 million. Civil works consist of land clearing, grading, drainage, connection for water and electricity and roads.

VII. PLANT ORGANIZATION AND OVERHEAD COST

ORGANIZATION

The organization is headed by a general manager, with three major groups of personnel -- the finance and administrative group, the marketing group and the production/plant group. Each group is headed by a manager. Reporting to the finance and administrative manager are the chief accountant, cashier, supply officer and personnel and administrative supervisor. Under the direct supervision of the marketing/sales manager is the local sales supervisor. The plant group is divided into two sub-groups, each headed by a supervisor. Reporting to the production supervisor are the foremen and the plant work force and reporting to the quality control supervisor are the quality control technician and researcher/analyst. Figure 3 shows the proposed organizational structure for the plant.

ESTIMATED OVERHEAD COSTS

Factory Overhead

Factory overhead (indirect labor, insurance, packing materials, property taxes, factory supplies and miscellaneous costs) is estimated at ₱ 4.78 million on the first year of operation and at ₱ 7.64 million on the fourth year, at full capacity. (See Annex 9.) Repair and maintenance costs are placed at ₱ 93.51 thousand at full capacity. This is assumed at one per cent of acquisition cost of production and auxiliary equipment.

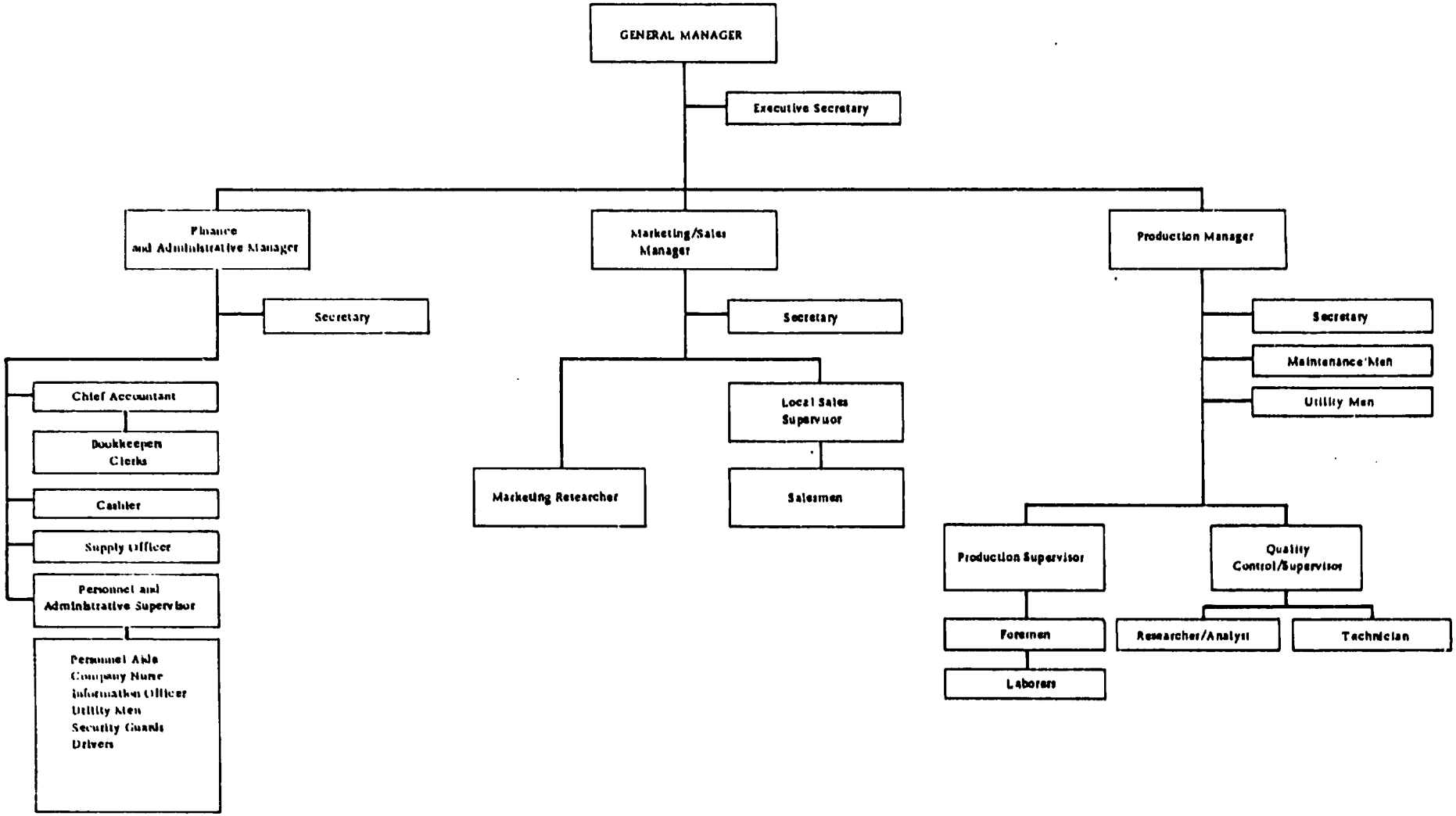
Administrative Overhead

Administrative overhead (office salaries, insurance, office supplies, communication systems, permits and licenses, research and development, property tax, repairs and maintenance, utilities, and other miscellaneous expenses) is projected to total ₱ 2.70 million at full capacity. Refer to Annex 9.

Sales and Distribution

Non-labor sales and distribution expenses (estimated at 3 per cent of gross revenue, ₱ 1.66 million at full capacity) and salaries of the marketing group are projected to total ₱ 2.47 million.

Figure 3
Organizational Structure



VIII. MANPOWER

LABOR

Factory personnel will number 376, broken down into 360 direct labor and 16 indirect labor. The direct labor is divided as follows: 181 skilled laborers and 179 unskilled laborers. Total wage bill, including benefits of 25 per cent of basic salaries, of direct labor personnel is ₱ 12.86 million at full capacity. For indirect labor personnel, salaries plus 30 per cent benefits total ₱1.54 million. See Annex 10 for details of labor costs.

STAFF

Aside from the plant personnel, there are 24 administrative and five marketing staff. Their estimated total salaries plus benefits of 30 per cent of basic salary is about ₱ 3.12 million.

IX. PROJECT IMPLEMENTATION

TIMETABLE

The project implementation timetable will run for five (5) periods, each period covering three (3) months.

Period 1 (First Quarter)

During this period, a final feasiblity and engineering study for the project is prepared. This study is estimated to take three months to complete.

Period 2 (Second Quarter)

The construction of buildings, civil works and acquisition of machinery and equipment are scheduled to commence during this period.

Period 3 (Third Quarter)

The building construction should be reaching completion during this period.

Period 4 (Fourth Quarter)

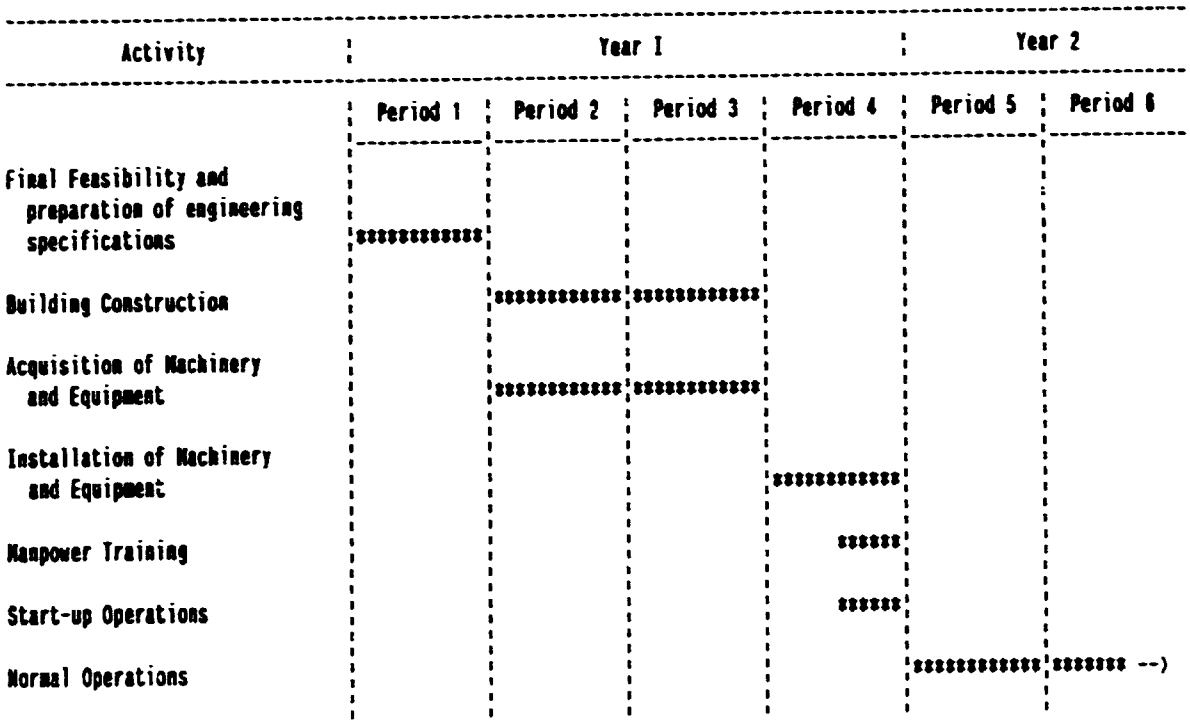
Ordered machines, mainly shuttle kilns, are expected to be delivered and installed in the plant. Training of factory workers and start-up operations is scheduled to begin during the second half of the period.

Period 5 (First Quarter, Year 2)

Normal operations are expected to begin at the start of the period and continue onwards.

Figure 4 presents the pre-production and break-in phases of operation; Table 15 presents cost estimates of preproduction capital expenditures.

Figure 4
Implementation Schedule



Note: Each period is a time interval of three months.

Table 15
Cost Estimate of Pre-Production
Capital Expenditure
(In Thousand Pesos)

Pre-Production Capital Expenditure	With Incentives	Without Incentives
Detailed project feasibility study and preparation of engineering specifications	₱ 500.00	₱ 500.00
Trial runs and manpower training	450.00	450.00
Organizational Expenses	655.00	655.00
Property tax	395.00	395.00
Capitalized interest	2,135.86	2,195.73
Total	₱ 4,135.86	₱ 4,195.73

X. FINANCIAL EVALUATION

TOTAL INVESTMENT OUTLAY

The total initial investment outlay for the project is estimated at ₱ 35.60 million (US$ 1.62 million) assuming the project is registered with the BOI and is entitled to the following incentives:

a. Tax credit on domestic capital equipment;

b. Tax and duty free importation of capital equipment; and

c. Income tax holiday for four years from the start of commercial operation;

d. Tax credit on taxes and duties on raw materials used for its export products and forming part thereof.

About 95 per cent of initial investment or ₱ 33.92 million is accounted for by local cost component. The shuttle kilns which comprises the major machinery cost can be purchased from local manufacturers, the remaining five per cent of the investment cost or ₱ 1.67 million (US$ 0.08 million) is foreign currency cost component.

Without BOI incentives, total initial investment outlay is estimated at ₱ 36.60 million (US$ 1.66 million). This cost figure is higher by ₱ 1.00 million than the estimate with BOI incentives because the project will have to pay tariff duties on importation of capital equipment.

Table 16
Total Initial Investment
(In Thousand Pesos)

	With Incentives	Without Incentives
Land, site preparation & development	₱ 3,750.00	₱ 3,750.00
Buildings & civil works	18,550.00	18,550.00
Auxiliary & service facilities	2,237.71	2,612.08
Incorporated fixed assets	555.40	555.40
Plant, machinery & equipment	3,513.78	4,020.06
Total Fixed Investment Cost	28,606.89	29,487.54
Pre-production capital expenditures	4,135.86	4,195.73
Working Capital	2,854.84	2,912.20
Total Initial Investment Cost	₱ 35,597.59	₱ 36,595.46

As shown in Table 16, the bulk of the initial investments is accounted for by fixed assets amounting to ₱ 28.61 million. Other initial investments include preproduction capital expenditures and initial working capital. Preproduction capital expenditure amounting to ₱ 4.14 million include the cost of project feasibility and detailed engineering studies, trial run expenses, manpower training, property tax, and capitalized interest. Initial working capital amounting to ₱ 2.85 million will be required for the first year of operation. Table 17 shows the breakdown of working capital requirement.

Table 17
Working Capital Requirement
First Year of Commercial Operation

	Minimum Days of Coverage	With Incentives	Without Incentives
Accounts receivable	30	₱ 1,565.48	₱ 1,568.83
Inventory and materials	38	286.22	326.08
Energy	5	23.63	23.63
Spares	106	68.90	79.62
Work in progress	7	282.89	283.67
Finished products	15	718.62	720.29
Cash in hand	30	1,121.48	1,125.82
Total current assets		4,067.22	4,127.93
Accounts payable	30	1,212.38	1,215.73
Net working capital		₱ 2,854.84	₱ 2,912.20

PROJECT FINANCING

The project is assumed to be financed through equity contributions and long-term loans at a debt-to-equity ratio of 60:40. Local equity for the project is also assumed at 60 per cent. Total equity for the project is ₱ 14.24 million (with BOI incentives) of which ₱ 5.70 million (US$ 0.26 million) is foreign equity and ₱ 8.54 million local equity. (See Table 18.)

Table 18
Sources of Financing
(In Thousand Pesos)

	With Incentives	Without Incentives
Equity		
Foreign	₱ 5,695.62	₱ 5,855.28
Local	8,543.42	8,782.91
Total Equity	₱ 14,239.04	₱ 14,638.19
Loan (Local)	21,358.55	21,957.28
Total Sources of Financing	₱ 35,597.59	₱ 36,595.47

Local credit institutions are assumed to grant long term loans to finance the local component of the project. It will bear an interest of 20 per cent per annum. The loan is assumed to have a term of seven years inclusive of a two-year grace period on principal payments. The principal will be paid in five equal yearly amortizations.

The foreign equity will more than adequately cover the foreign cost component of the project amounting to ₱ 1.67 million (US$ 0.08 million).

Without BOI incentives, total equity is about ₱ 14.64 million, while the loan amount is ₱ 21.96 million.

