

TU

669.1

A265

Revised ed.

2770438005703

2770438 (4)

900 (initials)

PD-AAC-298-A1

A.I.D. Loan No. 277-H-078
(Cap. Asst. Paper No. AID-DIC/P-567/2
Project No. 277-24-230-438)

1/24/68

33p.

AMENDED CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds
(Turkey - Government of Turkey, for Eregli
Iron and Steel Works Incorporated)

Pursuant to the authority vested in the Administrator of the Agency for International Development by the Foreign Assistance Act of 1961, as amended, and delegations of authority issued thereunder, I hereby amend the Capital Assistance Loan Authorization for A.I.D. Loan No. 277-H-078 (Cap. Asst. Paper No. AID-DIC/P-567, Project No. 277-24-230-438), signed June 29, 1967, to read as follows:

"Pursuant to the authority vested in the Administrator of the Agency for International Development (hereinafter called "AID") by the Foreign Assistance Act of 1961, as amended, and delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2, Title 1, the Development Loan Fund, to the Government of Turkey of not to exceed Fourteen Million Two Hundred Thousand dollars (\$14,200,000), such funds to be made available by a reloan to Eregli Demir ve Celik Fabrikalari Turk Anonim Sirketi, a Turkish corporation, to assist in financing the foreign exchange costs of (a) engineering services, machinery, equipment, freight and insurance to increase the capacity of the Eregli Steel Mill to approximately 435,000 metric tons of flat steel products per year and (b) approximately 160 man-years of supervisory services. This loan is to be subject to the following terms and conditions:

"1. Interest and Terms of Repayment

"The interest on this loan shall be one percent (1%) per annum on the disbursed balance of the loan during the grace period referred to below and two and one-half percent (2½%) on the disbursed balance of the loan thereafter. The loan shall be repaid by the Government of Turkey within forty (40) years from the date of the first disbursement under the loan, including a grace period of not to exceed ten (10) years.

"2. Currency of Repayment

"Provision shall be made for repayment of the loan and payment of the interest in United States dollars.

A.I.D.
Reference Center
Room 1656 NS

41

AID-DLC-P-567, revised
Project No. 277-24-230-438
January 24, 1968

TABLE OF CONTENTS

Summary and Recommendations	
I. Introduction	1 - 2
II. Revised Expansion Plan	3 - 8
Changed Assumptions	
Changed Facilities	
Present Ore Situation	
III. Economic and Financial Comments	8 - 10

Annexes (see index to annexes - following page)

INDEX TO ANNEXES

	<u>Annex</u>
Amended Capital Assistance Loan Authorization	A
Eregli Expansion Program	B
Schedule of Gross Profit/Ton by Major Flat Product Group	C
Comparison of Various Market Forecasts by Major Product Group with Assumed Level of Sales	D
Projected Statement of Profit and Loss	E.1
Projected Balance Sheet	E.2
Projected Statement of Source and Application of Funds	E.3
Summary of Principal Cost of Sales Items	E.4

AID-DLC-P-567, revised
Project No. 277-24-230-438
January 24, 1968

TURKEY: EREGLI IRON AND STEEL WORKS INCORPORATED

SUMMARY AND RECOMMENDATIONS

1. Borrower: Government of Turkey, for relending to Eregli Demir ve Celik Fabrikalari Turk Anonim Sirketi (Eregli Iron and Steel Works Incorporated), a private-sector Turkish corporation.
2. Loan Amount: \$14,200,000.
3. Terms:

(a) To the Government of Turkey, 40 years including a grace period of 10 years, at interest of 1% of the outstanding principal amount per year during the grace period and 2½% thereafter; principal and interest payable in United States Dollars to the United States Government.

(b) To the sub-borrower, 20 years including a grace period of 5 years, at interest of 6% of the outstanding principal amount per year capitalized during the grace period; principal and interest payable in Turkish Lira to the Government of Turkey.
4. Purpose: To finance the United States dollar costs of
(a) machinery and equipment (and related engineering services) to increase the capacity of the Eregli Steel Mill approximately 24% to approximately 435,000 metric tons of flat products per year (\$10,200,000) and (b) approximately 160 man-years of expatriate supervisory personnel (\$4,000,000).
5. Project Cost: Approximately \$21,200,000 comprising, in addition to the proposed AID loan, approximately (a) \$2,800,000 equivalent in foreign exchange for an oxygen plant to be procured from European sources and to be financed (except for the down payment) by a long-term European credit, and (b) \$4,200,000 equivalent in local currency, to be financed by a long-term Government of Turkey loan.
6. Background: The Eregli Steel Mill was originally financed by DLF Loan No. 169 (277-A-020), authorized November 8, 1960 for \$129,600,000. The mill commenced operations in the spring of 1965. In early 1966, faced with

projections that the project could not operate profitably, AID hired Armco Steel Corporation to study the project and report its findings. The Armco report was completed in December 1966. AID Loan No. 277-H-078 was authorized on June 29, 1967 to finance part of the foreign exchange costs of an expansion program recommended by Armco. See Capital Assistance Paper AID-DLC/P-567, dated June 6, 1967. Subsequently certain changes in the estimates of blast furnace capacity and the market for flat steel products caused Ereğli to modify the expansion program. The amount of the loan requested was therefore reduced from \$22.35 million to \$14.20 million.

7. Issues: None.
8. Eximbank
Clearance: The Export-Import Bank of Washington stated on May 22, 1967 that it is not interested in financing this project.
9. Mission
Views: In support of the project and the proposed loan.
10. Statutory
Criteria: Satisfied. See checklist at Annex A of Capital Assistance Paper AID-DLC/P-567, dated June 6, 1967.
11. Recommendation:
tion: That loan authorization 277-H-078, signed June 29, 1967, be amended as set forth in Annex A.
12. Project Committee:

<u>AID/W</u>		<u>USAID/Turkey</u>
Mord Bogie	Loan Officers	John D. Thompson
	Economists	Lloyd Jonnes Edwin J. Cohn
Bradshaw Langmaid	Desk Officer	
Oliver H. Folsom Charles G. McNaron	Engineers	James E. Stephenson
Stephen W. Stein	Attorneys	Roger B. Godwin

TURKEY: EREGLI IRON AND STEEL WORKS INCORPORATED

I. Introduction

1. This Capital Assistance Paper represents a revision to the Capital Assistance Paper dated June 6, 1967, which recommended a loan of \$22.35 million to the Government of Turkey (GOT) for the expansion of the Eregli Steel Mill Project (and also for continued supervisory assistance). The loan was authorized June 29, 1967. The loan agreement, however, has not been signed because the recent history of actual sales and sales orders and also lower assumptions of blast furnace capacity appeared to require a revision of the proposed expansion plan. This has been recognized by the Eregli company and the GOT, both of which have formally requested AID to alter the scope of the expansion project.

