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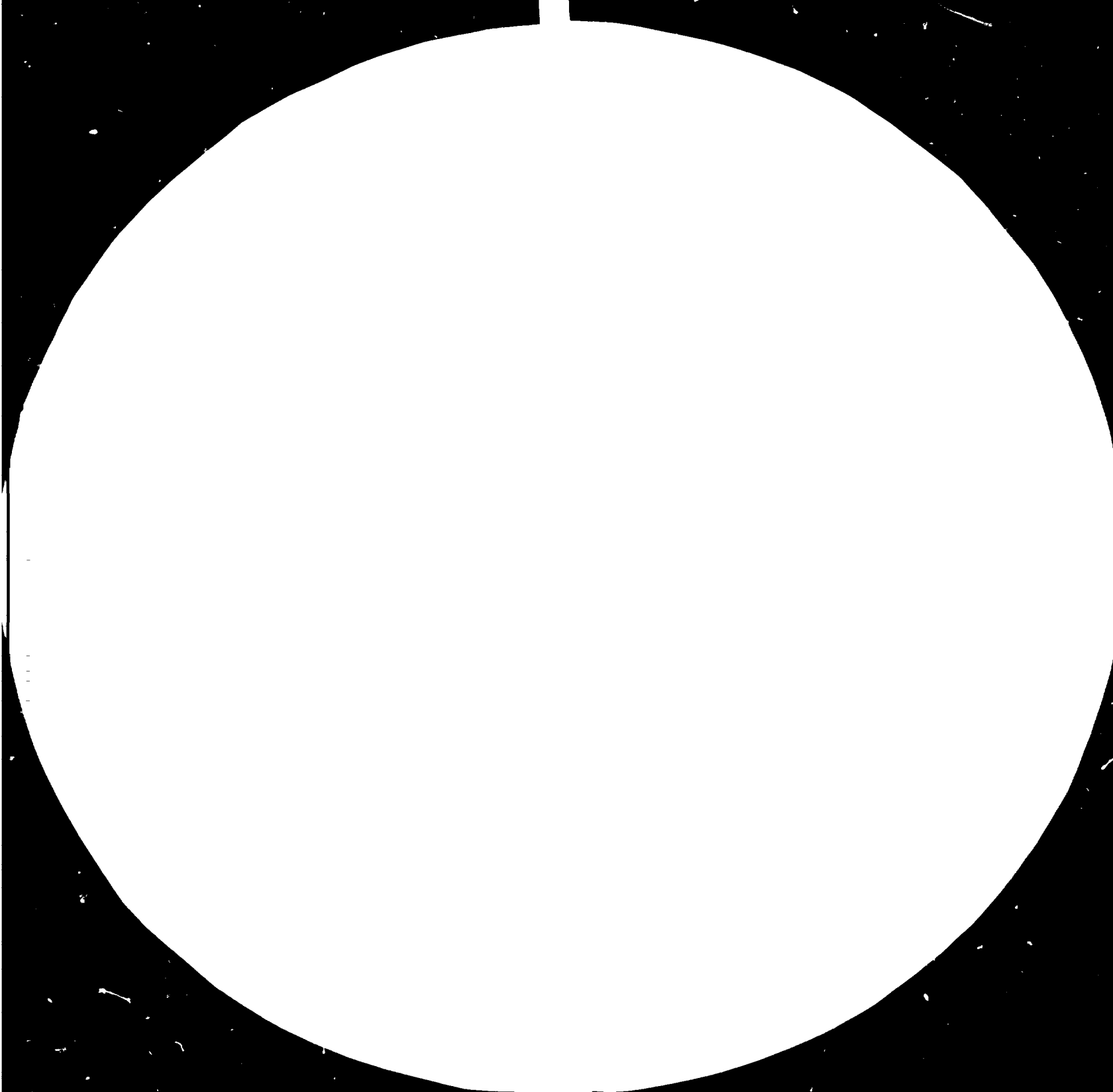
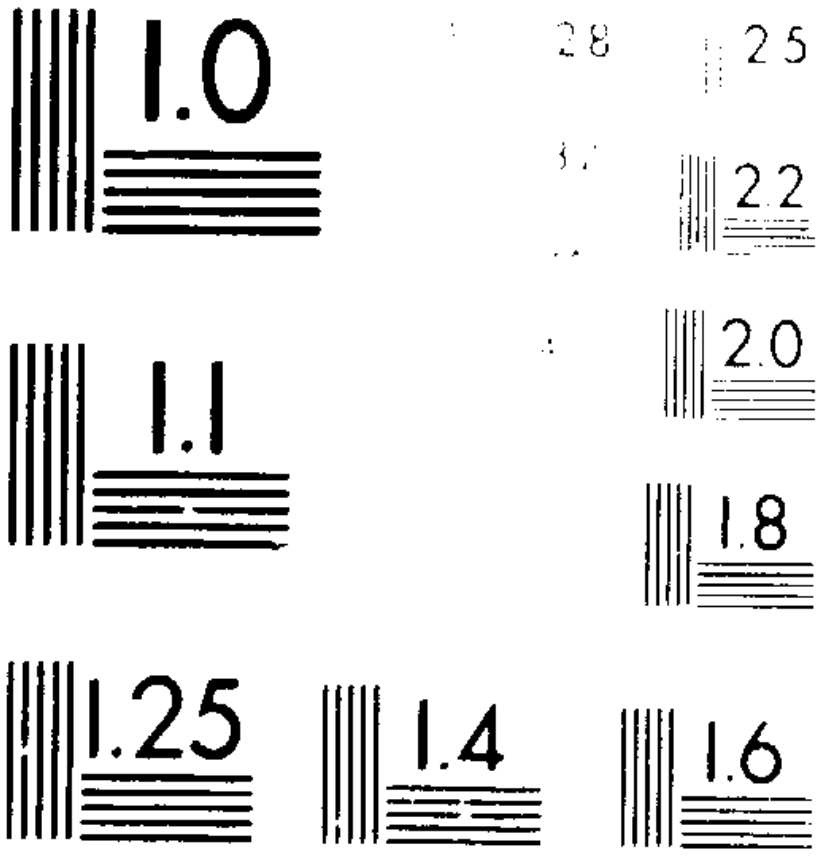




