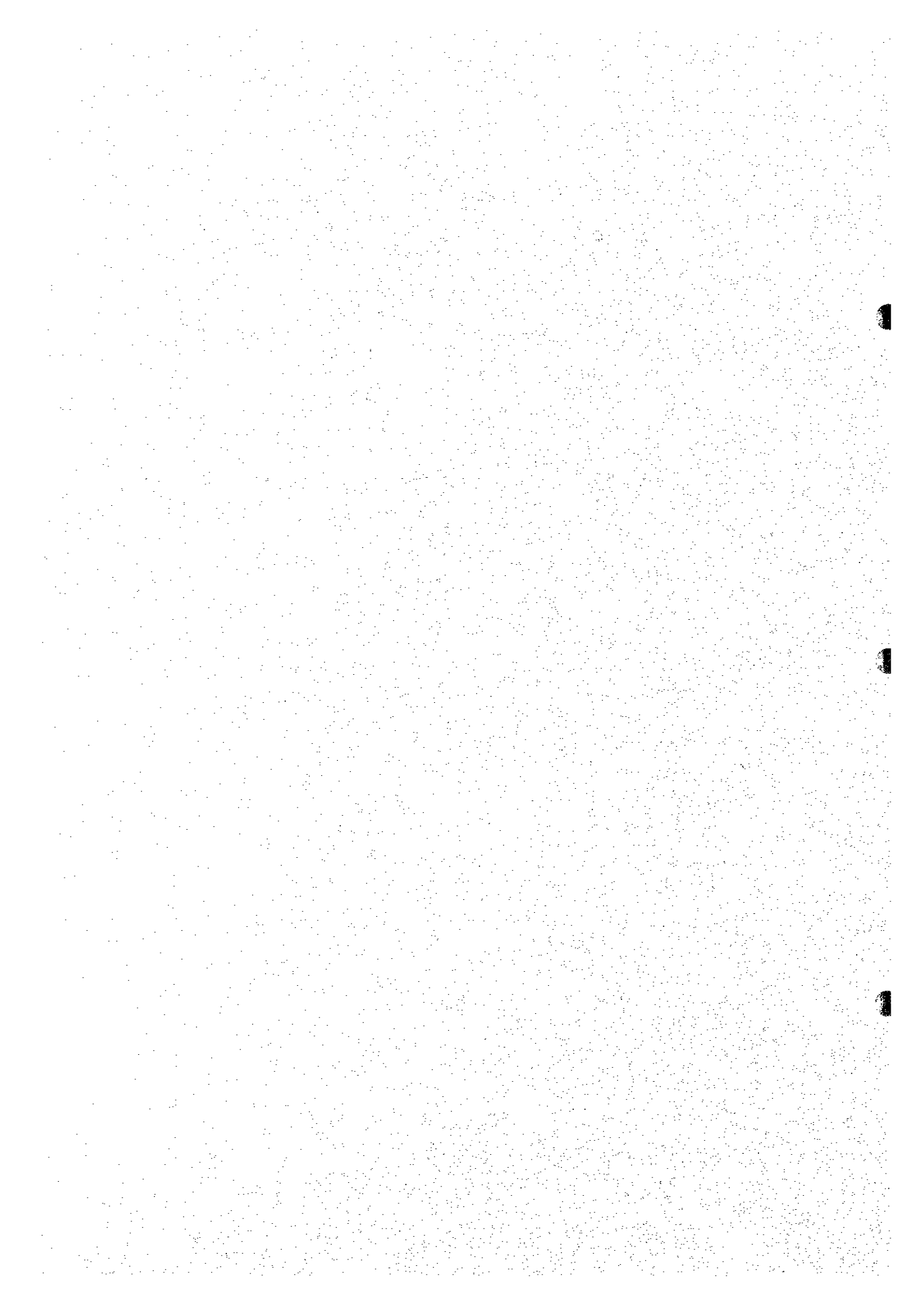


**Chapter 11**

**ESTIMATION OF PRODUCTION  
COST**



## Chapter 11. ESTIMATION OF PRODUCTION COST

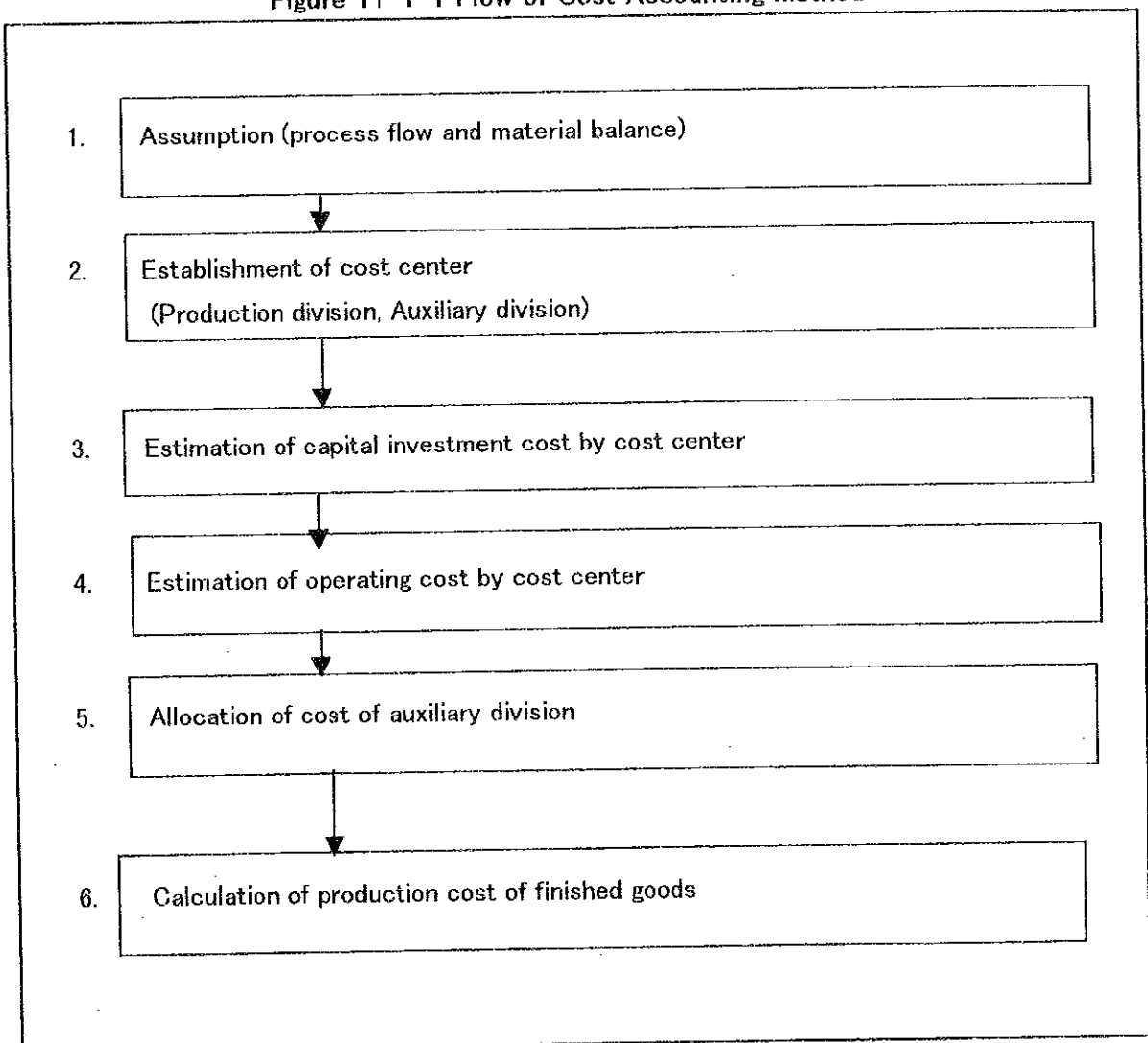
### 11-1 Cost Accounting Method

Absorption (full) costing is used for cost accounting. Absorption costing includes all manufacturing costs (variable and fixed costs) to reflect all the costs incurred for production.

#### 11-1-1 Continuous process cost method

The continuous process cost method is used to calculate production cost. The process cost method is applicable to the mass production of similar products through a continuous production process. The flow of the method is shown in Figure 11-1-1.

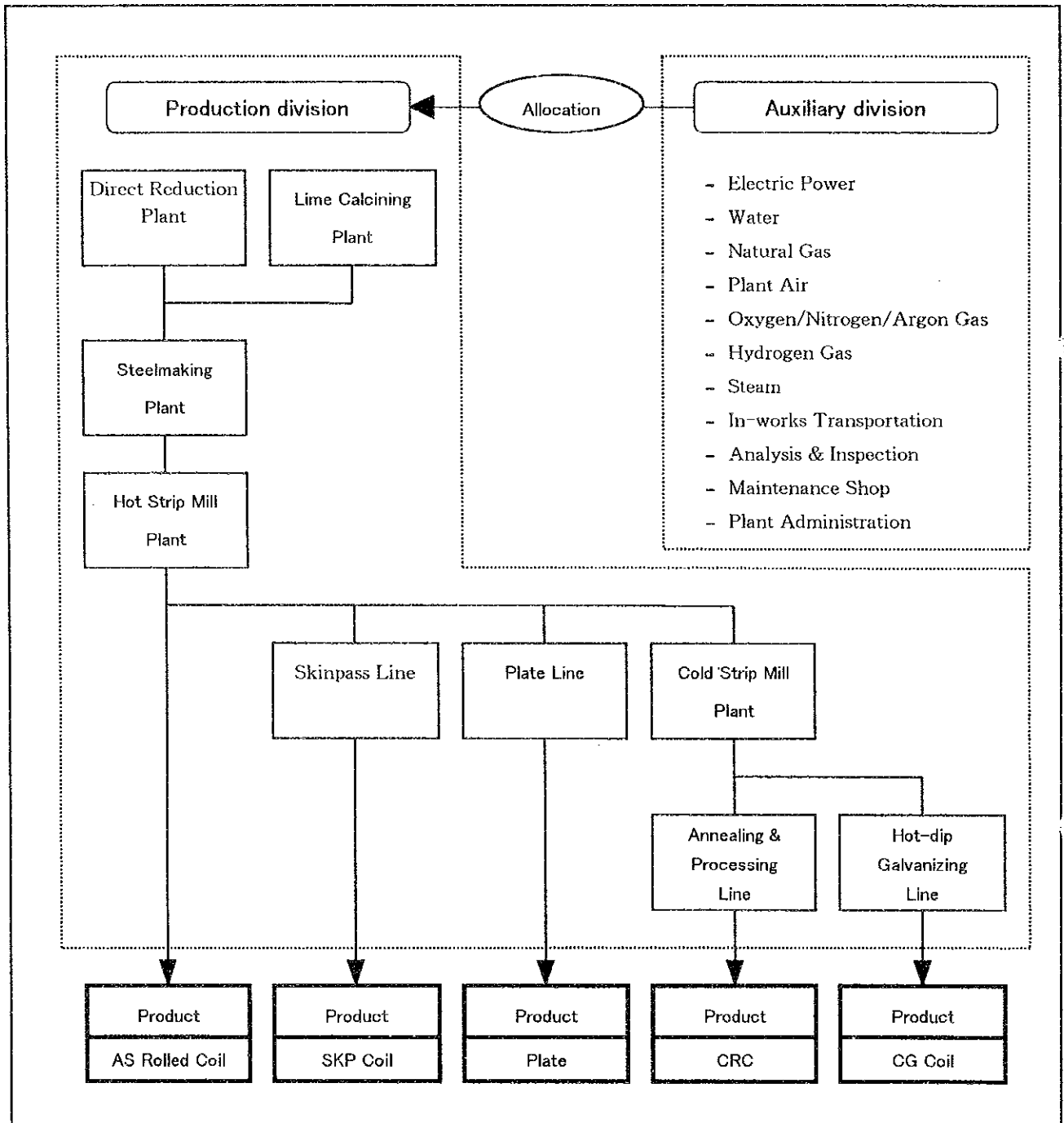
Figure 11-1-1 Flow of Cost Accounting Method



11-1-2 Establishment of cost center

Cost centers are decided in consideration of such things as classification of facility control, organization and staff control, and production control. They are established as shown in Figure 11-1-2.

Figure 11-1-2 Establishment of Cost Center



### 11-1-3 Allocation of auxiliary process cost

The allocation base of the auxiliary process cost is shown in Table 11-1-1. No mutual allocation is assumed among auxiliary processes.

Table 11-1-1 Allocation Base of Auxiliary Process Costs

Cost Center	Allocation Base
Electric Power	Quantity of services
Water	Ditto
Natural Gas	Ditto
Plant Air	Ditto
Oxygen/Nitrogen/Argon Gas	Ditto
Hydrogen Gas	Ditto
Steam	Ditto
In-works Transportation	Ditto
Analysis & Inspection	Equal allocation among all production processes
Maintenance Shop	Acquisition costs of fixed assets
Plant Administration	Number of personnel

### 11-1-4 Variable costs and fixed costs

- (1) **Variable costs include the following:**  
raw materials, utilities, and manufacturing supplies
- (2) **Fixed costs include the following:**  
labor, maintenance, and plant and equipment depreciation costs incurred in the manufacturing sectors

## 11-2 Assumptions in Production Cost Estimate

### 11-2-1 Estimation basis

- (1) **Operation condition**

Normal operation condition (slab production: 1 million ton/year; refer to "Process flow and material balance" in Chapter 5). The production level reaches normal operation

condition in the third year of operation, 2007.

**(2) Price level**

- 1) The proposed price levels are based on the prevailing market prices as of June 1997, when the site survey was conducted.
- 2) The currency to be used is the U.S. dollar at an exchange rate of 3.39 Egyptian pound per U.S. dollar, based on the rate as of June 1997.

**(3) Taxes, duties, and exemptions**

1) Customs duty

All necessary equipment and machinery to be imported for the establishment of the flat product plant are subject to a unified customs duty of 5 %.

Raw materials to be imported are subject to the prevailing customs duties in Egypt.

2) Sales tax

All procurements, including equipment and machinery, and raw materials are subject to a sales tax of 10 %. In regard to imports, 10 % of the total value of procurements after the inclusion of customs duties is levied as a sales tax.

**11-2-2 Raw material and sub-material costs**

Discrimination between import and domestic procurements of raw materials and sub-materials, and their purchase prices are shown in Table 11-2-1. For this concept, refer to Chapter 5.

Table 11-2-1 Prices of Raw Materials and Sub-materials

Unit: US\$/ton

Materials	Import or domestic procurement	Tariff (%)	Works yard delivery price
Lump ores	Import	3	50.97
Oxide pellets	Import	3	54.54
Scrap	Import	3	165.00
Limestone	Domestic	-	6.50

### 11-2-3 Utility cost

The unit price for the purchase of electricity, water, natural gas, and oxygen/nitrogen/argon gases is set on the basis of the prevailing market price in June 1997. The unit price for the purchase of major utilities is shown in Table 11-2-2.

The cost of plant air, hydrogen gas, and steam, which are generated inside the plant, is estimated by taking into account the total cost, including depreciation, repairs, labor, and other costs related to the plant.

Table 11-2-2 Price of Major Utilities

Utilities	Unit Price
Electricity	0.020 US\$/kWh
Water	0.300 US\$/m <sup>3</sup>
Natural gas	0.084 US\$/Nm <sup>3</sup>
Oxygen gas	0.088 US\$/Nm <sup>3</sup>
Nitrogen gas	0.044 US\$/Nm <sup>3</sup>
Argon gas	0.300 US\$/Nm <sup>3</sup>

### 11-2-4 Labor cost

The estimate of wage, salary, and welfare costs are based on the historical data of Middle East Advisory Group.

Unit labor cost by occupation is shown in Table 11-2-3. For the composition of staff, refer to Chapter 9.

**Table 11-2-3 Unit Labor Cost by Occupation**

Unit: US\$/year

Occupation	Labor Cost
General Manager	31,500
Deputy General Manager	26,600
Department Manager	21,600
Section Manager	9,900
Assistant Section Manager	8,400
Engineer & Specialist	4,700
Worker	2,500

#### **11-2-5 By-products**

The price of return scrap recovered from the steelmaking plant (SMP), the hot strip mill plant (HSMP), and the cold strip mill plant (CSMP) is assumed to be equal to the domestic market price of scraps in Egypt.

For other by-products, such as scale and lime fine, the sales expenses, which are mainly delivery costs, are assumed to be equal to their sales prices, resulting in no profit or loss.

Therefore, the calculations of sales and sales expenses of by-products are omitted in the Study.

#### **11-2-6 Repair cost**

3% of the equipment and machinery at each plant, including auxiliary plants, is assumed to require annual repair and maintenance costs, including materials, labor, and relative costs.

5% of the acquisition cost of the direct reduction plant (DRP), is assumed necessary for annual repair and maintenance costs.

#### **11-2-7 Depreciation cost**

For simplification, the straight line method is adopted for depreciation, in conformity with the classification of assets set forth by the Egyptian accounting principle as shown in Table 11-2-4.



**Table 11-2-4 Depreciation Period**

Classification of assets	Useful Life (Years)
Office buildings	50
Factory buildings	33
Structures	20
Machinery and equipment	15
Vehicles and tools	5

### **11-3 Estimation of Production Cost**

The estimation of production cost is shown in Table 11-3-1.

The production cost by cost center is shown in Appendix 11A-1.

The production cost by product is shown in Table 11-3-2.

Table 11-3-1 Estimation of Production Cost

	Unit Cost	Requirement	Amount (1,000 US\$)	Costs per ton (US\$/ton)
<b>Variable Costs</b>			171,811	184.15
<b>Material Costs</b>			132,532	142.05
Lump ore	50.97 US\$/ton	300,000 ton	15,291	16.39
Oxide pellet	54.54 US\$/ton	1,200,000 ton	65,448	70.15
Scrap	165.00 US\$/ton	167,700 ton	27,671	29.66
Limestone	6.50 US\$/ton	80,000 ton	520	0.56
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	53,100 ton	16,801	18.01
Hydrochloric acid	3.00 US\$/ton	20,000 ton	60	0.06
Coil packing for APL & CGL	1.50 US\$/ton	295,000 ton	443	0.47
Coil packing for HSMP	0.10 US\$/ton	368,000 ton	37	0.04
Coil packing for SKL	0.20 US\$/ton	173,000 ton	35	0.04
Zinc ingot	2,000.00 US\$/ton	2,982 ton	5,964	6.39
Chromate liquid	3,000.00 US\$/ton	21 ton	64	0.07
Roll	5,000.00 US\$/ton	40 ton	200	0.21
(-) By-products (Scrap)	165.00 US\$/ton	-81,000 ton	-13,365	-14.32
<b>Other Variable Operating Costs</b>			52,644	56.42
Electricity	0.020 US\$/kWh	953 GWh	19,054	20.42
Water	0.300 US\$/m <sup>3</sup>	5,684,000 m <sup>3</sup>	1,705	1.83
Natural Gas	0.084 US\$/Nm <sup>3</sup>	328,881,000 Nm <sup>3</sup>	27,626	29.61
Oxygen Gas	0.088 US\$/Nm <sup>3</sup>	32,000,000 Nm <sup>3</sup>	2,816	3.02
Nitrogen Gas	0.044 US\$/Nm <sup>3</sup>	28,022,000 Nm <sup>3</sup>	1,233	1.32
Argon Gas	0.300 US\$/Nm <sup>3</sup>	700,000 Nm <sup>3</sup>	210	0.23
<b>Fixed Costs</b>			83,364	89.35
<b>Labor Costs</b>		1,398 person	4,165	4.46
General Manager	31,500 US\$/person	0 person	0	0.00
Deputy General Manager	26,600 US\$/person	1 person	27	0.03
Department Manager	21,600 US\$/person	4 person	86	0.09
Section Manager	9,900 US\$/person	14 person	139	0.15
Assistant Section Manager	8,400 US\$/person	35 person	294	0.32
Engineer & Specialist	4,700 US\$/person	118 person	555	0.59
Worker	2,500 US\$/person	1,226 person	3,065	3.29
Repair Costs			21,855	23.42
Depreciation			57,343	61.46
<b>Total Production Costs</b>			255,175	273.50

Table 11-3-2 Estimation of Production Cost by Product

Unit: US\$/ton

	Total	AS Rolled Coil	Skinpassed Coil	Plate	Cold Rolled Coil	Galvanized Coil
Variable Costs	184	174	174	175	184	268
Materials Costs	142	128	130	134	151	228
(-) By-products	-14	-5	-7	-14	-33	-23
Other Variable Operating Costs	54	50	50	52	64	61
Costs from Auxiliary Department	1	1	1	1	2	2
Fixed Costs	89	67	75	86	122	141
Labor Costs	2	1	2	2	3	3
Repair Costs	21	16	18	20	28	32
Depreciation	53	38	43	51	73	88
Costs from Auxiliary Department	14	11	12	13	18	18
Total Costs	273	241	249	261	306	410

**Chapter 12**

**FINANCIAL ANALYSIS**

## **Chapter 12. FINANCIAL ANALYSIS**

### **12-1 Basic Policy for Financial Analysis**

Financial analysis is used to evaluate the profitability, efficiency, solvency, and overall feasibility of the flat product plant project.