2. This paper describes the circumstances which have brought about these changes and describes the revised expansion project, which according to Eregli's projections will materially increase Eregli's ability to meet prospective market demand and in due course to achieve profitable operations. There are two major components of the revised expansion plan. The first is described below and contemplates additions to the steelmaking and finishing facilities of Eregli while excising the original proposal for a continuous billet-casting machine. The plan calls for \$10.20 million of the \$22.35 million authorized AID loan to be used for this component. This additional proposed investment in these facilities of about 5½% ^{1/} will increase shipped tonnage capacity by about 24% ^{2/} and sales income by about 32%. ^{3/} Compared to the audited 1966 loss of about \$15.5 million, in 1971, after the expansion, Eregli is expected to earn an after-tax profit of about \$9 million. ^{4/} The facilities to be financed with this investment are listed and described in Annex B.

^{1/} 5½: \$17.2 million (\$10.2 million from AID funds plus \$7.0 million from other sources) divided by \$311.0 million (investment in project at December 31, 1966).

^{2/} 24%: 85,000 tons estimated increase in production divided by 350,000 tons present annual capacity.

^{3/} 32%: 85,000 tons increase @ TL 2600 per ton = TL 221 million divided by TL 690 million (1967 sales).

^{4/} See P&L Statements in Annex E-1.

3. The second major component consists of an iron ore sintering plant. While existing economic, financial and technical data support the first component, data supporting the sintering component are at present being gathered by the staff of Eregli and its U.S. technical advisor, Koppers Company, Inc., and will probably not be available for review by AID until this spring. Accordingly, the second component cannot be financed at this time.

4. No change has been made in the original plan to disburse \$4.00 million of the AID loan for approximately 160 man-years of continued expatriate supervisory services for the project. These funds would be obligated at the same time as the \$10.20 million for which the justification now exists.

5. In summary, the changes in AID financing of the expansion project are as follows:

TABLE 1

	<u>Original CAP</u> <u>(June 1967)</u>	<u>Revised CAP</u> <u>(present)</u>
Supervisory services	\$ 4,000,000	\$ 4,000,000
Expansion facilities, except for sintering	18,350,000	10,200,000
Subtotal: AID loan amount	<u>\$22,350,000</u>	<u>\$14,200,000</u>
Sintering facilities, if an when justified	--	8,150,000
TOTAL	<u>\$22,350,000</u>	<u>\$22,350,000</u>

II. Revised Expansion Plan

Changed Assumptions.

6. During the weeks after the authorization of the \$22.35 million AID loan in June 1967, Eregli undertook a re-examination of the blast furnace production capacity as projected by Armco. The re-examination was largely inspired by the new General Superintendent of Operations, an American who was hired on May 10, 1967 and was just getting his feet on the ground at the time the loan was authorized. He challenged the Armco assumption that 750,000 tons per year of hot metal could be produced by the blast furnace under the Armco formula of about 50% domestic and 50% imported lump ore burden, and also the Koppers assumption that 660,000 tons could be produced with this burden. His position was (and is) that anything over 600,000 tons a year can be achieved only if at least 50% of the ore burden is beneficiated and charged as sinter or pellets or a combination of both.

7. During the first half of the year 1967 the rapid growth of the overall flat product market, in line with the Armco projections, became increasingly apparent. Equally clear was the growing proportion of total orders represented by cold rolled sheets. In recognition of these trends, the loan authorized in June 1967 made provisions for expanding the finishing facilities in the cold rolling department. Eregli has now had the further experience of the full year 1967 to guide it. There has been a marked and rapid increase in the use of cold rolled sheets, even more than was anticipated when the expansion reflected in the June 1967 loan authorization was planned. This swing benefits the project (which was designed with the thought that cold rolled steel would eventually be the principal product), since the profitability of cold rolled sheet, both bright and tin coated, is greater than that of hot rolled products (see Annex C). The trend from 1965 - 1967 is illustrated in the following table, in which is compared the 1968 production program.

TABLE 2

FLAT ROLLED PRODUCTS

A. Orders Received - Metric Tons

	<u>1965</u>	<u>1966</u>	<u>% of Total</u>	<u>1967</u>	<u>% of Total</u>	<u>% 1967 Over 1966</u>
Tin Plate	Not Available	34,100	16	49,600	17	45
Cold Rolled Sheet	" "	50,000	23	106,700	35	113
Hot Rolled Sheet	" "	32,300	15	48,400	16	50
Plate	" "	26,700	12	48,500	16	82
Skelp	" "	75,600	34	49,400	16	(65)
TOTAL		218,700	100	302,600	100	38

B. Shipments - Metric Tons

	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>% 1967 Over 1966</u>
Tin Plate	10,300	26,675	41,000	54
Cold Rolled Sheet	19,775	36,650	76,700	109
Hot Rolled Sheet	13,350	34,325	54,750	60
Plate	9,100	27,250	31,275	15
Skelp	20,750	60,550	57,500	(9)
TOTAL	73,275	185,450	261,225	41

C. 1968 Production Program - Metric Tons

		<u>% of Total</u>
Tin Plate	62,000	20
Cold Rolled Sheet	105,000	34
Hot Rolled Sheet	35,000	11
Plate	33,000	10
Skelp	80,000	25
TOTAL	315,000	100

8. In September 1967 Eregli asked Koppers to assist in a survey of the market to verify the trends indicated by the orders received. The survey was performed during October and November. About 100 customers (who account for about 60% of the orders during the preceding 12 months) were interviewed. The survey confirmed the trend of the order book as to the increasing mix of cold rolled versus hot rolled, and reinforced the Armeo projection of total orders for 1968 plus about 15%--setting the forecast at about 400,000 tons. Thus, even assuming some shortfall in the forecast, it appears that the orders received in 1968 could well be at the level of the present practical plant capacity (before giving effect to the revised expansion program) of 358,000 tons of flat products. (See Annex D).

Changed Facilities

9. The major units of a steel mill are seldom in complete balance with each other at any given time. An example of unbalanced production capacity at Eregli was becoming clear in early 1967 because of a developing bottleneck in cold rolled annealing. The four stand cold rolling mill has considerably more capacity than the supporting units of annealing, slitting and blinding, as presently installed. The market demand for cold rolled products, as now demonstrated, required therefore that these units be brought more nearly into balance with the cold rolling mill.

10. Provision was made in the June 1967 loan authorization for some expansion of annealing and slitting capacity as well as warehousing space. The continuing strong trend to cold rolled sheet, now pretty well confirmed, requires that the finishing capacity of the cold rolling department be still further increased. Therefore, Eregli now proposes more annealing bases, a 20% increase in the capacity of the tin coating line, and a flash welder in the pickling line. (See Annex B).