PRODUCTION COST

Total production cost at full capacity (1995) is estimated at ₱ 41.57 million (with BOI incentive). Seventy-four per cent of this amount or ₱30.88 million is accounted for by factory costs. Administrative overhead is estimated at ₱ 2.70 million while sales and distribution cost is placed at ₱ 2.47 million. Depreciation expense and financial cost amounts to ₱ 2.95 million and ₱ 2.56 million, respectively.

Without BOI incentives, depreciation and financial costs are higher by ₱ 0.14 million and ₱ 0.07 million, respectively. The breakdown of the production cost is shown in Table 19.

Table 19
Total Production Cost
(In Thousand Pesos)

	With Incentives	Without Incentives
Factory Costs		
Raw materials	₱ 4,792.35	₱ 4,840.75
Other raw materials	1,095.34	1,318.66
Utilities	299.21	299.21
Energy	3,866.12	3,866.12
Direct Labor	12,856.72	12,856.72
Repairs and Maintenance	93.51	105.92
Spares	233.78	264.81
Factory Overhead	7,642.88	7,656.62
Sub-total	30,879.90	31,208.81
Administrative Overhead	2,698.26	2,698.26
Sales and Distribution	2,471.16	2,471.16
Depreciation	2,952.67	3,090.14
Financial Costs	2,563.02	2,634.87
Total Production Costs	₱ 41,565.01	₱ 42,103.25

Note: Items may not add to totals because of rounding.

The details of total production costs are shown in Annexes 12 and 13 for with and without BOI incentives, respectively.

COMMERCIAL PROFITABILITY

The results of the financial projections are based on the assumptions presented in the previous sections and summarized in Annex 11. Annex 12 presents the financial statements with BOI incentives while Annex 13 shows the financial statements without BOI incentives.

The financial projections use constant 1989 prices. Any increase in cost is assumed to be compensated for by an increase in selling prices. Likewise, an exchange rate of US$ 1 to ₱ 22 is used in the financial projections.

The results of the financial projections show that the project will incur a loss during the first year of operation, but is estimated to register net incomes starting the second year of commercial activities. Table 20 shows the income statement highlights of the project with and without BOI incentives.

Table 20
Income Statement Highlights
(In Thousand Pesos)

I. WITH INCENTIVES

YEAR	GROSS REVENUE	NET INCOME(NI)	NI/REVENUES (%)
1	24,464	(1,891)	(7.73)
2	36,697	3,808	10.38
3	48,930	10,218	20.88
4	55,602	14,037	25.25
5	55,602	9,633	17.32
10	55,602	11,644	20.94
15	55,602	12,107	21.77

II. WITHOUT INCENTIVES

YEAR	GROSS REVENUE	NET INCOME(NI)	NI/REVENUES (%)
1	24,465	(2,320)	(9.48)
2	36,697	2,156	5.88
3	48,930	6,298	12.87
4	55,602	8,774	15.78
5	55,602	9,298	16.72
10	55,602	11,397	20.50
15	55,602	11,893	21.39

The highlights of the results of financial projections are presented in Table 21. The project, with BOI incentive, is estimated to have an internal rate of return of 32.40 per cent. Without BOI incentives, the project will have an internal rate of return of 28.08 per cent. In both cases, the project is viable having exceeded the project's hurdle rate of 20 per cent.

Table 21
Commercial Profitability
(With and Without BOI Incentives)

	With Incentives	Without Incentives
IRR on Total Project	32.40%	28.08%
IRR on Equity	41.26%	33.44%
Net Present Value at 20%	₱ 22.21M	₱ 15.2M
Payback Period (years)	4 yrs. & 4 mos.	4yrs. & 11 mos.
Break-even sales excluding finance (% of sales at full capacity)	35.92	37.04

To test the sensitivity of the project's internal rate of return (IRR) to assume unfavorable conditions, variations of the selling price, operating costs and initial investment costs were considered using the UNIDO COMFAR graphics. (See Annexes 14 and 15 for with and without BOI incentives, respectively.)

In both cases, the project is most sensitive to changes in the selling price. A decrease of 10 per cent in selling price will result in a reduction of about 12 per cent in the IRR. An increase of about 10 per cent in operating costs will decrease IRR by about eight per cent. The project is least sensitive to any change in the initial investment cost. An increase of 10 per cent in the total initial investment outlay will result in a decline of around three per cent in the IRR. (See Table 22.)

Table 22
Summary of Sensitivity Analyses

Assumed Cases	Internal Rate of Return	
	With Incentive	Without Incentive
10% decrease in Selling Price	20.31%	16.20%
10% increase in Production Cost	24.49%	20.26%
10% increase in initial investment	29.78%	25.80%

FINANCIAL CASHFLOW

The cashflow summary for the 15-year period of the project is shown below.

Table 23
Financial Cashflow
(In Thousand Pesos)

I. With Incentives

Year	Inflow	Outflow	Net Inflow (Outflow)	Cumulative Cashflow *
1	26,284	26,883	(599)	(599)
2	37,431	37,004	427	(172)
3	49,664	42,683	6,981	6,809
4	56,003	44,187	11,816	18,625
5	55,602	47,217	8,385	27,010
6	55,602	47,146	8,456	35,466
7	55,602	42,319	13,283	48,749
8	55,602	42,319	13,283	62,032
9	55,602	42,319	13,283	75,315
10	55,602	42,319	13,283	88,598
11	55,602	42,442	13,160	101,758
12	55,602	42,442	13,160	114,918
13	55,602	42,493	13,109	128,027
14	55,602	42,543	13,059	141,086
15	55,602	42,568	13,034	154,120

II. Without Incentives

Year	Inflow	Outflow	Net Inflow (Outflow)	Cumulative Cashflow *
1	26,289	27,207	(918)	(918)
2	37,432	38,649	(1,217)	(2,135)
3	49,664	46,595	3,069	934
4	56,003	49,437	6,566	7,500
5	55,602	47,533	8,069	15,569
6	55,602	47,478	8,124	23,693
7	55,602	42,515	13,087	36,780
8	55,602	42,515	13,087	49,867
9	55,602	42,515	13,087	62,954
10	55,602	42,515	13,087	76,041
11	55,602	42,656	12,946	88,987
12	55,602	42,656	12,946	101,933
13	55,602	42,706	12,896	114,829
14	55,602	42,757	12,845	127,674
15	55,602	42,782	12,820	140,494

* available for cash dividends to the extent of retained earnings.

ANNEXES

Profile of the Interviewed Respondents
Ornamental Ceramics Manufacturers
1988

Company	Contact Person/Position	Products	Total Ornamental Sales in Million P	% Sold to Domestic Market	% Sold to Export Market	Main Country Market
1. Paras Ceramics	Angel Paras Marketing Manager	giveaways,fashion accessories, gift items(vases,jars,boxes, candleholders,mask,picture frames,etc.)	3.70	50%	40%	USA,Germany,Singapore, Malaysia,Hong Kong,UK, Canada
2. Cardinal Ceramics Manufacturing Inc.	Francis T. Infante Marketing Manager	vases,figurines,decorative articles	10.00	20%	80%	West Germany, USA, Netherlands
3. Arte Ceramica Corp.	Cora C. Amante President	tabletop accessories,ceramic, cactus collection,ceramic fruit and vegetable bowls, bathroom sets	4.50	20%	80%	USA,Europe,Australia, Asia,Canada
4. Star Philcrafts Mfg. Corp.	Paula J. Arameta General Manager	vases,boxes,candleholders, tureens,bowls,planters	7.50		100%	Germany,USA
5. Saranga Ceramics Contracting Co. Inc.	Elenita Sardejas President	breakfast sets,bath sets, tabletop accessories	11.40	2%	98%	USA,Canada,Australia Europe,Most east Asia
6. Evergreen Ceramic Arts	Mr. G. C. Yuen Proprietor	flower pots,jars,birds, vases,animals,figurines, ashtray	3.00	95%	5%	Australia,Germany,USA, Europe,Japan,New Zealand, Canada
7. Standard Products Exporters, Inc.	Gil V. Lacson Business Development Officer	vases,planters' vases, ashtrays,candleholders	5.00		100%	USA,Australia,Belgium, Netherlands,Norway,UK Japan
8. Lourdware Ceramics	Paul de Ramos Marketing Manager	figurines,flowers,vases. lampstands	3.00	80%	20%	USA,Europe,Malaysia, Italy
9. Paranaque Keramics	Fely Gonzales Proprietor	vases,mugs,drink containers, ashtrays	.35	100%		
10.Ceramica Erzon	Nestie & Eulogio Enriquez Proprietor	vases,ashtrays,giftwares, (figurines,canisters,piggy banks)	1.30	100%		
11.Lucky Tableware Factory, Inc.	Vicente V. Sabarre Vice-President Comptroller	vases	1.80	97%	03%	USA,Italy

Source: Interviews

ESTIMATED MONTHLY COST OF PRODUCTION

ORNAMENTAL CERAMIC PRODUCTION - NOVELTY ITEMS

Size: 5.5"l x 5.25"h x 3.4"w

1. PLANT OPERATION: 8 hrs/day,25 days/mo,300 days/yr

2. PLANT CAPACITY/MONTH	123,500 pcs(net);	145,457 greenwares
KILN CAPACITY/GLOST FIRING		972 pcs
KILN CAPACITY/BISQUE FIRING		1,458 pcs
GLOST FIRINGS/MONTH		144
BISQUE FIRINGS/MONTH		97
RECOVERY AFTER GLOST FIRING		97%
RECOVERY AFTER BISQUE FIRING		93%
RECOVERY AFTER DRYING		98%
RECOVERY AFTER RE-TOUCHING		98%
RECOVERY AFTER FORMING		98%
VOLUME OF KILN		3 cu m
NO. OF KILN(12 cu m Shuttle Kiln w/2 cars)		9 unit/s
DURATION OF FIRINGS		24 hrs
FIRING TEMP(Bisque & Glost)		1,050 C /firing
ROOM TEMPERATURE		30 C

3. COST OF MATERIALS		
WT OF PRODUCT (kg/pc)		0.214
RCP Earthenware Body	90.00%	
Ferro Holland Glaze(55)	9.92%	
Coloring Oxides	0.08%	
Sodium Silicate	0.50%	
EARTHENWARE BODY (kg/pc)		0.193
Specific Gravity of Slip		1.7
Plaster of Paris;mold good to:	100 pourings;	
loss in mold preparation:	15%	8 kg/mold

4. DIRECT LABOR (MAN/DAY): 360 Laborers

Batching/Glaze Preparation	300 kg/man/hr	1
Mold Making	6 pcs/man/day	11
Mold Assembling	30 pcs/man/hr	27
Filling	120 pcs/man/hr	7
Re-filling	120 pcs/man/hr	7
Draining	30 pcs/man/hr	27
Mold Dis-assembling	30 pcs/man/hr	27
Re-Touching(greenwares)	30 pcs/man/hr	27
Re-Touching(glazed wares)	60 pcs/man/hr	13
Underglazing	30 pcs/man/hr	26
Underglazing(spraying)	30 pcs/man/hr	26
Glazing	60 pcs/man/hr	14
Firing	2 men	2
Loader/Unloader	12 men	12
Scheduler	2 man	2
Inspector	360 pcs/man/hr	2
Packaging(individual box)	150 pcs/hr/man	5
Utility man	13 men	13

5. FUEL CONSUMPTION

Fuel Consumption/Bisque Firing:	264 kg LPG
Fuel Consumption/Glost Firing:	196 kg LPG
Total Fuel Consumption(Bisque Firing)	27,222 kg LPG
Total Fuel Consumption(Glost Firing)	28,191 kg LPG
Calorific Value of LPG	11,767 KCal/kg
Specific Heat of Earthenware	0.324 KCal/kg C
Kiln Efficiency(wares only)	3.5%

6. UTILITIES:

For Power Consumption: (Pls refer to Annex 3)

Effective Rate of Electricity: 1.86 /kw-h

WATER CONSUMPTION: 32.00 cu m/mo

Slip Preparation	30% water/dry wt of body
Glaze Preparation	10% water/dry wt of glaze
Mold Preparation	40% water/total wt of pl slurry
Office/Factory Use(Personal)	10 cu m/mo

Total cost: 408.03

WATER RATE:

Consumption		Rate
1	25 Cu M	157.20 /Connection
26	1,000 Cu M	6.30 /Cu M + P 157.20
1,000 >		7.35 /Cu M + P 157.20

LIST OF DIRECT AND INDIRECT MATERIALS
BEFORE VALUE ADDED TAX
(In Pesos)

MATERIALS AND INPUTS	QUANTITY	UNIT	UNIT COST	TARIFF	TOTAL COST	IMPORTED COST
A. Earthenware Ornamental						
Export Sales						
Direct Materials:						
RCP Body (WEB-PREM)	77.78	MT	9,040.00		703,167	
RCP Body (WEB-REG)	181.44	MT	5,960.00		1,081,382	
RCP Glaze	25.03	MT	55,460.00		1,388,275	
Sodium Silicate	388.75	Kg	15.50		6,026	
Coloring Oxides	201.60	Kg	800.00		161,280	161,280
Indirect Materials:						
Plaster of Paris	106.34	MT	7,000.00		744,408	744,408
Subtotal				0	4,084,538	905,688
Local Sales						
Direct Materials:						
RCP Body (WEB-PREM)	33.34	MT	9,040.00		301,357	
RCP Body (WEB-REG)	77.76	MT	5,960.00		463,450	
RCP Glaze	10.73	MT	55,460.00		594,975	
Sodium Silicate	166.61	Kg	15.50		2,582	
Coloring Oxides	86.40	Kg	800.00	20,736	89,856	89,856
Indirect Materials:						
Plaster of Paris	45.58	MT	7,000.00	31,903	350,935	350,935
Subtotal				52,639	1,803,156	440,791
Total				52,639	5,887,694	1,346,479