Financial analysis examines the Project in terms of sales, production, operation, investment, and financing, and provides information for necessary improvements and criteria for decision making in the Project.

### **12-2 Development of Financial Statements**

Financial analysis is based on financial statements: profit and loss statements, balance sheets, and cash flow statements. They are to be developed by using the best estimates under the following assumptions.

#### **12-2-1 Assumptions for financial statements**

##### **(I) General assumptions**

The financial projection period is 20 years, from 2000 to 2019. This period is established as being equal to 5-year construction period plus 15-year economic life of major plant equipment and machinery.

Investment Law No. 8 of 1997 is applied to the Project.

##### **1) Conditions for Financial Projection**

- Financial projection period: 2000 to 2019
- Production start-up year: 2005
- The financial year is on a calendar-year basis, January to December

##### **2) Taxes, regulations, and exemptions**

(a) Corporate profit tax

The Project is exempted from corporate profit tax for five years by means of the application of Article 16 of Investment Law No. 8. The tax holiday will start from the first financial year subsequent to production start-up. After the tax holiday, a corporate profit tax of 32 % will be levied on the taxable income of the Project.

Taxes are paid in the subsequent year to the year they accrue.

(b) Customs duties

A unified customs duty of 5 % is levied on equipment and machinery to be imported for the establishment of the flat product plant, according to the application of Investment Law No. 8, Article 23.

Raw materials to be imported are subject to the prevailing customs duties in Egypt.

(c) General sales tax

Locally procured raw materials and acquired equipment and machinery are subject to a sales tax of 10 %.

A sales tax of 10 % is to be levied on the total value of imported raw materials, equipment, and machinery after the inclusion of customs duties. In regard to equipment and machinery to be imported for the plant establishment, 10 % of the total sales tax is due in the start-up year of 2005; the rest of the tax (90 %) is due in equal payments for 7 years, starting from 2008 to 2014.

3) Price level

Price level is based on the prevailing market price as of June 1997. No inflation is assumed. Inflation effects are examined by sensitivity analysis in Section 12-3-3.

4) Currency and exchange rates

The currency to be used is the U.S. dollar at an exchange rate of 3.39 Egyptian pound per U.S. dollar, which is the rate as of June 1997.

(2) Operating activities

1) Production

(a) Production volume

- 0.6 million ton/year for the start-up year
- One million ton/year for the subsequent year and thereafter

(Refer to Chapter 5 for the basic concept.)

The production plan by product is shown in Table 12-2-1.

Table 12-2-1 Production Plan by Product

Unit: 1,000 ton

Products	1	2	3-19
	2005	2006	2007-2019
Slab	600	1,000	1,000
AS Rolled Coil	221	368	368
Skinpassed Coil	104	173	173
Plate	58	97	97
Cold Rolled Coil	134	224	224
Galvanized Coil	42	71	71
Total of flat products	560	933	933

(b) Production cost

The production cost is estimated as shown in Chapter 11.

2) Sales

(a) Sales volume

The sales volume is equal to production volume reduced by finished products in the ending balance of each period. The ending balance of finished products is estimated to be equal to the amount of finished products produced in a half-month.

The sales plan by product is shown in Table 12-2-2.

**Table 12-2-2 Sales Plan by Product**

Unit: 1,000 ton

Products	1	2	3-19
	2005	2006	2007-2019
AS Rolled Coil	212	362	368
Skinpassed Coil	100	170	173
Plate	56	95	97
Cold Rolled Coil	128	220	224
Galvanized Coil	40	70	71
<b>Total</b>	<b>536</b>	<b>917</b>	<b>933</b>

(b) Sales price

Product sales prices are shown in Table 12-2-3.

Product sales prices are estimated using the following three methods.

- the market prices of commercial grade products in the European market, after adding transportation expenses, customs duties, and insurance premiums.
- the results of the Study
- the statistical data from CAPMAS

Results of each estimation method are shown in Appendix 12A-1.

**Table 12-2-3 Sales Price by Product**

Unit: US\$/ton

Products	Sales Price
AS Rolled Coil	410
Skinpassed Coil	430
Plate	500
Cold Rolled Coil	530
Galvanized Coil	680

3) Operation expenses

(a) Selling expenses

The prevailing sales practice of steel plants in Egypt is such that customers pick up the purchased products at the product stockyard of the flat product plant. This practice is assumed for this study, and thus freight cost to customers is not incurred.



It is also assumed that there is no warehouse outside the flat product plant. Since other selling expenses are nil, selling expenses are assumed to be equal to zero in the study.

(b) General and administrative expenses

General and administrative expenses include salaries for managers, wages for office workers, depreciation costs for office buildings and equipment, insurance premiums, consultant fees, and other costs related to nonproduction sectors.

4) Depreciation

Depreciation cost related to the production sector is included in production cost, and depreciation cost related to the nonproduction sector is recorded as general and administrative expenses. For classification of assets and economic life, refer to Chapter 11.

5) Changes in net working capital

Changes in net working capital to reach the minimum required working capital in 2007 is shown in Table 12-2-4.

(a) Accounts receivable

Customers pay cash on delivery of products. Therefore the year-end accounts receivable is zero.

(b) Inventory

a) Raw materials

The quantity of raw materials required for production in two months is recorded in the year-end balance.

b) Semifinished products

The quantity of semifinished products required for the production of finished products in a half-month is recorded in the year-end balance.

c) Finished products

The quantity of finished products to be produced in a half-month is recorded in

the year-end balance.

(c) Accounts payable

Payments for purchased raw materials, manufacturing supplies and other repair parts are made on receipt of the goods. The accounts payable balance is therefore zero at the year-end.

(d) Short-term loans payable

To maintain the flat product plant's ordinary operation, additional funds required are obtained by means of short-term loans.

Table 12-2-4 Changes in Net Working Capital

Unit: 1,000 US\$

	1	2	3	4	5
	2005	2006	2007	2008	2009
Current Assets	33,005	39,093	39,328	39,328	39,328
Accounts Receivable	0	0	0	0	0
Inventories	33,005	39,093	39,328	39,328	39,328
Raw Materials	19,529	19,861	19,861	19,861	19,861
Semifinished	5,906	8,742	8,857	8,857	8,857
Finished	7,569	10,490	10,609	10,609	10,609
Current Liabilities	0	0	0	0	0
Accounts Payable	0	0	0	0	0
Net Working Capital	33,005	39,093	39,328	39,328	39,328
Changes in Net Working Capital	21,605	6,088	235	0	0

(3) Investing activities

1) Initial capital investment

Initial capital investment includes purchases of land, plants, machinery, and equipment and construction costs, which are invested in line with the construction plan as shown in Chapter 7. The details of each cost are shown in Table 12-2-5 and described below in items 2) to 5).

Table 12-2-5 Investment Plan

Unit: 1,000 US\$

	Total	-5	-4	-3	-2	-1
		2000	2001	2002	2003	2004
Construction cost*	1,002,026	2,832	20,927	306,614	525,178	146,475
Preproduction cost	31,207	325	675	1,397	6,554	22,256
Interest during construction	64,118	0	110	870	15,768	47,369
Initial working capital	20,588	0	0	0	0	20,588
Raw Materials	11,400	0	0	0	0	11,400
Cash-in-hand	9,188	0	0	0	0	9,188
<b>Total Investment</b>	<b>1,117,939</b>	<b>3,157</b>	<b>21,712</b>	<b>308,882</b>	<b>547,500</b>	<b>236,687</b>

\* Includes engineering fees and contingencies

2) Construction cost

For details of construction cost, including engineering fees and contingencies, refer to Chapter 10.

The annual required construction cost is shown in Table 12-2-6.

Table 12-2-6 Annual Construction Cost

Unit: 1,000 US\$

	Total	-5	-4	-3	-2	-1
		2000	2001	2002	2003	2004
Equipment & Machinery	644,558	0	0	193,367	386,735	64,456
Installation	73,527	0	0	0	22,058	51,469
Civil & Building	171,999	0	0	68,799	85,999	17,200
Land & Reclamation	39,822	0	15,929	23,893	0	0
Engineering Fee	27,045	2,705	4,057	6,761	6,761	6,761
Contingency	45,076	127	941	13,793	23,625	6,589
<b>Total Construction Cost</b>	<b>1,002,026</b>	<b>2,832</b>	<b>20,927</b>	<b>306,614</b>	<b>525,178</b>	<b>146,475</b>

3) Preproduction cost

Preproduction cost includes training service fees, consultant fees, salaries and wages, and other costs during the construction period of the flat steel product plant until production start-up. Preproduction costs are capitalized and are amortized after

production start-up by a straight line for five years.

Annual preproduction cost is shown in Table 12-2-7.

**Table 12-2-7 Annual Preproduction Cost**

Unit: 1,000 US\$

	Total	-5	-4	-3	-2	-1
		2000	2001	2002	2003	2004
Salaries & Wages	5,403	162	338	699	1,627	2,578
Consultant Fee	20,400	0	0	0	3,300	17,100
Others	5,403	162	338	699	1,627	2,578
<b>Total Preproduction Cost</b>	<b>31,207</b>	<b>325</b>	<b>675</b>	<b>1,397</b>	<b>6,554</b>	<b>22,256</b>

4) Interest expenses during construction period

Interest expenses during the construction period are capitalized and amortized after production start-up by a straight line for five years.

5) Initial working capital

Initial working capital covers the procurement of raw materials required for the first two month production of the start-up year, 2005, and minimum requirement of cash-in-hand, which is estimated to be equal to the required cash balance for 15 days of the plant operation of 2005.

**(4) Financing activities**

A joint stock company is established by equity and debt finance.

1) Financing plan

Approximately 30 % of the total investment is financed by equity and 70 % debt. Debt finance depends solely on long-term loans.

The financing plan and the investment plan are shown in Table 12-2-8.

Table 12-2-8 Financing Plan

Unit: 1,000 US\$

	Total	-5	-4	-3	-2	-1
		2000	2001	2002	2003	2004
Total Investment	1,117,939	3,157	21,712	308,882	547,500	236,687
Total Finance	1,117,939	3,157	21,712	308,882	547,500	236,687
Equity	300,608	1,578	10,856	96,058	96,058	96,058
Long-term Loans	817,331	1,578	10,856	212,824	451,442	140,630

2) Long-term loans

(a) Interest

Interest on long-term loans is estimated based on LIBOR and the official Egyptian rate as of June 1997.

- Dollar loan: LIBOR 5.8 % +1 % to +6 %

- Egyptian pound loan: official rate 12.25 % -2 % +2 %

Loans from international and governmental financial institutions for developing countries are assumed to finance 70 % to 80 % of the total investment cost, and the weighted average interest on long-term loans is estimated at 7 %.

Loans are acquired at year-end, and interest is accrued in the following year.

(b) Repayment of loans

Although various grace periods and repayment schedules could be considered, for simplicity, a unified 10-year equal repayment starting from 2006, the subsequent year of the start-up is applied in the Study.

3) Dividend

Dividend payments will start after the tax holiday expires.

12-2-2 Financial statements

Summary of Profit and Loss Statement is shown in Table 12-2-9.

Financial statements are developed in Table 12-2-10 for Profit and Loss, Balance Sheet, and

Cash Flow.

### 12-2-3 Analysis of financial statements

In the start-up year of operation, 2005, although the Project incurs loss from the low production volume, 60 % of ordinary operation level, cash inflow sufficiently covers the loss and short-term finance is unnecessary.

In the second year of operation, 2006, production volume increases substantially to ordinary operation level and enjoys a net profit margin of 19.8 %. Starting from the third year, 2007, production volume stabilizes and constant growth of profit continues because of a continuous decrease of interest payment of long term loans until 2015. After the redemption of long term loans, in 2016 and thereafter, the net profit margin stabilizes at 28.3 %. Financial statements show that the Project generates enough excess cash inflow to operate as a going concern.

A favorable result of this analysis is reached provided that the Project obtains a one-year grace period for long-term loans. Otherwise, short-term financing needs will occur in 2005.

Table 12-2-9 Summary of Profit and Loss Statement

	1 2005		2 2006		3 2007		4 2008		5 2009		10 2014		15 2019	
	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)
Sales Volume		(ton)		(ton)		(ton)		(ton)		(ton)		(ton)		(ton)
	535,708	472	917,417	472	933,000	472	933,000	472	933,000	472	933,000	472	933,000	472
Sales	252,914	340	433,401	275	440,770	273	440,770	273	440,770	273	440,770	273	440,770	273
Cost of Sales	181,979	184	252,305	184	255,175	184	255,175	184	255,175	184	255,175	184	255,175	184
Variable Costs	98,615	156	168,942	91	171,811	89	171,811	89	171,811	89	171,811	89	171,811	89
Fixed Costs	83,364	132	83,364	197	83,364	199	83,364	199	83,364	199	83,364	199	83,364	199
Gross Profit	70,935	93	181,096	41	185,595	41	185,595	41	185,595	41	185,595	41	185,595	41
General & Administrative Expenses	49,726	40	38,026	62	38,026	62	20,926	22	20,926	22	20,926	22	1,861	2
Operating Income	21,210	107	143,070	94	147,570	94	164,670	176	164,670	176	183,735	197	183,735	197
Non-operating Expenses	57,213	-67	57,213	94	51,492	103	45,771	49	40,049	43	11,443	12	0	0
Net income before Taxes	-36,004	-78	85,857	94	96,078	103	118,899	127	124,620	134	172,292	185	183,735	197
Net income after Taxes	-41,966	-78	85,857	94	96,078	103	111,233	119	116,954	125	111,323	119	124,939	134
Net Profit Margin	-16.6	(%)	19.8	(%)	21.8	(%)	25.2	(%)	26.5	(%)	25.3	(%)	28.3	(%)

Table 12-2-10 Financial Statements

<Profit & Loss Statement>		(Unit: 1,000 US\$)																			
		-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Sales		0	0	0	0	0	252,914	433,401	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770
Cost of Sales		0	0	0	0	0	181,979	252,305	255,175	255,175	255,175	255,175	255,175	255,175	255,175	255,175	255,175	255,175	255,175	255,175	255,175
Variable Costs		0	0	0	0	0	98,615	168,942	171,811	171,811	171,811	171,811	171,811	171,811	171,811	171,811	171,811	171,811	171,811	171,811	171,811
Material Costs		0	0	0	0	0	68,399	117,177	119,167	119,167	119,167	119,167	119,167	119,167	119,167	119,167	119,167	119,167	119,167	119,167	119,167
Purchased Utility Costs		0	0	0	0	0	30,216	51,765	52,644	52,644	52,644	52,644	52,644	52,644	52,644	52,644	52,644	52,644	52,644	52,644	52,644
Fixed Costs		0	0	0	0	0	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364	83,364
Gross Profit		0	0	0	0	0	70,935	181,096	185,595	185,595	185,595	185,595	185,595	185,595	185,595	185,595	185,595	185,595	185,595	185,595	185,595
General & Administrative Expenses		0	0	0	0	0	49,726	38,026	38,026	20,926	20,926	1,861	1,861	1,861	1,861	1,861	1,861	1,861	1,861	1,861	1,861
Operating Income		0	0	0	0	0	21,210	143,070	147,570	164,670	164,670	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735
Non-operating Expenses		0	0	0	0	0	57,213	57,213	51,492	45,771	40,049	34,328	28,607	22,885	17,164	11,443	5,721	0	0	0	0
Income before Tax		0	0	0	0	0	-36,004	85,857	96,078	118,899	124,620	149,407	155,128	160,849	166,571	172,292	178,013	183,735	183,735	183,735	183,735
Tax Provision		0	0	0	0	0	5,963	0	0	7,666	7,666	7,666	55,477	57,307	59,138	60,969	55,133	56,964	58,795	58,795	58,795
Net Income (after Tax)		0	0	0	0	0	-41,966	85,857	96,078	111,233	116,954	141,740	99,651	103,542	107,432	111,323	122,880	126,770	124,939	124,939	124,939
<Appropriation of Retained Earnings>																					
Payment of Dividends		0	0	0	0	0	0	0	0	0	0	70,870	49,826	51,771	53,716	55,661	61,440	63,385	62,470	62,470	62,470
Retained Earnings		0	0	0	0	0	-41,966	85,857	96,078	111,233	116,954	70,870	49,826	51,771	53,716	55,661	61,440	63,385	62,470	62,470	62,470

<Statement of Cash Flows>		(Unit: 1,000 US\$)																			
		-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Flows from Operating Activities		0	0	0	0	-11,400	12,871	156,212	172,286	187,676	193,397	199,118	157,029	160,920	164,810	168,701	180,258	184,148	182,317	182,317	182,317
Net Income after Tax		0	0	0	0	0	-41,966	85,857	96,078	111,233	116,954	141,740	99,651	103,542	107,432	111,323	122,880	126,770	124,939	124,939	124,939
Depreciation		0	0	0	0	0	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378
Amortization		0	0	0	0	0	19,065	19,065	19,065	19,065	19,065	0	0	0	0	0	0	0	0	0	0
Changes in Inventories		0	0	0	0	-11,400	-21,605	-6,088	-235	0	0	0	0	0	0	0	0	0	0	0	0
Cash Flows from Investing Activities		-3,157	-21,712	-308,882	-547,500	-216,099	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0
Changes in Fixed Assets		-2,832	-20,927	-306,614	-525,178	-146,475	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0
Changes in Deferred Assets		-325	-785	-2,268	-22,322	-69,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Flows from Financing Activities		3,157	21,712	308,882	547,500	236,687	0	-81,733	-81,733	-81,733	-81,733	-152,603	-131,559	-133,504	-135,449	-137,395	-143,173	-63,385	-62,470	-62,470	-62,470
Proceeds from Long-term Debt		1,578	10,856	212,824	451,442	140,630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment of Long-term Debt		0	0	0	0	0	0	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	0	0	0	0
Issuance of Common Stock		1,578	10,856	96,058	96,058	96,058	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payment of Dividends		0	0	0	0	0	0	0	0	0	0	-70,870	-49,826	-51,771	-53,716	-55,661	-61,440	-63,385	-62,470	-62,470	-62,470
Net Cash Flows		0	0	0	0	9,188	12,871	74,479	90,555	105,942	111,664	38,170	25,471	27,416	29,361	31,306	28,740	120,763	119,848	119,848	119,848
Accumulated Net Cash Flows		0	0	0	0	9,188	22,059	96,538	187,091	293,034	404,697	442,868	468,339	495,754	525,115	556,422	585,162	705,925	825,773	945,621	1,065,468