11. Much the same kind of problem has developed in the BOF (steel melting) department. To provide the flat rolled products needed for the market (about 40,000 additional tons of cold rolled and 35,000 of hot rolled by 1970), more steel ingots must be supplied. The basic oxygen furnace itself (the melting unit) has existing capacity to produce almost twice as much steel as the present single oxygen-producing machine can support. Since within two years (the time it takes to install an oxygen machine) more steel ingots must be produced than present capacity can provide, a second oxygen machine remains as part of the expansion proposal.

12. It is estimated that the effective present annual capacity to produce flat rolled products (of a mix determined by the current market) is about 358,000 tons. After giving effect to the revised expansion program, the effective annual production capacity (of an assumed market mix) is estimated to be about 435,000 tons. When that point is reached, the next major bottleneck in production becomes the hot rolling mill.

TABLE 3
Production Capacity - Metric Tons
(Mix of Hot and Cold Rolled Flat Products)

	<u>Present</u>	<u>Proposed</u>
Finished products	358,000	435,000
- which will require:		
Ingot Steel	515,000	610,000
Hot Metal	450,000	550,000
Iron Ore	800,000	980,000

13. The major change in the expansion plan resulting from the change in assumptions is the removal of the continuous billet casting machine, of which Eregli has postponed further consideration until some future time. Eregli properly believes that the limited supply of hot metal should be allocated first to the production of flat rolled products, which bring higher profits than billets and which the project was designed to produce. The new assumptions about lower hot metal capacity and higher flat product demand, have therefore led Eregli to believe that the installation of a billet casting machine is not justified at this time.

Present Ore Situation

14. Supply of domestic iron ore to Eregli of acceptable quality and particularly, sufficient quantity is a major concern. In August of last year the Embassy Minerals Attache, accompanied by the Mission mining engineer and two USGS geologists, visited the principal iron ore producers now supplying Eregli. As a result of this visit, it is now estimated by the Mission that Eregli's existing sources of supply could run out in about five years. Improved mining practice might extend the life of about a third of the known reserves by about three to five more years.

The Mission has estimated the tonnage of ore which could reasonably be expected to be mined in 1968: aside from arsenic and high sulphur bearing ores (which can be used only to the extent of about 10% of total), the figure is about

550,000 tons. The GOT therefore appears to be faced with the necessity of meeting this prospective shortfall either by sanctioning imports of ore or by allowing Eregli's facilities to be frozen at a relatively low level of production and increase the import of finished steel products.

15. The Koppers market and cost data on which the attached financial forecasts and economic return calculations are based assume that Eregli will not be able to obtain all its ore requirements from domestic sources. The assumption is that everything over 600,000 tons a year will have to be imported, as shown below:

TABLE 4

MT (000)	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Flat Product Shipments	315	358	395	435	435	435
Hot Metal Required	449	516	570	570	570	600
Ore Required	774	907	1023	1023	1023	1068
Less Estimated Domestic Ore Purchases*	774**	600	600	600	600	600
Imported Ore Required*	-	307	423	423	423	468

16. There are, however, two possibilities of mitigating, in time, the problem of local iron ore availability and quality: sintering; and development of new ore sources.

17. A joint Koppers/Eregli team is presently examining the technical and economic feasibility of building a sintering plant to enable Eregli to make use of major existing ore sources which now are of limited utility because of arsenic and sulphur impurities. A notable example is the Egmir mine, which is close to the Sea of Marmara and has reserves which are believed to be about 10 million tons. The iron content is relatively high--58% to 60%, compared to about 54% from Eregli's other sources--but it contains arsenic and sulphur in unacceptable quantities. Eregli therefore is able to use only about 50,000 tons a year for blending with other ores. The Koppers study will be concerned in particular with the technology of removing these impurities, and at a cost which can be justified. If this can be achieved, it is possible that Eregli could get

* Koppers assumes that imported ore (probably from Brazil or Liberia) can be procured at a delivered price of TL 152/ton versus a domestic delivered cost to Eregli of TL 176/ton for local ore.

** Newly mined ore (1968) plus inventories on hand.

7
from 250,000 to 300,000 tons a year from this mine--a development which would go far towards solving the ore supply problem. A further advantage is that the Egmir mine is near the sea, and therefore the transport cost to Eregli is relatively low. The present delivered cost of Egmir ore is TL 118 per ton, as against an average of other ores from Central Turkey of about TL 176. At TL 130 the cost of Egmir ore would be less than the cost of imports.

18. A sintering plant would also make possible the better use of the other ores being supplied to Eregli, especially those having a high percentage of "fines", which currently are running at about 35% of ore delivered to the plant. The "fines" are now being consumed by the blast furnace simply to provide enough raw material to support current production needs. But because use of "fines" to this extent reduces blast furnace output, the cost of this practice is too high to be continued except as an emergency measure. A sintering plant would convert these "fines" into a size more suitable for charging.

19. About 18 months ago, when the availability of ore from the presently operated mines appeared to have become a serious problem, the Mission proposed to MTA (the Turkish geological survey institution) that AID make a loan to finance exploration for additional iron ore reserves in the country. The personnel to direct the project were to be obtained from the U.S. Geological Survey. A loan of \$2.6 million for this purpose was authorized by AID in June of 1967 and a program is at this time being laid out for exploration which will continue for about two years. Hopefully, new iron ore reserves of good quality will be found along the Aegean and Mediterranean coasts in Turkey so that the cost of transport of ore from the mine to Eregli will be considerably reduced from the present high cost of ores being shipped from Central Turkey.

20. Neither of these possibilities would relieve the local ore supply problem immediately. A sintering plant could not be installed before the end of 1970, and development of new operating ore mines would take even longer. Therefore, the AID loan will be conditioned upon receipt from the GOT of adequate assurances that Eregli will be allowed to import ore to the extent necessary, taking into account available domestic ore, to sustain capacity production.

III. Economic and Financial Comments

21. Financial statements prepared by Eregli and Koppers reflecting the revised expansion plan are attached as Annex E. They assume that Eregli will obtain all of its iron ore from domestic sources in 1968 but will import any excess requirement over 600,000 tons (the estimated limit

484

of output of Eregli's local mines) in succeeding years.

22. The incremental return on the incremental investment in the expansion project, computed by the discounted cash flow method, was computed on two alternative assumptions: (a) that only domestic ore was used; and (b) that Eregli would have available only 600,000 tons of domestic ore (except in 1968) and would import the balance of its requirements. The results, shown below, indicate that the import of ore substantially increases the return to Eregli's investors but also that the expansion program is justified without importing ore. Also shown below is the discounted cash flow return for the entire project as expanded.