13989

DEVELOPMENT OF CAPITAL GOODS INDUSTRIES

DP/TUR/76/034

TURKEY

Turkey.

TECHNICAL REPORT NO. XV: DEMAND FOR CAPITAL GOODS FOR IRON ORE MINING AND BENEFICIATION

Birleşmiş Milletler Kalkınma Programı

UNITED NATIONS NATIONS UNIES

DEVELOPMENT PROGRAMME IN TURKEY

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION November 1982

RESTRICTED English

DEVELOPMENT OF CAPITAL GOODS INDUSTRIES

DP/TUR/76/034

TURKEY

Technical Report No.XV : Demand for Capital Goods for iron ore mining and beneficiation

Prepared for the Government of Turkey by the United Nations Industrial Development Organization acting as executing agency for the United Nations Development Programme

Based on the work of

Capital Goods Development Project Team in Turkey

United Nations Industrial Development Organization

Vienna

This report has not been cleared with the United Nations Industrial Development Organization which does not, therefore, necessarily share the views presented.

U.N. BUILDING. 197 ATATÜRK BULVARI P.O. BOX 407, ANKARA CABLES : UNDEVPRO TEL : 26 54 85 TELEX : 42684

Birleşmiş Milletler Kalkınma Programı

UNITED NATIONS NATIONS UNIES

DEVELOPMENT PROGRAMME IN TURKEY

CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY OF UNIDO

TABLE OF CONTENTS

U.N. BUILDING, 197 ATATÜRK BULVARI P.O. BOX 407, ANKARA CABLES : UNDEVPRO TEL : 26 54 85 TELEX 42684

LIST OF DIAGRAMS AND CHARTS

UNITED NATIONS BUILDING, 197 ATATÜRK BULVARI, P.O. BOX 407 ANKARA, TURKEY

TITLE			
Ann. I	-	Summary totals	(5 digit SITC)
Ann. II		"	"
Ann. III		"	"
Ann. IV		"	"
Ann. V		"	"
Ann. VI		"	"
Ann. VII		"	"
Ann. VIII		"	"
Ann. IX		"	"
Ann. X		"	"
Ann. XI		"	"
Ann. XII		"	"
Ann. XIII		"	"
Ann. XIV		"	"
Ann. XV		"	"
Ann. XVI		"	"
Ann. XVII		"	"
Ann. XVIII		"	"
Ann. XIX		"	"
Ann. XX		"	"
Ann. XXI		"	"
Ann. XXII		"	"
Ann. XXIII		"	"
Ann. XXIV		"	"

LIST OF ANNEXURES

CHAPTER I

INTRODUCTION

1.1. The State Planning Organization (SPO) of Turkey in close collaboration with the United Nations Industrial Development Organization (UNIDO) has undertaken a detailed study to develop and expand the capital goods manufacturing industries.

1.2. T.D.Ç.İ (Turkish Iron and Steel Company), being the only company in Turkey for large-scale of iron ore mining and concentration, was asked by SPO to undertake the iron ore sector of this comprehensive study.

1.3. The whole project involving various industry sectors has been conducted under the direction of Mr.M.M.Luther, Chief Technical Adviser since Nov.1979. Mr.Jan Malkus, Industrial/ Mechanical Engineer, joined the project as an expert in March 1981 and was assigned to work with T.D.Ç.İ experts.

1.4. Throughout the course of this study the team of engineers, Mr.Erol Akca, Miss Gönül Günvaran, and Mr.Cemal Dirican assigned by T.D.Ç.İ concentrated on the equipment and machinery requirements related to future new

and expansion of existing mines and beneficiating plants. In T.D.Ç.İ,this study was conducted under the guidance of Mr.Tuğrul Aktugay,Ceneral director of T.D.Ç,İ.

1.5. Mrs.Güler İzmirlioğlu and Mr.Ziya Sıddıki, National Project coordinators have been continuosly associated with the work at all stages.

1.6. This report has been discussed with the management of T.D.Ç.İ who are in agreement with it.

1.7. This report follows the methodology for process industries detailed in Technical Report No 1 by C.T.A,Capital Goods Development Project. It outlines the requirement of capital goods for two new mines and beneficiating plant and for expansion and replacement of 15 mines currently visualised for this sector and equipment requirement for replacement for 15 mines.

1.8. This report describes in brief, the work done, the methodology followed and gives samples of charts and formets besides summeries of capital goods demand, plant wise and year wise both by weight and value.