<Balance Sheet>		(Unit: 1,000 US\$)																			
		-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets		0	0	0	0	20,588	55,065	135,631	226,419	332,361	444,025	482,196	507,666	535,082	564,443	595,750	624,490	745,253	865,101	984,948	1,104,796
Cash and Cash Equivalents		0	0	0	0	9,188	22,059	96,538	187,091	293,034	404,697	442,868	468,339	495,754	525,115	556,422	585,162	705,925	825,773	945,621	1,065,468
Inventories		0	0	0	0	11,400	33,005	39,093	39,328	39,328	39,328	39,328	39,328	39,328	39,328	39,328	39,328	39,328	39,328	39,328	39,328
Fixed Assets		2,832	23,759	330,373	855,551	1,002,026	944,648	887,270	829,892	772,514	715,136	666,102	608,724	551,346	493,969	436,591	387,557	330,179	272,801	215,423	158,045
Land		0	15,929	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822	39,822
Buildings, Machinery and Equipment		2,832	7,830	290,551	815,729	962,204	962,204	962,204	962,204	962,204	962,204	970,548	970,548	970,548	970,548	970,548	978,893	978,893	978,893	978,893	978,893
Accumulated Depreciation		0	0	0	0	0	-57,378	-114,756	-172,134	-229,512	-286,890	-344,268	-401,646	-459,024	-516,402	-573,780	-631,158	-688,536	-745,914	-803,292	-860,670
Deferred Assets		325	1,110	3,378	25,700	95,325	76,260	57,195	38,130	19,065	0	0	0	0	0	0	0	0	0	0	0
Pre-Production Costs		325	1,000	2,397	8,951	31,207	31,207	31,207	31,207	31,207	0	0	0	0	0	0	0	0	0	0	0
Interest during Construction		0	110	981	16,749	64,118	64,118	64,118	64,118	64,118	0	0	0	0	0	0	0	0	0	0	0
Accumulated Amortization		0	0	0	0	0	-19,065	-38,130	-57,195	-76,260	-95,325	0	0	0	0	0	0	0	0	0	0
Total Assets		3,157	24,869	333,751	881,251	1,117,939	1,075,972	1,080,096	1,094,441	1,123,940	1,159,161	1,148,298	1,116,391	1,086,429	1,058,412	1,032,340	1,012,047	1,075,432	1,137,902	1,200,372	1,262,841

Total Liabilities		1,578	12,435	225,259	676,701	817,331	817,331	735,598	653,865	572,132	490,398	408,665	326,932	245,199	163,466	81,733	0	0	0	0	0
Current Liabilities		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Liabilities		1,578	12,435	225,259	676,701	817,331	817,331	735,598	653,865	572,132	490,398	408,665	326,932	245,199	163,466	81,733	0	0	0	0	0
Long-term Debt		1,578	12,435	225,259	676,701	817,331	817,331	735,598	653,865	572,132	490,398	408,665	326,932	245,199	163,466	81,733	0	0	0	0	0
Shareholders' Equity		1,578	12,435	108,492	204,550	300,608	258,641	344,498	440,576	551,809	668,763	739,633	789,458	841,229	894,946	950,607	1,012,047	1,075,432	1,137,902	1,200,372	1,262,841
Paid-in Capital		1,578	12,435	108,492	204,550	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608	300,608
Retained Earnings		0	0	0	0	0	-41,966	43,891	139,968	251,201	368,155	439,025	488,851	540,622	594,338	649,999	711,439	774,824	837,294	899,764	962,234
Total Liabilities & Shareholders' Equity		3,157	24,869	333,751	881,251	1,117,939	1,075,972	1,080,096	1,094,441	1,123,940	1,159,161	1,148,298	1,116,391	1,086,429	1,058,412	1,032,340	1,012,047	1,075,432	1,137,902	1,200,372	1,262,841





## 12-3 Evaluation of the Flat Product Plant Project

The evaluation of the Project is based on financial analysis, with the assumptions and the best estimates described above and in preceding chapters.

### 12-3-1 Evaluation of plant operation

The plant operation is evaluated by financial ratios shown in Table 12-3-1 in the following aspects:

Table 12-3-1 Financial Ratios

	1	2	3	5	10	15
	2005	2006	2007	2009	2014	2019
(1) Profitability						
Gross Profit Margin (%)	28.05	41.78	42.11	42.11	42.11	42.11
Operating Profit Margin (%)	8.39	33.01	33.48	37.36	41.68	41.68
Net Profit Margin (%)	-16.59	19.81	21.80	26.53	25.26	28.35
Return on Assets (%)	-3.89	7.95	8.78	10.09	10.78	9.89
(2) Efficiency						
Asset Turnover (%)	23.51	40.13	40.27	38.02	42.70	34.90
(3) Solvency						
Debt-to-Equity (times)	3.16	2.14	1.48	0.73	0.09	nm
Debt Service Coverage Ratio (times)	1.22	1.54	1.68	1.92	1.93	nm

#### (1) Profitability

Profitability of the Project is quite high and gross profit margin stabilizes in the third year at 42.1 % as the production level remain at the ordinary level. In the sixth year and thereafter, operating profit margin is expected to record excellent performance since no more consultant fees and amortization costs are incurred. Although net profit margin is minus figure in the first year, it turns around to 19.8 % in the second year and continues to grow and keeps remain at the level of more than 25 %.

#### (2) Efficiency

Under the assumption of no additional investment in the plant capacity by utilizing accumulated cash flow, the Project doesn't show any improvement in efficiency and tends to be less efficient.

### (3) Solvency

Solvency of the Project increases due to the progressive debt repayments and the Project sufficiently covers the annual debt obligations.

#### 12-3-2 Project feasibility

The discounted cash flow method (DCF) is applied to the financial analysis, based on the assumptions described above and in preceding chapters.

##### (1) Calculation of internal rate of return (IRR)

The IRR is the discount rate that equates the present value of cash flows to the present value of total investment, that is, the discount rate by which the net present value of future cash flows is equal to zero.

IRR on total investment (ROI) and IRR on equity (ROE) are calculated and shown in Table 12-3-2. The DCF table for IRR calculation is shown in Appendix 12A-2.

For the cash flow statement, fixed assets are assumed to be sold at the remaining salvage value at the end of the financial projection period.

ROI, a calculation that excludes financing costs, shows profitability of the project to repay interest on long-term loans. The critical point is whether ROI is greater than financing costs.

ROE, a calculation that includes debt finance effects from the perspective of shareholders, indicates profitability to distribute dividends. The critical point is whether ROE is great enough to pay dividends.

Table 12-3-2 Calculation of IRR

	IRR (%)
ROI before tax	14.4
ROI after tax	12.6
ROE	21.8

## **(2) Analysis of IRR**

Figures obtained for ROI before tax is 14.4 %, 12.6 % for ROI after tax, and 21.8 % for ROE.

ROI before tax is substantially greater than the weighted average cost of loans of 7 % in the Study, and even greater than the general financing cost of 11 % to 13 % in financial markets.

ROE greater than 20 % is attractive enough for investors.

From the points described above, an analysis of IRR safely concludes that the Project is feasible.

ROI after tax , however, is 12.6 %, which is almost equal to the general financing cost. ROE is 14.3 % with interest on long-term loans of 13 %. These results cast a delicate question on the feasibility of the plant as a private investment project without additional tax exemptions or governmental support.

### **12-3-3 Sensitivity analysis**

#### **(1) Factors to effect ROI**

Sensitivity analysis examines the effects on ROI before tax by changes in the range of -10 % to +10 % in the following factors:

- 1) Capital investment cost
- 2) Production cost
- 3) Sales price
- 4) Production volume

The elasticity of ROI is greatest with respect to sales price, followed, in order, by capital investment, production cost and production volume, as shown in Figure 12-3-1.

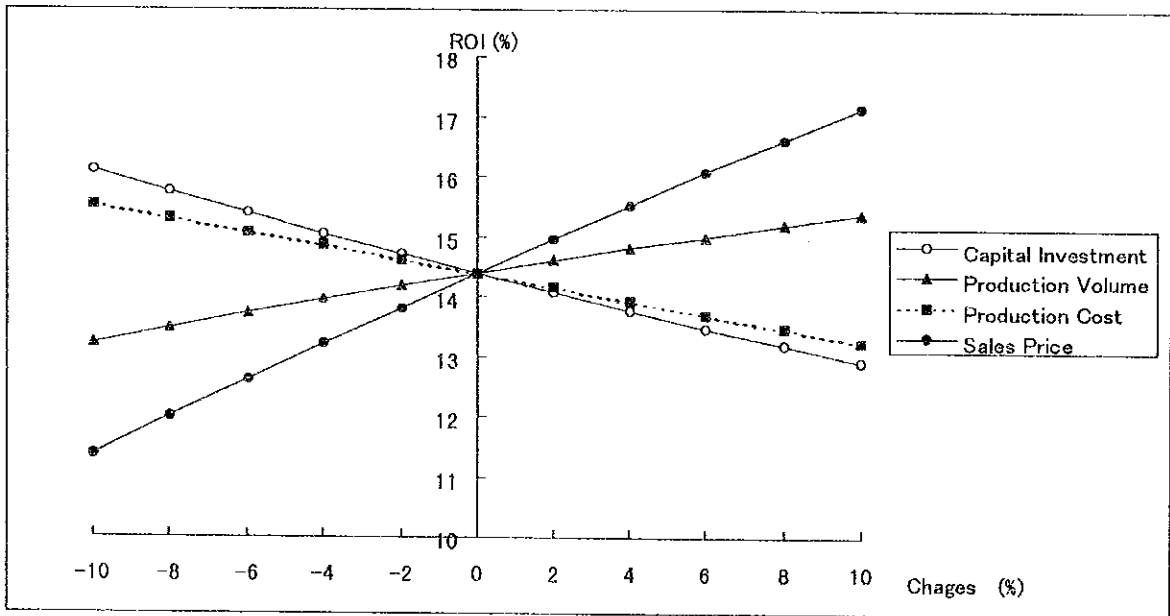
The ROI appears most elastic to sales price and cannot cover the hurdle rate of 13 %, which is the upper level estimate of general financing cost, with a decrease in sales price by 5%.

The least elasticity of ROI to production volume can be explained by the proportionate change in variable cost to production volume.

The ROI remains larger than the hurdle rate of 13%, with an increase in capital investment cost up to 8%, with a decrease in production volume of 10%, and with an increase in production cost of 10%. These results substantiate the Project's profitability.

For the actual numbers on following figures, refer to Appendix 12A-3.

Figure 12-3-1 Effects on ROI by Changes in Respective Factors



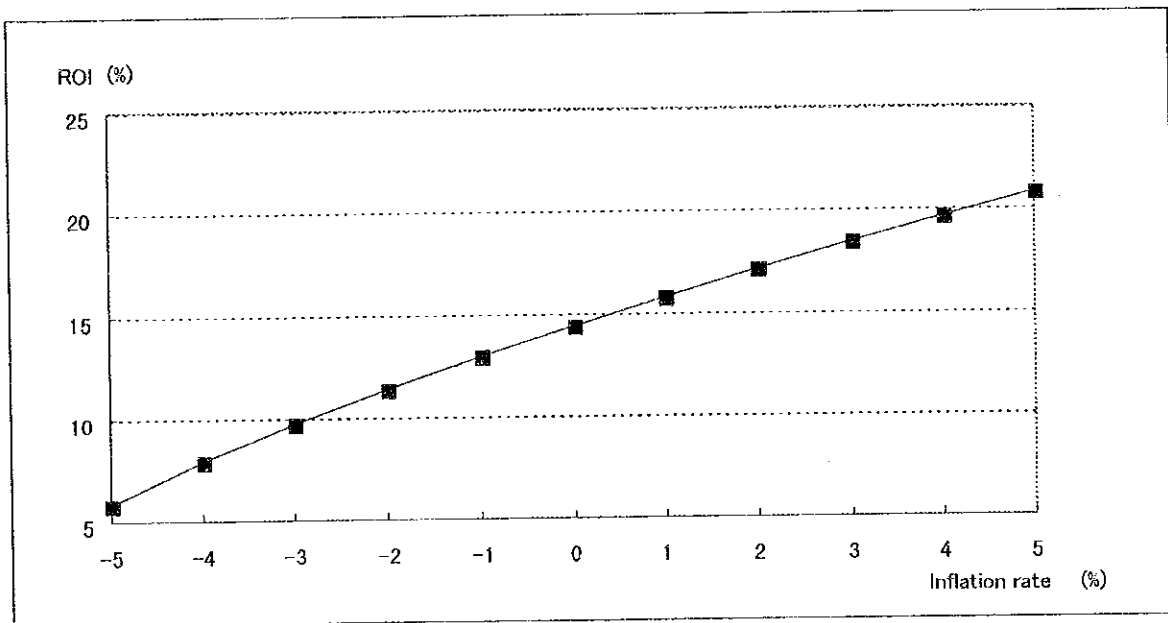
Source: Appendix 12A-3

## (2) Effects of inflation

The effects on the ROI of the inflation rate on sales prices relative to cost are shown in Figure 12-3-2. For example, if the inflation rate on sales prices is 8 % and that on total cost is 5 %, the relative inflation rate on sales prices to total cost is 3 %. The effects of the relative inflation rate on sales prices are examined in the range of -5 % to +5 %.

Compounding the rate of inflation results in a more elastic ROI. ROI drops below the hurdle rate with inflation rate of minus 1 % on sales price.

Figure 12-3-2 Effects on ROI by Changes in Inflation Rate



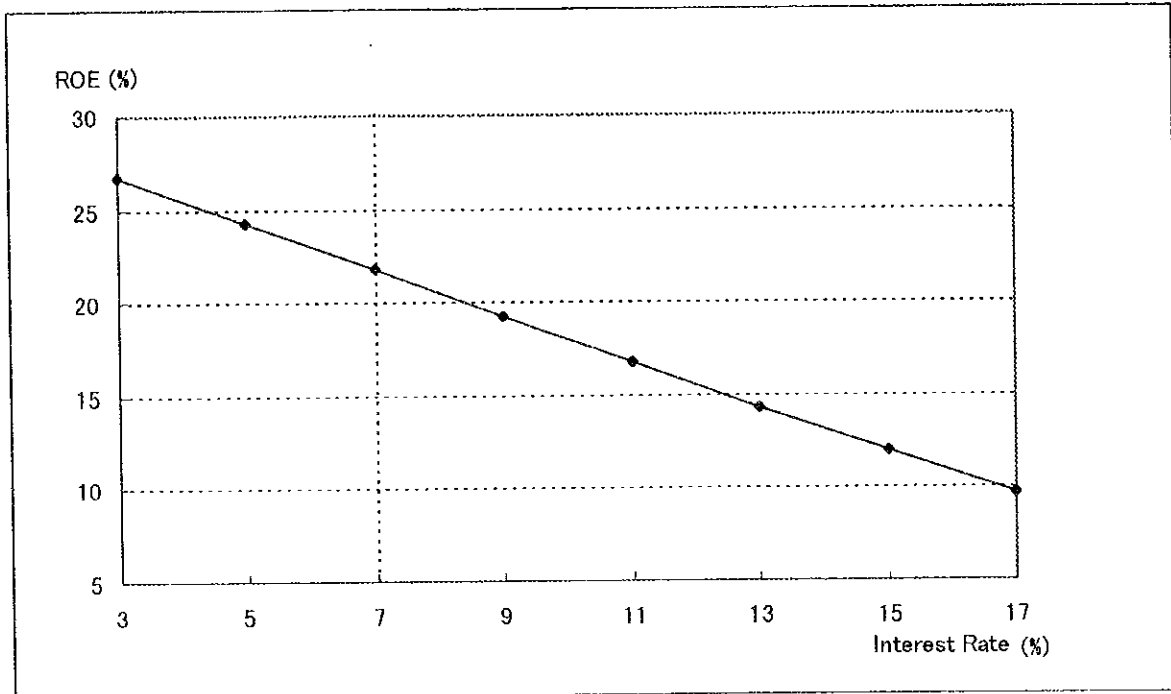
Source: Appendix 12A-3

## (3) Effects of financing cost

Effects on ROE by changes in financing cost in the range of 3 % to 17 % are shown in Figure 12-3-3.

ROE is 21.8 % with the interest rate of 7 %, and 14.3 % with the interest rate of 13 %.

Figure 12-3-3 Effects on ROE by Changes in Financing Cost



Source: Appendix 12A-3

(4) Effects of indirect taxes on capital investments

Effects on ROE by indirect taxes such as customs duties and sales taxes imposed on equipment and materials to be imported is shown in Table 12-3-3.

Table 12-3-3 Effects on IRR by Indirect Taxes on Capital Investment

Unit: %

	ROI Before tax	ROI after tax	ROE
Base Case: With customs duties and sales tax	14.4	12.6	21.8
Case A: Without customs duties and sales taxes	14.9	13.4	23.7
Case B: With customs duties and without sales taxes	14.4	12.9	22.6
Case C: Without customs duties and with sales taxes	14.9	13.1	22.9

#### **12-3-4 Economic analysis**

Following the above description of the Project's feasibility from a management perspective, this section examines the benefit of the Plant to the whole economy.

The objectives of the Fourth Economic Development Plan are promotion of privatization, establishment of economic plan, and creation of employment. Taking over the Third Economic Development Plan, improvement of foreign currency balance and industrial development continue to be focused on in the Fourth Plan. The Project meets these objectives and is expected to bring about the following direct and indirect benefits.

##### **(1) Creation of employment**

The Project will create 1,550 jobs at the ordinary operation stage, and more than 6,000 jobs at the peak of construction. In Egypt, the surplus employees at the state owned enterprises, and the high unemployment rate in the younger generation are national problems. The Project will contribute to job opportunities for these people. For indirect benefits, the number of employees could be several times that if the effects on related industries are considered, as explained in Item (4), and this will generate economic benefits for the people of Egypt.

##### **(2) Improvement of foreign currency balance**

The Project sells its products in the domestic market and doesn't earn foreign currencies directly. But the Project, whose products are import substitutes, does conserve the outflow of foreign currencies from Egypt. If a decrease in imports is equal to the sales of the Project, 200 million to 300 million U.S. dollars is saved annually after taking account of the increase in raw materials and equipment to be imported, as shown in Table 12-3-5, which in 15 years amounts to 3.5 billion U.S. dollars.

##### **(3) Utilization of Egyptian domestic resources**

The Project will utilize Egyptian resources in the range and volume as shown in Table 12-3-4.



Table 12-3-4 Egyptian Resources Utilized in the Project

Resources	Consumption
Natural Gas	328,881,000 Nm <sup>3</sup> /year
Limestone	100,000 ton/year
Ferro-silicon	200 ton/year
Fluorspar	500 ton/year
Aluminum	500 ton/year

**(4) Industry related benefits**

Because of the size of steel plants, in general, and the nature of the steel industry, the Project will have a great influence on other industries. Also the promotion of the steel industry leads to a development of its customer industries (forward linking effect) and to its supplier industries of materials and services (backward linking effect).

In the process of establishment of the Plant, and after the plant operation, a huge volume of construction materials, raw materials, utilities, spare parts, and equipment maintenance will be required. Naturally, these activities will generate the backward linking effect on industries such as construction, power and energy, raw material suppliers, respective parts-manufacturers, transporting, and distributing.

High quality flat steel and its timely delivery to the Egyptian domestic companies in the industries such as consumer electronics, autos, can manufacturing, and construction enable the companies to reduce sales price and shorten delivery-time of their products. This forward linking effect will enhance the competitiveness of these domestic industries. While price-competitiveness is essential for basic steel products such as bar steel, quality and service determine competitiveness for flat steel products. In this way, the Project's forward linking effect described above is expected to be substantial.

In the future, the Project is expected to promote high value-added industries, such as electronics and automotive, and also lead to an incentive for foreign companies to directly invest in Egypt.

From the points described above, the Project is considered to contribute to the further development of high technology industries in Egypt and benefit the Egyptian economy as a whole.