TABLE 5

	<u>Return on Investment Per Year</u>	
	<u>Domestic Ore</u>	<u>Partial Imports</u>
Incremental return on expansion	30%	60%*
Overall return after expansion	6%	8%*

23. The beneficial effect of the proposed expansion is reflected in the attached statements. In future years Eregli is expected to generate a moderate cash flow and a modest profit. All of these statements reflect the previously authorized rescheduling of lira payable term debt and the repayment of interest on such debt deferred in 1966 and 1967. (Repayment of this deferred interest is shown over a five-year period to the extent of 80% of the pretax profit in those years.) In general, the results of Eregli's operations and its financial condition are expected to show gradual and moderate improvement. Short-term bank debt was liquidated in 1967 and, as inventories are reduced, cash balances are expected to increase slowly.

24. Following are brief comments on each of the financial Annexes. Annex E.1 - Statement of Profit and Loss: Sales prices used are based on those now in effect and are shown to remain constant through 1975 despite an assumed annual escalation of material and labor costs. 1966 figures shown are as audited; 1967 figures are unaudited figures through November which have been adjusted for the estimated December results. 1968 figures do not assume any ore imports and are based on the Eregli 1968 budget estimates. All figures from 1969 onwards are based on an imported ore mix assumption.

* Compare the returns computed in similar fashion for the earlier, larger expansion project (assuming partial imports): incremental--60% overall after expansion--10%. (See Capital Assistance Paper dated June 6, 1967, page 37.)

25. Annex E.2 - Balance Sheet: This statement reflects the buildup of cash resulting from the expected improvement in Eregli's profitability as a result of the revised expansion plan. The statement has been revised to reflect the previously authorized rescheduling of lira payable debt and the reduced amount of the new expansion loans.

26. Annex E.3 - Statement of Source and Application of Funds: This statement reflects the changed profitability assumptions, the effect of debt rescheduling and the reduced amount of new debt. Payment of deferred interest is shown to occur in the year following the period when such funds were generated.

27. Annex E.4 - Schedule of Principal Cost of Sales Items: This schedule breaks out the major components of cost of sales. Increases in each year reflect the various cost escalation factors as noted in the footnote to this schedule. Since cost escalation is reflected without any assumed increase in selling prices through 1973, the projections have a certain built-in conservatism.

A.I.D. Loan No. 277-H-078
(Cap. Asst. Paper No. AID-DLC/P-567, revised)
Project No. 277-24-230-438

AMENDED CAPITAL ASSISTANCE LOAN AUTHORIZATION
Provided from: Development Loan Funds
(Turkey - Government of Turkey, for Eregli
Iron and Steel Works Incorporated)

Pursuant to the authority vested in the Administrator of the Agency for International Development by the Foreign Assistance Act of 1961, as amended, and delegations of authority issued thereunder, I hereby amend the Capital Assistance Loan Authorization for A.I.D. Loan No. 277-H-078 (Cap. Asst. Paper No. AID-DLC/P-567, Project No. 277-24-230-438), signed June 29, 1967, to read as follows:

"Pursuant to the authority vested in the Administrator of the Agency for International Development (hereinafter called "AID") by the Foreign Assistance Act of 1961, as amended, and delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2, Title 1, the Development Loan Fund, to the Government of Turkey of not to exceed Fourteen Million Two Hundred Thousand dollars (\$14,200,000), such funds to be made available by a reloan to Eregli Demir ve Celik Fabrikalari Turk Anonim Sirketi, a Turkish corporation, to assist in financing the foreign exchange costs of (a) engineering services, machinery, equipment, freight and insurance to increase the capacity of the Eregli Steel Mill to approximately 435,000 metric tons of flat steel products per year and to supplement existing machinery and equipment, and (b) approximately 160 man-years of supervisory services. This loan is to be subject to the following terms and conditions:

"1. Interest and Terms of Repayment

"The interest on this loan shall be one percent (1%) per annum on the disbursed balance of the loan during the grace period referred to below and two and one-half percent (2½%) on the disbursed balance of the loan thereafter. The loan shall be repaid by the Government of Turkey within forty (40) years from the date of the first disbursement under the loan, including a grace period of not to exceed ten (10) years.

"2. Currency of Repayment

"Provision shall be made for repayment of the loan and payment of the interest in United States dollars.

416

"3. Other Terms and Conditions

"(a) Machinery, equipment, materials and services financed under the loan shall be procured from the United States.

"(b) This loan shall be subject to such other terms and conditions as AID may deem advisable."

Administrator

Date

CONCURRENCES: NESAC/CDF _____ Date _____
GC _____ Date _____
AA/NESAC _____ Date _____
Chairman, DLSC _____ Date _____

EREGLI EXPANSION PROGRAM

	THOUSANDS OF U.S. DOLLARS			
	U.S.	Europe	Lira	Total
Hot Metal Prod. Facilities:				
1. Fuel Oil Injection	\$ 68	-	\$ 38	\$ 106
2. High Top Pressure	180	-	40	220
3. Blast Furnace Reline	289	-	194	483
4. Hearth Expansion	587	-	237	824
Steel Prod. Facilities:				
5. Oxygen Plant	485	2,473	939	3,897
6. Lime Kiln Alterations	90	-	66	156
7. Steel Ladles	46	-	8	54
8. Scrap Prep. Equip.	35	-	16	51
Rolling Mill Facilities:				
9. Hot Mill Crane	247	-	31	278
10. Side Trimmer-Pickling	220	-	92	312
12. Auxiliary Hoists Annealing	14	-	1	15
13. Add. 3 Anneal. Furnaces	75	-	7	82
15. Building Extensions	75	-	677	752
General Facilities:				
16. Auxiliary Fuel Oil Syst.	184	-	86	270
17. Service Water Treatment	74	-	56	130
18. Recirculating Water-BOF	155	-	106	261
19. Maintenance Equipment	301	-	59	360
Material Handling:				
20. Rolling Stock & Mobile Equip.	1,103	-	40	1,143
21. Main Substation & Dist.	175	-	29	204
22. Spare Operating Parts	1,000	-	30	1,030
23. Construction Equip. Spares	167	-	-	167
24. Ocean Freight & Insurance	537	-	-	537
25. Erdemir Purch. Mission	100	-	-	100
Sub-Total	\$ 6,207	2,473	\$2,752	\$11,432
26. Provision for Escal. Etc.	1,043	327	948*	2,318
27. Provision for Steel Survey	200	-	-	200
Sub-Total	7,450	2,800	3,700	13,950
28. Engineering Purch., Super. Const., Start-Up	1,750	-	50	1,800
	<u>9,200</u>	<u>2,800</u>	<u>3,750</u>	<u>15,750</u>
Additions:				
14. 9 Annealing Bases	300	-	*	
29. Baird Spectrograph	100	-	*	
30. Tinning Line Modifications	100	-	*	
11. Flash Welder Pickling Line	500	-	*	
Sub-Total	1,000	-	*	
Proposed New Total	\$10,200	2,800	4,200	17,200
	<u>=====</u>	<u>=====</u>	<u>=====</u>	<u>=====</u>

* Local currency (Lira) costs of Additions (items 11, 14, 29 and 30) are covered in provision for Escal. Etc. (item 26).