ANNEX 4

ESTIMATED POWER CONSUMPTION PER MONTH
BY PRODUCT TYPE

EARTHENWARE PRODUCTION

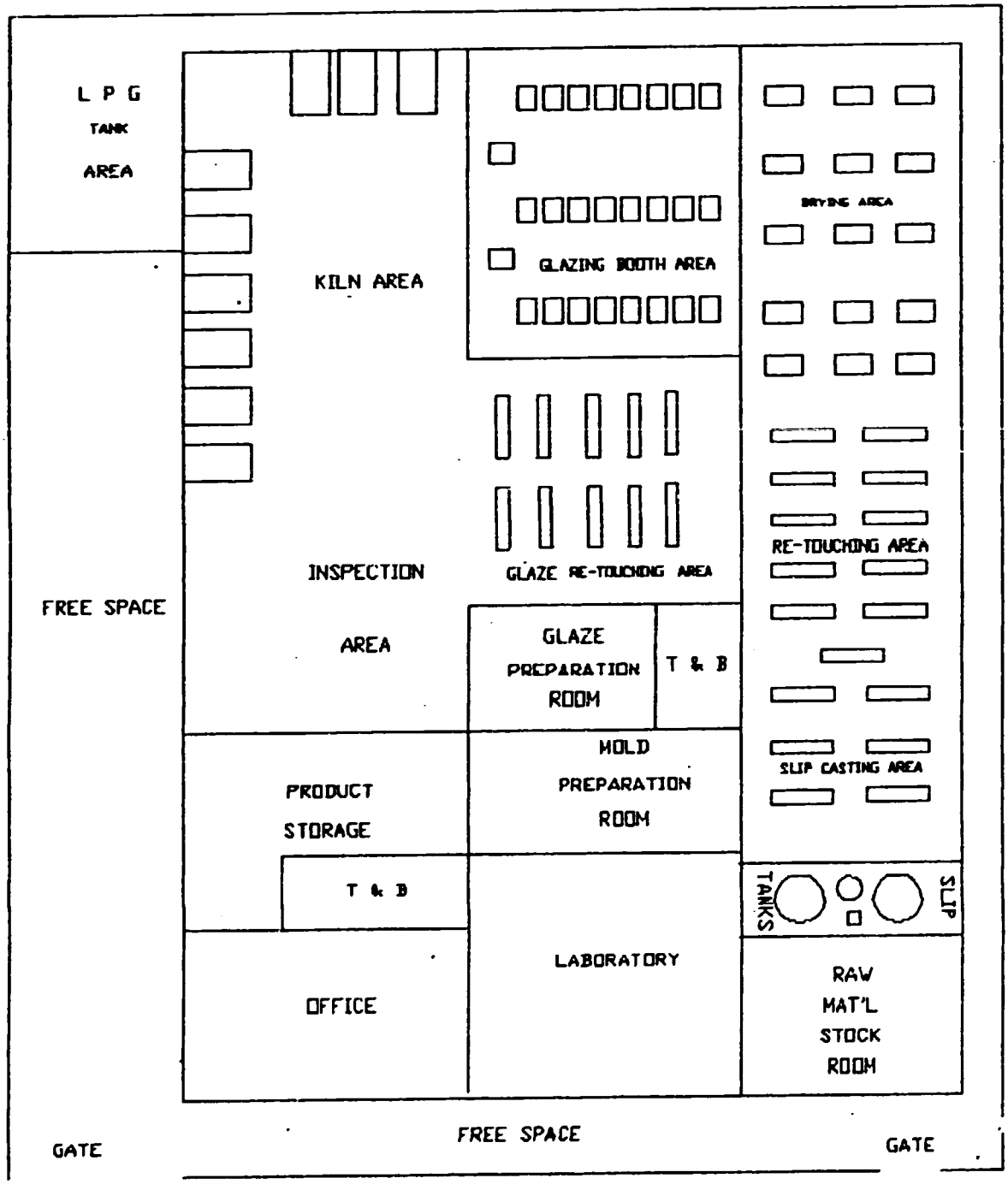
BASIS: 145,457 greenwares (pieces)

EQPT	HR/BATCH	CAP/RATE	QTY	KW/UNIT	HR/UNIT	Kwh
Vacuum Agitator(l)	0.3	30	1	0.746	85	63
Air Compressor			1	11.190	67	746
Slip Tank (l)	8.0	500	2	0.330	377	297
Overhead Slip Tank (l)	4.0	250	1	0.330	377	149
Vibrating Screen (MT/hr)		1.5	2	0.373	27	20
Conveyor Belt			11	1.000	200	2,200
Slip Pump(l/hr)		900	2	0.746	27	40
Exhaust Fan			26	1.500	180	7,020
Factory Lights(Work Area)			662	0.040	200	5,296
Laboratory Kiln			3	5.000	72	1,080
Laboratory Light			8	0.040	200	64
T & B			8	0.025	200	40
TOTAL				21.420		16,933

OFFICE POWER CONSUMPTION

EQPT	HR/BATCH	CAP/RATE	QTY	KW/UNIT	HR/UNIT	KWH
Office Lights			13	0.040	200	104
Airconditioner			2	1.119	200	671
Electric Fan			3	0.150	200	90
Refrigerator			1	0.150	720	108
Others				0.250	200	50
T & B			4	0.025	200	20
TOTAL				1.734		1,043

PLANT LAY-OUT
ORNAMENTAL CERAMICS MANUFACTURING PROJECT



BUILDING AREA : 5,300 sq m

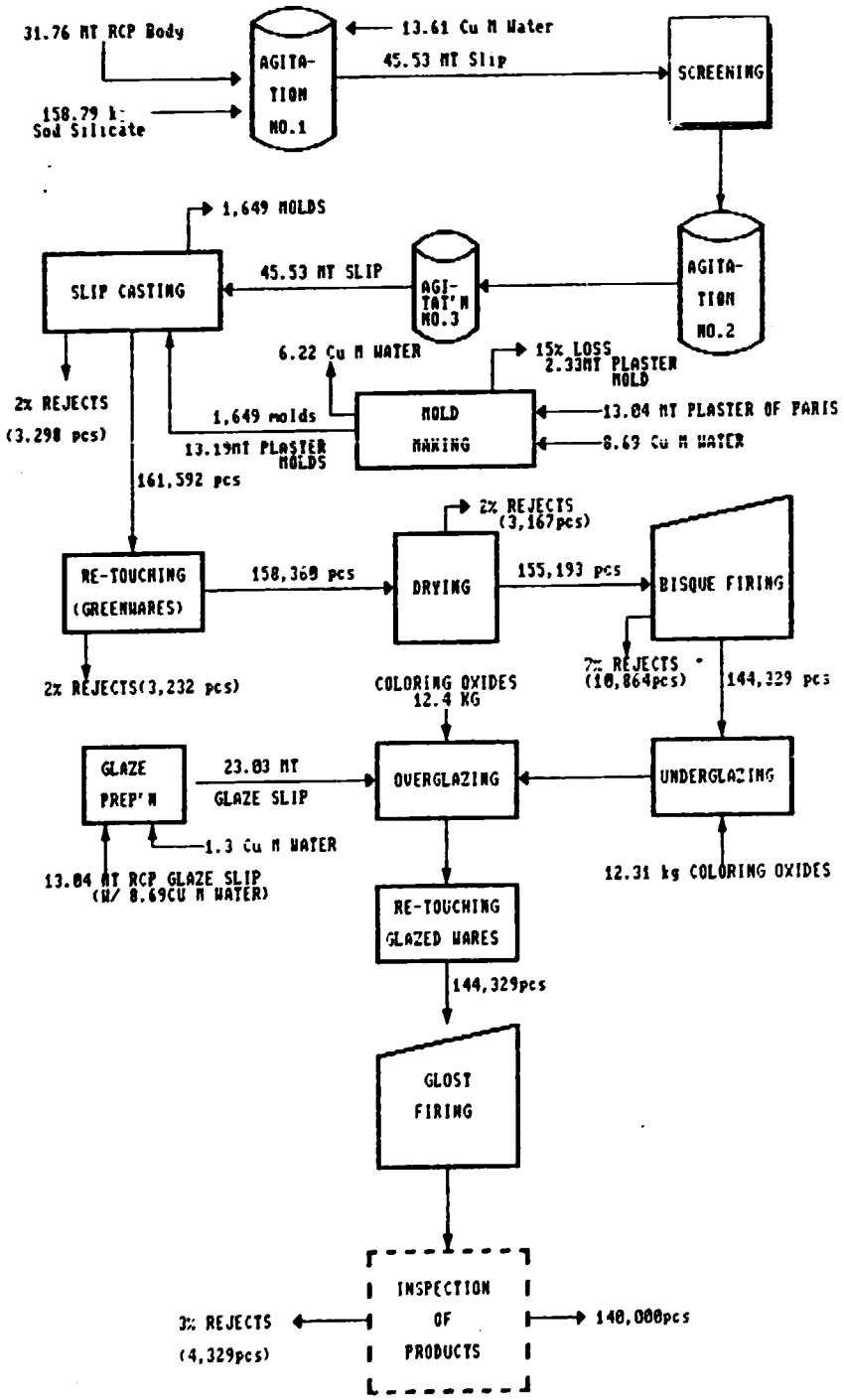
LAND AREA : 7,500 sq m

SCALE 1mm : 0,5m

PROCESS FLOW AND MATERIAL BALANCE

ORNAMENTAL CERAMIC (EARTHENWARE) PRODUCTION

BASIS: 140,000 pcs



LIST OF PRODUCTION, AUXILIARY AND OTHER EQUIPMENT
(In Pesos)

I. WITH BOI INCENTIVES (BEFORE VALUE ADDED TAX AND TARIFF)

A. PRODUCTION EQUIPMENT

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST (LOCAL)	TOTAL COST (IMPORTED)
Shuttle Kiln (3 cu m cap)w/ 2 cars	9	Unit/s	600,000.00	5,400,000	
Slip Tank w/ 0.75 KW motor	2	Unit/s	22,727.27	45,455	
Overhead Slip Tank w/1 hp motor	1	Unit/s	13,636.36	13,636	
Slip Pump(880 l/min; w/ 0.75 KW motor)	2	Unit/s	8,636.36	17,273	
Conveyor Belt(1 KW)	11	Unit/s	15,151.52		166,667
Platform Balance(500 kg)	2	Unit/s	7,575.76		15,152
Filling Gun	7	pcs	1,048.95		7,343
Vibrating Screen,(80 mesh) w/ 0.4 Kw motor	2	Unit/s	43,898.16		87,796
Air Compressor (15 hp)	1	Unit/s	97,902.10		97,902
Vacuum Agitator w/ 0.4 KW motor (30 l cap)	1	Unit/s	76,923.08		76,923
Total Production Equipment				5,476,364	451,782
Add: 5% Contingency				273,818	22,589
Add: 15% Shipping/Installation				821,455	67,767
Total Cost of Production Equipment				6,571,636	542,139

B. AUXILLIARY EQUIPMENT

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST (LOCAL)	TOTAL COST (IMPORTED)
Glazing Booth/Spray/acc,etc.	36	Set/s	[illegible]	[illegible]	
Pyrometer w/ 2 Thermocouples	9	Set/s	15,151.52		136,364
Refractory Slabs(12x12x1/2")	[illegible]	pcs	[illegible]		[illegible]
Refractory Post(2"ht)	215	pcs	2.07		445
Refractory Post(5.5"ht)	1,737	pcs	7.44		12,923
Turn Table(plaster mold prep'n)	3	Unit/s	54,545.45	163,636	
Casting Table, 17x4x2';(90pcs cap)	7	Unit/s	909.09	6,364	
Re-Touching Table,17x3.5x2.5'	9	Unit/s	[illegible]	[illegible]	
Ware Drying Rack(10x4.5x2')420 pcs cap	15	Unit/s	6,363.64	95,455	
Mold Drying Rack(10x4.5x2')420 pcs cap	3	Unit/s	5,454.55	16,364	
Glazing Table(8'x2'x2.5')	10	Unit/s	1,318.18	13,182	
Plastic Container(100 l)	6	Unit/s	290.91	1,745	
Plastic Container(20 l)	23	Unit/s	43.64	1,004	
Total Auxilliary Equipment				[illegible]	[illegible]
Add: 5% Contingency				[illegible]	[illegible]
Add: 15% Shipping/Installation				[illegible]	[illegible]
Total Cost of Auxilliary Equipment				[illegible]	[illegible]

C. LABORATORY EQUIPMENT

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST (LOCAL)	TOTAL COST (IMPORTED)
Electric Kiln(5 kw)	1	unit/s	23,000.00	23,000	
Heating Elements	1	set/s	2,473.00		2,473
Pyrometer w/ Thermocouple	1	set	15,152.00		15,152
Refractory Slab(12x12x1/2")	10	pcs	247.80		2,478
Refractory Post(2"H)	10	pcs	3.05		31
Refractory Post(4.5"H)	20	pcs	7.43		149
Electronic Analytical Balance	1	unit	46,979.00		46,979
Hydrometer	6	pcs	124.00		744
Graduated Cylinder(1 l cap)	2	pcs	374.00		748
Graduated Beaker(4 l cap)	2	pcs	578.00		1,156
Plastic Container(10 l cap)	4	pcs	22.75	91	
Total Laboratory Equipment				23,091	69,931
Add: 5% Contingency				1,155	3,496
Add: 15% Shipping/Installation				3,814	10,494
Total Cost of Laboratory Equipment				24,109	83,921

D. OFFICE EQUIPMENT

DESCRIPTION	NO. OF UNITS	UNIT COST	TOTAL COST
Adding machines	2	2,000	4,000
Airconditioner	2	12,000	24,000
Calculator	2	300	600
Ceiling fan	3	1,000	3,000
Computer	1	40,000	40,000
Conference table	1	8,000	8,000
Filing Cabinet	3	1,200	3,600
Office tables	22	2,000	44,000
Office chairs	22	1,000	22,000
Other office accessories		15,000	15,000
Refrigerator	1	10,000	10,000
Typewriter (IBM electric)	2	15,000	30,000
Visitors chair	12	100	1,200
Total Office Equipment			205,400
Add: Furniture and fixtures			100,000
Total			305,400

E. TRANSPORTATION EQUIPMENT

DESCRIPTION	NO. OF UNITS	UNIT COST	TOTAL COST
Asian Utility Vehicle	1	250,000	250,000