Table 12-3-5 Improvement of Foreign Currency Balance

Unit: 1,000 US\$

	Total	-5	-4	-3	-2	-1	1	2	3	4	5
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Substitution of Imported Steel Products	6,416,325	0	0	0	0	0	252,914	433,401	440,770	440,770	440,770
Imported Materials, Spare Parts and Supplies	-1,960,798	0	0	0	0	-11,400	-104,580	-135,678	-131,689	-131,454	-131,454
Capital Investment Costs in Foreign Currencies	-725,301	-2,828	-4,341	-196,049	-392,930	-120,439	0	0	0	0	0
Issuances of Common Stock in Foreign Currencies	167,033	1,414	2,170	54,483	54,483	54,483	0	0	0	0	0
Proceeds from Long-term Debt in Foreign Currencies	560,953	1,414	2,170	141,566	338,447	77,355	0	0	0	0	0
Repayment of Long-term Debt in Foreign Currencies	-560,953	0	0	0	0	0	0	-56,095	-56,095	-56,095	-56,095
Interest Payment of Long-term Debt in Foreign Currencies	-255,234	0	0	0	0	0	-39,267	-39,267	-35,340	-31,413	-27,487
Net Foreign Currency Savings	3,642,025	0	0	0	0	0	109,067	202,361	217,646	221,807	225,734

(continued)

	6	7	8	9	10	11	12	13	14	15
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Substitution of Imported Steel Products	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770	440,770
Imported Materials, Spare Parts and Supplies	-131,454	-131,454	-131,454	-131,454	-131,454	-131,454	-131,454	-131,454	-131,454	-131,454
Capital Investment Costs in Foreign Currencies	-4,358	0	0	0	0	-4,358	0	0	0	0
Issuances of Common Stock in Foreign Currencies	0	0	0	0	0	0	0	0	0	0
Proceeds from Long-term Debt in Foreign Currencies	0	0	0	0	0	0	0	0	0	0
Repayment of Long-term Debt in Foreign Currencies	-56,095	-56,095	-56,095	-56,095	-56,095	-56,095	0	0	0	0
Interest Payment of Long-term Debt in Foreign Currencies	-23,560	-19,633	-15,707	-11,780	-7,853	-3,927	-0	-0	-0	-0
Net Foreign Currency Savings	225,303	233,587	237,514	241,440	245,367	244,936	309,316	309,316	309,316	309,316

**Chapter 13**

**CONCLUSION AND  
RECOMMENDATION**

## Chapter 13. CONCLUSION AND RECOMMENDATION

This feasibility study has been conducted to examine the feasibility of construction of a new flat product plant in Egypt. The study was executed for the period of ten months from February to November, 1997, during which five of field surveys were made in Egypt. The results of those field surveys were supplemented by additional work in Japan. The conclusion is as follows.

Total investment cost will reach US\$ 1.1 billion including construction cost, preproduction cost, initial working capital and interest during construction.

The ROI calculation shows that the figure of 14.4 % is greater than the 7 % of weighted average cost of capital and 21.8 % of ROE is big enough to induce investment. As a result, it can be said that the projected flat product plant is feasible and effective in terms of capital investment.

However, financial conditions for such a small steel plant are easily influenced by its surroundings such as change of interest and foreign currency exchange rate, especially in a case where the plant is constructed in a developing country. Therefore, in spite of the feasible result of the financial analyses, in order to ensure the establishment of stable management and to promote further investor's interest in a steel company, it is recommended that the government protect the new steel company by exempting import duties and sales tax on the plant equipment for the project.

On the other hand, construction and operation of a flat product plant requires great amounts of construction materials, raw materials, utilities, spare parts, and maintenance of the equipment although the capacity itself is rather smaller than conventional steel plant in the world. It also generates employment opportunities among not only the company itself, but also subsidiary companies and supporting industries.

Furthermore, domestic industries will be encouraged to improve their productivity (cost and delivery) by the supply of high quality flat products with reasonable delivery time. In consequence, their international competitiveness will be strengthened in both domestic and overseas markets.

The flat product plant is not planned to export products. However, the plant, whose products are import substitutes, does conserve the outflow of foreign currencies from Egypt. Provided that the amount of import substitution is equal to the sales of the plant, US\$ 200 to 300 million is saved annually which amounts to US\$ 3.5 billion during fifteen years.

Therefore, materialization of the project will have quite beneficial effects of promoting expanded employment opportunities and development of surrounding industries in Egypt as well as improvement

of international balance of foreign currency.

Consequently, it can be concluded that construction of a flat product plant in Egypt is recommended, and it will contribute to the development of the Egyptian economy as a whole.

## APPENDICES

**Appendix 1A-1 LIST OF ATTENDANCE**

## Appendix 1A-1 LIST OF ATTENDANCE

### GOEL

Name	Department	Title	Group
Mr. Hassan Safwat	-	Vice President (Previous)	-
Dr. Eid Hassan	-	Vice President	-
Mr. Mohamed Amin *	Licensing & Registration	Head of Cent. Dept. /Steering committee	-
Mr. Samir Abdel Messch*	Economic Research	Head of Department	-
Mr. Samir Ragab*	Technical Affair	Head of Department	-
Mrs. Samia Ahmed Zaki *	Engineering Project	General Manager	P
Mr. Abdelmoaty El Sherbini	Economic studies	General Manager	E
Mr. Abdel Guwad Omar*	Metallurgical Project	General Manager	S
Mr. Galal El Ghourab*	Construction Project	General Manager	S
Mr. Alaa El Din Mohamed Waly*	Steering committee	General Secretary	M&P
Mrs. Samira Ghobrial	Construction Project	Senior Engineer	S
Mrs. Marcelle Abedel Malek	Metallurgical Project	Senior Engineer	I
Mrs. Ragaa Sayed Labibi	Food Project	General Manager	P
Mr. Mostafa Kamel Issa	Electric & Electronic Institute	General Manager	I
Mr. Nabil El Sageeir	Engineering Project	Senior Project Engineer	I
Mrs. Galila Ahmed	Environmental Affair	General Manager	E
Mrs. Fatma El Zahraa Araby	Metallurgical Dept.	Senior Engineer	E
Mr. Youssef El Hassan Ahmed	Metallurgical Project	Senior Engineer	P
Mr. Hafez M Abdel Monem	Small Industries	Senior Engineer	S
Mrs. Nadia Abdel Azim	Environmental Affair	Senior Engineer	E
Mrs. Scham Elbahrawy	Engineering Projects	Senior Engineer	E
Mrs. Samia Hassanien Kandiel	Mining Projects	Senior Engineer	M
Mrs. Gamit Roshdy Abdel Malek	Industrial Design	Senior Engineer	M
Mr. Bahie El Din Alwakil	Mining Projects	Senior Geologist	P
Mr. Aly Hassan	Engineering Projects	Senior Engineer	M
Mrs. Zeinb Abd-El Satter	Surveying	Senior Engineer	S
Mr. Galal Shafik	Economic Department	Economist	M
Mr. Safwat Sami	Construction Projects	Senior Engineer	S
Mr. Kuniaki Kudo	-	Advisor	-

Note 1. Group S = Site Selection E = Environmental Assessment

M = Raw Materials P = Production & Products

I = Infrastructure F = Financial Analysis

Note 2. The mark “\*” shows the member of the steering committee



## JICA

Name	Office	Title
Mr. Satoru MIMURA	JICA Tokyo	
Mr. Toshinobu KATO	JICA Tokyo	
Mr. Yosuke TAMABAYASHI	JICA Cairo	Assistant resident representative
Mr. Mahmoud Abdel Halim	JICA Cairo	Project coordinator

## JICA Study Team

Name	Assignment	Company	Group
Mr. Nobuhisa OTANI	Team Leader	NKK	-
Mr. Toshiharu YONEYAMA	Site Section	NKK	S
Mr. Isamu KAWAKAMI	Steelmaking Technology	NKK	M
Mr. Hiroyuki KANEMOTO	Hot Strip Mill technology	NKK	P
Mr. Yasuo ISE	Cold Strip Mill Technology	NKK	P
Mr. Kozo OKAMOTO	Raw Material & Energy	KSL	M
Mr. Tamotsu INOUE	Utilities	KSL	I
Mr. Kusuo INOUE	Electrical	KSL	I
Mr. Shunji HOSOKAWA	Transportation	KSL	S
Mr. Koji SUENAGA	Project Planing	NKK	S
Mr. Minoru YAMAMURA	Environmental Assessment	NKK	E
Mr. Yasuo FUJINAGA	Financial Analysis	DIR	F

Note : Group

- S = Site Selection
- M = Raw Materials
- I = Infrastructure
- E = Environmental Assessment
- P = Production & Products
- F = Financial Analysis

**Appendix 1A-2 FIELD SURVEY SCHEDULE**

- 1. 1ST FIELD SURVEY**
- 2. 2ND FIELD SURVEY (STAGE-1.)**
- 3. 2ND FIELD SURVEY (STAGE-2.)**
- 4. 3RD FIELD SURVEY**
- 5. 4TH FIELD SURVEY**



# 1. Field Survey Schedule [1st Field survey]

Date	Group [S]: Site selection	Group [E]: Environment & site	Group [M]: Raw materials	Group [I]: Infrastructure	Group [P]: Products
March 2 (Sun)	Lv. Tokyo to Frankfurt				
3 (Mon)	Lv. Frankfurt to Cairo				
4 (Tue)	AM : JICA & Embassy of Japan PM : GOPI/				
5 (Wed)	AM : MOI Subject-1 & 3. PM : JETRO	AM : MOP Subject-3. PM : MOP Subject-3.	AM/PM: CAPMAS Subject-5.	AM : EEA Subject-2. PM : EGFC Subject-2.	AM: Egitalec Subject-7. PM: EBA Subject-7.
6 (Thu)	AM : Kajima Subject-6. PM : MOK	AM/PM: EAA Subject-4.	AM/PM: EGSHA Subject-5.	AM : MOE Subject-2. PM : MOPW Subject-2.	AM/PM: Customer Subject-7.
7 (Fri)	AM : Cairo to Hurgada (Suez) PM : Suez to Safage				
8 (Sat)	AM : Survey of Safage PM : Hurgada to Cairo				
9 (Sun)	AM : Cairo to Suez PM : Survey of Suez [Suez]				
10 (Mon)	AM : Survey of Suez PM : Suez to Cairo				
11 (Tue)	AM/PM: GOI & others authorities Collection of additional data				
12 (Wed)	AM : Cairo to Alexandria PM : Survey of ANSDK				
13 (Thu)	AM : Survey of ANSDK PM : Alexandria to Cairo				
14 (Fri)					
15 (Sat)	AM/PM: GOI & others authorities Collection of additional data				
16 (Sun)	AM/PM: Preparation of progress report at Cairo				
17 (Mon)	AM/PM: Preparation of progress report at Cairo				
18 (Tue)	AM/PM: GOPI/Presentation of progress report				
19 (Wed)	AM : GOPI/MOM PM : JICA & Embassy of Japan				
20 (Thu)	Lv. Cairo to Frankfurt Lv. Frankfurt to Tokyo				
21 (Fri)	Lv. Tokyo				

### Note 1. Working Time

AM = 9:00 -11:00  
PM = 13:00 -15:00

### Note 2. Members of group

Site selection  
T.Yoneyama, K.Suenaga,  
Environment & site  
M.Yamamura, S.Hosokawa,  
Raw materials  
K.Okamoto, I.Kawakami  
Infrastructure  
T.Inoue, K.Inoue  
Products  
H.Kanemoto, Y.Ise

2. Field Survey Schedule [2nd Field survey-Stage 1.]

Date	N. Utani	T. Yoneyama
May 9 (Fri)	Lv. NRI Ar. Frankfurt	
10 (Sat)	Lv. Frankfurt Ar. Cairo	
11 (Sun)	AM : JICA/ Embassy of Japan PM : GOFI/ Explanation of survey plan and phyrosophy of site selection	
12 (Mon)	AM/PM: GOFI/ Preliminary study on each site	
13 (Tue)	AM/PM: GOFI/ Selection of possible sites	
14 (Wed)	AM/PM: Visit to possible sites	
15 (Thu)		
16 (Fri)		
17 (Sat)	AM/PM: Visit to possible sites	
18 (Sun)		
19 (Mon)	AM/PM: GOFI/ Selection of preferable sites	
20 (Tue)	AM : GOFI/ Discussion on procedure for the next survey PM : Preparation of MOM	
21 (Wed)	AM : GOFI/MOM PM : JICA & Embassy of Japan	
22 (Thu)	Lv. Cairo Ar. London Lv. London	
23 (Fri)	Ar. NRI	

### 3. Field Survey Schedule [2nd Field survey-Stage 2]

Date	Leader	Group (S): Site selection	Group (I): Infrastructure	Group (E): Environment	Group (M): Raw materials	Group (P): Project & Product	Group (F): Financial analysis
Jun. 6 (Sun)		T. Yoneyama, K. Suehase S. Hosokawa	T. Inoue, K. Inoue	M. Yamamori	K. Okamoto, I. Kawakami	H. Kamekura, Y. Ise	Y. Fujizawa
7 (Mon)			Lv. NRT or KIX Ar. Frankfurt				
8 (Mon)			Lv. Frankfurt Ar. Cairo				
10 (Tue)			AM: JICA & Embassy of Japan PM: GOPI/ Explanation of survey plan				
11 (Wed)			AM/PM: Visit to Site-A.				
12 (Thu)			AM/PM: Visit to Site-A.				
13 (Fri)							
14 (Sat)			AM/PM: Visit to Site-B.		AM/PM: ANSDK Category-3.	AM/PM: Customer Category-7.	AM/PM: ANSDK Category-6.
15 (Sun)			AM/PM: Visit to Site-B.				
16 (Mon)			AM/PM: GOPI/ Discussion on site selection				
17 (Tue)	AM/PM: Helwan Category-7.	AM/PM: Kajima Category-3.	AM/PM: PMEA Category-7.				AM/PM: MOF and other authorities Category-8.
18 (Wed)			AM/PM: Preparation of progress report & MOH				
19 (Thu)		AM/PM: Hitachi plant Category-6.		AM/PM: EAA Category-4.	AM/PM: CRMAS Category-5.	AM/PM: Hitachi Plant Category-5.	AM/PM: MOF and other authorities
20 (Fri)							
21 (Sat)			AM/PM: Preparation of progress report & MOH				
22 (Sun)			AM/PM: GOPI/ Presentation of progress report				
23 (Mon)			AM: GOPI/ MOH PM: Embassy of Japan, JICA				
24 (Tue)			Lv. Cairo Ar. London Lv. London				
25 (Wed)			Ar. NRT or KIX				

4. Field Survey Schedule [3rd Mission]

Date	Leader	Group (C/D): Civil & building	Group (M): Iron & Steelmaking	Group (I): Infrastructure	Group (E): Environment	Group (F): Corporate plan	Group (G): Financial analysis
	H. Otani	T. Yoneyama S. Suetsugu S. Okamoto	I. Kawasaki H. Kanemoto Y. Ise	T. Inoue K. Inoue	M. Yamamura	S. Hosokawa	Y. Fujinaga
23 (Sat)		Lv. Frankfurt Ar. Cairo					
24 (Sun)		AM: JICA & Embassy of Japan					
25 (Mon)		PM: GOPI/ Explanation of survey plan AM/PM: GOPI/ Explanation of interim report					
26 (Tue)		AM/PM: GOPI/ Explanation of interim report					
27 (Wed)		Arab Contractor Arab Organisation for Industrialization GAFI					
28 (Thu)	Alex. Shippard	Misar Raymond	Alex. Shippard	Alex. Governmentate			MOP
29 (Fri)							
30 (Sat)	Ferrometalso	Ezyco		Ferrometalso			
31 (Sun)			[Refractory Co.] Formulation of facility plan				
1 (Mon)			AM/PM: Preparation of progress report & MOM				
2 (Tue)			AM/PM: Preparation of progress report & MOM				
3 (Wed)			AM/PM: GOPI/ Presentation of progress report.				
4 (Thu)	AM: GOPI/ MON PM: JICA & Embassy of Japan	Lv. Cairo Ar. Paris Lv. Paris	AM: GOPI/ MON PM: JICA & Embassy of Japan	Lv. Cairo Ar. Paris Lv. Paris			AM: GOPI/ MON PM: JICA & Embassy of Japan
5 (Fri)							
6 (Sat)	Ar. NET		Ar. NET or KIX				Ar. NET

5. Field Survey Schedule [4th Field Survey]

Date	Leader	Group [I/S]: Iron & Steelmaking	Group [EM]: Rolling mill	Group [E]: Environmental assessment	Group [F]: Financial analysis	Supervisor (JICA)
	N. Ojani	K. Okamoto I. Kawakami	H. Kanemoto Y. Ise	M. Yamamura	Y. Fujinaga	T. Kato
15 (Sat)		Lv. Frankfurt Ar. Frankfurt Lv. Frankfurt Ar. Cairo				
16 (Sun)		AM : JICA & Embassy of Japan PM : GOFI/ Explanation of draft final report AM/PM: GOFI/ Explanation of draft final report				
17 (Mon)		AM/PM: GOFI/ Explanation of draft final report				
18 (Tue)		AM/PM: GOFI/ Explanation of draft final report				
19 (Wed)		AM : GOFI/ MOM PM : JICA & Embassy of Japan				
20 (Thu)		Lv. Cairo Ar. London Lv. London				
21 (Fri)						



**Appendix 1A-3 LIST OF PERSONS WHOM THE MISSION MET  
DURING THE SITE SURVEY**

- 1. 1ST FIELD SURVEY**
- 2. 2ND FIELD SURVEY**
- 3. 3RD FIELD SURVEY**

## Appendix IA-3

## LIST OF PERSONS

1. 1ST FIELD SURVEY						
DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED	TITLE	ABBRRI.	REMARK	
4-Mar-97	JICA CAIRO OFFICE	Mr. Suzuki	Representative	JICA	ALL	
4-Mar-97	JICA CAIRO OFFICE	Mr. Y. Tamabayashi	Deputy Resident Manager	JICA	ALL	
4-Mar-97	JICA CAIRO OFFICE	Mr. H. Naito	Deputy Resident Manager	JICA	ALL	
4-Mar-97	JICA CAIRO OFFICE	Mr. Mohamed Abdel Halim	Project Coordinator	JICA	ALL	
4-Mar-97	JICA CAIRO OFFICE	Mr. Fuwa	Deputy Resident Manager	JICA	ALL	
4-Mar-97	Ministry of Economy & International Cooperation	Mr. Ahmed Ragaai	First Undersecretary	MIC	ALL	
4-Mar-97	Embassy of Japan	Mr. Tanaka	First Secretary		ALL	
5-Mar-97	Ministry of Transportation	Mr. Ahmed Ayoub El Khar	First Undersecretary of State	MOT	E & S Group	
5-Mar-97	Ministry of Planning	Mr. Ead-Ahmed Mahmoud Abd Elaffhad	General Director	MOP	E Group	
5-Mar-97	Egyptian Electricity Authority	Dr. Mohamed Awad	Deputy Chairman for Studies	EEA	I Group	
5-Mar-97	Egyptian Electricity Authority	Dr. Ibrahim Yamin	Managing Director for Studies	EEA	I Group	
5-Mar-97	Egyptian Electricity Authority	Dr. Jewdan	Chairman	EEA	I Group	
5-Mar-97	Egyptian General Petroleum Corporation	Mr. Eng. Mohamed I. Tawila		EGPC	I Group	
5-Mar-97	Center Agency for Public Mobilization and Statistics	Mrs. Effat Shouky	National Information Center	CAPMAS	M Group	
5-Mar-97	Egyptian Italian Engineering & Construction Joint Stock Co.	Dr. Eng. Attief Youssef Mahmoud	Studies Department Manager	EGITALEC	P Group	
5-Mar-97	Egyptian Business Association	Mr. Taher El Sherif	Secretary General	EBA	P Group	
5-Mar-97	KAJIMA Corporation	Mr. Yukio Aratani	General Manager of Egypt District Office		S Group	
5-Mar-97	PENTA Ocean Construction Co.	Mr. A. Koike	General Manager of Egypt Office (successor)		S Group	
5-Mar-97	PENTA Ocean Construction Co.	Mr. Y. Ariuke	General Manager of Egypt Office (predecessor)		S Group	
5-Mar-97	PENTA Ocean Construction Co.	Mr. M. Kato	Chief Administrator		S Group	
5-Mar-97	PENTA Ocean Construction Co.	Mr. Medhat El Awady	Chief Engineer		S Group	
6-Mar-97	Japan External Trade Organization	Mr. Akira Saito	Director	JETRO	E Group	
6-Mar-97	Egyptian Environmental Agency	Mr. Tamer Abdel Hamid	EIA Department		E Group	
6-Mar-97	Egyptian Environmental Agency	Mr. Abdellatif Hafez	Director of Air Pollution		E Group	
6-Mar-97	Egyptian Environmental Agency	Mr. Serag El Din Eneb	Director of Fresh Water		E Group	