1.9. All the detailed data including moduler production diagram, production activities chart, plant survey form and year-wise details of demand for capital goods for individual mines are in pages 16-48

CHAPTER II

OBJECTIVES AND METHODOLOGY

2.1. OBJECTIVES OF THE PROJECT

2.1.1. The main objective of the Capital Goods Development Project is to plan the long range development of capital goods industry in Turkey through identification of machinery and equipment requirements of industrial plants planned to be constructed up to 2000 and prepare plans for manufacture of as many of these capital goods as possible to reduce the level of their imports.

2.1.2. The demand for capital goods for process industries has been determined by following the methodology presented in Technical Report No.1-Methodology for Planning of Capital Goods Industries by CTA, UNIDO. It deals with the details of equipment and machinery in terms of their specifications as well as manufacturing characteristics.

2.1.3. By means of a computer programme, the expected requirement for groups of equipment for the plants were determined and sorted in ascending numerical order according to their codes and classified into groups of equipment.

The computer programme also lists for each equipment the quantity required, unit weight and unit cost in US dollars (1980 base) and furthermore, gives weight and cost distributions, yearwise on the basis of anticipated year of commissioning. These lists have been compiled as a result of examination of the modular production charts, modular flow diagrams and plant survey forms which are explained in the following sections.

2.2. METHODOLOGY FOR PROCESS INDUSTRIES

2.2.1. Different concept have been used by the Capital Goods Development Project teams for working out future demands of capital goods in different types of industries. This section briefly outlines the methodology as developed for process industries. The technology and plant size for each plant have been considered and mathematical model developed. The data has been codified under 15 digit codes and information transferred on to a computer programme. Using a computer system, it will be possible to identify common items and to readily establish requirements first for each plant, then for the particular industry and finally for all industries.

Estimated cost data for each item has also been included in the programme.

Instruments and electrical requirements are not included in this study.

2.3. CLASSIFICATION OF INDUSTRY

2.3.1. COMMODITY CLASSIFICATION

The 4 digit Industrial Standard Industrial Classification of all Economic Activities of United Nations (ISIC) has been used as the basis for classification of different parameters of industry to suit the Turkish conditions. A fifth digit has been added to identify the specific commodity under consideration, as shown below

ISIC Code 2301- Iron ore mining

Mines engaged in extraction of iron ore magniferous iron ore and iron sand, and establishments engaged in beneficiating and otherwise preparing such ores. Pyrite and pyrrhotite mining is classified in group 2902 (Chemical and fertilizer mineral mining)

2301-1-Iron ore

2.3.2. MODULAR PRODUCTION CHART

This chart shows the use of raw materials, the resultant intermediate products, by-products, waste products and of course the final products.

It does not take into account the process used nor the type of machinery or plant capacities. The main products

and by-products are indicated in a square and the waste products in an ellipse. Full lines joining any two represent a production module in which the machine pool exists. In case of more than one entry to the same production module, these multiple production lines converging for production modules are represented by a full production line. Each product (Main, by-,intermediate or waste) has been given a two digit number. These are on pages 16-17 for pellets and 35-36 for Siderite ore.

2.3.3. INDUSTRY ACTIVITIES CHART

To classify and codify the process industries and production activities an industry activities chart showing the stages of production has been prepared for each main product. A cumulative 9 digit coding system consisting of SITC code for industry sector (4), main product (1), intermediate product or production stage (2), technology (1), capacity (1) has been used. As explained in Para 2.3.1.,the 5th digit identifies the main product, a specific item in the sector covered by the relevant ISIC code. Out of the remaining 4 digits on the industry activity chart, the first 2 for intermediate products which are processed in a production module. The 8th and 9th digits are for the alternative technologies and capacities of a particular production module respectively. In addition the name of the critical equipment and its capacity (defined as the 8th digit of SITC Codification

system which will be described later) are also shown on the chart. In case of more than one critical equipment determining the capacity the item with the highest value is considered as critical. These are on page 18 for pellets and page 37 for Siderite ore.

2.3.4. MODULAR PROCESS FLOW DIAGRAM AND PLANT SURVEY FORM

To identify each production module one modular process flow diagram showing the process flow and one plant survey for recording the required information have been prepared.

2.3.4.1 The modular process flow diagram shows the process flow between equipment and machines in the order they are required. The left hand side of the diagram is the flow diagram and the right hand side is the list of equipment which are used in the process together with their 15 digit codes quantitative and machine function codes. Different symbols and codes numbers are given to the equipment according to their functions. The circle symbol(○) and numbers between 0-29 are used for process equipment while the square symbol(□) and numbers 30-39 for inspection, the triangle symbol(▽) and numbers 40-59 for storage, the arrow symbol(◇) and numbers 60-79 for transport equipment. Full lines(—) represent

2.3.4.2. Plant survey form shows besides actual costs and 1980 basis costs, all the actual data of specifications and manufacturing characteristics and identifies specifially the 15 digit code for each. These are on pages 27-34 for Hasançelebi and 42-45 for Deveci.

2.3.4.3. Plant survey form for replacement demands are on pages 46-48.

2.3.4.4. The purchase year, the cost at the time of purchasing and the cost in 1980 US dollars of the equipment are also given in these forms.