II. WITHOUT BOI INCENTIVES WITH VALUE ADDED TAX AND TARIFF

A. PRODUCTION EQUIPMENT

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST (LOCAL)	TOTAL COST (IMPORTED)
Shuttle Kiln (3 cu m cap)w/ 2 cars	3	Unit/s	880,000.00	2,640,000	
Slip Tank w/ 0.75 KW motor	2	Unit/s	25,000.00	50,000	
Overhead Slip Tank w/1 hp motor	1	Unit/s	15,000.00	15,000	
Slip Pump(680 l/min; w/ 0.75 KW motor)	2	Unit/s	3,500.00	13,000	
Conveyor Belt(1 KW)	11	Unit/s	21,000.00		231,000
Platform Balance(500 Kg)	2	Unit/s	10,000.00		20,000
Filling Gun	4	pcs	1,500.00		6,000
Vibrating Screen,(80 mesh) w/ 0.4 Kw motor	2	Unit/s	62,774.40		125,549
Air Compressor (15 hp)	1	Unit/s	140,000.00		140,000
Vacuum Agitator w/ 0.4 KW motor (30 l cap)	1	Unit/s	110,000.00		110,000
Total Production Equipment				2,718,000	636,549
Add: 5% Contingency				135,900	31,827
Add: 15% Shipping/Installation				203,850	95,482
Total Cost of Production Equipment				3,057,750	763,859

B. AUXILLIARY EQUIPMENT

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST (LOCAL)	TOTAL COST (IMPORTED)
Glazing Booth/Spray/acc,etc.	26	Set/s	25,000.00	650,000	
Pyrometer w/ 2 Thermocouples	9	set/s	20,000.00		180,000
Refractory Slabs(12x12x1/2")	2,916	pcs	300.00		874,800
Refractory Post(2"ht)	216	pcs	2.50		540
Refractory Post(5.5"ht)	1,737	pcs	9.00		15,633
Turn Table(plaster mold prep'n)	3	Unit/s	60,000.00	180,000	
Casting Table, 17x4x2';(80pcs cap)	7	Unit/s	1,000.00	7,000	
Re-Touching Table,17x3.5x2.5'	9	Unit/s	1,000.00	9,000	
Ware Drying Rack(10x4.5x2')420 pcs cap	15	Unit/s	7,000.00	105,000	
Mold Drying Rack(10x4.5x2')420 pcs cap	3	Unit/s	6,000.00	18,000	
Glazing Table(8'x2'x2.5')	10	Unit/s	2,000.00	20,000	
Plastic Container(100 l)	6	Unit/s	320.00	1,920	
Plastic Container(20 l)	23	Unit/s	48.00	1,044	
Total Auxilliary Equipment				332,264	1,070,973
Add: 5% Contingency				49,840	53,549
Add: 15% Shipping/Installaati n				148,940	160,646
Total Cost of Auxilliary Equipment				1,190,717	1,285,168

C. LABORATORY EQUIPMENT

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST (LOCAL)	TOTAL COST (IMPORTED)
Electric Kiln(5 kw)	1	unit/s	22,000.00	22,000	
Heating Elements	1	set/s	3,000.00		3,000
Pyrometer w/ Thermocouple	1	set	20,000.00		20,000
Refractory Slab(12x12x1/2")	10	pcs	300.00		1,000
Refractory Post(2"H)	10	pcs	2.50		25
Refractory Post(4.5"H)	20	pcs	9.00		180
Electronic Analytical Balance	1	unit	82,000.00		82,000
Hydrometer	3	pcs	150.00		300
Graduated Cylinder(1 L cap)	2	pcs	450.00		900
Graduated Beaker(2 L cap)	2	pcs	900.00		1,800
Plastic Container(10 L cap)	4	pcs	25.00	100	
Total Laboratory Equipment				22,100	91,405
Add: 5% Contingency				1,105	4,570
Add: 15% Shipping/Installation				3,315	13,711
Total Cost of Laboratory Equipment				26,520	109,686

EQUIPMENT SPECIFICATIONS

Ceramic Ornamental

1. Shuttle Kiln with 2 cars
   - Capacity : 3 cubic meters
   - Firing Temperature: 1,050^{o}C
   - Fuel : LPG

2. Slip Tank
   - Capacity : 500 liters
   - Power Requirement : 0.75 kw/unit

3. Overhead Slip Tank
   - Capacity : 250 liters
   - Power Requirement : 0.75 kw/unit

4. Slip Pump
   - Capacity : 880 liters/minute
   - Power Requirement : 0.75 kw/unit

5. Conveyor Belt
   - Power Requirement : 1.0 kw/unit

6. Platform Balance
   - Capacity : 500 kg.

7. Vibrating Screen (80 mesh)
   - Capacity : 1.5 MT/hour
   - Power Requirement : 0.40 kw/unit

8. Extruder de Airing
   - Capacity : 1,500 - 2,000 kg/hour
   - Power Requirement : 11.0 kw/unit

9. Vacuum Agitator
   - Capacity : 30 liters
   - Power Requirement : 1 kw/unit

FACTORY OVERHEAD AT FULL CAPACITY
(In Pesos)

A. WITH BOI INCENTIVES

DESCRIPTION	COST
Indirect Labor	1,542,450
Insurance	267,514
Packaging	5,263,200
Real Property Tax	371,300
Factory Supplies	12,000
Miscellaneous	186,412
Total	7,642,876

B. WITHOUT BOI INCENTIVES

DESCRIPTION	COST
Indirect Labor	1,542,450
Insurance	280,922
Packaging	5,263,200
Real Property Tax	371,300
Factory Supplies	12,000
Miscellaneous	186,747
Total	7,656,619

ADMINISTRATIVE OVERHEAD
(In Pesos)

DESCRIPTION	COST
Non-Labor	
Research and Development	120,000
Insurance	13,554
Communication Systems	120,000
Supplies	24,000
Property Tax	23,700
Permits and Licenses	60,000
Repairs and Maintenance	2,500
Utilities	13,924
Miscellaneous	9,442
Subtotal	387,120
Labor (see Annex 9)	2,311,140
Total	2,698,260

SALARIES AND WAGES
(In Pesos)

MANPOWER REQUIREMENTS	NO. OF LABORERS	RATE/DAY	TOTAL/DAY	MONTHLY RATE (25 DAYS/MO)
I. DIRECT LABOR				
Skilled Labor				
Batching/Glaze Preparation	1			
Mold Making	11			
Underglazing	26			
Underglazing(spraying)	26			
Overglazing/handpainting	111			
Firing	2			
Scheduler	2			
Inspector	2			
Total Skilled Labor	181	100.00	18,100.00	452,500.00
Unskilled Labor				
Mold Assembling	27			
Filling	7			
Re-filling	7			
Draining	27			
Mold Dis-assembling	27			
Re-Touching(greenwares)	27			
Re-Touching(glazed wares)	13			
Glazing	14			
Loader/Unloader	12			
Packaging(individual box)	6			
Utility man	13			
Total Unskilled Labor	179	89.00	15,931.00	398,275.00
				850,775.00
Additional Five Working Days:				
Firing	2	100.00	200.00	
Loader/Unloader	12	89.00	1,068.00	
Subtotal				6,340.00
				857,115.00
Add: 25% BENEFITS				214,278.75
Total Monthly Salaries and Benefits				1,071,393.75
				x 12
Total Yearly Salaries and Benefits				12,856,725.00

MANPOWER REQUIREMENTS	NO OF LABORERS	MONTHLY RATE	TOTAL/MONTH
II. OFFICE SALARIES			
A. Administration & Finance			
General Manager	1	30,000.00	30,000.00
Executive Secretary	1	4,000.00	4,000.00
Finance & Administrative Manager	1	20,000.00	20,000.00
Secretary	1	3,500.00	3,500.00
Chief Accountant	1	15,000.00	15,000.00
Bookkeeper	2	3,500.00	7,000.00
Clerk	2	3,500.00	7,000.00
Cashier	1	4,000.00	4,000.00
Supply Officer	1	6,600.00	6,600.00
Personnel and Administration Supervisor	1	15,000.00	15,000.00
Personnel Aide	2	4,000.00	8,000.00
Company Nurse	1	4,000.00	4,000.00
Driver	1	2,800.00	2,800.00
Utility Man	2	2,225.00	4,450.00
Security Guards	6	2,800.00	16,800.00
	24		148,150.00
Add: 30% Benefits			44,445.00
Total Monthly Salaries and Benefits			192,595.00
			x 12
Total Yearly Salaries and Benefits			2,311,140.00

B. MARKETING & SALES

Marketing/Sales Manager	1	20,000.00	20,000.00
Secretary	1	3,500.00	3,500.00
Local Sales Supervisor	1	15,000.00	15,000.00
Salesmen	1	6,600.00	6,600.00
Marketing Researcher	1	6,600.00	6,600.00
	5		51,700.00
Add: 30% Benefits			15,510.00
Total Monthly Salaries and Benefits			67,210.00
			x 12
Total Yearly Salaries and Benefits			806,520.00

C. PLANT OPERATION

Production Manager	1	20,000.00	20,000.00
Secretary	1	3,500.00	3,500.00
Production Supervisor	1	15,000.00	15,000.00
Quality Control Supervisor	1	15,000.00	15,000.00
Quality Control Technician	2	6,600.00	13,200.00
Researcher/Analyst	1	6,600.00	6,600.00
Foreman	3	3,500.00	10,500.00
Maintenance Men	3	2,800.00	8,400.00
Utility Men	3	2,225.00	6,675.00
	16		98,875.00
Add: 30% Benefits			29,662.50
Total Monthly Salaries and Benefits			128,537.50
			x 12
Total Yearly Salaries and Benefits			1,542,450.00

NOTES AND ASSUMPTIONS USED IN THE FINANCIAL PROJECTIONS

All revenue and costs are assumed at constant 1989 prices. Exchange rate is ₱ 22.00 to US$ 1.00

INCOME STATEMENT

Sales

Sales Volume

The sales volume and sales revenues during the fifteen-year projection period are as follows:

Year	Volume (MT)	Revenues	
		US$ Thousand	₱ Thousand
I. Local Sales			
1	46	US$ 333	₱ 7,325
2	69	499	10,987
3	92	666	14,649
4 - 15	105	757	16,646
II. Export Sales			
1	108	US$ 777	₱ 17,091
2	162	1,.65	25,635
3	215	1,554	34,181
4 - 15	244	1,766	38,842

Sales Price

The current selling price of the sample ceramic ware in the project is ₱ 34.00 per piece in the domestic market and US$ 1.55 per piece in the export market.

Variable Costs

Raw Material 1/Other Raw Materials

The main raw materials required for the manufacture of ceramic wares are WEB-premium RCP earthenware body, WEB-regular RCP earthenware body, RCP glaze, sodium silicate, coloring oxides and plaster of paris. The cost of raw materials are assumed as follows:

Year	(In Thousand Pesos) RCP Earthenware Body	Other Direct Materials	Indirect Materials
1	1,122	987	482
2	1,682	1,480	723
3	2,243	1,974	964
4 - 15	2,549	2,243	1,095

The cost estimate for the raw materials are based on the quotation given by the Refractories Corporation of the Philippines (formulated raw materials) and the Philippine International Trade Center for the latest available invoice prices of imported raw materials.

These costs exclude value added tax and taxes and duties on imported raw materials. Refer to Annex 3 for a detailed breakdown of raw material costs.

Utilities

Total utility requirement for the project is estimated at 384 cubic meters of water and 203,856 kilowatt-hours of electricity. Water cost is assumed at ₱ 6.30 per cubic meter (present cost) while electricity cost is placed at ₱ 1.1125 per kilowatt-hour (effective average industrial rate plus adjustments, December 1989). Total water expenditure at full capacity is ₱ 2,419 while that of electricity is ₱ 226,790.

Energy

The energy requirement of the project is in the form of Liquefied Petroleum Gas (LPG). Total energy requirement at full capacity is 665 metric tons. At an assumed cost of 5.8141 per kilogram, total cost amount to ₱ 3.87 million. The cost estimate per kilogram of LPG has been obtained from Pilipinas Shell Inc.

Direct Labor Cost

The ceramic plant will require a total of 360 direct laborers, divided into 181 skilled laborers and 179 unskilled laborers. The salary was computed based on ₱ 100 per day for the skilled workers and ₱ 89 per day (minimum wage for outside Metro Manila) for the unskilled workers plus 25% benefits. Total salaries including benefits of direct workers total ₱ 12.86 million at full capacity.

Factory Overhead

o Indirect Labor Cost

Salaries plus 30 per cent benefits of 16 indirect workers amount to ₱ 1.54 million.

o Packaging Materials

Two types of packaging material will be used. An individual box (6x6x6") which costs ₱ 2.70 per pack and a corrugated box (doz/carton) which cost ₱ 16.65 each. Total packaging cost for the ceramic product amounts to ₱ 5.26 million.

Fixed Cost

Repairs, Maintenance

Repairs and maintenance cost is assumed to be one per cent of total cost of production and auxiliary equipment. This amounts to ₱ 93.51 thousand.

Spare Parts

The cost of spare parts is assumed to be 2.5 per cent of the total cost of production and auxiliary equipment. This amounts to ₱ 233.78 thousand.

Factory Overhead

Included in this account are indirect labor, insurance, real property tax, factory supplies and miscellaneous cost. The breakdown are as follows:

Item	Assumption	Amcunt In Thousand
Insurance	1% of building, production and auxilliary equipment	₱ 267.51
Property Taxes	2% of building and land cost	371.30
Factory Supplies	₱ 1,000 per month per plant	12.00
Miscellaneous	2.5% of total cash overhead	186.41
		₱ 960.92

Ninety four per cent of the building cost is charged tc the factory and the remaining six per cent to administration.

Administrative Overhead and Labor

Total general and administrative expenses are estimated at ₱ 2.70 million per annum. Salaries plus 30 per cent benefits amount to ₱ 2.31 million while administrative overhead is ₱ 0.39 million. Refer to Annex 9 for details.

Indirect Costs, Sales and Distribution

Total marketing and sales expenses are estimated at ₱ 2.47 million per annum at full capacity. Salaries and benefits amcunt to ₱ 806.52 thousand. Indirect sales expense which consists of representation cost, travel expenses, cost of attendance in world expositions and trade fairs, brochures and pamphlets is estimated at three per cent of total revenue. At full capacity, indirect sales expense amounts to ₱ 1.66 million.