## LIST OF PERSONS

1. 1ST FIELD SURVEY		PERSONS ATTENDED				TITLE	ABBRRI.	REMARK
DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED		TITLE	ABBRRI.	REMARK		
6-Mar-97	Ministry of Public Works and Water Resources (National Water Resources Center Strategic Research Program)	Dr. Mona El Kady			MOPW	I Group		
6-Mar-97	Egyptian General Survey Authority	Mr. Mohamed El Hinnawi		Deputy Chairman and Head of Mining Projects Sector	GOS	M Group		
6-Mar-97	Egyptian Geological Survey and Mining Authority	Mr. Abdel El Mohsen Thabit El Miliqy		General Director of Ore Evaluation Department	EGSMA	M Group		
6-Mar-97	Egyptian General Survey and Mining Authority	Mr. Ali A. Mazhar		General Director of Regional Geology Department	EGSMA	M Group		
6-Mar-97	Modern Office & House Metal Furniture	Mr. Amin Sultán Amin		Factory Manager	MOHM	P Group		
6-Mar-97	FERROMETALCO	Mr. Ragaie Marmoush		Procurement Manager	FMC	P Group		
6-Mar-97	Egyptian Survey Authority	Mr. Mosaad Ibrahim		Chief, Chairman & Executive	ESA	S Group		
6-Mar-97	Ministry of Manpower	Mr. Mohamed Attia Salem		Senior Undersecretary	MOP	S Group		
6-Mar-97	Ministry of Manpower	Mr. Farouk Aslan		General Director of Information Department	MOP	S Group		
6-Mar-97	Ministry of Manpower	Mr. Abd Alrahman Alsheikh		Training Director	MOP	S Group		
6-Mar-97	Ministry of Manpower	Miss Merrat M. Wahby		Manager of Technical Coordination, International	MOP	S Group		
8-Mar-97	Hurghada Governorate	Mr. Hamdy Mohamed Mokhtar		General Secretary		S, E, M & I Group		
8-Mar-97	Safaga City Council	General Mahmoud El Gindi		The Head Master		S, E, M & I Group		
8-Mar-97	Safaga City Council	Mr. Mohamed Mahmond		Manager of Engineering		S, E, M & I Group		
8-Mar-97	Safaga Port	Mr. Alea El Din El Tokey				S, E, M & I Group		
8-Mar-97	Safaga Port	Mr. Sayed Allam		Secretary Chief of Safaga Port		S, E, M & I Group		
9-Mar-97	Suez Shipyard	Mr. Eng. Wael S. Kaddour		Chairman		P Group		
9-Mar-97	Suez Shipyard	Mr. Eng. Helmi Abou El Azm		Docks Director		P Group		
9-Mar-97	Suez Governorate	Mr. Yehia El Bahnassury		Governor of Suez		S, E, M & I Group		
10-Mar-97	Suez Governorate	Mr. Eng. Said Salama		Director of Planning		ALL		
10-Mar-97	Modern Building Carpentry Co.	Mr. Eng. Mohamed Abdel Kader Saleh		Metal Furniture Manager	MOBICA	P Group		
10-Mar-97	SUZUKI Egypt	Mr. Tarek Metwally		Localization Metallic Manager		P Group		
11-Mar-97	American Chamber of Commerce					E Group		

## LIST OF PERSONS

1. 1ST FIELD SURVEY		PERSONS ATTENDED		TITLE	ABBRRI.	REMARK
DATE	NAME OF THE ORGANIZATION					
11-Mar-97	The Arab Contractors (OSMAN AHMED OSMAN & CO.)	Mr. Eng. Farouk M. Allam	Central Workers General Manager			P Group
11-Mar-97	The Arab Contractors (OSMAN AHMED OSMAN & CO.)	Mr. Nasser				P Group
12-Mar-97	Alexandria Governorate	General Mahmoud Salem	Secretary General			ALL
12-Mar-97	Alexandria Governorate	Mrs. Loila Yehia	Director General of Public Relations Department			ALL
12-Mar-97	Alexandria Governorate	Mr. Saad Mohamed El Bramaway	Engineering Division			ALL
12-Mar-97	Alexandria Governorate	Mrs. Samiha M. Ibrahim	General Director of Urban Planning			ALL
12-Mar-97	Alexandria Governorate	Mr. Ch. Eng. Fatty Hassan	Environmental Affairs Office			ALL
12-Mar-97	Alexandria Governorate	Capt. El Sayed F. Mohamed	General Manager of Alexandria			ALL
12-Mar-97	Alexandria Governorate	Dr. Fatma Abou Shouk	Senior Member of Environment Department			E Group
12-Mar-97	Alexandria Governorate	Mr. Mohamed Ragai	General Director of Land Planning			S Group
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. M. Khattab	Joint Managing Director		ANSDK	ALL
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. A. Atef	General Manager		ANSDK	ALL
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Kuribayashi	Head of Consultant Team		ANSDK	ALL
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. S. Ibrahim	Deputy General Manager		ANSDK	ALL
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. Osama A. Sheour	Assistant Manager of Construction		ANSDK	ALL
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. A. El Saeqa	Deputy General Manager		ANSDK	ALL
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Hussein Sabry	Sub-Leader of Environment		ANSDK	E Group
13-Mar-97	Alexandria National Iron & Steel Company	Dr. S. Hamdy	Section Manager of Maintenance (Utilities)		ANSDK	I Group
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. M. Masrat	Section Manager of Maintenance (Electric)		ANSDK	I Group
13-Mar-97	Alexandria National Iron & Steel Company	Dr. Mohamed Mousq El Gamul	Assistant Section Manager of Utility-Gas		ANSDK	I Group
13-Mar-97	Alexandria National Iron & Steel Company	Dr. Mohamed M. Zaki	Assistant Section Manager of Utility-Water		ANSDK	I Group
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. M. A. Bary	Senior Manager of Purchasing (Raw Material)		ANSDK	M Group

Appendix 1A-3

LIST OF PERSONS

1. 1ST FIELD SURVEY

DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED	TITLE	ABBRRI.	REMARK
13-Mar-97	Alexandria National Iron & Steel Company	Mr. Eng. M. Gharem	Section Manager of Production (Mineral Jetty)	ANSDK	M Group
15-Mar-97	Center Agency for Public Mobilization and Statistics	Mr. Eng. Effat Shoukry		CAPMAS	M Group
17-Mar-97	KAHA COMPANY FOR PRESERVED FOOD	Mr. Eng. Ibrahim Ghazal	Chief of Research and Quality Control Sector		P Group

## LIST OF PERSONS

## 2. 2ND FIELD SURVEY

DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED	TITLE	ABBRE.	REMARKS
11-Jun-97	MOF(Ministry of Finance Taxation Authority)	Mr. Mohamed Mortady El Hefnawy	Under Secretary of State	MOF	
11-Jun-97	MOF(Ministry of Finance Taxation Authority)	Ms. Nabawia Sobhi Rhaled Allam	General Director(Head of Tax Conventions Directorate)	MOF	
11-Jun-97	Penta Ocean Construction Co.	Mr. A. Koike	General Manager		
11-Jun-97	Penta Ocean Construction Co.	Mr. Medhat El Awady			
11-Jun-97	El-Nasr Steel Pipes & Fittings Co.	Eng. Sami A. Ibrahim	Chairman & Managing Director		
11-Jun-97	El-Nasr Steel Pipes & Fittings Co.	Dr. Eng. Ahmd Abdel Rahim Ali			
11-Jun-97	El-Nasr Automobile Manufacturing Co.(NASCO)	Dip. Eng. Ahmd Affi	Planning & Supply Director	NASCO	
11-Jun-97	El-Nasr Automobile Manufacturing Co.(NASCO)	Mr. Hamdy Badr	General Manager, Foreign Purchasing Dept.	NASCO	
11-Jun-97	CAPMAS(Central Agency For Public Mobilization and Statistics)	Dr. Hamdy M. Afify	Public Manager, Production & Researches Department	CAPMAS	
11-Jun-97	CAPMAS	Mr. Ibrahim Amer	Manager, Production & Researches Department	CAPMAS	
11-Jun-97	CAPMAS	Mr. Mahmoud Abdelfattah	Manager of Engineering Industry, ditto	CAPMAS	
11-Jun-97	CAPMAS	Mr. Aly Sayed Mostafa	Manager of Data Detment, ditto	CAPMAS	
11-Jun-97	CAPMAS	Ms. Faida	Data Bank	CAPMAS	

## LIST OF PERSONS

## 2. 2ND FIELD SURVEY

DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED	TITLE	ABBRE.	REMARKS
12-Jun-97	JETRO	Mr. Akira Sato	Director	JETRO	
12-Jun-97	The Egyptian Co. For Refractories	Eng. Mohamed Eid	Chairman		
12-Jun-97	Suez Governorate	Mrs. Monir Moly Sfata	Environmental Section		
12-Jun-97	Suez Governorate	Eng. Said Salem	General Manager		
12-Jun-97	Red Sea Port Authority	Gen. Hussan Rasid	Commodor and Chairman		
12-Jun-97	Egyptian Italian Co.	Eng. Amin A. Zanati			10th of October City
12-Jun-97	Kandeel Steel Co.	Eng. Amin A. Zanati			10th of October City
12-Jun-97	Alphmetal	Eng. Yehya Zaki	Foreman		
14-Jun-97	Tinplate Committee Chairman Office	Senator Abdel E. El Samahy	Chairman of Tinplate Committee		
14-Jun-97	Alexandria Port Authority	R. Adm. Salah A. Mokhtar	R. Admiral and Chairman		
14-Jun-97	Alexandria National Iron & Steel Co.	Dr. Mohamed Khattab	Joint Managing Director		
14-Jun-97	Alexandria National Iron & Steel Co.	Mr. Ashraf Galal EL-DIN Abou El-Kheir	Section Chief(Budget & Cost Control)		

## Appendix 1A-3

## LIST OF PERSONS

2. 2ND FIELD SURVEY					
DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED	TITLE	ABBRE.	REMARKS
14-Jun-97	Alexandria National Iron & Steel Co.	Dr. Mohamed Moustafa Zaki	Utility Section, MUD		
14-Jun-97	Alexandria National Iron & Steel Co.	Mr. Osama Abou El-Shecur	Assistant Manager, CD		
14-Jun-97	Alexandria Governorate	Mr. Nabil Mohamed Hassan El Dardeli	General Manager for Planning		
14-Jun-97	The Edfina Co. for Preserved Foods	Mr. Ibbrahim Ahmed Abdo	Chairman		
14-Jun-97	The Edfina Co. for Preserved Foods	Eng. Moustafa Kamel			
15-Jun-97	Engineering Company for Exhaust System	Eng. Eweis Mohamed Hassan	Production Manager		
15-Jun-97	Engineering Company for Exhaust System	Mr. Hassan Ahd. El Pattah			
15-Jun-97	Alexandria National Iron & Steel Co.	Mr. M. Safwat Hassan El-Shazly	Section Manager, Prod. & Technical Control Dept.		
15-Jun-97	Alexandria National Iron & Steel Co.	Mr. Salah El Din Ali Hassan	Assistant Sect. Manager, Prod. & Technical Control Dept.		
15-Jun-97	Alexandria National Iron & Steel Co.	Eng. Mohieddine Ibrahim	Section Manager, Safety & Training.		
15-Jun-97	Alexandria National Iron & Steel Co.	Dip. Eng. Mohamed M. A. Barg	Raw Material Section Manager		



## LIST OF PERSONS

## 2. 2ND FIELD SURVEY

DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED	TITLE	ABBRE.	REMARKS
15-Jun-97	Alexandria National Iron & Steel Co.	Chem. Hussein A. Sabry	Safety L. Section Manager		
16-Jun-97	OECF, Cairo Office	Mr. Tomoharu Otake	Representative		
16-Jun-97	Kajima Coporation	Mr. Kimio Okamoto	Project Manager		
17-Jun-97	Egyptian Iron & Steel Co.	Dr. Aly Helny	Chairman		
17-Jun-97	Egyptian Iron & Steel Co.	Mr. Mohamed M. A. El-Sadat			
17-Jun-97	Hitachi Plant Engineering & Construction Co., Ltd.	Mr. Kobayashi	General Manager		10th of October City
17-Jun-97	Hitachi Plant Engineering & Construction Co., Ltd.	Mr. Oda	Engineer		10th of October City
17-Jun-97	Hitachi Plant Engineering & Construction Co., Ltd.	Mr. Fujiwara	Sales Department		
18-Jun-97	GASCO	Mr. Abdalla El-Bastawisi			
18-Jun-97	NOPWASD(National Organization for Potable Water and Sanitary Drainage)	Eng. Abdulhamid El Shayeb	General Research Manager		Alexandria
19-Jun-97	GAFI (General Authority for Investment)	Dr. Ibrahim Fawzy	Chairman		Suez City
19-Jun-97	GAFI (General Authority for Investment)	Mr. Ali Taha	Under Secretary of State		Alexandria

## Appendix 1A-3

## LIST OF PERSONS

3. 3RD FIELD SURVEY			PERSONS ATTENDED	TITLE	ABBRRI.	REMARK
DATE	NAME OF THE ORGANIZATION					
24-Aug-97	JICA CAIRO OFFICE	Mr. Suzuki	Representative	JICA		
24-Aug-97	JICA CAIRO OFFICE	Mr. Y. Tamabayashi	Deputy Resident Manager	JICA		
24-Aug-97	JICA CAIRO OFFICE	Mr. Mohamed Abdel Halim	Project Coordinator	MOP		E Group
25-Aug-97	The Arab Contractors (OSMAN AHMED OSMAN & CO.)	Eng. Shehab Eldin Ibrahim	General Manager, Tender Department	EEA		I Group
25-Aug-97	The Arab Contractors (OSMAN AHMED OSMAN & CO.)	Eng. Ahmed Homed	Manager, Technical Department			S Group
25-Aug-97	The Arab Contractors (OSMAN AHMED OSMAN & CO.)	Eng. Abban Helmy	Manager, Tender Department			S Group
25-Aug-97	The Arab Contractors (OSMAN AHMED OSMAN & CO.)	Eng. Farouk M. Allam	General Manager, Shoubra Branch			S Group
25-Aug-97	The Arab Contractors (OSMAN AHMED OSMAN & CO.)	Eng. Ahmed Hemeid	Manager, Shoubra Branch			S Group
27-Aug-97	Misr Raymond Foundations	Eng. Adel Gamal Soliman	Technical Office Manager			S Group
27-Aug-97	Misr Raymond Foundations	Eng. Magdy M. Ghourab	Civil Engineer			S Group
27-Aug-97	Arab Organization for Industrialization	Eng. Hassan Elshahe	Project Manager			S Group
27-Aug-97	Arab Organization for Industrialization	Eng. Mohamed Abu Bakr	Marketing Research	A.O.I		I Group
27-Aug-97	General Authority for Investment and Free Zone (GAFI)	Mr. Ali Tahaa	Under Secretary	A.O.I		I Group
28-Aug-97	Alexandria Governorate	Dr. Fatma Abou Shouk	Senior Member of the Environmental Department			
28-Aug-97	Alexandria Shipyard	Eng. Sousry M. Hashem	Marketing Director			E Group
30-Aug-97	National Organization for Potable Water and Sanitary Drainage (NOPWASD)	Eng. Abdul Hamid El Shayeb	Manager of Chemical Research	GAFI		F Group
30-Aug-97	El Nasr Building & Construction Co. (EGYCO)	Mr. Yehya Shouky	Technical & Executive Managing Director			
30-Aug-97	El Nasr Building & Construction Co. (EGYCO)	Mr. Samir Ikladious				
30-Aug-97	Ferrometalco	Mr. Hasham W. Galal				

Appendix 1A-3

LIST OF PERSONS

3. 3RD FIELD SURVEY

DATE	NAME OF THE ORGANIZATION	PERSONS ATTENDED	TITLE	ABBRVI.	REMARK
30-Aug-97	Ferrometalco	Mr. Rainer Kersting		MOPW	I Group
31-Aug-97	The Egyptian Co. for Refractories	Mr. Mohamed Eid	Project Engineer	EGYCO	S Group
31-Aug-97	The Egyptian Co. for Refractories	Mr. Ali El Binnawy	Production Manager	EGYCO	S Group
31-Aug-97	The Egyptian Co. for Refractories	Mr. Ali Lofti	Chairman		
31-Aug-97	The Egyptian Co. for Refractories	Mr. Mageli Gomma	General Manager of Marketing		
1-Sep-97	Holding Company for Metallurgical	Mr. Adel A. Danaf	Director of Plant Sector		M Group

**Appendix 2A-1 INVESTIGATION OF STEEL WORKS IN EGYPT**



## **Appendix 2A-1 Investigation of Steel Works in Egypt**

### **1. GENERAL**

In Egypt, there are one integrated steel works of the Egyptian Iron & Steel Company (EISCO), five minimill steel works represented by Alexandria National Iron and Steel Company (ANSDK), and several rolling mills. Furthermore, several minimill steel works are under construction or are in planning.

In the flat steel products plant, main production facilities will consist of a direct reduction plant (DRP), an electric arc furnace (EAF), a slab continuous casting machine (SL-CCM), a hot strip mill (HSM) and a cold rolling mill (CRM). In order to make reference to the design of the flat steel products plant, the Study Team, in the first field survey, visited ANSDK in which a direct reduction plant and large-scale electric arc furnace have been operating, and carried out a field survey on EISCO in which a slab caster, hot strip mill and cold rolling mill have been operating during the second survey.

The purpose of the Study Team's visit to ANSDK and EISCO was to collect data and information concerning production, equipment, raw materials, etc. This data and information, some of which is from our files, is described below.

### **2. ALEXANDRIA NATIONAL IRON AND STEEL COMPANY (ANSDK)**

#### **2-1 Outline, Production and Organization**

##### **2-1-1 Outline of ANSDK**

ANSDK was established in July 1982 for the purpose of the production and sale of concrete reinforcing bars and wire rods, and is run as a private company. The steel works is located at El Dekhiela, 15 km west to Alexandria directly facing the new El Dekhiela port, on an area of approximately 300 feddans (1,260,000 m<sup>2</sup>), and produces rebar through the process route of the direct reduction process - electric arc furnace - continuous casting machine - rolling mill. The head office is in the compound of the steel works, and has a branch office in Cairo. ANSDK is headed by Eng. I. S. Mohammadain, Chairman and Managing Director, and has 2,600 employees.

Construction of the El Dekhiela steel works began in 1983, and the first production facility of the steelmaking plant started production in May 1986. The works was completed as an integrated

minimill in April 1987. The works has been successfully operated from start-up under the excellent control of its top management with technical assistance from a Japanese Consortium. Production in 1995 reached 1.23 million t/y, which exceeds its nominal production capacity of 745,000 t/y of finished products by 1.6 times.

Production activities from start-up are shown in Table 2A-1-1.

**Table 2A-1-1 Production Activities from Start-up**

Unit: 1,000 ton

Year	Quantity
1986	47
1987	428
1988	825
1989	932
1990	970
1991	1,000
1992	1,035
1993	1,102
1994	1,132
1995	1,234
1996	1,119
Total	9,824

Source: ANSDK

To increase production capacity, since November 1994 ANSDK has executed a Production Rationalization and Expansion Project (PREP) and a Second Direct Reduction Plant (SDRP). These expansion projects were completed in September 1997. Annual production capacity is approximately 1.5 million tons, which gives it first place in Egypt.

ANSDK emphasized that the El Dekhiela steel works has been successfully operating, and this great success is very much owed to the following vital conditions for site selection.