2.4. CLASSIFICATION AND CODIFICATION OF CAPITAL GOODS

2.4.1. A 15 digit system based on the 5 digit SITC code has been evolved to cover all capital goods expected to be used in sectors considered by the Capital Goods Development Project in Turkey. The first 5 digits are the SITC codes and classify machines and equipment according to their functions. The next 9 digits have been allocated for definition of nomenclature, specifications and manufacturing characteristics and the last digit is used for information on whether it is imported or manufactured in Turkey. This system is schematically shown on Page 9.

CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

LAYOUT OF 15 DIGIT CODES FOR CAPITAL GOODS

1 2 3 4 5	SITC Group name
6 7	Machine name
8	Major specification(Capacity)
9	Major specification(Optional)
10	Major specification(Optional)
11	Type
12	Manufacturing Characteristics 1(Weight)
13	Manufacturing Characteristics 2(x)
14	Manufacturing Characteristics 3(x)
15	Origin

(x) Type of material in the case of fabricated equipment (eg. type of steel) and that of principal parts in the case of machines (eg. type of casting).

(xx) Plate thickness is the case of fabricated equipment and maximum weight of a component in the case of machinery.

2.4.2. EXAMPLE OF CAPITAL GOODS CODES BASED ON SITC

The 15 digit codes developed on the basis of SITC code Number 69241 is on page 11.

If, for example, a particular drum has to be codified, the 15 digit code for it 692410510322611 would be evolved as under:

The particulars of a drum to be codified are given below:

SITC CODE	69241
Nomenclature	Drum(Digits 6 and 7,Code 05)
Capacity	7.5 m^3 (Digit 8-Code 1)
Major specification 1	Nil (Digit 9-Code 0)
Major Specification 2	Temp.70°C(Digit 10-Code 3)
Type	Cylindrical (Digit 11.Code 2)
Weight	6T(Digit 12-Code 2)
Material	Stainless steel plate (Digit 13-Code 6)
Plate thickness	12 mm (Digit 14-Code 1)
Origin	Turkey (Digit 15-Code 1)

SITC Code 69241 - Casks, drums, cans, boxes and similar containers of sheet or plate iron or steel of a description commonly used for the conveyance or packing of goods.

6-7		8		9		10		11		12		13		14		15	
Basic Machine Nomenclature		Major Specification (Capacity)		Major Spec.-1 Optional		Major Spec.-2 Optional		Type		Manufacturing characteristic -1		Manufacturing characteristic -2		Manufacturing characteristic -3		Origin	
Code	Name	Code	Cubic meters (m^3)	Code		Code	Temperature °C	Code	Description	Code	Weight(tons)	Code	Main body materials	Code	Plate thickness mm.	Code	
01	Boxes	1	Upto 10			1	Above 500	1	Rectangular/ cubic	1	Upto 5	1	Mild steel upto 0.20 carbon (untested quality)	1	Upto 20	1	Turkey
02	Cans	2	10-25			2	500-100	2	Circular cylindrical, semi-cylindrical, elliptical	2	5-10	2	Carbon steel above 0.20 C tested quality	2	20-40	2	Imports
03	Casks	3	25-50			3	100-0	3	Spherical	3	10-25	3	Boiler steel	3	40-50		
04	Containers	4	50-75			4	0-(-25)			4	25-50	4	Alloy steel	4	Over 50		
05	Drums	5	75-100			5	(-25)-(-50)			5	50-100	5	High alloy steel				
06	Vessels	6	100-150			6	(-50)-(-100)			6	100-200	6	Stainless steel				
07	Vessels (lined)	7	150-200			7	(-100)-(-120)			7	200-300	7	Non-ferrous materials				
08	Pots	8	200-300			8	(-120)-(-170)	9	Others (nia)	8	300-500	9	Others				
		9	Over 300			9	Below (-170)			9	Over 500						
99	Others (nia)																

CHAPTER III

PRODUCTION TARGETS AND INVESTMENT PROGRAMME

3.1. Production targets of T.D.Ç.I mines and beneficieting plants between 1983-1993 are shown in table 1. Capacities for the future new and expanded mines are given in the same table.

3.2. The analysis of capital goods for the iron ore mining is based on the data available for the above plants. It is however necessary to note that as detailed market research and feasibility reports are finalised, the actual capacity and hence the capital goods requirements may change. This methodology however has the flexibility to admit changes as who when they are finalised and revised data for a plant as a whole, for a part of the plant fed into the computer files.

CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

PRODUCT		MINE SITE	CAPACITY
CODE	NAME		PRESENT
1	IRON ORE	Attepe-Adana	600.000
		K.Kaya-Kayseri	100.000
		K.dağı-Kayseri	60.000
		Menteş-Kayseri	100.000
		Elmadağ-Adana	-
		Bizmişen-Erzincan	120.000
		Akdağ-Sivas	40.000
		Çavdır-Aydın	-
		Avnik-Bingöl	-
		K.Köprü-Ankara	100.000
		O.Bilisa-Sivas	100.000
		Ç.laya-Sivas	100.000
		B.Eğmir-Balıkesir	100.000
		Avazmant-Balıkesir	-
		Hasançelebi	-
		Deveci	-
		Divriği	1.800.000