Description of Items to be Financed with Proposed Capital Investment

For reference purposes, the following comments on individual facilities use the same number identification as used in the table of capital investment proposals which is the first page of this Annex. Sources for these comments are as follows:

(a) Annex J, Capital Assistance Paper No. AID-DIC/P-567

(b) Information provided by Koppers Co. Inc.

1. Fuel Oil Injection

Armco agrees that fuel oil injection should be included in the interim plan. Fuel oil injection, a supplement to coke, provides the means whereby hot metal production can be expanded beyond the capacity limits of the existing coke plant. The increase in hot metal production amounts to about 10 percent. Corollary benefits resulting from the use of fuel oil are reductions in cost of hot metal because fuel oil is cheaper than equivalent coke.

2. High Top Pressure

The blast furnace with certain proposed modifications and additions is suitable for operation at elevated pressures up to 10 pounds. High pressure operations, however, have at times caused excessive costs of maintenance, and for this reason Armco recommends that the blast furnace should not be operated at over 8 pounds.

Armco favors the installation of facilities needed to attain moderate top pressure because it will make possible additional hot metal from the blast furnace. Armco feels that the Koppers estimate of 6% increase in blast furnace productive capacity due to top pressure is reasonable.

3 & 4. Blast Furnace Reline and Hearth Expansion

Armco recommends that, at the time of the scheduled relining of the blast furnace in 1969 or 1970, the hearth be expanded from 28'-0" to 29'-6" diameter by decreasing the brick thickness of the furnace wall.

5. Oxygen Plant

The present oxygen plant limits the basic oxygen furnace shop to a maximum of 17 heats a day or an annual ingot tonnage of 510,000. Additional oxygen is required to produce the additional steel tonnage necessary to fulfill market demand.

A duplicate to the existing oxygen plant is to be installed. Both plants will produce a total of 320 tons of oxygen per day. This combined capacity will satisfy the requirements of the basic oxygen furnace and other services such as scarfing and scrap preparation for Armco's proposed program through 1975.

6. Lime Kiln (Calcinig Plant) Alterations

The proposed increased steel production from the basic oxygen furnace increases the requirements of burnt lime. To meet these lime requirements the calcining plant will be modified to double its production capacity to 200 tons per day.

7. Steel Ladles (Teeming Ladles for B.O.F.)

Three additional teeming ladles are required to handle the increased ingot steel production from the basic oxygen furnace to meet the projected requirements. The total of 12 ladles compares favorably with a normal complement used in the United States in a basic oxygen shop producing 900,000 tons per year.

8. Scrap Preparation Equipment

The accumulation of old molds, mold stools, ladle skulls and pit scrap necessitates providing a suitable area for demolition. Armco agrees with Koppers' proposed skull cracking area with pit and crane equipped with skull cracker ball and magnet for reducing molds, stools and skulls so that they can be charged in the blast furnace skip car or basic oxygen furnace scrap boxes. The recovery of the metallics from slag, rubble, etc., should be deferred until the 1970's.

9. Hot Mill Crane

The roll side shifter had been included in the former program in order to reduce the time required to change the combination mill from a two-high to a four-high and vice versa. It is now proposed that a second crane be installed in the hot mill instead of installing the roll side shifter. The second crane will facilitate the changing of rolls, and will provide added flexibility to other hot mill operations, such as maintenance, where a crane is required.

10. Side Trimmer (Pickling Line)

Armco excluded this item from its program because "based on the present product mix and operating practices, the existing 42" slitter shear line has the capacity through 1970 to side trim all tin plate coils before pickling. At the time Armco recommended deleting the side trimmer, customers were accepting mill edges on hot rolled pickled and cold rolled products. Armco suggested, however, that the side trimmer be installed in the future when customers did demand sheared edges on these products.

About nine months after the Armco study was made, Erdemir (and Koppers) again recommended that the side trimmer be included in the program,

because of current customer demand (as well as production requirements).

The Mission concurs in this recommendation.

In conjunction with this side trimmer, a scrap chopper and conveyor will be supplied to handle the scrap resulting from the trimming operation.

11. Flash Welder (Pickling Line)

The purpose of this installation is to make larger coils by welding two together, for better utilization of the annealing facilities. It also will reduce scrap loss.

12. Auxiliary Hoists (Annealing Crane Revisions)

Auxiliary hoists will be installed on the trolleys of the annealing cranes, eliminating the handing of convector plates by the main hoist. In the future each coil and the convector plate which goes on it will be carried simultaneously by the two hoists. This will reduce the time required to charge the annealing furnaces and thereby increase productivity.

13. Additional Annealing Furnaces

The existing annealing equipment consists of 15 furnaces and 45 bases. Each furnace has an annealing rate of about 1.4 tons per hour, or a theoretical maximum of 184,000 tons per year in total. Annealing requirements are expected to surpass this level by 1970, and therefore three additional furnaces will be installed.

14. Nine Annealing Bases

This provides additional capacity now clearly required.

15. Building Extensions (Additional Mill Buildings for Storage)

The extension of one bay to the north end of the slab yard crane runway is required to permit both cranes to charge the slab reheat furnace.

An extension of three or four bays to the south end of the tinning line is also planned. These bays will be used to store finished products awaiting shipment to customers.

It is now expected that a large part of the material for the several building extensions in this program will be obtained in Turkey (Karabuk) rather than having to import them. Some special parts will still have to be imported. Therefore, all but \$75,000 of the dollar amount included for building extensions has been transferred to the Turkish lira part of the program. An accompanying reduction in ocean freight and insurance has been reflected also.

16. Auxiliary Fuel Oil System (Supplementary Fuel Oil System and Low Sulfur Fuel Oil Storage System)

To assure continuous operation of the hot rolling mills, a supplementary low sulfur fuel oil system for the soaking pits and slab reheating furnace will be installed. At present, the slab reheating furnace is fueled only by coke oven gas. When coke oven gas is in short supply due to reduction or curtailment of operation of the coke ovens, or when the supply of blast furnace gas is interrupted because the blast furnace is down for reline, there is no coke oven gas available for the slab reheating furnace since the gas is needed more urgently for other facilities.