Depreciation

Depreciation of fixed assets will begin on the first year of actual production. The classification of fixed assets and their estimated life is shown below:

Fixed Asset	Estimated Life (No. of Years)
Building	20
Plant machinery and equipment	10
Auxiliary and service equipment:	
Production auxiliary equipment	5
Laboratory equipment	5
Incorporated Fixed Assets:	
Transportation equipment	5
Office furniture and fixtures	5

Cost of Financing

Sixty percent of the total project cost will be financed by domestic loan. The loan is assumed to have a 7-year term inclusive of a two-year grace period. It will be paid in five equal yearly amortizations of the principal. It will bear 20 per cent interest.

Taxes

The project is assumed to enjoy a four-year tax holiday with BOI incentives. Corporate tax rate is 35 per cent.

BALANCE SHEET AND CASHFLOW STATEMENTS

Cash in Bank

The minimum cash requirement for the project is equivalent to 30 days' cash.

Accounts Receivable

Export sales are assumed to be sold at Letter of Credit basis. Local sales are assumed to be collectible within 30 days.

Inventory

The following days' inventory levels are assumed:

Item	No. of Days	
	Local	Imported
Raw Materials	120	15
Utilities		15
Energy		5
Spare Parts	180	90
Work-in-Process		7
Finished Goods		15

Accounts Payable

Imports are assumed to be bought at Letter of Credit basis. Local purchases are assumed to be payable in 30 days.

PROJECTED FINANCIAL STATEMENTS
WITH BOI INCENTIVE

COMFAR 2.1

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Ornamental Ceramics
April 1990
Base Case: With BOI Incentive

1 year(s) of construction, 15 years of production
currency conversion rates:
foreign currency 1 unit = 22.0000 units accounting currency
local currency 1 unit = 1.0000 units accounting currency
accounting currency: Thousand Pesos

Total initial investment during construction phase

fixed assets:	32742.75	5.110 % foreign
current assets:	2854.84	0.000 % foreign
total assets:	35597.59	4.701 % foreign

Source of funds during construction phase

equity & grants:	14239.04	40.000 % foreign
foreign loans :	0.00	
local loans :	21358.55	
total funds :	35597.59	16.000 % foreign

Cashflow from operations

Year:	1	4	7
operating costs:	19420.06	36049.32	36049.32
depreciation :	2664.67	2952.67	1638.87
interest :	4271.71	2563.03	0.00
production costs	26356.44	41565.01	37688.19
thereof foreign	3.47 %	4.01 %	3.83 %
total sales :	24464.98	55602.24	55602.24
gross income :	-1891.46	14037.23	17914.05
net income :	-1891.46	14037.23	11644.13
cash balance :	-599.33	11815.86	13283.00
net cashflow :	3672.38	18650.60	13283.00

Net Present Value at: 20.00 % = 22213.43
Internal Rate of Return: 32.40 %
Return on equity1: 41.26 %
Return on equity2: 36.71 %

Index of Schedules produced by COMFAR

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Net Income Statement in Thousand Pesos

Year	1992	1993	1994	1995	1996
Total sales, incl. sales tax	24464.980	36657.480	48929.970	55602.240	55602.240
Less: variable costs, incl. sales tax.	13065.850	19598.770	26131.690	29695.100	29695.100
Variable margin	11399.140	17098.710	22798.280	25907.140	25907.140
As % of total sales	46.594	46.594	46.594	46.594	46.594
Non-variable costs, incl. depreciation	9018.884	9018.880	9162.882	9306.883	9378.881
Operational margin	2380.2[illegible]	8079.827	13635.400	16600.260	16528.260
As % of total sales	9.729	22.017	27.867	29.855	29.726
Cost of finance	4271.710	4271.710	3417.368	2563.026	1708.684
Gross profit	-1891.455	3808.117	10218.030	14037.230	14819.570
Allowances	0.000	0.000	0.000	0.000	0.000
Taxable profit	-1891.455	3808.117	10218.030	14037.230	14819.570
Tax	0.000	0.000	0.000	0.000	5186.851
Net profit	-[illegible]1.455	3808.117	10218.030	14037.230	9632.723
Dividends paid	0.000	0.000	0.000	0.000	0.000
Undistributed profit	-1891.455	3808.117	10218.030	14037.230	9632.723
Accumulated undistributed profit	-1891.455	1916.662	12134.690	26171.920	35804.640
Gross profit, % of total sales	-7.731	10.377	20.883	25.246	26.653
Net profit, % of total sales	-7.731	10.377	20.883	25.246	17.324
ROE, Net profit, % of equity	-13.284	26.744	71.761	98.583	67.650
ROI, Net profit+interest, % of invest.	6.833	22.071	35.525	42.256	28.869

COMFAR
21 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Net Income Statement in Thousand Pesos

Year	1997	1998	1999	2000	2001
Total sales, incl. sales tax	55602.240	55602.240	55602.240	55602.240	55602.240
Less: variable costs, incl. sales tax.	29695.100	29695.100	29695.100	29695.100	29695.100
Variable margin	25907.140	25907.140	25907.140	25907.140	25907.140
As % of total sales	46.594	46.594	46.594	46.594	46.594
Non-variable costs, incl. depreciation	7993.090	7993.088	7993.088	7993.088	7993.150
Operational margin	17914.050	17914.050	17914.050	17914.050	17913.990
As % of total sales	32.218	32.218	32.218	32.218	32.218
Cost of finance	854.342	0.000	0.000	0.000	0.000
Gross profit	17059.710	17914.050	17914.050	17914.050	17913.990
Allowances	0.000	0.000	0.000	0.000	0.000
Taxable profit	17059.710	17914.050	17914.050	17914.050	17913.990
Tax	5970.897	6269.917	6269.917	6269.917	6269.896
Net profit	11088.810	11644.130	11644.130	11644.130	11644.090
Dividends paid	0.000	0.000	0.000	0.000	0.000
Undistributed profit	11088.810	11644.130	11644.130	11644.130	11644.090
Accumulated undistributed profit	46893.450	58537.580	70181.720	81825.850	93469.950
Gross profit, % of total sales	30.682	32.218	32.218	32.218	32.218
Net profit, % of total sales	19.943	20.942	20.942	20.942	20.942
ROE, Net profit, % of equity	77.876	81.776	81.776	81.776	81.776
ROI, Net profit+interest, % of invest.	30.401	29.640	29.640	29.640	29.640

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Net Income Statement in Thousand Pesos

Year	2002	2003	2004	2005	2006
Total sales, incl. sales tax	55602.240	55602.240	55602.240	55602.240	55602.240
Less: variable costs, incl. sales tax.	29695.100	29695.100	29695.100	29695.100	29695.100
Variable margin	25907.140	25907.140	25907.140	25907.140	25907.140
As % of total sales	46.594	46.594	46.594	46.594	46.594
Non-variable costs, incl. depreciation	7641.717	7641.717	7497.717	7353.717	7281.717
Operational margin	18265.420	18265.420	18409.420	18553.420	18625.420
As % of total sales	32.850	32.850	33.109	33.368	33.498
Cost of finance	0.000	0.000	0.000	0.000	0.000
Gross profit	18265.420	18265.420	18409.420	18553.420	18625.420
Allowances	0.000	0.000	0.000	0.000	0.000
Taxable profit	18265.420	18265.420	18409.420	18553.420	18625.420
Tax	6392.897	6392.897	6443.297	6493.697	6518.897
Net profit	11872.520	11872.520	11966.130	12059.720	12106.520
Dividends paid	0.000	0.000	0.000	0.000	0.000
Undistributed profit	11872.520	11872.520	11966.130	12059.720	12106.520
Accumulated undistributed profit	105342.500	117215.000	129181.100	141240.800	153347.400
Gross profit, % of total sales	32.850	32.850	33.109	33.368	33.498
Net profit, % of total sales	21.353	21.353	21.521	21.689	21.773
ROE, Net profit, % of equity	83.380	83.380	84.037	84.695	85.023
ROI, Net profit+interest, % of invest.	30.221	30.221	30.460	30.698	30.817

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Cashflow Tables, construction in Thousand Pesos

Year	1991
Total cash inflow . .	35597.590
Financial resources .	35597.590
Sales, net of tax . .	0.000
Total cash outflow . .	35597.590
Total assets	33461.730
Operating costs . . .	0.000
Cost of finance . . .	2135.855
Repayment	0.000
Corporate tax . . .	0.000
Dividends paid . . .	0.000
Surplus (deficit) .	0.008
Cumulated cash balance	0.008
Inflow, local	29901.970
Outflow, local	33924.310
Surplus (deficit) .	-4022.338
Inflow, foreign . . .	5695.624
Outflow, foreign . . .	1673.276
Surplus (deficit) .	4022.348
Net cashflow	-33461.730
Cumulated net cashflow	-33461.730

Cashflow tables, production in Thousand Pesos

Year	1992	1993	1994	1995	1996	1997
Total cash inflow . .	26283.560	37431.290	49663.780	56002.509	55602.240	55602.240
Financial resources .	1818.572	733.810	733.810	400.260	0.000	0.000
Sales, net of tax . .	24464.980	36697.480	48929.970	55602.240	55602.240	55602.240
Total cash outflow . .	26882.890	37004.480	42683.050	44186.640	47216.570	47146.270
Total assets	3191.114	2508.067	2508.067	1302.581	0.000	0.000
Operating costs . . .	19420.060	25952.990	32485.910	36049.320	36049.320	36049.320
Cost of finance . . .	4271.710	4271.710	3417.368	2563.026	1708.684	854.342
Repayment	0.000	4271.710	4271.710	4271.710	4271.710	4271.711
Corporate tax . . .	0.000	0.000	0.000	0.000	5186.851	5970.897
Dividends paid . . .	0.000	0.000	0.000	0.000	0.000	0.000
Surplus (deficit) .	-599.330	426.809	6980.723	11815.860	8385.676	8455.969
Cumulated cash balance	-599.322	-172.514	6808.209	18624.070	27009.740	35465.710
Inflow, local	9142.988	11720.430	15382.840	17046.660	16646.400	16646.400
Outflow, local	26087.910	36000.600	41382.960	42758.320	45828.280	45757.980
Surplus (deficit) .	-16944.920	-24280.160	-26000.310	-25711.660	-29181.880	-29111.580
Inflow, foreign . . .	17140.570	25710.850	34281.140	38955.840	38955.840	38955.840
Outflow, foreign . . .	794.981	1003.877	1300.097	1428.318	1388.289	1388.289
Surplus (deficit) .	16345.590	24706.980	32981.040	37527.520	37567.550	37567.550
Net cashflow	3672.378	8970.231	14669.800	18650.600	14366.070	13582.020
Cumulated net cashflow	-29769.350	-20819.120	-6149.318	12501.280	26867.350	40449.380

COMFAR
2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Cashflow tables, production in Thousand Pesos

Year	1998	1999	2000	2001	2002	2003
Total cash inflow . .	55602.240	55602.240	55602.240	55602.240	55602.240	55602.240
Financial resources .	0.000	0.000	0.000	0.000	0.000	0.000
Sales, net of tax . .	55602.240	55602.240	55602.240	55602.240	55602.240	55602.240
Total cash outflow . .	42319.240	42319.240	42319.240	42319.210	42442.220	42442.220
Total assets	0.000	0.000	0.000	0.000	0.000	0.000
Operating costs . . .	36049.320	36049.320	36049.320	36049.320	36049.320	36049.320
Cost of finance . . .	0.000	0.000	0.000	0.000	0.000	0.000
Repayment	0.000	0.000	0.000	0.000	0.000	0.000
Corporate tax . . .	6269.917	6269.917	6269.917	6269.896	6392.897	6392.897
Dividends paid . . .	0.000	0.000	0.000	0.000	0.000	0.000
Surplus (deficit) .	13283.000	13283.000	13283.000	13283.030	13160.020	13160.020
Cumulated cash balance	48748.710	62031.720	75314.720	88597.750	101757.800	114917.800
Inflow, local	16646.400	16646.400	16646.400	16646.400	16646.400	16646.400
Outflow, local	40930.950	40930.950	40930.950	40930.930	41053.930	41053.930
Surplus (deficit) .	-24284.550	-24284.550	-24284.550	-24284.530	-24407.530	-24407.530
Inflow, foreign . . .	38955.840	38955.840	38955.840	38955.840	38955.840	38955.840
Outflow, foreign . . .	1388.289	1388.289	1388.289	1388	1388.289	1388.289
Surplus (deficit) .	37567.550	37567.550	37567.550	375[illegible].50	37567.550	37567.550
Net cashflow	13283.000	13283.000	13283.000	13283.0	13160.020	13160.020
Cumulated net cashflow	53732.380	67015.380	80298.390	9358[illegible]	106741.400	119901.500

Orn[illegible]ntal Ceramics --- April 1990

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Cashflow tables, production in Thousand Pesos

Year	2004	2005	2006
Total cash inflow . .	55602.240	55602.240	55602.240
Financial resources .	0.000	0.000	0.000
Sales, net of tax . .	55602.240	55602.240	55602.240
Total cash outflow . .	42492.620	42543.020	42568.220
Total assets	0.000	0.000	0.000
Operating costs . . .	36049.320	36049.320	36049.320
Cost of finance . . .	0.000	0.000	0.000
Repayment	0.000	0.000	0.000
Corporate tax . . .	6443.297	6493.697	6518.897
Dividends paid . . .	0.000	0.000	0.000
Surplus (deficit) .	13109.630	13059.230	13034.020
Cumulated cash balance	128027.400	141086.700	154120.700
Inflow, local	16646.400	16646.400	16646.400
Outflow, local	41104.330	41154.730	41179.930
Surplus (deficit) .	-24457.930	-24508.330	-24533.530
Inflow, foreign . . .	38955.840	38955.840	38955.840
Outflow, foreign . . .	1388.289	1388.289	1388.289
Surplus (deficit) .	37567.550	37567.550	37567.550
Net cashflow	13109.630	13059.220	13034.020
Cumulated net cashflow	133011.100	146070.300	159104.300

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Cashflow Discounting:

a) Equity paid versus Net income flow:

Net present value	22964.73	at	20.00 %
Internal Rate of Return (IRRE1) ..	41.26 %		

b) Net Worth versus Net cash return:

Net present value	20077.57	at	20.00 %
Internal Rate of Return (IRRE2) ..	36.71 %		

c) Internal Rate of Return on total investment:

Net present value	22213.43	at	20.00 %
Internal Rate of Return (IRR) ..	32.40 %		

Net Worth = Equity paid plus reserves

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Projected Balance Sheets, construction in Thousand Pesos

Year	1991
Total assets	35597.590
Fixed assets, net of depreciation	0.000
Construction in progress	32742.750
Current assets	2854.839
Cash, bank	0.000
Cash surplus, finance available	0.008
Loss carried forward	0.000
Loss	0.000
Total liabilities	35597.590
Equity capital	14239.040
Reserves, retained profit	0.000
Profit	0.000
Long and medium term debt	21358.550
Current liabilities	0.000
Bank overdraft, finance required.	0.000
Total debt	21358.550
Equity, % of liabilities	40.000

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Projected Balance Sheets, Production in Thousand Pesos

Year	1992	1993	1994	1995	1996
Total assets	38015.490	37858.890	42475.050	52640.840	58001.850
Fixed assets, net of depreciation	30078.080	27413.420	26044.750	24532.090	22227.430
Construction in progress	0.000	1440.000	1440.000	720.000	0.000
Current assets	4924.472	5662.952	6401.432	6804.239	6804.239
Cash, bank	1121.481	1451.068	1780.655	1960.429	1960.429
Cash surplus, finance available	0.000	0.000	6808.211	18624.080	27009.760
Loss carried forward	0.000	1891.455	0.000	0.000	0.000
Loss	1891.455	0.000	0.000	0.000	0.000
Total liabilities	38015.490	37858.890	42475.050	52640.840	58001.850
Equity capital	14239.040	14239.040	14239.040	14239.040	14239.040
Reserves, retained profit	0.000	0.000	1916.662	12134.690	26171.920
Profit	0.000	3808.117	10218.030	14037.230	9632.723
Long and medium term debt	21358.550	17086.840	12815.130	8543.420	4271.710
Current liabilities	1818.572	2552.382	3286.192	3686.452	3686.452
Bank overdraft, finance required	599.328	172.508	0.000	0.000	0.000
Total debt	23776.450	19811.730	16101.320	12229.870	7958.162
Equity, % of liabilities	37.456	37.611	33.523	27.049	24.549

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Projected Balance Sheets, Production in Thousand Pesos

Year	1997	1998	1999	2000	2001
Total assets	64818.950	76463.080	88107.210	99751.350	111395.400
Fixed assets, net of depreciation	20588.550	18949.680	17310.810	15671.940	14033.010
Construction in progress	0.000	0.000	0.000	0.000	0.000
Current assets	6804.239	6804.239	6804.239	6804.239	6804.239
Cash, bank	1960.429	1960.429	1960.429	1960.429	1960.429
Cash surplus, finance available	35465.720	48748.730	62031.730	75314.740	88597.770
Loss carried forward	0.000	0.000	0.000	0.000	0.000
Loss	0.000	0.000	0.000	0.000	0.000
Total liabilities	64818.950	76463.080	88107.210	99751.350	111395.400
Equity capital	14239.040	14239.040	14239.040	14239.040	14239.040
Reserves, retained profit	35804.640	46893.450	58537.580	70181.720	81825.850
Profit	11088.810	11644.130	11644.130	11644.130	11644.090
Long and medium term debt	-0.001	-0.001	-0.001	-0.001	-0.001
Current liabilities	3686.452	3686.452	3686.452	3686.452	3686.452
Bank overdraft, finance required	0.000	0.000	0.000	0.000	0.000
Total debt	3686.451	3686.451	3686.451	3686.451	3686.451
Equity, % of liabilities	21.967	18.622	16.161	14.275	12.782

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Projected Balance Sheets, Production in Thousand Pesos

Year	2002	2003	2004	2005	2006
Total assets	123268.000	135140.500	147106.600	159166.300	171272.900
Fixed assets, net of depreciation	12745.510	11458.010	10314.510	9315.006	8387.506
Construction in progress	0.000	0.000	0.000	0.000	0.000
Current assets	6804.239	6804.239	6804.239	6804.239	6804.239
Cash, bank	1960.429	1960.429	1960.429	1960.429	1960.429
Cash surplus, finance available	101757.800	114917.800	128027.400	141086.700	154120.700
Loss carried forward	0.000	0.000	0.000	0.000	0.000
Loss	0.000	0.000	0.000	0.000	0.000
Total liabilities	123268.000	135140.500	147106.600	159166.300	171272.900
Equity capital	14239.040	14239.040	14239.040	14239.040	14239.040
Reserves, retained profit	93469.950	105342.500	117215.000	129181.100	141240.800
Profit	11872.520	11872.520	11966.130	12059.720	12106.520
Long and medium term debt	-0.001	-0.001	-0.001	-0.001	-0.001
Current liabilities	3686.452	3686.452	3686.452	3686.452	3686.452
Bank overdraft, finance required.	0.000	0.000	0.000	0.000	0.000
Total debt	3686.451	3686.451	3686.451	3686.451	3686.451
Equity, % of liabilities	11.551	10.536	9.679	8.946	8.314

PROJECTED FINANCIAL STATEMENTS
WITHOUT BOI INCENTIVE

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Ornamental Ceramics
April 1990
Base Case: Without BOI Incentive

1 year(s) of construction, 15 years of production
currency conversion rates:
foreign currency 1 unit = 22.0000 units accounting currency
local currency 1 unit = 1.0000 units accounting currency
accounting currency: Thousand Pesos

Total initial investment during construction phase

fixed assets:	33683.27	6.371 % foreign
current assets:	2912.20	0.000 % foreign
total assets:	36595.46	5.864 % foreign

Source of funds during construction phase

equity & grants:	14638.19	40.000 % foreign
foreign loans :	0.00	
local loans :	21957.28	
total funds :	36595.47	16.000 % foreign

Cashflow from operations

Year:	1	4	7
operating costs:	19591.65	36378.23	36378.23
depreciation :	2802.14	3090.14	1689.51
interest :	4391.46	2634.87	0.00
production costs	26785.25	42103.25	38067.74
thereof foreign	4.18 %	4.81 %	4.59 %
total sales :	24464.98	55602.24	55602.24
gross income :	-2320.26	13499.00	17534.50
net income :	-2320.26	8774.35	11397.43
cash balance :	-918.82	6565.36	13086.94
net cashflow :	3472.63	13591.70	13086.94

Net Present Value at: 20.00 % = 15165.02
Internal Rate of Return: 28.08 %
Return on equity1: 33.44 %
Return on equity2: 29.82 %

Index of Schedules produced by COMFAR

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Net Income Statement in Thousand Pesos

Year	1992	1993	1994	1995	1996
Total sales, incl. sales tax	24464.980	36697.480	48929.970	55602.240	55602.240
Less: variable costs, incl. sales tax.	13189.450	19784.180	26378.910	29976.030	29976.030
Variable margin	11275.530	16913.290	22551.060	25626.210	25626.210
As % of total sales	46.088	46.088	46.088	46.088	46.088
Non-variable costs, incl. depreciation	9204.336	9204.339	9348.337	9492.341	9564.387
Operational margin	2071.194	7708.956	13202.720	16133.870	16061.820
As % of total sales	8.466	21.007	26.983	29.017	28.887
Cost of finance	4391.456	4391.456	3513.165	2634.874	1756.583
Gross profit	-2320.262	3317.500	9689.559	13499.000	14305.240
Allowances	0.000	0.000	0.000	0.000	0.000
Taxable profit	-2320.262	3317.500	9689.559	13499.000	14305.240
Tax	0.000	1161.125	3391.346	4724.649	5006.834
Net profit	-2320.262	2156.375	6298.213	8774.348	9298.408
Dividends paid	0.000	0.000	0.000	0.000	0.000
Undistributed profit	-2320.262	2156.375	6298.213	8774.348	9298.408
Accumulated undistributed profit	-2320.262	-163.887	6134.326	14908.670	24207.080
Gross profit, % of total sales	-9.484	9.040	19.803	24.278	25.728
Net profit, % of total sales	-9.484	5.876	12.872	15.781	16.723
ROE, Net profit, % of equity	-15.851	14.731	43.026	59.941	63.522
ROI, Net profit+interest, % of invest.	5,785	17.422	24.922	28.327	27.448

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - S.CIP, GORRES, VELAYO & CO., MANILA -----

Net Income Statement in Thousand Pesos

Year	1997	1998	1999	2000	2001
Total sales, incl. sales tax	55602.240	55602.240	55602.240	55602.240	55602.240
Less: variable costs, incl. sales tax.	29976.030	29976.030	29976.030	29976.030	29976.030
Variable margin	25626.210	25626.210	25626.210	25626.210	25626.210
As % of total sales	46.088	46.088	46.088	46.088	46.088
Non-variable costs, incl. depreciation	8091.709	8091.707	8091.707	8091.707	8091.664
Operational margin	17534.500	17534.500	17534.500	17534.500	17534.550
As % of total sales	31.536	31.536	31.536	31.536	31.536
Cost of finance	878.291	0.000	0.000	0.000	0.000
Gross profit	16656.210	17534.500	17534.500	17534.500	17534.550
Allowances	0.000	0.000	0.000	0.000	0.000
Taxable profit	16656.210	17534.500	17534.500	17534.500	17534.550
Tax	5829.674	6137.076	6137.076	6137.076	6137.091
Net profit	10826.540	11397.430	11397.430	11397.430	11397.460
Dividends paid	0.000	0.000	0.000	0.000	0.000
Undistributed profit	10826.540	11397.430	11397.430	11397.430	11397.460
Accumulated undistributed profit	35033.620	46431.050	57828.480	69225.910	80623.360
Gross profit, % of total sales	29.956	31.536	31.536	31.536	31.535
Net profit, % of total sales	19.471	20.498	20.498	20.498	20.498
ROE, Net profit, % of equity	73.961	77.861	77.861	77.861	77.861
ROI, Net profit+interest, % of invest.	29.061	28.298	28.298	28.298	28.298

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ---

Net Income Statement in Thousand Pesos

Year	2002	2003	2004	2005	2006
Total sales, incl. sales tax	55602.240	55602.240	55602.240	55602.240	55602.240
Less: variable costs, incl. sales tax.	29976.030	29976.030	29976.030	29976.030	29976.030
Variable margin	25626.210	25626.210	25626.210	25626.210	25626.210
As % of total sales	46.088	46.088	46.088	46.088	46.088
Non-variable costs, incl. depreciation	7689.699	7689.699	7545.699	7401.699	7329.699
Operational margin	17936.510	17936.510	18080.510	18224.510	18296.510
As % of total sales	32.259	32.259	32.518	32.777	32.906
Cost of finance	0.000	0.000	0.000	0.000	0.000
Gross profit	17936.510	17936.510	18080.510	18224.510	18296.510
Allowances	0.000	0.000	0.000	0.000	0.000
Taxable profit	17936.510	17936.510	18080.510	18224.510	18296.510
Tax	6277.779	6277.779	6328.179	6378.580	6403.779
Net profit	11658.730	11658.730	11752.330	11845.930	11892.730
Dividends paid	0.000	0.000	0.000	0.000	0.000
Undistributed profit	11658.730	11658.730	11752.330	11845.930	11892.730
Accumulated undistributed profit	92282.090	103940.800	115693.200	127539.100	139431.800
Gross profit, % of total sales	32.259	32.259	32.518	32.777	32.906
Net profit, % of total sales	20.968	20.968	21.136	21.305	21.389
ROE, Net profit, % of equity	79.646	79.646	80.285	80.925	81.245
ROI, Net profit+interest, % of invest.	28.947	28.947	29.179	29.412	29.528

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Cashflow Tables, construction in Thousand Pesos

Year	1991
Total cash inflow . .	36595.470
Financial resources .	36595.470
Sales, net of tax . .	0.000
Total cash outflow . .	36595.460
Total assets	34399.730
Operating costs . . .	0.000
Cost of finance . . .	2195.728
Repayment	0.000
Corporate tax . . .	0.000
Dividends paid . . .	0.000
Surplus (deficit) .	0.012
Cumulated cash balance	0.012
Inflow, local	30740.190
Outflow, local	34449.360
Surplus (deficit) .	-3709.170
Inflow, foreign . . .	5855.278
Outflow, foreign . . .	2146.100
Surplus (deficit) .	3709.178
Net cashflow	-34399.730
Cumulated net cashflow	-34399.730

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Cashflow tables, production in Thousand Pesos

Year	1992	1993	1994	1995	1996	1997
Total cash inflow . .	26288.580	37431.540	49664.030	56002.640	55602.240	55602.240
Financial resources .	1823.596	734.063	734.063	400.398	0.000	0.000
Sales, net of tax . .	24464.980	36697.480	48929.970	55602.240	55602.240	55602.240
Total cash outflow . .	27207.410	38648.540	46595.200	49437.280	47533.110	47477.660
Total assets	3224.300	2518.125	2518.125	1308.068	0.000	0.000
Operating costs . . .	19591.650	26186.380	32781.110	36378.230	36378.230	36378.230
Cost of finance . . .	4391.456	4391.456	3513.165	2634.874	1756.583	878.291
Repayment	0.000	4391.456	4391.456	4391.456	4391.456	4391.457
Corporate tax . . .	0.000	1161.125	3391.346	4724.649	5006.834	5029.674
Dividends paid . . .	0.000	0.000	0.000	0.000	0.000	0.000
Surplus (deficit) .	-918.826	-1217.000	3068.836	6565.363	8069.137	8124.586
Cumulated cash balance	-918.814	-2135.814	933.021	7498.385	15567.520	23692.110
Inflow, local	9148.012	11720.690	15382.890	17046.800	16646.400	16646.400
Outflow, local	26257.730	37443.810	45034.460	47720.120	45861.260	45805.800
Surplus (deficit) .	-17109.710	-25723.120	-29651.570	-30673.320	-29214.860	-29159.400
Inflow, foreign . . .	17140.570	25710.850	34281.140	38955.840	38955.840	38955.840
Outflow, foreign . . .	949.680	1204.729	1560.731	1717.157	1671.848	1671.848
Surplus (deficit) .	16190.890	24506.130	32720.410	37238.680	37283.990	37283.990
Net cashflow	3472.631	7565.915	10973.460	13591.700	14217.180	13394.340
Cumulated net cashflow	-30927.100	-23361.190	-12387.730	1203.963	15421.140	28815.480