PRODUCTION OF MINERALS

2501-IRON ORE MINING

Table 1

(T/Y)	PRODUCTION		
PROPOSED	1983	1988	1993
1.000.000	900.000	1.000.000	1.000.000
150.000	100.000	100.000	100.000
75.000	60.000	60.000	60.000
150.000	150.000	100.000	-
200.000	75.000	100.000	200.000
300.000	230.000	280.000	300.000
75.000	40.000	40.000	40.000
100.000	60.000	100.000	100.000
300.000	-	250.000	300.000
200.000	150.000	150.000	150.000
300.000	150.000	200.000	300.000
300.000	150.000	200.000	300.000
275.000	200.000	275.000	275.000
50.000	50.000	50.000	50.000
18.500.000raw ore (3.000.000) pellet	-	-	18.500.000
2.001.600raw ore (1.290.000) calcined ore	-	-	2.001.600
4.500.000 raw ore (1.300.000) pellets (1.800.000) sinter feed (500.000)lump ore	2.000.000	4.500.000 raw ore	4.500.000 raw ore

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

4.1. The grand total of capital goods demand for the period [illegible] years 1981-1990 is as under:

Weight (Tonnes)	Value (in 1000 US$)
39511.6	135,136.3

The summary of demand by weight is presented on page 49 and by value on page 51.

4.2. The grand total of capital goods demand for the period of [illegible] years 1981-1990 is as under:

[illegible]	Value (in 1000 $ US)
3750.1	26329.2

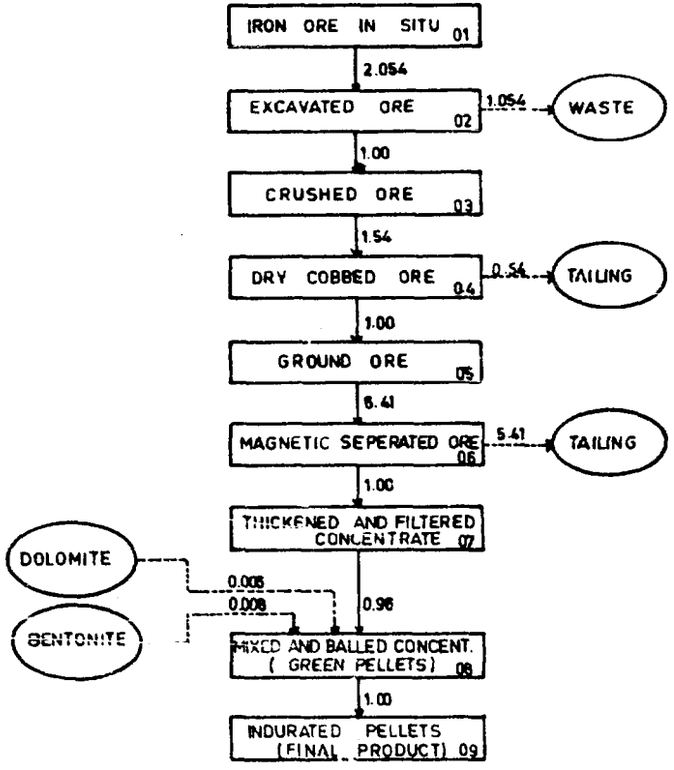
The summary of demand by weight is on page 50 and by value on page 52.

4.3 85-90% of the equipment are machines - the balance 10-15%

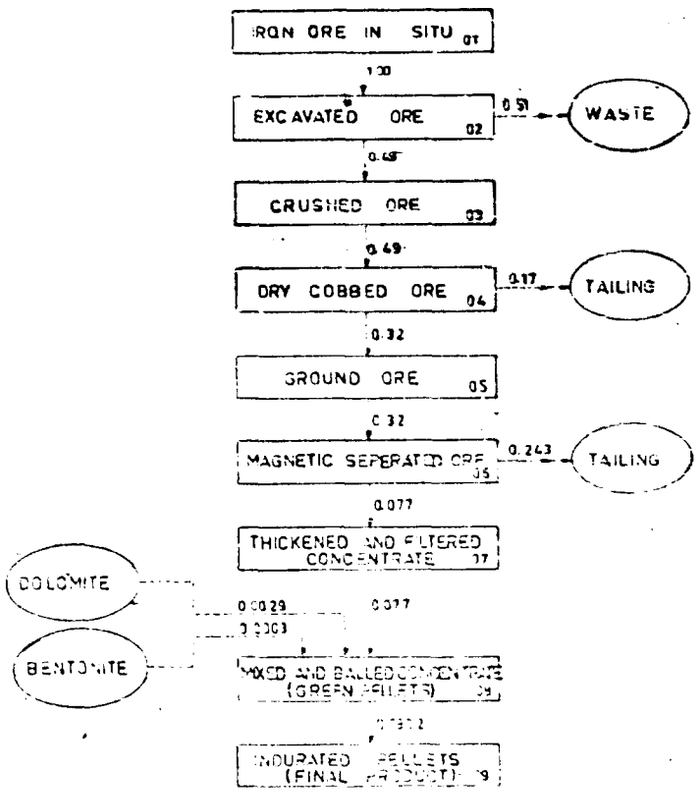
being plate fabrication.

4.4. A survey of present and anticipated capacity for manufacturing of capital goods related to the mining in public and private sector needs to be carried out immediately.

4.5. Based on this survey, a demand-capacity balance of different types of equipment aggregated from the point of view of manufacturing facilities will be necessary.