The auxiliary system will also include the soaking pits so that low sulfur fuel oil can be used as an emergency fuel.

17. Service Water Treatment (Service Water Changes)

The reactor clarifier was designed to operate as a clarifier only, but due to the high hydrogen ion concentration and calcium hardness of the Guluc River water, it is necessary to operate the reactor clarifier also as

a cold lime softner. This practice results in the scaling and clogging of mill water lines.

The proper chemical treatment equipment will be installed to reduce scaling and clogging of the mill water lines and its associated equipment.

18. Recirculating Water System (B.O.F.)

It is planned to have a cooling tower, hot and cold wells, and recirculating pumps installed for the recirculation of water through the indirect cooling water system at the basic oxygen furnace. This installation will reduce the load on the reactor clarifier by approximately 3,000 gallons per minute.

19. Maintenance Equipment

More complete maintenance equipment is required to do routine repair work to help reduce operating delays. Because of long waits for delivery and high import duties, items which would normally not be repaired in a U.S. steel plant can and should be repaired at Fregli, as well as because contract arrangements with other maintenance shops in Turkey are poor due to excessive transportation costs and time requirements.

20. Rolling Stock and Mobile Equipment

Increased production will involve the handling of increased quantities of raw materials, in-process products, and finished products. Much of the existing mobile equipment is a carry-over from construction days, and is not always the appropriate type to do more than a bare minimum job in its present application. Railroad rolling stock also will have to be supplemented as production increases. The equipment will be purchased on an as needed basis.

21. Main Electrical Substation and Distribution

Expanded operations will require additional power, distribution, and switching. The main substation will be equipped to handle the increased load by the installation of two 150-DE-1000, 1200 amperes, 13.8 KV feeder circuit breakers. Additional substations will also be installed in conjunction with the installation of the new oxygen plant.

22. Spare Operating Parts

Fregli facilities, both existing and as proposed in this program, are of the most modern type. They are also furnished from distant sources, and in most cases cannot be serviced by parts available locally. This makes it necessary to have on hand a relatively large inventory of spare parts in order to assure continuity of operation.

The supplier of each item of equipment included in this program will be requested to submit a list of recommended spare parts, and purchases thereof will be made as warranted.

23. Construction Equipment Spares

During a construction project such as the one proposed here, a considerable amount of spare parts, tools, and special equipment will be required.

24. Ocean Freight and Insurance

The amount shown is the total estimated cost of ocean freight and insurance for all of the imported items in the program.

25. Erdemir Purchasing Mission

The amount shown is the estimated cost of the Erdemir staff which will be sent to the United States to carry out the purchasing of U.S. equipment.

26. Provision for Escalation

Since the cost estimates were made in the first half of 1966, and since purchases will be made over a period of two years or more, escalation is included to provide for anticipated cost increases. This provision will also cover changes in design or in scope that may be necessary or desirable as the program is being implemented, as well as unanticipated cost increases.

27. Provisions for Steel Survey

The Armco expansion program covers Erdemir's facilities expansion requirements through 1970. Although the Armco Report suggests equipment for future consideration beyond the currently proposed program, an expansion plan for the 1970's will be needed. Armco has stressed that continued facilities planning for Erdemir is essential if the future demands of the Turkish steel market are to be met effectively.

Funds are included to enable Erdemir's management to engage a consultant upon the completion of construction of the presently proposed program to assist in developing a facilities expansion plan for the 1970's.

28. Engineering, Supervision of Construction and Start-Up, etc.

This item is the estimated cost of engaging a contractor like Koppers to serve as "Project Manager", which entails engineering services, purchasing assistance, and supervision of construction and start-up.

29. Baird Spectrograph

This is a machine that provides quick, reliable chemical analysis of the steel being made, thus reducing the possibility of having to divert heats.

30. Tinning Line Modifications

Tinning line modifications. This involves the installation of two more tanks in the present line, plus provisions for speeding up the line to increase production of Tin Plate.

SCHEDULE OF GROSS PROFIT/TCN BY MAJOR FLAT PRODUCT GROUPEREGLI STEEL MILL

(based on 1967 actual figures) TL per ton.

<u>Product</u>	<u>Sales Price</u>	<u>Cost</u> ^{1/}	<u>Gross Margin</u>
Plate ^{2/}	1,944	1,216	728
Hot Rolled Sheets	1,851	1,394	457
Skelp	1,770	1,389	381
Cold Rolled Sheets	2,449	1,715	734
Tinplate	3,252	2,302	950

1/ Variable cost, excluding depreciation, etc.

2/ Although plate at the present time shows a relatively good gross margin, there are two factors which must be taken into account in assessing its overall attractiveness:

- A. Its present price is admittedly (by Ereğli) out of line, and
- B. Its market potential is believed to be limited as this is an item which can be imported duty free (at a significantly lower cost).

Eregli Steel Mill

ANNEX

D

Comparison of Various Market Forecasts by Major Product Group With Assumed Level of Sales

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
PLATE:										
Erdemir New Mkt			56,000	65,000	74,000	85,000	97,000	108,000	119,000	129,000
ARMCO Hi Mkt					42,000					66,000
ARMCO Lo Mkt					40,000					58,000
Assumed Eregli Sales	27,251	31,239	33,000	56,000	74,000	85,000	85,000	85,000	85,000	85,000
HOT ROLLED SHEET:										
Erdemir New Mkt			62,000	71,000	79,600	92,000	103,000	115,000	127,000	139,000
ARMCO Hi Mkt					97,000					159,000
ARMCO Lo Mkt					89,000					132,000
Assumed Eregli Sales	34,327	54,772	35,000	62,000	79,600	92,000	92,000	92,000	92,000	92,000
SKELP:										
Erdemir New Mkt			91,000	104,000	120,000	137,000	156,000	173,000	192,000	210,000
ARMCO Hi Mkt					105,000					140,000
ARMCO Lo Mkt					105,000					140,000
Assumed Eregli Sales	60,545	57,516	80,000	73,000	40,400	57,000	57,000	57,000	57,000	57,000
COLD ROLLED SHEET:										
Erdemir New Mkt			125,600	141,000	156,200	182,000	210,000	237,000	263,000	292,000
ARMCO Hi Mkt					109,000					175,000
ARMCO Lo Mkt					105,000					165,000
Assumed Eregli Sales	36,641	76,624	105,000	105,000	126,000	126,000	126,000	126,000	126,000	126,000
TINPLATE:										
Erdemir New Mkt			61,800	71,000	81,500	93,000	105,000	117,000	128,000	142,000
ARMCO Hi Mkt					49,000					74,000
ARMCO Lo Mkt					45,000					65,000
Assumed Eregli Sales	<u>26,671</u>	<u>40,877</u>	<u>62,000</u>	<u>62,000</u>	<u>75,000</u>	<u>75,000</u>	<u>75,000</u>	<u>75,000</u>	<u>75,000</u>	<u>75,000</u>
TOTAL FLAT PRODUCTS:										
Erdemir New Mkt			396,400	452,000	511,300	589,000	671,000	750,000	829,000	912,000
ARMCO Hi Mkt					402,000					614,000
ARMCO Lo Mkt					384,000					560,000
Assumed Eregli Sales	185,435	261,028	315,000	358,000	395,000	435,000	435,000	435,000	435,000	435,000