1. Availability of infrastructure, especially port and loading facilities for importing the huge amount of iron ore and pellets as raw materials for the direct reduction plant (DRP)
2. Availability of manpower for implementing management and operation /maintenance of the works

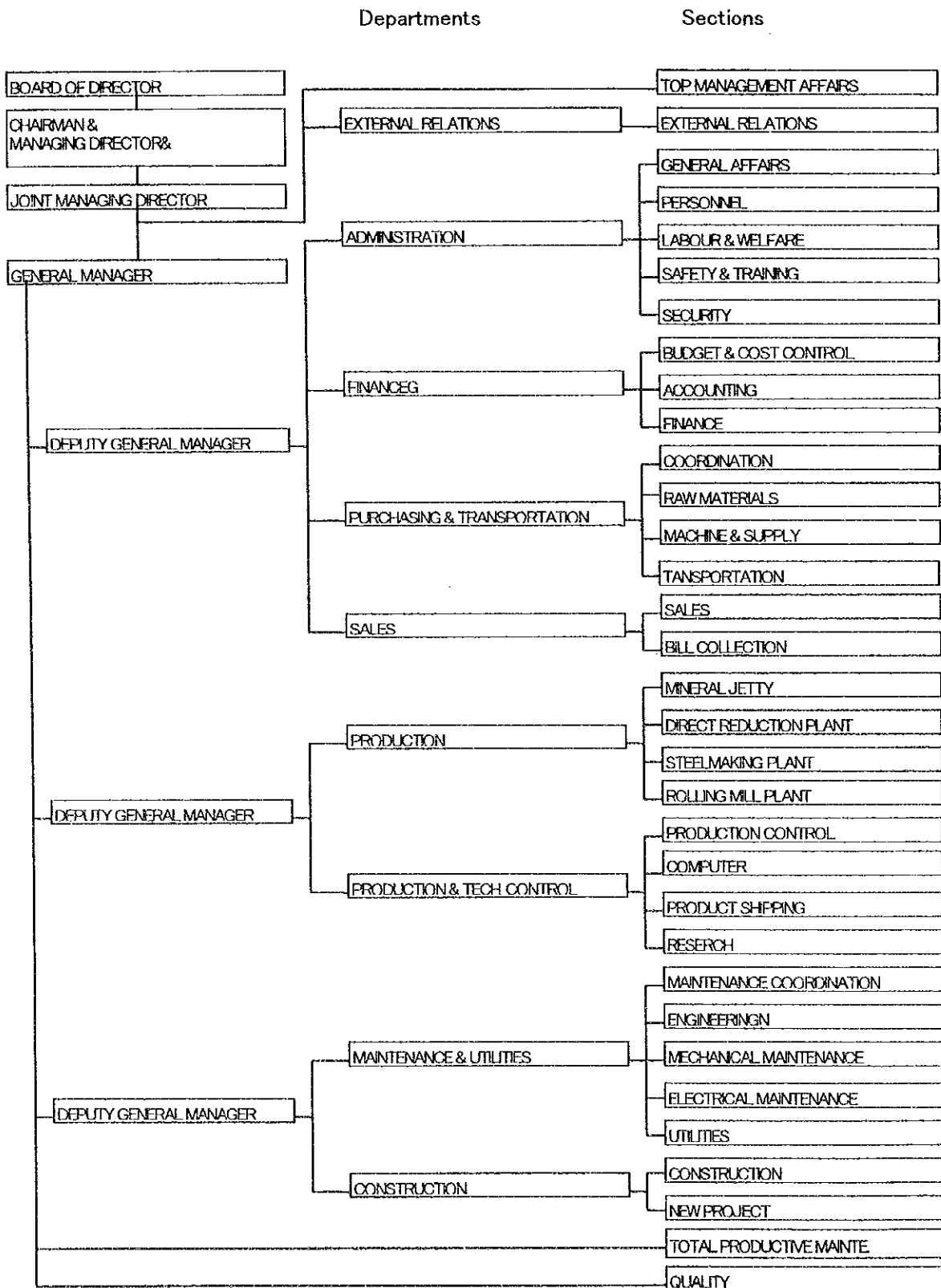
Furthermore, ANSDK stated that a minimill might not cause any serious pollution and ANSDK has spent USD 17 million during implementation of the expansion project to cope with air pollution.

### **2-1-2 Organization**

Eng. I. S. Mohammadain is Chairman and Managing Director of ANSDK. The number of employees is about 2,600 at present. The organization of ANSDK is shown in Figure 2A-1-1. This organization comprises nine departments and 33 sections.



Fig. 2A-1-1 ANSDK Organization



## 2-2 Plant Configuration

ANSDK completed the expansion project described in item 2-1-1. Main production facilities and production are as follows:

1. Direct Reduction Plant (DRP):
  - (1) 2 x DRP
  - (2) Rated production of DRI (Direct Reduced Iron):  
1,600,000 t/y
2. Steelmaking Plant (SMP)
  - (1) 4 x electric arc furnaces (EAF),  
2 x ladle furnaces (LF) and  
3 x billet continuous casting machines (BT-CCM)
  - (2) Rated production of molten steel: 1,555,000 t/y
3. Rolling Mill Plant (RMP)
  - (1) 1 x bar mill and  
2 x rod mills
  - (2) Rated production of product:  
bar 531,400 t/y,  
rod 939,900 t/y and  
Total 1,471,300 t/y

## 2-3 Direct Reduction Plant (DRP)

### 2-3-1 Existing plant

The direct reduction plant (DRP) consists of a Midrex process unit of 600 modules, for the reduction of oxide pellets in which the metal oxide is reduced to direct reduced iron (DRI), with a nominal capacity of 716,000 ton/y. The DRP is fed with the oxide material directly by means of a belt conveyor from new El Dekhiela port to the site at a rate of 500 t/hr. The oxide material is stored for daily use in three bins of a capacity of 7,500 ton each.

In addition to the above DRP, an identical module to the above plant (SDRP) was completed in September of this year.

### 2-3-2 Production

ANSDK stated that the technical performance of the DRP has been truly outstanding. The plant has continuously broken its own output records, reaching production levels far above the nameplate capacity. The plant reached full capacity production two years after start up, fully one year ahead of schedule.

Annual production for 1993 was 837,300 ton/y, 110% of the nameplate capacity.

### 2-3-3 Raw materials

Most of the raw materials (iron ore) supplied to the plant are imported from Brazil and Sweden because no DR grade iron ore is available from domestic sources.

The raw materials are received at the El Dekhiela Port and the general arrangement of the mineral jetty of the port and vessels are as follows;

- 1) Length of the jetty: 610 m (total)  
300 m (south side)  
300 m (North side)
- 2) Width of the jetty: 40 m
- 3) Sea water depth: 20 m at the south side  
14 m at the north side
- 4) Unloading gantry crane: 1,000 ton/h x 2 sets  
(nominal capacity)
- 5) Main vessel size: 125,000 metric ton

### 2-3-4 Future projects

In addition to the 1st Midrex DR plant and SDRP, ANSDK plans the following future project.

With a view toward the future growth of the Egyptian steel industry, it will become very important to secure metallic iron at reasonable prices as a substitute for scrap, and shortages and high prices for steel scrap are expected in future. ANSDK plans to install a Midrex Megamod direct reduction plant (MDRP) with a nominal capacity of 1,000,000 t/y to produce hot briquetted iron (HBI) as well as applying the technology of hot DRI in the same works.

The hot DRI will be used in the steelmaking plant of ANSDK and the balance of HBI will be used for outside customers.

ANSDK also explained that the above mentioned MDRP project aims to supply HBI which is known as a substitute metallic iron material for steel scrap. HBI is a modern, direct reduced ferrous charge materials. It is an enhanced form of direct reduced iron specifically targeted to the needs of today's steelmakers who do not have captive iron production facilities.

## 2-4 Steelmaking Plant (SMP)

### 2-4-1 SMP Outline

After completion of the expansion project as stated in item 2-1-1, the main facilities of the SMP consist of four 70 t electric arc furnaces (EAF), two ladle furnaces (LF) and three billet continuous casting machines (BT-CCM).

The EAF melts the DRI produced by the DRP and scrap together with burnt lime (produced by the lime calcining plant (LCP)) and the additive materials. The molten steel is continuously cast by three BT - CCM into steel billets of 130 x 130 mm cross-section with a length of 16 m. These billets are then used in the two rolling mill plants.

Main production facilities and production are summarized as follows:

- (1) 4 x electric arc furnaces (EAF),  
2 x ladle furnaces (LF) and  
3 x billet continuous casting machines (BT-CCM)
- (2) Rated production of molten steel: 1,555,000 t/y

### 2-4-2 Production

The production of the SMP for the last five years is shown in Table 2A-1-2.

Table 2A-1-2 SMP Production

	1992	1993	1994	1995	1996
Molten steel	1,182	1,265	1,263	1,348	1,235
Billet	1,151	1,228	1,241	1,320	1,214

Unit: 1,000 t

### 2-4-3 EAF Operating data

Monthly operating data of the EAF in 1996 is shown in Table 2A-1-3.

Table 2A-1-3 Monthly Operating Parameter for Recent 12 Months for EAF -Steelmaking Plant (SMP)-

Item	1996											
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
<b>A Specification</b>												
1 Nominal capacity (t/ht)	70	70	70	70	70	70	70	70	70	70	70	70
2 Transformer capacity	46	46	46	46	46	46	46	46	46	46	46	46
<b>B Main raw materials</b>												
1 Scrap and pig iron (t/ht)	38,218	37,806	37,810	35,323	35,731	39,192	45,177	38,100	31,638	33,189	21,339	8,318
2 DRI (t/M)	81,265	75,000	73,693	73,874	71,774	70,865	68,225	68,787	72,402	86,046	70,696	54,609
3 HBI (t/M)	10,999	11,317	10,000	13,667	19,000	14,498	15,138	13,005	12,979	10,199	250	0
4 Total charge	130,482	123,923	121,503	122,864	126,505	124,555	128,540	120,872	117,019	129,434	92,285	62,927
5 Ratio of DRI and HBI (%)	73.3	69.5	69.9	71.3	71.7	68.6	64.8	67.6	73.0	74.6	76.8	86.8
<b>C Products</b>												
1 Molten steel (t/ht)	81.5	81.1	81.4	81.3	79.5	80.2	79.8	80.4	80.4	80.6	81.0	80.9
2 Molten steel (t/M)	115,097	109,503	108,365	109,403	110,567	109,180	112,021	106,781	103,103	113,271	82,270	55,642
<b>D Production Parameter</b>												
1 Heat/day (ht/d,F'ce)	12.95	12.85	12.49	12.42	12.45	12.69	12.86	12.75	12.67	12.94	13.16	13.06
2 Tap-to-tap time (min/ht)	111.2	112.1	115.3	115.9	115.7	113.5	112.0	112.9	113.6	111.3	109.4	110.3
3 Steel yield (%)	88.2	88.4	89.2	89.1	87.4	87.7	87.2	88.3	88.1	87.5	89.2	88.4
<b>E Auxiliary raw materials</b>												
1 Burnt lime (kg/t-BT)	38.3	38.4	37.5	36.4	41.4	38.8	38.6	39.5	40.7	37.3	39.7	37.2

Item	1996											
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
F Utilities												
1 Electric power for EAF (kWh/t-MS)	613	607	620	641	648	622	623	622	621	621	617	660
2 Oxygen gas (Nm <sup>3</sup> /t-MS)	14.7	13.8	7.7	2.9	4.5	10.5	13.2	10.6	13.3	12.7	12.7	16.9
G Electrode and Refractories												
1 Electrode (kg/t-MS)	3.50	3.49	3.47	3.45	3.52	3.65	3.89	3.71	3.66	3.71	3.66	3.71
2 Brick (kg/t-MS)	4.72	4.27	4.82	4.80	4.27	4.77	4.73	4.73	4.74	5.00	5.2	4.69
3 Gunning materials (kg/t-MS)	9.5	9.5	7.9	7.9	8.7	8.6	8.8	8.7	9.0	6.4	5.2	5.7
H By-products												
1 Slag (kg/t-MS)	146	141	126	121	135	128	125	131	149	122	184	233
2 Dust (kg/t-MS)	15.8	11.3	10.7	15.4	11.4	18.7	20.9	21.5	18.8	18.0	18.3	23.4

## **2-5 Rolling Mill Plant (RMP)**

The RMP is two separate units for rolling of steel billets; one produces steel bars at a production capacity of 531,400 t/y and the other produces wire rods at a production capacity of 939,900 t/y after completion of the expansion project.

## **3. EGYPTIAN IRON AND STEEL CO. (EISCO)**

### **3-1 Outline of EISCO**

Egyptian Iron and Steel Co. (EISCO) founded in 1954 is the first and the only integrated steel plant, and is the only producer of flat products in Egypt. The plant is located at El Tebbin, 30 km south to Cairo near Helwan and produces flat products, structural sections and reinforcing bars through the process route of the blast furnace - basic oxygen furnace - continuous casting machine - rolling mill. EISCO is headed by Dr. Eng. Aly Helmi, Chief of Board, and has approximately 15,000 employees for steel plant.

The plant was originally delivered by DEMAG, the German firm. The works were put into operation through their technical assistance in 1958. Later through the Russian experience and loans, an expansion of 1.2 million t/y ingot steel capacity has been planned. This was based on the use of low phosphorus Baharya iron ore. The full expansion was attained in two stages.

The initial plant was installed in 1958 and 1960. It had two sintering machines, two blast furnaces, four basic bessemer (Thomas) converters (since shut down), two electric arc furnaces and rolling mill consisting of a blooming mill, a heavy section mill and a plate mill. After then, a series of new installation/addition of relevant pieces of equipment and plant were continued to expand its production capacity.

### **3-2 Plant Configuration**

Main production facilities and production capacity are shown below. EISCO has also mines and quarries, El Gedida iron ore mines, Beni-Khalid limestone quarry and Adabia dolomite quarry.

#### **(1) Ironmaking Shop**

- 1) 2 x 50 m<sup>2</sup> Sintering unit  
5 x 75 m<sup>2</sup> Sintering unit

- 2) 2 x 575 m<sup>3</sup> Blast furnace (by DEMAG)  
2 x 1,033 m<sup>3</sup> Blast furnace (by Russian design)

## (2) Steelmaking Plant

In the present time, steel is produced mainly in the basic oxygen converter furnaces.

- 1) 2 x 12 t Electric arc furnaces  
3 x 80 t Basic oxygen furnaces
- 2) 3 x 2 strands Slab casters  
1 x 1 strand Slab caster  
3 x 6 strands Billet caster

## (3) Rolling Mill Plant

- 1) 900-Blooming mill

It comprises a soaking pit section which is fed by 3-4 t steel ingots. The mill is also fed with cast slabs. It produces blooms of 140 x 140 mm and up to 225 x 225 mm for the heavy section mill, and also produces thick slabs 80-170 mm thick and of up to 500 mm wide for the 1,800 plate mill.

- 2) Heavy section and beam mill

It produces structural sections mainly including universal beams. It is fed with blooms from the 900 blooming mill and also with cast billets. The rolling line is fed through a pusher reheating furnace (40 t/hr capacity), it has a finishing line with hot and cold saws, walking beam cooling bed and a roller straightener.

- 3) Medium section mill

It produces steel bars, structural sections and light bars. It is an eight stands semicontinuous mill. It comprises a pusher reheating furnace (50 t/hr capacity). The finishing line with the same facilities of the heavy section mill and off-line straightener.

- 4) Light section and wire rod mill

It produces light sections and wire rod from cast billets and also billets supplied by the 750 heavy section mill.

- 5) 1800 Plate mill



It produces 8 to 100 mm thick plates of up to 1,500 mm width from cast slabs.

6) Hot strip mill

A hot 1,200 semicontinuous strip mill that produces hot rolled strips of 2 - 8 mm thickness, 500 – 1,050 mm width and the coil weight is up to 7 t. It is fed with 150 - 200 mm thick slabs of weight up to 7 t.

7) Pickling line

8) Cold strip mill

Designed for manufacture of cold rolled products from hot rolled coils supplied by the 1,200 mill and also for slitting/shearing the hot rolled coils.

9) Finishing facilities

Electrolytic cleaning line

27 x Annealing furnaces

Temper mill

2 x Slitting lines

2 x Shear lines

Combination shearing/slitting line for HR strip

Sheet corrugater for sheets

Hot dip sheet galvanizing line

6 x Hot dip tinning lines

Cold forming mill

**Appendix 3A-1 FLAT PRODUCT CONSUMING COMPANIES**



Appendix 3A-1 FLAT PRODUCT CONSUMING COMPANIES

Category of Products	No.	Manufacturer	Location	Capacity of production
Steel Flat (General)	1	STEELCO	Cairo	
	2	METALCO	Cairo	
	3	FERROMETALCO	Cairo	
	4	ERISCOM		
		PETROJET	Cairo	
		ARAB CONTRACTORS	Cairo	
	AGIBA			
	5	Port Said Engineering Works Co.	Ramadan city & Port said	
	6	HIMEC		
Ships	1	Alexandria Shipyard	Alexandria	
	2	Egyptian Shipbuilding & Ships Repairing Co.	Alexandria	
	3	General Egyptian Workshops Co.	Cairo	
	4	Port Said Shipyard	Port said	
	5	Port Tawfik Shipyard	Suez	
	6	Suez Shipyard	Suez	
	7	TIMSAH Shipbuilding Co.	Ismailia	
	8	Port Said Engineering Works Co.	Ramadan city & Port said	
	9	Canal Naval Construction Co.		
Steel Pipes	1	Nasr Pipes	Cairo	
	2	Light Transport	Cairo	
	3	International for steel		
	4	Acro Misr	Cairo	
	5	Arab German Lighting		
	6	Elmaco	Cairo	
	7	Hoze metal		
Home Appliances	1	Alexandria for Metallic Products	Alexandria	
	2	360 Military Factory	Cairo	
	3	Appliances Factory (Factory No.306)	Cairo	
	4	Gas Ovens Factory (ATLAS)	Cairo	
	5	Industrial Union Factory	Cairo & Ramadan city	

Category of Products	No.	Manufacturer	Location	Capacity of production
Home Appliances	6	GMC	Cairo & October city	
	7	Techno Gas (EASTERN)	Ramadan city	
	8	Fresh	Ramadan city	
	9	Thomas of Household appliances & furnitures	Ramadan city	
	10	Prince for Home Appliances		
	11	Engineering Manufacturing Co.		
	12	Gohar of Metallic Industries	Ramadan city	
	13	Universal Co.	October city	
	14	Fager for Gas Ovens Manufacturing	Alexandria	
	15	Amoun for Gas Ovens Manufacturing	Alexandria	
	16	Amah for Gas Ovens Manufacturing	Alexandria	
	17	KIRIAZI for Engineering Industries	Ramadan city	
	18	PHILIPSE	Alexandria	
	19	IDEAL	Cairo	
	20	Koldair	Cairo	
	21	Kojec	Alexandria	
	22	Tako Electric	Cairo	
	23	SILITAL	Ramadan city	
	24	EBERNA	Abu Rawash(GIZA)	
	25	ALASKA	Ramadan city	
	26	Majestic	Ramadan city	
	27	ELECTROSTAR	October city	
	28	SUPER BOSCH	Ab Rawash(Giza)	
	29	Sohage for Cooling industries	Sohag city(Upper Egypt)	
	30	Shafeh Sons	Sohag city(Upper Egypt)	
	31	OLYMBIC	Cairo & Ramanan city	
	32	EXPRESS	Alkalexandria	
	33	Nour	Cairo	
	34	Itehad	Qalyubiya	
	35	Egyptian Co. for Cooling		
	36	El Nasr Co. for Cooling	Giza	
	37	Power	Ramadan cuty	
	38	MIRACO	Ab Rawash(Giza)	
	39	International		
	40	DRICK		