IRON ORE MINING IRON ORE	COMMODITY CODE 2301 1	
UNIDO / SPO (TDCI) CAPITAL GOODS DEVELOPMENT PROJECT		
MODULAR PRODUCTION DIAGRAM		
PREPARED BY	DRAWN BY	CHECKED BY
H.EROL AKÇA	A.NİYAZİ TOP	
DATE MARCH 1982	CHECKED BY J. MALKUS UNIDO EXPERT	APPROVED BY M.M.LUTHER UNIDO C/A



IRON ORE MINING IRON ORE		INDUSTRY CODE 2301 1
UNIDO /SPO (TOCI) CAPITAL GOODS DEVELOPMENT PROJECT		
MODULAR PRODUCTION DIAGRAM (MATERIAL BALANCE)		
PREPARED BY H. EROL AKCA	DRAWN BY AHMET İSCİ	CHECKED BY
DATE MARCH 1982	CHECKED BY J.MALKUS UNIDO EXPERT	APPROVED BY M.M.LUTHER UNIDO CTA

UNIDO/SPO (TDÇİ)

CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

COMMODITY CODE : 2301 1

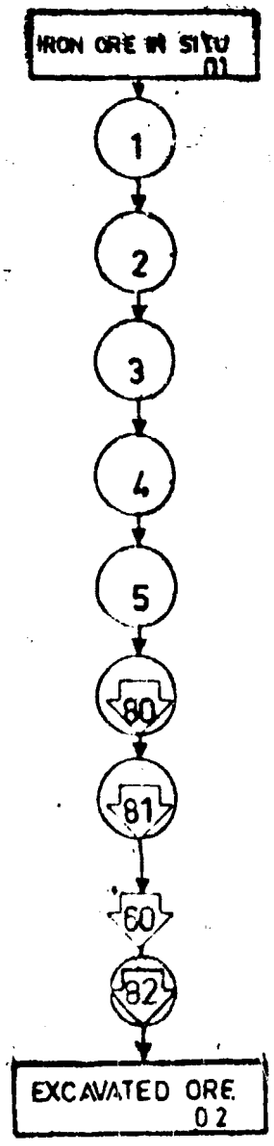
COMMODITY NAME : IRON ORE MINING

PREPARED BY	CHECKDED BY	APPROVED BY
H.EROL AKÇA	J.MALKUS UNIDO EXPERT	M.M.LUTHER UNIDO/CTA

PRODUCTION ACTIVITIES CHART

PART I – Magnetite Ore – HASANÇELEBİ

PRODUCTION STAGE		TECHNOLOGY		CRITICAL EQUIPMENT		DESIGN LINE CAPACITY	
Code	Name	Code	Name	Name	Capacity Range	Code	Capacity (t/h)
00	Excavated Ore	1	Open pit	Shovels	8 m3	1	2336
01	Crushed Ore	1	Crushing	Jaw Crushers	1300 tph	1	2336
02	Dry Dolbed Ore	1	Dry magnetic Separation	Dry magnetic separators	280 tph	1	2336
03	Ground Ore	1	Wet grinding	Ball mills	500 tph	1	1519
04	Magnetic Separated Ore	1	Wet magnetic Separation	Wet magnetic separators	70 tph	1	1518
07	Thickened and filtered concentrate	1	Filtering	Vacuum disc filters	45 tph	1	362
08	Mixed and Balled concentrate	1	Balling	Balling drums	80 tph	1	379
09	Indurated Pellets	1	Straight grate	Straight grate	450 tph	1	379



ACTIVITY CODE		INDUSTRY	PROD.	TEC.	CAR
		2301 1	02	1	1

N	Machine Code	Machine name	Qty
1	7234301513217?2	Blast hole drills	4
2	723430172525742	Blast hole drills	12
3	744111064003922	Blast hole charging vehicle	3
4	744111064003932	Blast hole stemming vehicle	3
5	728322150013932	Secondary breaking equipment	3
80	723421088828762	Shovels	14
81	723420034414752	Front end loaders	2
60	744112055005962	Dump truck	42
82	723410043024752	Bull dozer	

UNIDO/SPO (T.D.Ç.İ.)
CAPITAL GOODS DEVELOPMENT PROJECT

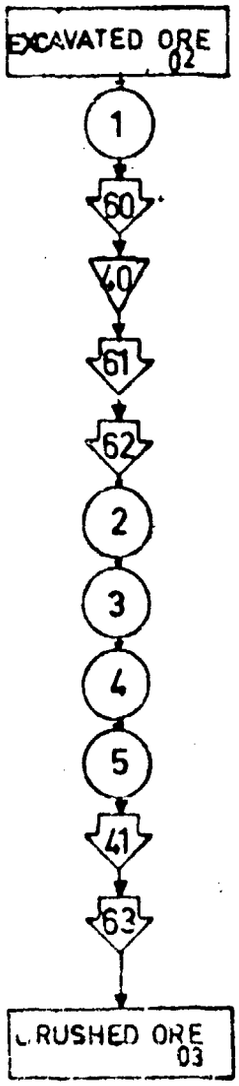
MODULAR PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
2301 1	EXCAVATED ORE	Open pit
DATE	SAMPLE PLANT	CAPACITY PER.:
March 1982	HASANCELEBİ	HOUR 2336
PREPARED BY	DRAWN BY	CHECKED BY
H.EROL AKÇA	AHMET İSCİ	
CHECKED BY	APPROVED BY	
J. MALKUS	M.M. LUTHER	

CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT, SHOVEL
DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR - 600 tons (8m3)
NO. OF CRITICAL EQUIPMENT - 14
DESIGN LINE CAPACITY PER HOUR - 2336 tons
PER SHIFT - 18688 "
PER DAY : 56064 "
* PER YEAR 18500000 "