EREGLI STEEL MILL
PROJECTED STATEMENT OF PROFIT AND LOSS

ANNEX E.1

	(TL 000)									
	1966 1/ (Audited)	1967 1/ (Unaudited)	1968 Forecast	1969 Forecast	1970 Forecast	1971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast	1975 Forecast
Product Sales (MT 000)										
Tinplate	26,671	40,877	62,000	62,000	75,000	75,000	75,000	75,000	75,000	75,000
Cold Rolled Sheet	36,641	76,624	105,000	105,000	126,000	126,000	126,000	126,000	126,000	126,000
Hot Rolled Sheet	34,327	54,772	35,000	62,000	79,600	92,000	92,000	92,000	92,000	92,000
Plate	27,251	31,239	33,000	56,000	74,000	85,000	85,000	85,000	85,000	85,000
Skelp	60,545	57,516	80,000	73,000	40,400	57,000	57,000	57,000	57,000	57,000
Total Flat Products	185,435	261,028	315,000	358,000	395,000	435,000	435,000	435,000	435,000	435,000
Billets	8,772	20,936	55,000	---	---	---	---	---	---	---
Pig Iron	67,430	58,567	45,000	70,000	83,000	33,000	33,000	63,000	63,000	63,000
Sales Revenue (TL)	487,194	699,794	843,000	884,000	998,000	1,030,000	1,030,000	1,055,000	1,055,000	1,055,000
Cost of Sales	308,594	463,305	539,000	523,000	608,000	653,000	687,000	739,000	739,000	739,000
Gross Profit (excl. Depreciation)	178,600	236,489	304,000	361,000	390,000	377,000	343,000	316,000	316,000	316,000
Selling & Administrative Expense	17,288	15,438	20,000	26,000	27,000	29,000	31,000	33,000	33,000	33,000
Depreciation	89,559	90,288	91,000	93,000	96,000	98,000	99,000	100,000	101,000	102,000
Amortization of Prd.OP.Exp.	11,414	11,509	11,000	11,000	11,000	---	---	---	---	---
Exp. Mgt. Exp.	18,597	26,200	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Total Operating Expense	136,858	143,485	133,000	141,000	145,000	138,000	141,000	144,000	145,000	146,000
Operating Profit	41,742	93,004	171,000	220,000	245,000	239,000	202,000	172,000	171,000	170,000
Other Income	---	---	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)
Interest	57,821	52,532	140,216	143,826	145,479	138,644	132,107	124,920	115,348	105,779
Payment on Deferred Interest	---	32,378	22,227	62,539	63,626	---	---	---	---	---
Net Profit before Taxes	(16,079)	8,094	9,557	15,635	37,895	102,356	71,893	49,080	57,652	66,221
Less Income Tax	---	1,619	1,911	3,127	7,579	20,471	22,590	17,669	20,754	23,839
Net Profit after Taxes	(16,079)	6,475	7,646	12,508	30,316	81,885	49,303	31,411	36,898	42,382

1/ The profit and loss figures for these years reflect the reduction of interest on Lira repayable debt to 1% for 1966 and 1½ for 1967. The 1966 loss without this reduction would have been approximately \$15.5 million.

EREGLI STEEL MILL
PROJECTED BALANCE SHEET

ANNEX E.2

	(TL 000)									
	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Current Assets:										
Cash	11,224	59,884	152,685	326,367	375,285	384,597	415,814	389,823	370,319	357,299
Accounts Receivable	41,371	41,371	41,371	41,371	41,371	41,371	41,371	41,371	41,371	41,371
Inventories	419,569	371,422	350,077	340,077	331,337	333,054	333,054	333,054	333,054	333,054
Prepaid Items	37,180	37,180	37,180	37,180	37,180	37,180	37,180	37,180	37,180	37,180
Total Current Assets	<u>509,364</u>	<u>509,857</u>	<u>581,313</u>	<u>744,995</u>	<u>785,173</u>	<u>796,202</u>	<u>827,419</u>	<u>801,428</u>	<u>781,924</u>	<u>765,904</u>
Current Liabilities:										
Deferred Interest Payable	0	32,378	22,227	62,539	63,626	---	---	---	---	---
Short Term Bank Credits	59,618	---	---	---	---	---	---	---	---	---
Accounts Payable	54,911	54,911	54,911	54,911	54,911	54,911	54,911	54,911	54,911	54,911
Current Portion of Long Term Debts	48,041	37,542	16,787	124,838	123,161	128,853	157,402	157,402	157,402	157,402
Dividend Payable	---	12,400	---	---	---	---	---	---	---	---
Other Liabilities	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894
Total Current Liabilities	<u>167,464</u>	<u>142,125</u>	<u>98,819</u>	<u>247,162</u>	<u>246,592</u>	<u>188,658</u>	<u>217,207</u>	<u>217,207</u>	<u>217,207</u>	<u>217,207</u>
Net Working Capital	<u>341,800</u>	<u>367,732</u>	<u>482,494</u>	<u>497,833</u>	<u>538,581</u>	<u>607,544</u>	<u>610,212</u>	<u>584,221</u>	<u>564,717</u>	<u>551,697</u>
Property, Plant & Equipment	<u>2,464,528</u>	<u>2,518,339</u>	<u>2,572,087</u>	<u>2,629,759</u>	<u>2,655,778</u>	<u>2,662,204</u>	<u>2,673,139</u>	<u>2,673,139</u>	<u>2,673,139</u>	<u>2,673,139</u>
Less Depreciation	<u>106,324</u>	<u>196,612</u>	<u>287,612</u>	<u>380,612</u>	<u>476,612</u>	<u>574,612</u>	<u>673,612</u>	<u>773,612</u>	<u>874,512</u>	<u>976,612</u>
Net	<u>2,358,204</u>	<u>2,321,727</u>	<u>2,284,475</u>	<u>2,249,147</u>	<u>2,179,166</u>	<u>2,087,592</u>	<u>1,999,527</u>	<u>1,899,527</u>	<u>1,798,627</u>	<u>1,696,527</u>
Deferred Charges (Net)	<u>56,346</u>	<u>44,837</u>	<u>33,837</u>	<u>22,837</u>	<u>11,837</u>	<u>11,837</u>	<u>11,837</u>	<u>11,837</u>	<u>11,837</u>	<u>11,837</u>
Total Assets less Current Liabilities	<u>2,756,430</u>	<u>2,734,296</u>	<u>2,800,806</u>	<u>2,769,797</u>	<u>2,729,584</u>	<u>2,706,973</u>	<u>2,621,576</u>	<u>2,495,585</u>	<u>2,375,081</u>	<u>2,260,061</u>
Less Provisions for B.F. Reline	<u>5,344</u>	<u>9,197</u>	<u>13,121</u>	<u>18,306</u>	<u>21,272</u>	<u>29,472</u>	<u>29,472</u>	<u>29,472</u>	<u>29,472</u>	<u>29,472</u>
	<u>2,751,086</u>	<u>2,725,099</u>	<u>2,787,685</u>	<u>2,751,491</u>	<u>2,708,312</u>	<u>2,677,501</u>	<u>2,592,104</u>	<u>2,466,113</u>	<u>2,345,609</u>	<u>2,230,589</u>
Represented by:										
Long Term Debt	2,293,868	2,255,939	2,289,324	2,348,673	2,270,501	2,166,497	2,060,346	1,902,944	1,745,542	1,588,140
Less Current Portion Above	48,041	37,542	16,787	124,838	123,161	128,853	157,402	157,402	157,402	157,402
	<u>2,245,827</u>	<u>2,218,397</u>	<u>2,272,537</u>	<u>2,223,835</u>	<u>2,147,340</u>	<u>2,037,644</u>	<u>1,902,944</u>	<u>1,745,542</u>	<u>1,588,140</u>	<u>1,430,738</u>
Equity:										
Capital Stock	521,338	528,706	528,706	528,706	528,706	528,706	528,706	528,706	528,706	528,706
Earned Surplus	(16,079)	(22,004)	(13,558)	(1,050)	29,266	111,151	160,454	191,865	228,763	271,145
Total Equity	<u>505,259</u>	<u>506,702</u>	<u>515,148</u>	<u>527,656</u>	<u>557,972</u>	<u>639,857</u>	<u>689,160</u>	<u>720,571</u>	<u>757,469</u>	<u>799,851</u>
Total	<u>2,751,086</u>	<u>2,725,099</u>	<u>2,787,685</u>	<u>2,751,491</u>	<u>2,708,312</u>	<u>2,677,501</u>	<u>2,592,104</u>	<u>2,466,113</u>	<u>2,345,609</u>	<u>2,230,589</u>