Category of Products	No.	Manufacturer	Location	Capacity of production
Automobiles	1	El-Nasr Automobile Manufacturing Co.(NASCO)	Cairo	
	2	The Egyptian Company for manufacturing Light Transport Vehicles	Helwan	
	3	Ghabbour	Qalyubiya	
	4	General Motors Egypt	October city	
	5	Suzuki Egypt		
	6	Prima for Engineering Industries	Ab Rawash(Giza)	
	7	Egyptian Company for Autoindustries(JAC)	Bilbeis(Sharqiya)	
	8	Arab American Vehicles Company(AAV)	Cairo	
	9	Peugeot Egypt	same as AAV	
	10	Egypt Company for Engineering & Tools(Micar)	Cairo	
	11	Misr Company for Trailer Manufacturing(Abaza-Langendorf)	Cairo	
	12	Gorica Misr Group	Ramadan city	
	13	Helwan Transport Preparations	Helwan(Cairo) & October city	
	14	MCV Egypt	Ismalia	
	15	International Manufacturing Company (Hassan Yousif)	Ramadan city	
Food Cans	1	El-Nasr Canned Food(Kaha)	Kaha( )	
	2	Edfina	Alexandria	
	3	Alexandria Oil & Soap	Alexandria	
	4	Egypt for Oil & Soap	Cairo	
	5	Egyptian Salt & Soda	Alexandria	
	6	El-Nile Oil & Detergents	Cairo	
	7	Tanta Oil & Soap	Tanta(Qalyubiya)	
	8	Extracted Oil	Alexandria	
	9	Cairo Oil & Soap	Cairo	
	10	Misr Dairy Food & Stuffs		
Metal Furniture	1	Industrial Delta(IDIAL)	Cairo	
	2	Metal Furnitures for Houses & Offices(MOHM)	Qalyubiya	
	3	El Entriar Factory for Metallic Furniture	Giza	
	4	Talat for Manufacturing of Washes & Metallic Furnitures	Cairo	
	5	Islamic Co. for Engineering Preparations	Cairo	
	6	Kontinenter-International for Manufacturing & Investment	Cairo	
	7	Mobica	Ab Rawash(Giza)	

Category of Products	No.	Manufacturer	Location	Capacity of production
Boiler, Pressure Vessels, Heat Exchanger	1	Babcock(Wilcox S.A.E.)	Giza	
Railway Vehicle	1	The General Egyptian Company for Railway Wagon & Cosche (SEMAF)	Helwan(Cairo)	
Gas Bottles	1	Union-Co. for Gas Bottles Manufacturing & Metal Processing	Ramadan city	
Metal Container	1	The Naval Constructions Co.	Port said	
Construction (Corrugated sheets)	1	Egyptian Italian Co.	10 th of Ramadan city	
	2	ALPHAMETAL	10 th of Ramadan city	

## JICA DAILY REPORT

DATE:	Mar. 05, 1997	TIME:	AM 10:10 - 11:00
GOFI MEMBERS:	Eng. Youssef Al Hassan Ahmed	JICA MEMBERS:	Y. Ise H. Kanemoto
PLACE OF VISIT	EGITALEC (Egyptian Italian Engineering & Construction Joint Stock Co.)		
ATTENDANTS	Dr. Eng. Attef Youssef Mahmoud (Studies Department Manager)		
CONTENTS	<p>1) explained of the activities by JICA 2nd survey team.</p> <p>2) Discussion about questionnaire</p> <ul style="list-style-type: none"> <li>* handed over the questionnaire again.</li> <li>* EGITALEC responded they felt the questionnaire was too detailed.</li> <li>* EGITALEC will respond if they can respond to the questionnaire after consulting with GOFI.</li> <li>* Next meeting will be expected on Mar. 08 (Sat.) or Mar. 15 (Sat.).</li> </ul> <p>3) Discussion about Steel flat products market</p> <ul style="list-style-type: none"> <li>* EGITALEC forecasts that cold rolled products market will occupy 40% of flat products one in the near future.</li> <li>* EGITALEC advised the use of galvanizing products could be found by asking to the holding company.</li> <li>* The range of products size should be decided by survey team because at present flat products users are forced to use available size of materials only in Egypt.</li> <li>* The reason EISCO's ETL &amp; Galvanizing equipment are not in use now is due to their poor quality and the size of market.</li> </ul>		
RECEIVED DOCUMENTS	* None		
ITEMS TO BE FOLLOWED	* to follow with GOFI when they can have a meeting with us.		
ITEMS TO BE DISCUSSED WITH MEMBERS	* None		



## JICA DAILY REPORT

DATE:	Mar.05,1997	TIME:	PM 14:00 - 15:30
GOFI MEMBERS:	Eng.Youssef Al Hassan Ahmed Mr. Alaa Din Wali	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	EBA(Egyptian Businessmen's Association)		
ATTENDANTS	Taher El Sherif(Secretary General)		
CONTENTS	<p>1) explained of the activities by JICA 2nd survey team.</p> <p>2) Discussion about questionnaire</p> <ul style="list-style-type: none"> <li>* Location for each company can be responded.</li> <li>* With regard to "outline" it is satisfactory if production capacity of each company is available.</li> <li>* Other detailed information may be difficult to collect.</li> <li>* will reply to the questionnaire in ten days.</li> </ul> <p>3) Opinion on site selection</p> <p>[Priority to select the site]</p> <ol style="list-style-type: none"> <li>(1) Infrastructure</li> <li>(2) Approach to market</li> <li>(3) Cost of construction</li> <li>(4) Environmental condition(As the power against pollution becomes very strong recently, this item might be prioritized most.)</li> </ol> <p>[Suez]</p> <ul style="list-style-type: none"> <li>* Most attractive place among three candidates</li> <li>* Close to market(Most industrialized cities such as 10th Ramadan, 6th October etc.)</li> <li>* There are free zones.(Tax free area)</li> <li>* Price of land; US\$4/m2</li> </ul> <p>[Alexandria]</p> <ul style="list-style-type: none"> <li>* inferior to Suez concerning land price, environment and natural gas</li> <li>* As the area along seaside is nominated to tourism area steel making industry will not be welcome.</li> </ul> <p>[Safaga]</p> <ul style="list-style-type: none"> <li>* No way to select because at present infrastructure is quite poor.</li> <li>* As the area along seaside is nominated to tourism area steel making industry will not be welcome.</li> </ul> <p>4) 'Buy -Egyptian' campaign</p> <ul style="list-style-type: none"> <li>* Automobile----from 40% to 60% in 6 years</li> <li>* Home appliances----more advanced.</li> </ul>		
RECEIVED DOCUMENTS	<ul style="list-style-type: none"> <li>* Brochure on EBA</li> <li>* Brochure on Area development</li> </ul>		
ITEMS TO BE FOLLOWED	* to confirm of the day to receive the response to questionnaire.		
ITEMS TO BE DISCUSSED WITH MEMBERS	* none		

## JICA DAILY REPORT

DATE:	Mar.06,1997(Thu)	TIME:	AM 10:20-11:30
GOFI MEMBERS:	Eng. Aly Hassan	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	MOHM(Modern Office & House Metal Furniture) to have visited a Factory for Metal Furniture(located in QALYUBIYA)		
ATTENDANTS	Amin Sultan Amin(Factory Manager)		
CONTENTS	<p>1) Outline of the company Established year; 1974 No of employees; about 1100 consisting of 3 companies(Furniture, Metal pipe &amp; Grating)</p> <p>2) Consumption of steel flat products Cold rolled coils; 12,000ton/y, Thickness(0.5-2.0mm), Width(1000-1250) first quality Galvanized coils; 500ton/y, Thickness(0.3-0.8mm), Width(1250Max.)</p> <p>3) Unit weight of purchasing steel flat products; 3 - 5 tons</p> <p>4) Rate of imported material; 80% (Material is imported from all over the world not limited.)</p> <p>5) Reason for importing; Domestic steel has a quality problem because of too high carbon contents.</p> <p>6) Forecast on production expansion; 10% increase yearly</p> <p>7) Spec of steel flat material; JIS SPCC SD, dull finished</p> <p>8) Price of steel flat products [Imported] Cold rolled; 400 US\$/ton(C&amp;F) + 150 US\$(?)(Tax + Transportation fee) Hot rolled; 280 US\$/ton(C&amp;F) + Tax + Transportation fee Galvanizing; 600 US\$/ton(C&amp;F) + Tax + Transportation fee (Additional fee is estimated as 30% of C&amp;F.) [EISCO products] Cold rolled; 500 US\$/ton Hot rolled; 350 US\$/ton</p> <p>9) Quality of steel flat material at site A lot of rusted cut sheets were found at site.(They excused because it will be pickled before electrostatic powder painting but in fact after painting some burst surfaces were found.) Only simple bending forming is necessary in process. Many dents were found on the surface of completed furniture.</p> <p>10) Galvanizing material is mainly formed to expanded sheets for construction use.</p>		
RECEIVED DOCUMENTS	* Brochures on products (Metal furniture, Metal pipings and Gratings)		
ITEMS TO BE FOLLOWED	* Requested to send JIS regarding Iron steel & alloy.		
ITEMS TO BE DISCUSSED WITH MEMBERS	* None		

## JICA DAILY REPORT

DATE:	Mar.06,1997	TIME:	PM 12:00 - 13:30
GOFI MEMBERS:	Eng. Aly Hassan	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	FMC(FERROMETALCO) located in Cairo		
ATTENDANTS	Mr. Ragaie Marmoush(Procurement Manager)		
CONTENTS	<p>1) Outline of the company Established year; 1986 No of employees; 1,100</p> <p>2) Capacity of plant; 20,000ton/y</p> <p>3) Consumption of steel products; 12,050ton/y Plate; 8,000ton/y, Thickness(6-30mm---70%, &gt;30mm---30%) Width(2500mmMax.) Grade(ST37---90%, ST52---10%) Hot rolled sheets; 600ton/y, mainly Checker plate Pickled sheets &amp; Cold rolled sheets; none Others(shape, angle, I beam, etc.); remainder</p> <p>4) Rate of imported material; 60%(1,500mm-2,500mm wide)</p> <p>5) Reason for importing: The width of domestic steel is limited.(<math>\leq 1500</math>mm) Only the plates more than 1500mm are imported.</p> <p>6) Opinion on the quality of domestic products; very good</p> <p>7) Request to the suppliers * required wider material to save welding cost. * Shape improvement is required for thicker plates ranged 30-80mm thick (The width by shape corrector is limited to less than 1,000mm.) * required larger I beams to save cost. EISCO's current Max sizes are 260mm for shape &amp; 300mm for I beam.</p> <p>8) Price of steel products Imported; 1,600 LE/ton C&amp;F(Port price)---450-600 US\$/ton Transportation cost---10-20 LE/ton EISCO Products; 1,200 LE/ton</p> <p>9) Other information * Products at site; Big I beam, Heat exchanger, Big vessel etc. * Max unit weight of products by FMS; 100 ton * Products for export are shipped from Alexandria harbor. * Many products for ANSDK are under fabricating.</p>		
RECEIVED DOCUMENTS	* None		
ITEMS TO BE FOLLOWED	* None		
ITEMS TO BE DISCUSSED WITH MEMBERS	* None		

## JICA DAILY REPORT

DATE:	Mar.09,1997	TIME:	AM 11:00 - PM 13:30
GOFI MEMBERS:	Eng. Nabil El Saghir	JICA MEMBERS:	H.Kanemoto Y.Ise
PLACE OF VISIT	SUEZ SHIPYARD (affiliated company of Suez Cannel Authority, one of seven companies)		
ATTENDANTS	Eng. Wael S. Kaddour(Chairman) Eng. Helmi Abou El Azm(Docks Director)		
CONTENTS	<p>1) Explained of the activities by JICA second survey team.</p> <p>2) Outline of the company Established year; more than 100 years ago No of employees; 700 Main job; Ship repair &amp; Ship building(Ship building is very few.) Main equipment; Dry dock, Graving dock, Floating dock, machining shop, fabricating shop, forging shop, electrical shop, etc.</p> <p>3) Consumption of steel products; They asked to see the data in phase-1 New bottom; 500ton/y Ship repair; 2,000ton/y Other steel structure; 300ton/y Amount of each products category will be responded to GOFI later.</p> <p>4) Lot weight for purchasing; 3m wide x 9m long, up to 30mm thick, less than 12mm is much(8-10mm most)</p> <p>5) Rate of imported material; will be responded to GOFI by Fax. later.</p> <p>6) Reason for importing; possible size from EISCO is limited.(8 &amp; 10mm)</p> <p>7) Future production plan; There is a plan to increase production by three times along with new joint venture company.</p> <p>8) Price of raw material; advised to ask Alexandria shipyard or Port Said shipyard because they were consuming much more flat products. They emphasized that the construction cost of new flat products must be reduced as much as possible because there were a lot of strong competitors in this field such as Korea, China etc.</p> <p>Info.; EZZ new Project 1st stage(600,000ton/y Bar Mill from billet)---350 mil. LE 2nd stage(ditto )---250 mil. LE</p>		
RECEIVED DOCUMENTS	* Brochure on Suez Shipyard		
ITEMS TO BE FOLLOWED	* to receive the response to questionnaire		
ITEMS TO BE DISCUSSED WITH MEMBERS	* None		

## JICA DAILY REPORT

DATE:	Mar.10,1997	TIME:	PM 12:30 - 13:50
GOFI MEMBERS:	Eng.Seham El Bahrawy	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	MOBICA(Modern Building Carpentry CO.) Abu Rawash city(GIZA)		
ATTENDANTS	Eng. Mohamed Abdel Kader Salem(Metal Furniture Manager)		
CONTENTS	<p>1) Outline of the company Established year; 1985 No of employees; 200(Metal furniture dep.) fabricating steel cabinets, car sheets, steel desks &amp; chairs, etc.</p> <p>2) Consumption of steel flat products; 70 ton/month Cold rolled coils; Thickness(0.6 &amp; 0.8mm), Width(720mm) Cold rolled sheets; Thickness(0.6 - 2.0mm), 1250mm W x 2500mm L Grade; SPCC, SPCD, SPCE(GM car sheets; ST37 Deep drawing)</p> <p>3) Consumption of steel piping(indirect flat products); 70 ton/month</p> <p>4) Purchasing weight; 2.5 ton Max.(coil) 5-10ton(sheets)</p> <p>5) Rate of imported material; 90%(Flat) (From Japan only Sumitomo Metal is supplying.) (Steel piping material is purchased from local market.)</p> <p>6) Reason for importing; Quality &amp; price * Surface steepness is not equal. * Surface finish is not delicate. * After bending shape is not uniform.</p> <p>7) Market condition Estimated production will be increased by 25% yearly.</p> <p>8) Price of raw material 3,000 LE/ton(including tax &amp; transportation fee) 4,000 LE/ton(from Italian market)</p> <p>9) Quality of steel flat material at site Some rusted cut sheets were found at site. In general quality control was good. There were many processes which required deep drawing quality.</p>		
RECEIVED DOCUMENTS	* none		
ITEMS TO BE FOLLOWED	* none		
ITEMS TO BE DISCUSSED WITH MEMBERS	* none		

## JICA DAILY REPORT

DATE:	Mar.10,1997	TIME:	AM 10:20 - 12:00
GOFI MEMBERS:	Eng. Seham El Bahrawy	JICA MEMBERS:	Y.Ise H.Kanemoto
PLAGE OF VISIT	SUZUKI Egypt located in 6th October city		
ATTENDANTS	Mr. Tarek Metwally(Localization Metallic Manager)		
CONTENTS	<p>1) Outline of the company  Established year; 1989  No of employees; 355  The capital; 50 million LE  Total investment;120 million LE  Share holders; Egyptian(51%), Saudi Arabian(20%), Japanese(20%)  Products; Commercial Vehicles, Passenger cars, 4x4 Vehicles etc.</p> <p>2) Consumption of steel flat products  Not changed from the data by phase-1 survey.  The consumption in each steel category will be answered to GOFI later.  (on Mar.13,1997)  All steel parts are fabricated at other companies and here in SUZUKI Egypt only assembling and painting are conducted.</p> <p>3) Rate of imported material  Local steel can not be used for SUZUKI products because of quality problem.(Japanese, German and Italian products have no problem.)  Only small amount of local hot rolled products are acceptable.  [Imported steel parts]  All outer panels for passenger cars &amp; outer panels for truck cabin are imported from Japan.(Electrical galvanizing material is used for outer panel for 4x4 Vehicles.)  [Local steel parts](In many cases steel material is imported.)  Wheel holder----from Helwan company for industrial 99  Fuel tank(Galvanizing)----from Abu Youssef company  Exhaust piping &amp; muffler(galvanizing)-----  All sheets members under body----from five local companies (Helwan factories, Helwan companies, Misrait, Dilco and Body parts company(Alex.))  Bumper-----  [Local parts rate] Passenger cars; 49%, Commercial cars; 60%  Vitara 4x4; 40%</p> <p>4) Reason for importing; Deep drawing quality products can not be obtained from local market, and also because of quality problem.</p> <p>5) Price of flat products  1,000 - 1,200 US\$/ton (from Japan)  800 US\$/ton(from Europe)</p>		
RECEIVED DOCUMENTS	* Brochure on a passenger car 'SWIFT' * Brochure on 5-Door Wagon 'VITARA V6 2.0' * Brochure on 'CARRY TRUCK' * Brochure on 'CARRY VAN'		
ITEMS TO BE FOLLOWED	* required to ask GOFI on Mar.13 if received the answer to questionnaire.		
ITEMS TO BE DISCUSSED WITH MEMBERS	* None		

## JICA DAILY REPORT

DATE:	Mar.11,1997	TIME:	AM 10:10 - PM 13:00
GOFI MEMBERS:	Eng. Aly Hassan	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	The Arab Contractors(OSMAN AHMED OSMAN & Co.) (Soubra Branch)		
ATTENDANTS	Eng. Farouk M. Allam(Central Workshops general Manager) Eng. Nasser		
CONTENTS	<p>1) Outline of the company Established year; 1959 Number of employees; 3,000 Three major factories in Egypt(Central factory &amp; two ship yards)</p> <p>2) Consumption of flat products(limited to Shoubra branch) Hot rolled sheets; 15,000 ton/year, 3-60 mm thick, 1,000-2,000mm wide ST52 &amp; ST37</p> <p>3) Rate of imported material; usually 20 % (sometimes more)</p> <p>4) Reason for importing * Thick material can not be obtained from local market. * Width &amp; length are limited.(EISCO Max.1.0m wide x 6-9m long) (required width up to 2.0m, length up to 18m) * Grade ST52 can not be obtained from local market.</p> <p>5) Issues on domestic products * Quality of thicker products is bad. (Quality of only 3 -7 mm thick hot rolled sheets is not bad.) * Thicker products more than 20mm are refused from consultant company. * Errors of thickness are about 10 %. * not delivered on schedule.</p> <p>6) Forecast on production expansion; estimating 15 % yearly.</p> <p>7) Price of steel flat products * 1,500 LE ---- from local markets(imported material from Russia, Ukraine, Rumania, etc.) * 1,550 LE ---- from EISCO * 350 - 600 US\$ ---- from England, German, Austria, etc. (except Tax &amp; Transportation fee, including special materials.)</p> <p>8) Tax; Flat products---20 %, Section products---30 %</p> <p>9) Transportation fee * Factory to ports ---- Supplier's cost * Inside Egypt ---- User's cost, 15-20 LE/ton(from local market) 50 LE/ton(Port Said - Cairo, Alex. - Cairo)</p> <p>10) Request to local steel market requires yearly 3,000ton of Hot rolled section(large H beam, I beam)</p> <p>11) Quality observation of domestic steel flat products at site * Many ragged gas cut surfaces were found because of blow holes. * Surface of some thick plates were wavy. * Surface condition of some thick plates were terrible.</p>		
RECEIVED DOCUMENTS	* Annual Report 1994/1995 on The Arab Contractors * Prequalification on Central Workshops(A division of Shoubra Branch)		
ITEMS TO BE FOLLOWED	* None		
ITEMS TO BE DISCUSSED WITH MEMBERS	* None		