* 19 500 000 tpy waste rock will also be loaded by these 14 shovels



ACTIVITY CODE	INUSTRY	PROD.		
	2301	03		

N	Machine code	Machine name	Qty
1	728320284316762	Jaw crusher	4
60	744260274019902	Belt conveyor	8
40	69211015442693	Steel bin	5
61	744267484014752	Apron feeder	4
62	744260262012901	Belt conveyor	1
2	728310169012941	Grizzly	5
3	728320184315771	Cone crusher	3
4	728310347012941	Unbalanced two row screen	12
5	728320144315772	Cone crusher	10
41	692110154426931	Steel bin	15
63	744260243013941	Belt conveyor	13

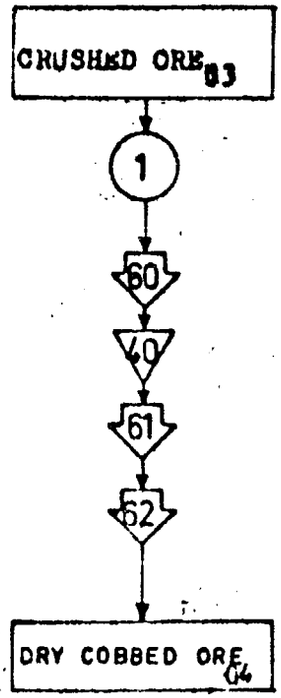
CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT: JAW CRUSHER
DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR — 1380 tons
NO OF CRITICAL EQUIPMENT — 4
DESIGN LINE CAPACITY PER HOUR — 2336 tons
PER SHIFT — 18688 "
PER DAY — 56064 "
PER YEAR — 18500000"

UNIDO / SPO. (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJE

MODULAR PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
2301 1	CRUSHED ORE	Crushing
DATE March 1982	SAMPLE PLANT Ihsangelebi	CAPACITY PER hour 2336
PREPARED BY M.Erol Akça	DRAWN BY AHMET ISCI	CHECKED BY
CHECKED BY J MALKUS	APPROVED BY M M LUTHER	



ACTIVITY CODE	INDUSTRY	PROD	DSC	L
	2301 1	04	1	1

N	Machine code	Machine name	Qty
1	7283130 4001374	Dry magnetic seperator	15
60	74426o284017982	Belt conveyor	2
40	692110154426931	Steel bin	10
61	744260273013943	Belt conveyor	10
62	744260283014962	Belt conveyor	5

UNIDO / SPO(T.D.Ç.İ.)

CAPITAL GOODS DEVELOPMENT PROJECT

MODULAR PROCESS FLOW DIAGRAM

CAPACITY CALCULATION

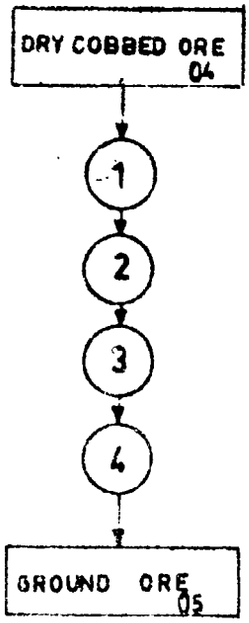
NAME OF CRITICAL EQUIPMENT: DRY MAGNETIC SEPERATOR

DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR — 200 tons

NO OF CRITICAL EQUIPMENT — 15

DESIGN LINE CAPACITY PER HOUR — 2336 tons
PER SHIFT — 18 688 "
PER DAY — 56 064 "
PER YEAR 19 500 000 "

INDUSTRY	PRODUCT	TECHNOLOGY
2301 1	DRY COBBED ORE	Drymagnetic seperation
DATE	SAMPLE PLANT	CAPACITY PER
MARCH 1982	HASANCELEBI	Hour 2336
PREPARED BY	DRAWN BY	CHECKED BY
H. EROL AKCA	AHMET İSCİ	
CHECKED BY	APPROVED BY	
J. MALKUS	M.M. LUTHER	



ACIVITY CODES	INDUSTRY	PROD	
	2301 1	05	1

N	Machine code	Machine name	%
1	728321541718792	Rod mill	5
2	728321141819992	Ball mill	5
3	728311220011212	Hydrocylone	80
4	742200263822232	Slurry pump	10

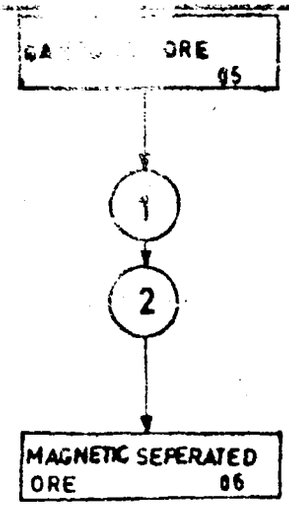
UNIDO / SPO (T.D.Ç.İ.)
CAPITAL GODDS DEVELOPMENT PROJECTS

MODULAR PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
2301 1	GROUND ORE	Wet grinding
DATE	SAMPLE PLANT	CAPACITY PER
MARCH 1982	HASANÇELEBİ	Hour 1519
PREPARED BY	DRAWN BY	CHECKED BY
H.EKOL AKCA	AHMET İSCİ	
CHECKED BY	APPROVED BY	
J. MALKUS	M. LUTHER	

CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT BALL MILL
DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR = 500 tons
NO OF CRITICAL EQUIPMENT = 5
DESIGN LINE CAPACITY PER HOUR 1519 tons
PER SHIFT = 12144 "
PER DAY = 36432 "
PER YEAR = 12022560 "



ACTIVITY CODE	INDUSTRY	PROD.	ISIC	CAP
	2301 1	06	1	Y

N	Machine code	Machine name	qty
1	728313220012739	Wet magnetic seperators	70
2	743620175006941	Tailing thickener	2

UNIDO / SPO (T.D.Ç.İ.)