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA -----

Cashflow tables, production in Thousand Pesos

Year	1998	1999	2000	2001	2002	2003
Total cash inflow . .	55602.240	55602.240	55602.240	55602.240	55602.240	55602.240
Financial resources .	0.000	0.000	0.000	0.000	0.000	0.000
Sales, net of tax . .	55602.240	55602.240	55602.240	55602.240	55602.240	55602.240
Total cash outflow . .	42515.300	42515.300	42515.300	42515.320	42656.010	42656.010
Total assets	0.000	0.000	0.000	0.000	0.000	0.000
Operating costs . . .	36378.230	36378.230	36378.230	36378.230	36378.230	36378.230
Cost of finance . . .	0.000	0.000	0.000	0.000	0.000	0.000
Repayment	0.000	0.000	0.000	0.000	0.000	0.000
Corporate tax . . .	6137.076	6137.076	6137.076	6137.091	6277.779	6277.779
Dividends paid . . .	0.000	0.000	0.000	0.000	0.000	0.000
Surplus (deficit) .	13086.940	13086.940	13086.940	13086.920	12946.230	12946.230
Cumulated cash balance	36779.050	49865.980	62952.920	76039.840	88986.080	101932.300
Inflow, local	16646.400	16646.400	16646.400	16646.400	16646.400	16646.400
Outflow, local	40843.460	40843.460	40843.460	40843.470	40984.160	40984.160
Surplus (deficit) .	-24197.060	-24197.060	-24197.060	-24197.070	-24337.760	-24337.760
Inflow, foreign . . .	38955.840	38955.840	38955.840	38955.840	38955.840	38955.840
Outflow, foreign . . .	1671.848	1671.848	1671.848	1671.848	1671.848	1671.848
Surplus (deficit) .	37283.990	37283.990	37283.990	37283.990	37283.990	37283.990
Net cashflow	13086.940	13086.940	13086.940	13086.920	12946.230	12946.230
Cumulated net cashflow	41902.410	54989.350	68076.290	81163.210	94109.450	107055.700

COMFAR
2.1 UNIDO

COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ---

Cashflow tables, production in Thousand Pesos

Year	2004	2005	2006
Total cash inflow	55602.240	55602.240	55602.240
Financial resources	0.000	0.000	0.000
Sales, net of tax	55602.240	55602.240	55602.240
Total cash outflow	42706.410	42756.810	42782.010
Total assets	0.000	0.000	0.000
Operating costs	36378.230	36378.230	36378.230
Cost of finance	0.000	0.000	0.000
Repayment	0.000	0.000	0.000
Corporate tax	6328.179	6378.580	6403.779
Dividends paid	0.000	0.000	0.000
Surplus (deficit)	12895.830	12845.430	12820.230
Cumulated cash balance	114828.100	127673.600	140493.800
Inflow, local	16646.400	16646.400	16646.400
Outflow, local	41034.560	41084.960	41110.160
Surplus (deficit)	-24388.160	-24438.560	-24463.760
Inflow, foreign	38955.840	38955.840	38955.840
Outflow, foreign	1671.848	1671.848	1671.848
Surplus (deficit)	37283.990	37283.990	37283.990
Net cashflow	12895.830	12845.430	12820.230
Cumulated net cashflow	119951.500	132797.000	145617.200

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Cashflow Discounting:

a) Equity paid versus Net income flow:

Net present value	15715.43	at	20.00 %
Internal Rate of Return (IRRE1) ..	33.44 %		

b) Net Worth versus Net cash return:

Net present value	12969.30	at	20.00 %
Internal Rate of Return (IRRE2) ..	29.82 %		

c) Internal Rate of Return on total investment:

Net present value	15165.02	at	20.00 %
Internal Rate of Return (IRR) ..	28.08 %		

Net Worth = Equity paid plus reserves

COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA

Projected Balance Sheets, construction in Thousand Pesos

Year	1991
Total assets	36595.470
Fixed assets, net of depreciation	0.000
Construction in progress	33683.270
Current assets	2912.200
Cash, bank	0.000
Cash surplus, finance available	0.004
Loss carried forward	0.000
Loss	0.000
Total liabilities	36595.470
Equity capital	14638.190
Reserves, retained profit	0.000
Profit	0.000
Long and medium term debt	21957.280
Current liabilities	0.000
Bank overdraft, finance required	0.000
Total debt	21957.280
Equity, % of liabilities	40.000

COMFAR 2.1 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Projected Balance Sheets, Production in Thousand Pesos

Year	1992	1993	1994	1995	1996
Total assets	39337.880	39053.870	37402.490	42021.390	46928.850
Fixed assets, net of depreciation	30881.120	28078.980	26572.840	24922.700	22480.510
Construction in progress	0.000	1440.000	1440.000	720.000	0.000
Current assets	5010.684	5759.053	6507.422	6915.623	6915.623
Cash, bank	1125.817	1455.573	1785.328	1965.195	1965.195
Cash surplus, finance available	0.000	0.000	933.020	7498.383	15567.530
Loss carried forward	0.000	2320.262	163.887	0.000	0.000
Loss	2320.262	0.000	0.000	0.000	0.000
Total liabilities	39337.880	39053.870	37402.490	42021.890	46928.850
Equity capital	14638.190	14638.190	14638.190	14638.190	14638.190
Reserves, retained profit	0.000	0.000	0.000	6134.326	14908.670
Profit	0.000	2156.375	6298.213	8774.348	9298.408
Long and medium term debt	21957.280	17565.820	13174.370	8782.912	4391.456
Current liabilities	1823.596	2557.659	3291.722	3692.120	3692.120
Bank overdraft, finance required.	918.816	2135.816	0.000	0.000	0.000
Total debt	24699.690	22259.300	16466.090	12475.030	8083.576
Equity, % of liabilities	37.211	37.482	39.137	34.835	31.192

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ----

Projected Balance Sheets, Production in Thousand Pesos

Year	1997	1998	1999	2000	2001
Total assets	53363.930	64761.350	76158.780	87556.210	98953.660
Fixed assets, net of depreciation	20791.000	19101.490	17411.980	15722.470	14033.000
Construction in progress	0.000	0.000	0.000	0.000	0.000
Current assets	6915.623	6915.623	6915.623	6915.623	6915.623
Cash, bank	1965.195	1965.195	1965.195	1965.195	1965.195
Cash surplus, finance available	23692.120	36779.050	49865.980	62952.920	76039.840
Loss carried forward	0.000	0.000	0.000	0.000	0.000
Loss	0.000	0.000	0.000	0.000	0.000
Total liabilities	53363.930	64761.360	76158.780	87556.210	98953.660
Equity capital	14638.190	14638.190	14638.190	14638.190	14638.190
Reserves, retained profit	24207.080	35033.620	46431.050	57828.480	69225.910
Profit	10826.540	11397.430	11397.430	11397.430	11397.460
Long and medium term debt	-0.001	-0.001	-0.001	-0.001	-0.001
Current liabilities	3692.120	3692.120	3692.120	3692.120	3692.120
Bank overdraft, finance required.	0.000	0.000	0.000	0.000	0.000
Total debt	3692.119	3692.119	3692.119	3692.119	3692.119
Equity, % of liabilities	27.431	22.603	19.221	16.719	14.793

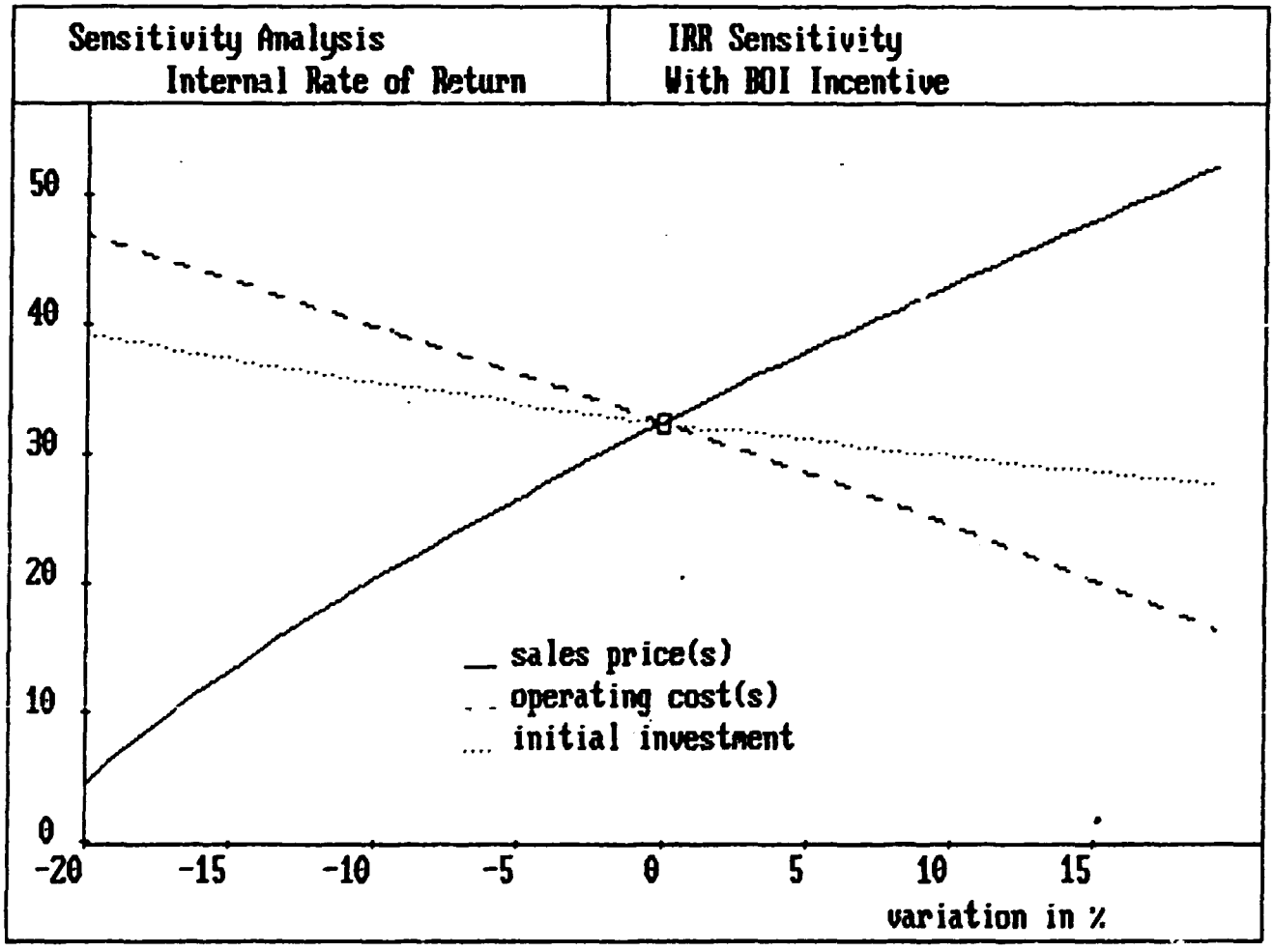
COMFAR
21 UNIDO

---------- COMFAR 2.1 - SYCIP, GORRES, VELAYO & CO., MANILA ---

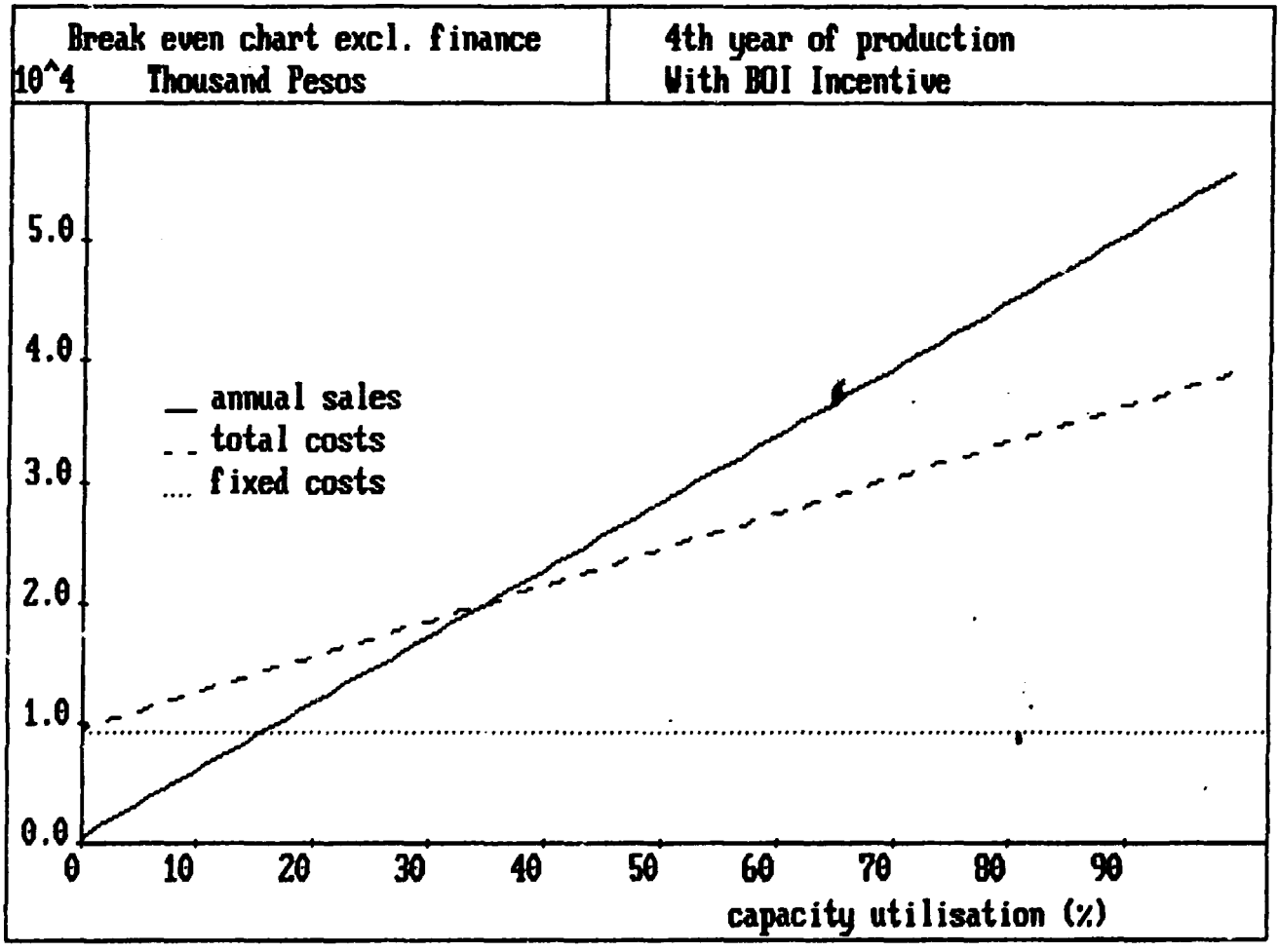
Projected Balance Sheets, Production in Thousand Pesos