## JICA DAILY REPORT

DATE:	Mar.16,1997	TIME:	AM 10:20 - PM 12:30
GOFI MEMBERS:	Eng. Aly Hassan	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	IDEAL(DELTA INDUSTRIAL Co.) (Nasr City Factory)		
ATTENDANTS	Eng. Mohamed Salah El-Din(Production Engineering General Manager)		
CONTENTS	<p>1) Outline of the company Established year; 1984 Composed of three factories. Production capacity; 60,000/y(Refrigerator),120,000/y(Washing Machine) licensed from Italian Company. Number of employees; 1000(Nasr city)</p> <p>2) Consumption of flat products(limited to Nasr city factory) Cold rolled sheets; 2,745 ton/year, 0.5-1.5 mm thick, Max.1,000mm wide Galvanizing sheets; 143 ton/year, 1.25 &amp; 1.5mm thick, 1,000mm x 2,000mm</p> <p>3) Lot weight for purchasing; about 2 ton</p> <p>4) Rate of imported material; 80 % * Outer panel of refrigerator &amp; W/Machine; 100 % (imported from Thyssen, Krupp, Voest Alpine etc.) * 100% of Galvanizing sheets are purchased from local market.</p> <p>5) Reason for importing; it was not responded in written note but clearly because of quality.(All, used for outer panel)</p> <p>6) Opinion about future market; very good, increasing 10% yearly.</p> <p>7) Evaluation on current using material; satisfied</p> <p>8) Observation at site * For outer panels of refrigerators &amp; washing machines, good surface quality of cold rolled sheets are used. * For the parts of washing machines which contact detergent, stainless steel sheets are used.(Rotary drum etc.) * Galvanizing sheets are used for the small parts such as electrical items holder. (These parts are formed by bending or pressing, but they were showing very poor zinc adhesion.)</p> <p>9) Others * Inspection on steel flat products material surface is conducted visually after shearing. (By visual inspection 1.5 - 2.0% of sheets are rejected.)</p>		
RECEIVED DOCUMENTS	* Detailed steel flat material list for purchasing		
ITEMS TO BE FOLLOWED	* None		
ITEMS TO BE DISCUSSED WITH MEMBERS	* none		



## JICA DAILY REPORT

DATE:	Mar.17,1997	TIME:	AM 10:10 - 11:40
GOFI MEMBERS:	Eng. IBAHIM ABDEL HAKIM	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	EL-NASR CANNED FOOD(KAHA COMPANY FOR PRESERVED FOODS) (Nasr City Factory)		
ATTENDANTS	Eng. IBAHIM GHAZAL(Chief of Research and Quality Control Center)		
CONTENTS	<p>1) Outline of the company Established year; 1976 Number of employees; 2,500(including 5 affiliated companies) Nasr city factory is the main factory and other 5 are small.) Nasr city factory is making cans and supplying to other ones. Production; 20,000 ton/y(including every products)</p> <p>2) Consumption of flat products Tinplate sheets; 2,500 ton/y, 0.18-0.28mm thick, 515-720 mm wide 50-135 coating weight, bright finished (Consumption was 5,000 ton/y in 1995.)</p> <p>3) Lot weight for purchasing; average about 1 ton</p> <p>4) Rate of imported material; 100% Imported from; Japan(Nippon Steel, Kawasaki Steel) France(Sollac) Brazil(CSN), USA Spain(ECCS)---TFS</p> <p>5) Reason for importing; no companies to supply Tinplates in Egypt.</p> <p>6) Opinion about future market; increasing 10% yearly but as for Tinplate leveling off.</p> <p>7) Evaluation on current using material Other than Japanese products have such issues as hardness, coating heavy oiling.</p> <p>8) Price of Raw Material(Tinplates) approximately 900 US\$ (including tax &amp; transportation fee) Japanese products are more expensive.</p> <p>9) Dramatical drop of Tinplates import after 1992 The data shown in phase-1 book seems to show the amount requested by public sector. Early 1990 there was a competition between public sector and private sector and at a result the share of public sector dropped dramatically.</p> <p>10) Others Coca Cola, Co., Pepsi Cola Co., Beer Co. are consuming a lot of Tinplates or TFS plates.(12,000 ton/y) and so it's better to investigate such companies.</p>		
RECEIVED DOCUMENTS	* None		
ITEMS TO BE FOLLOWED	* None		
ITEMS TO BE DISCUSSED WITH MEMBERS	* None		

## JICA DAILY REPORT

DATE:	June 11, 1997	TIME:	AM 10:00 - 11:30
GOFI MEMBERS:	Eng. Youssef El Hassan Ahmed Eng. Seham El Bahrawy	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	EL-NASR STEEL PIPES & FITTINGS CO.		
ATTENDANTS	Eng. Sami A. Ibrahim (Chairman & Managing Dir.) Dr. Eng. Ahmed Abdel Rahim Ali		
CONTENTS	<p>1) Outline of the company  Established year; 1965  No of employees; 3,500  Products; Small diameter ERW pipe --- 1/2-4 inch, black &amp; galvanized  Middle diameter ERW pipe ---- Max.8 inch for oil pipe  Spiral SAW pipe ---- 6-62 inch for oil  (Max. diameter was changed.)</p> <p>2) Consumption of flat steel products  Hot rolled coils; 110,000 ton/y, Width(Max.1,500mm),  Thickness(2.5 - 12.7mm)</p> <p>3) Unit weight of coils; Max.12 ton</p> <p>4) Rate of importing material;40% from all over the world(except Japan)  Import W&lt;1,020mm---26,000ton, W&gt;1,020mm---6,000ton  Local W&lt;1,020mm---34,000ton, W&gt;1,020mm---26,000ton</p> <p>5) Reason for importing;  Wider material is required.(up to 1,500mm)  The grades upper than X42 can not obtained from local market.  (EISCO seems not to produce from economical reason.)</p> <p>6) Specification of flat steel products;  Commercial grade(X37)---all local products  High grade(X42 - X60)---imported, 30,000 ton</p> <p>7) Price(depending phase-1 report);  Import---45,446 LE  Local ---67,472 LE</p> <p>8) Quality of flat steel material at site;  All hot coils are stored in house.  All coils from has fish tails.</p>		
RECEIVED DOCUMENTS	none		
ITEMS TO BE FOLLOWED	none		
ITEMS TO BE DISCUSSED WITH MEMBERS	none		

## JICA DAILY REPORT

DATE:	June 11, 1997	TIME:	AM 11:50 - PM 1:00
GOFI MEMBERS:	Eng. Youssef El Hassan Ahmed Eng. Seham El Bahrawy	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	EL NASR AUTOMOTIVE MANUFACTURING CO.(NASCO)		
ATTENDANTS	Dip. Eng. Ahmed Afifi (Planning & Supply Director) Hamdy Badr (General manager, Foreign Purchasing Dept.)		
CONTENTS	<p>1) Outline of the company Established year; 1959 No of employees; 9,000 workers Products; 3,000 buses/year, 3,000 trucks/year, 13,000 passenger cars/year, 1,000 tractors</p> <p>2) Consumption of flat steel products not changed from the data by phase-1 survey Hot rolled sheets; 3,360ton/y, Width(Max.1,500mm) Cold rolled sheets; 3,350ton/y, Width(Max.1,500mm) Cold rolled coils; 200ton/year for bus body panel, 1.2mm x 1,000mmw) Galvanized sheets; 80ton/year for exhaust, tanks and fire-fighting system</p> <p>3) Unit weight of purchasing flat steel products; 2 ton(coil &amp; sheet)</p> <p>4) Rate of imported material; 75% from Europe(Krupp hoesh, Thyssen etc.)</p> <p>5) Reason for importing; Wider material can not be gained from local market.</p> <p>6) Forecast on production expansion; 25% increase by 5 years</p> <p>7) Spec of flat steel products Hot rolled products; ST52 for frame &amp; cross members, ST44, ST37 Cold rolled products; ST14, ST12 Body panels are fabricated by only simple bending and so deep drawing quality will not be required.</p> <p>8) Complaint against current raw material; none</p> <p>9) Quality of flat steel material at site (for bus &amp; truck only); Cold rolled sheets are stocked in warehouse for two year consumption and unpacked except using one. There were serious temper-colored portions at both sides of strip and also rust on the surface but they said it did not matter because phosphating treatment was executed before painting. Hot roll sheets are piled outside and all of them much rusted.</p> <p>10) Outer panels for passenger cars are stamped, pressed and imported.</p>		
RECEIVED DOCUMENTS	none		
ITEMS TO BE FOLLOWED	none		
ITEMS TO BE DISCUSSED WITH MEMBERS	none		

## JICA DAILY REPORT

DATE:	June 12,1997	TIME:	AM 11:30 - PM 1:15
GOFI MEMBERS:	Eng. Iman Fathy	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	EGYPTIAN ITALIAN CO.(10 th of October city) KANDEEL STEEL CO.(next to EGYPTIAN ITALIAN CO.)		
ATTENDANTS	Eng. Amin A. Zanati		
CONTENTS	<p>1) Outline of the company  Established year; 1992  Egyptian Italian Co. &amp; Kandeel Steel Co. are belonging to Kandeel group and both companies are affiliated to each other.  Number of employees(Egyptian Italian Co.); 150  Products of Egyptian Italian; Corrugated sheets for roof &amp; wall  (galvanized &amp; color,0.5-1.25mmtx1,250mmW)  Section pipe,Square pipe etc.(hot rolled)  Steel structure(hot rolled)  (Equipment,two roll forming machines, punching machine, shear sandwich machine etc.)  Products of Kandeel; Small diameter ERW pipe (1-5 inch)  Slit coils(hot rolled, cold rolled, galvanized)  Cut sheets(cold rolled, galvanized, color coated)  (Equipment:*one tubing mill,  *one slitting line(0.25-3.5)mmtx(23-1,500)mmW  coil weight; Max.11ton  capacity; actual production 50t/day(1,500t/M)  *one shear line(0.3-2.0)mmtx(300-1,500)mmWx(300-6,000)mml  coil weight; Max.11ton  capacity;70-40t/day(1,500t/M))</p> <p>2) Consumption of flat steel products  hot rolled coil; 10,000 ton/y  cold rolled coil; 15,000 ton/y  hot dip galvanized coil; 25,000 ton/y  color coated coil; 10,000 ton/y</p> <p>3) Weight of one coil or one package; Max.11 ton</p> <p>4) Rate of imported material  galvanized &amp; color coated; 100%</p>		
RECEIVED DOCUMENTS	none		
ITEMS TO BE FOLLOWED	none		
ITEMS TO BE DISCUSSED WITH MEMBERS	none		

## JICA DAILY REPORT

DATE:	June 12,1997	TIME:	PM 1:30 - 2:30
GOFI MEMBERS:	Eng.Iman Fathy	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	ALPHAMETAL		
ATTENDANTS	Eng.Yehya Zaki (Foreman)		
CONTENTS	<p>1) Outline of the company  Established year; 1980  Number of employees; 150  Products; Steel structure  Corrugated sheets for roof, wall and deck(300 ton/M)  Equipment; one roll forming line, one press forming equipment</p> <p>2) Consumption of flat steel products;  (Relating hot rolled products, omitted from investigation.)  Galvanized coils; Ave. 100 ton/M, Width(Max.1,300mm)  Thickness(0.55 - 1.1mm for deck),  (0.3 - 1.0mm for roof &amp; wall)  Color coated coils; Ave. 200 ton/M, Thickness(0.3-1.0mm),  Width(Max.1,300mm)</p> <p>3) Weight of one coil or one package; Max.5 ton(coil)</p> <p>4) Rate of imported material; 100% from mainly Germany, and France,  Italy, Ukraine</p> <p>5) Reason for importing;  can not be obtained from local market.</p> <p>6) Price of the products  Galvanized corrugated sheet; 18 LE/m  Color coated corrugated sheet; 25 LE/m</p>		
RECEIVED DOCUMENTS	* Company brochure		
ITEMS TO BE FOLLOWED	none		
ITEMS TO BE DISCUSSED WITH MEMBERS	none		

## JICA DAILY REPORT

DATE:	June 14, 1997	TIME:	
GOFI MEMBERS:	Eng. Ibrahim Abd El Hakim	JICA MEMBERS:	Y.Ise H.Kanemoto
PLACE OF VISIT	The Edfina Co. for Preserved Foods (Alexandria)		
ATTENDANTS	Chairman Ibrahim Ahmed Abdo Eng. Moustafa Kamel		
CONTENTS	<p>1) Outline of the company  Established year: 1972  No. of employees: 185  Production capacity: 90 millions/year  Annual production: 65 millions/year  The Edfina Co. for Preserved Foods is one of Edfina family companies and the largest one. This company is producing frozen vegetable juice jam tomato paste, canned vegetable, beans etc.  Glass bottles occupy the majority of the products and glass bottles are minor. The scale is larger than KAHA.  Other factory locations are;  Port Said x two factories  Laminetta x one factory  Alexandria x two factories</p> <p>2) Equipment  Can welding line x 3, Easy open cap line x 3, Cap making line x 3  Shearing line x 3  Edfina is the only one company that is applying to powder painting inside cans. The powder painted products are delivered to some small private can companies.</p> <p>3) Consumption of flat steel products  TIN sheets; 2,600 ton/y, Thickness(0.18-0.20mm), Width(730-760mm),  Primary quality  TFS sheets; 1,400 ton/y, Thickness(0.19-0.21mm), Width(875-750mm),  Primary quality</p> <p>4) Rate of imported material; 100%  (from Japan, France, Italy, Brazil, etc.)</p> <p>5) Complaints against supplier; no complaints, satisfied</p> <p>6) Price of raw material; US\$ 1,000 - US\$ 890</p> <p>7) Storage of raw material  stored outside</p> <p>8) Opinion about future market  This company is about to shifting to private sector and so it's difficult to guess at this moment. Anyhow no expansion plan.</p>		
RECEIVED DOCUMENTS	none		
ITEMS TO BE FOLLOWED	none		
ITEMS TO BE DISCUSSED WITH MEMBERS	none		

## JICA DAILY REPORT

DATE:	June 14,1997	TIME:									
GOFI MEMBERS:	Eng. IBRAHIM ABD EL HAKIM	JICA MEMBERS:	Y.Ise H.Kanemoto								
PLACE OF VISIT	Tinplate Committee Chairman Office(Alexandria)										
ATTENDANTS	Senator Abdel E. El Samahy(Chairman of Tinplate Committee)										
CONTENTS	<p>Senator Abdel has the following three roles</p> <ul style="list-style-type: none"> <li>* Chairman of Tinplate Committee</li> <li>* Chairman of Starch Yeast &amp; Detergents Co.(Alexandria)</li> <li>* Vice president of Egyptian Food Industry Chamber</li> </ul> <ol style="list-style-type: none"> <li>1. The reason why tinplate consumption is decreasing <ol style="list-style-type: none"> <li>1) The consumption by military, army &amp; navy is decreasing.</li> <li>2) The consumption of tinplate is substituted with glass and that of glass is increasing.</li> <li>3) Investment for glass container is cheaper than TIN &amp; TFS can.</li> </ol> </li> <li>2. The consumption rate glass vs. tinplate is 90% vs. 10%.</li> <li>3. In the future also glass, paper and plastic containers will occupy the majority because they are more cost-effective than glass containers even if taking manufacturing plant into consideration.</li> <li>4. At present tinplate consumption by oil can is most among food can, oil can and milk can, but gradually it will be substituted with plastic container.</li> <li>5. Milk can will be gradually substituted with paper container.</li> <li>6. Yearly tinplate consumption The numbers for 1993 - 1996 shown in the table "IMPORT OF TINPLATES"(page 2-20 in Phase-1 Report) seem a little small. The guess is as follows.</li> </ol> <table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">Processed Food companies(Kaha &amp; Edfina)</td> <td style="text-align: right;">9,000 ton/year</td> </tr> <tr> <td>Oil companies(7 major ones)</td> <td style="text-align: right;">35,000 ton/year</td> </tr> <tr> <td>Private sectors(Coca-Cola, Pepsi, etc.)</td> <td style="text-align: right;">16,000 ton/year</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: right;">60,000 ton/year</td> </tr> </table>			Processed Food companies(Kaha & Edfina)	9,000 ton/year	Oil companies(7 major ones)	35,000 ton/year	Private sectors(Coca-Cola, Pepsi, etc.)	16,000 ton/year	Total	60,000 ton/year
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Total	60,000 ton/year										
RECEIVED DOCUMENTS	none										
ITEMS TO BE FOLLOWED	none										
ITEMS TO BE DISCUSSED WITH MEMBERS	none										

## JICA DAILY REPORT

DATE:	June 15, 1997	TIME:	AM 10:30 -
GOFI MEMBERS:	Eng. Aly Hassan	JICA MEMBERS:	Y. Ise H. Kanemoto
PLACE OF VISIT	Engineering Company for Exhaust System (6th October city)		
ATTENDANTS	Eng. Eweis Mohamed Hassan (Production Manager) Hassan Ahd. El Pattah		
CONTENTS	<p>1) Outline of the company Established year: 1987 Number of employees: 150 Products: Exhaust system (consisting of muffler &amp; exhaust pipe) for Mitsubishi, Suzuki, Nissan, GM, Mercedes, etc. Other small parts for automobile Production capacity: 80 complete exhaust system / day</p> <p>2) Equipment Press, Shear, Sawing machine, Bending machine, Forming machine, Welder etc. &amp; painting equipment</p> <p>3) Consumption of flat steel products Aluminized sheet (120g/m<sup>2</sup>); Thickness (0.6, 1.25, 1.5mm) imported Galvanized sheet; Thickness (0.6, 1.25, 1.5mm) used for side step of truck imported from England, Germany, etc. Ni-Zn coated sheet; used for side support of passenger car imported from Japan Cold rolled sheet; Thickness (1.0, 1.25, 1.5, 2, 2.5, 3, 4mm) after fabricated, painted purchased St37 from local market Deep drawing quality---imported Hot rolled sheet; Thickness (6.0, 8.0, 10, 12mm) purchased from local market Aluminized pipe; imported Black pipe; from local market</p> <p>4) Sheet size; 1m x 2m (standard), 1m x 3m, 1.25m x 2.5m 5) Purchasing sheet lot weight; Max. 3 ton</p>		
RECEIVED DOCUMENTS	* List of Machines		
ITEMS TO BE FOLLOWED	none		
ITEMS TO BE DISCUSSED WITH MEMBERS	none		



## JICA DAILY REPORT

DATE:	June 17,1997	TIME:	AM 9:55 - 11:30
GOFI MEMBERS:	Eng.Garal Mr.Kudo	JICA MEMBERS:	Mr.Otani,Mr.Kawakami,Ise Mr.Kanemoto,Mr.Okamoto
PLACE OF VISIT	Hitachi Plant Engineering & Construction Co.,Ltd.(Alexandria)		
ATTENDANTS	Mr.Kobayashi(General Manager), Mr.Oda(Engineer) Mr.Fujiwara(Sales dept.)		
CONTENTS	<p>1. Outline of HTC Plant Co.  Organization: Alexandria Branch  Industrial Plants Machinery Plants Division  Power &amp; Industrial Group  Head office (Tokyo Japan)  Number of employees: 2,300 in Japan  In Alexandria office there are ten Japanese and sixty Philippine.  The number of workers is 1,200-1,300 and they are Egyptian.  Among them 200 are permanent workers and they conduct key point jobs.  Another 1,000 are temporary worker.(now under second expansion)  Actual construction work data  HPC has conducted jobs in Egypt since 1983.)</p> <p>2. Procedure to collect workers  to impose a personal interview and field work test to adopt from local market.</p> <p>3. Supporting Industries  Since there are no supporting industries around ANSDK, they are doing with import or fabricating/repairing within ANSDK.  The followings are checked items.  * Local construction of casting such as chock, roll, mill housing, gear, wheel  * Machinery industry  * Electrical parts(motor overhaul, controller, etc.)  * Refractory  * Welding &amp; coating  * Bearing</p>		
RECEIVED DOCUMENTS	* Annual Report * Performance Record		
ITEMS TO BE FOLLOWED	none		
ITEMS TO BE DISCUSSED WITH MEMBERS	none		