EREGLI STEEL MILL
PROJECTED STATEMENT OF SOURCE AND APPLICATION OF FUNDS
(TL 000)

ANNEX E.3

	1967	1968	1969	1970	1971	1972	1973	1974	1975
Sources:									
Profit (before Interest & Taxes)	93,004	173,000	222,000	247,000	241,000	204,000	174,000	173,000	172,000
Depreciation	90,288	91,000	93,000	96,000	98,000	99,000	100,000	101,000	102,000
Amortization	11,509	11,000	11,000	11,000					
Provision - for Furnace Reline	3,853	3,924	5,185	5,966	5,200				
AID Loan B	10,112	2,515							
European Credit - Expansion		8,100	9,000	8,100					
GOT Loan - Expansion		13,437	14,526	4,851	855	4,131			
Capitalized Interest on GOT Loan		806	1,726	2,121	2,299	2,685			
AID Loan - Equipment & Engineering		32,211	34,146	13,068	5,571	6,804			
Capitalized Interest on Equipment & Eng. Loan		1,933	4,097	5,127	5,769	6,524			
AID Loan - Management		11,250	11,250	11,250	2,250				
Capitalized Interest on Management Loan		675	1,391	2,149	2,413	2,558			
Capital Stock	7,368								
Decrease in Inventories	48,147	21,345	10,000	8,740					
Total Sources	264,281	371,196	417,321	415,372	363,357	325,702	274,000	274,000	274,000
Application:									
Deferred Interest		32,378	22,227	62,539	63,626				
Interest (excluding Deferred Interest)	52,532	140,216	143,826	145,479	138,644	132,107	124,920	115,348	105,779
Taxes	1,619	2,111	3,127	7,579	20,471	22,590	17,669	20,754	23,839
Payment of Principal									
Accruals	2,865								
AID Loan B									
European Credit - Exchange	36,176	26,274	4,619	57		14,692	29,384	29,384	29,384
Chase Debentures	9,000	9,000	9,000	9,000	9,000				
GOT Lira Loans				39,607	39,607	39,607	39,607	39,607	39,607
AID Loan A & Cooley Loans				72,538	72,538	72,538	72,538	72,538	72,538
European Credit - Expansion									
Down Payment		1,620	1,800	1,620					
Principal		648	1,368	2,016	2,016	2,016	2,016	2,016	2,016
GOT Loan - Expansion							3,162	3,162	3,162
AID Loan - Equipment & Engineering							7,683	7,683	7,683
AID Loan - Management							3,012	3,012	3,012
Short Term Credits	59,618								
Dividends		12,400							
Increase in Inventories									
Property, Plant & Equipment	53,811	53,748	57,672	26,019	1,717	10,935			
					6,426				
Total Application	215,621	278,395	243,539	366,454	354,045	294,485	299,991	293,504	287,020
Increase or Decrease in Cash	48,660	92,801	173,682	48,918	9,312	31,217	(25,991)	(19,504)	(13,020)
Beginning Balance	11,224	59,884	152,685	326,367	375,285	384,597	415,814	389,823	370,319
Ending Balance	59,884	152,685	326,367	375,285	384,597	415,814	389,823	370,319	357,299

SUMMARY OF PRINCIPAL COST OF SALES ITEMS

EREGLI STEEL MILL

<u>Item:</u>	TL(000)					
	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u> ^{1/}
Raw Material	278,000	298,000	353,000	368,000	383,000	413,000
Personnel	80,000	88,000	97,000	106,000	117,000	129,000
Supplies & Spares	<u>181,000</u>	<u>137,000</u>	<u>158,000</u>	<u>179,000</u>	<u>187,000</u>	<u>197,000</u>
TOTAL	539,000	523,000	608,000	653,000	687,000	739,000

The above items include cost escalation equivalent to 10% per year through 1973 for personnel costs and of 5% for domestic items and 3½% per year for imported items reflected in raw material, supplies and spares.

^{1/} Above cost escalations are assumed to cease by 1973 and these costs are assumed to remain level thereafter.