Year	2002	2003	2004	2005	2006
Total assets	110612.400	122271.100	134023.500	145869.400	157762.100
Fixed assets, net of depreciation	12745.500	11458.000	10314.500	9315.003	8387.503
Construction in progress	0.000	0.000	0.000	0.000	0.000
Current assets	6915.623	6915.623	6915.623	6915.623	6915.623
Cash, bank	1965.195	1965.195	1965.195	1965.195	1965.195
Cash surplus, finance available	88986.080	101932.300	114828.100	127673.600	140493.800
Loss carried forward	0.000	0.000	0.000	0.000	0.000
Loss	0.000	0.000	0.000	0.000	0.000
Total liabilities	110612.400	122271.100	134023.500	145869.400	157762.100
Equity capital	14638.190	14638.190	14638.190	14638.190	14638.190
Reserves, retained profit	80623.360	92282.090	103940.800	115693.200	127539.100
Profit	11658.730	11658.730	11752.330	11845.930	11892.730
Long and medium term debt	-0.001	-0.001	-0.001	-0.001	-0.001
Current liabilities	3692.120	3692.120	3692.120	3692.120	3692.120
Bank overdraft, finance required	0.000	0.000	0.000	0.000	0.000
Total debt	3692.119	3692.119	3692.119	3692.119	3692.119
Equity, % of liabilities	13.234	11.972	10.922	10.035	9.279

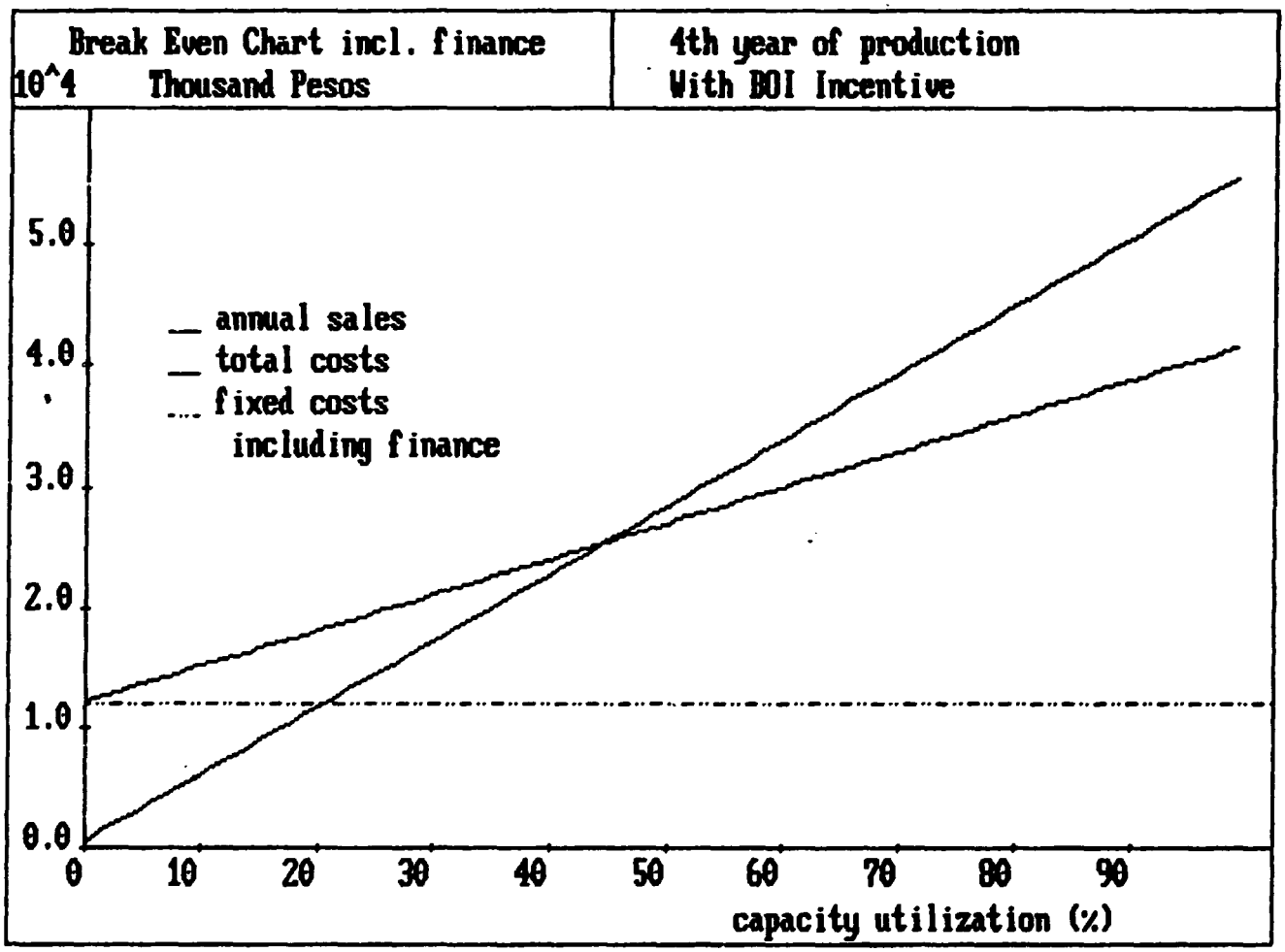
SENSITIVITY OF ANALYSIS WITH BOI INCENTIVE



COMFAR 2.1 UNIDO

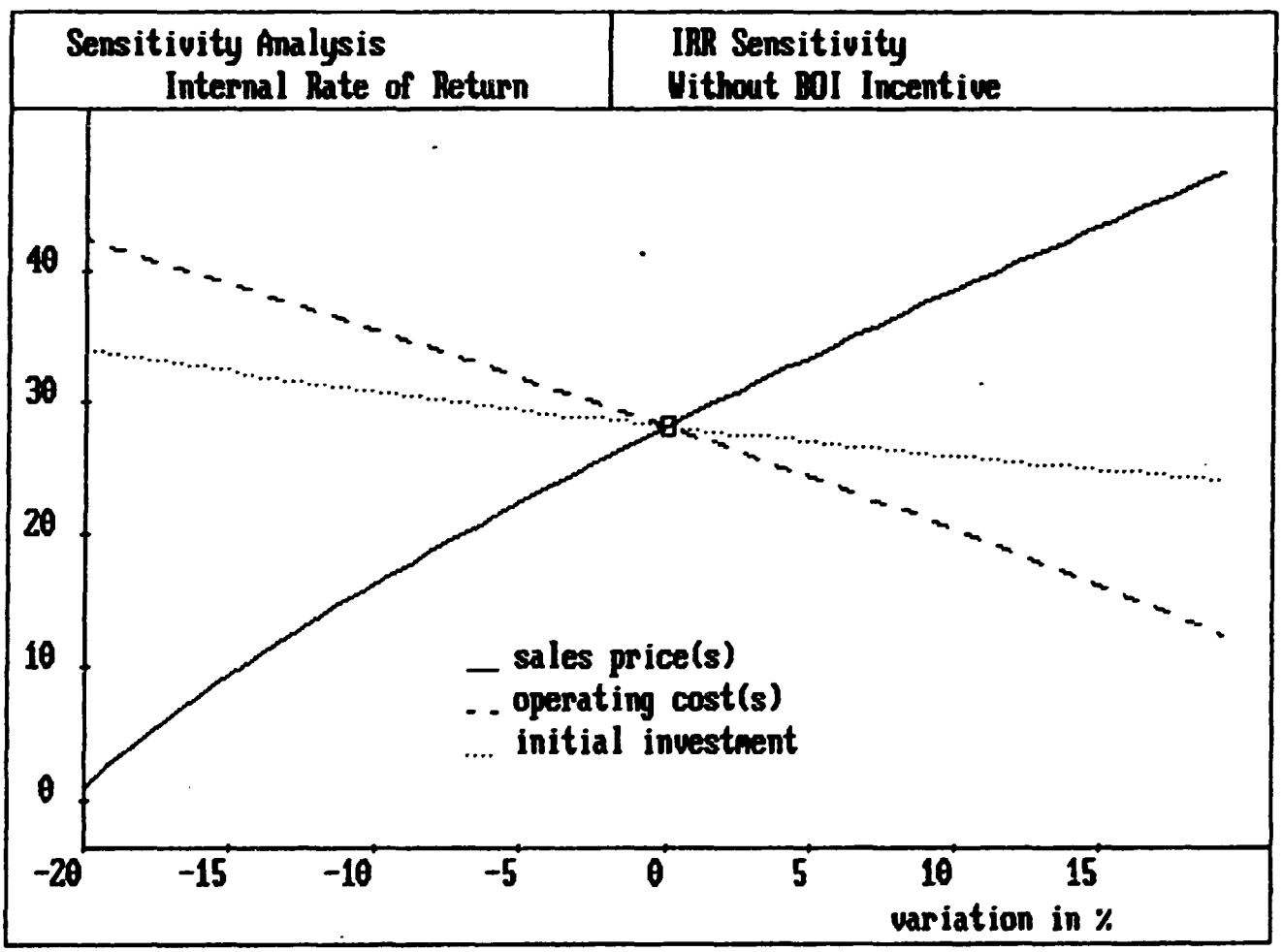


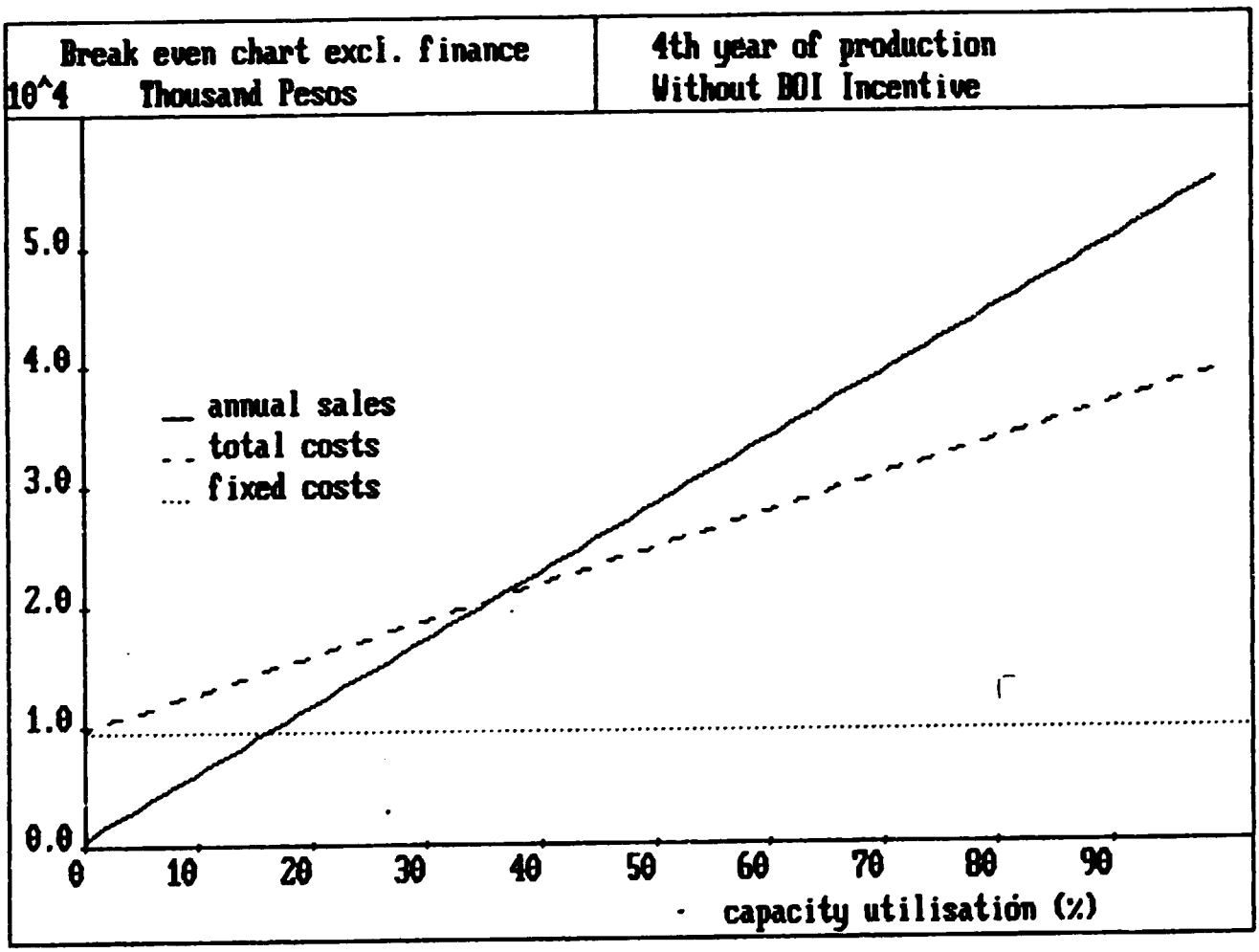
COMFAR 2.1 UNIDO



SENSITIVITY ANALYSIS
WITHOUT BOI INCENTI

COMFAR
2.1 UNIDO




Break even chart excl. finance
4th year of production
10^4 Thousand Pesos
Without BOI Incentive
5.0
4.0
3.0
2.0
1.0
0.0
annual sales
total costs
fixed costs
0
10
20
30
40
50
60
70
80
90
capacity utilisation (%)

COMFAR 2.1 UNIDO