CAPITAL GOODS DEVELOPMENT PROJECT

MODULAR PROCESS FLOW DIAGRAM

CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT: WET MAGNETIC Seperato

DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQIPMENT PER HOUR 70 TONS

NO OF CRITICAL EQUIPMENT 70

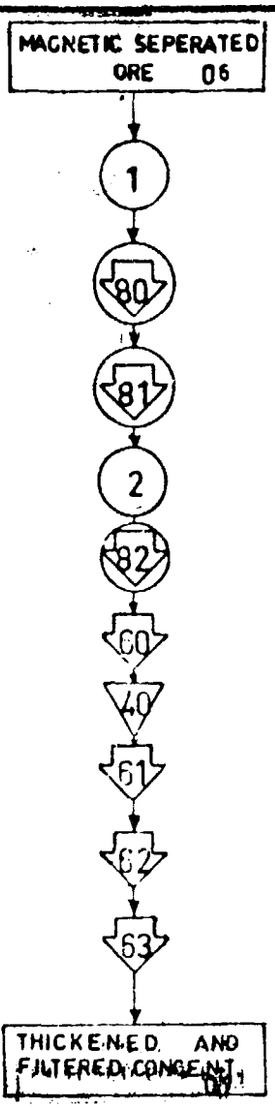
DESIGN LINE CAPACITY PER HOUR = 1519 TONS

PER SHIFT = 12160 "

PER DAY = 36432 "

PER YEAR = 12022560 "

INDUSTRY BY 2301 1	PRODUCT MAGNETIC SEPE_ RATED ORE	TECHNOLOGY Wet magnetic seperation
DATE MARCH 1982	SAMPLE PLANT HASANCELEBİ	CAPACITY PER:
PREPARED BY H.EROL AKCA	DRAWN BY AHMET İSCİ	CHECKED BY Hour 1518
CHECKED BY J MALKUS		APPROVED BY M M LUTHER



ACIVITY CODE		INDUSTRY	PROD.	TEC.	CAP
		2301 1	07	1	1
N	Machine code	Machine name			qty
1	743620165006941	Concentrate thickener			1
80	692110744324911	Slury agitator tank			2
81	742200232821232	Slury pump			8
2	743624231023912	Vacuum disc filter			10
82	743121280111212	Vacuum pump			4
60	744260253018993	Belt conveyor			1
40	692110111323911	Self propolled bin			3
61	744267233011722	Belt feeder			3
62	744260263016982	Belt conveyor			1
63	744260263017992	Belt conveyor			1

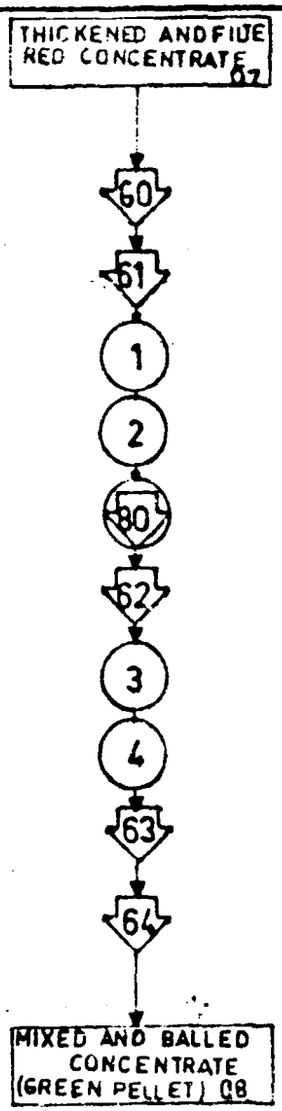
CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT VACUUM DISC FILTER
DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR — 45 TONS
NO OF CRITICAL EQUIPMENT — 10
DESIGN LINE CAPACITY PER HOUR — 362 TONS
PER SHIFT — 2896 "
PER DAY — 8688 "
PER YENAR — 2865000 "

UNIDO / SPO (T.D.Ç.İ.)
CAPITAL GOODS DEVELOPMENT PROJECT

MODULAR PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
2301 1	THICKENED AND FILTERED CONCENT	Filtring
DATE	SAMPLE PLANT	CAPACITY PER.:
MARCH 1982	HASANCELEBI	Hour 362
PREPARED BY	DRAWN BY	CHECKED BY
H.EROL AKCA	AHMET İSCİ	
CHECKED BY	APPROVED BY	
J. MALKUS	M.M. LUTHER	



ACIVITY CODE [illegible] 2301

N	MACHINE CODE	Machine Name	Q
60	744268123011732	Belt weight feeder	3
61	744268122011722	Belt weight feeder	5
1	728321121716772	Ball mill	2
2	728330077023942	Rotary mixer	4
80	728314350001212	Cyclones	6
62	744260263018992	Belt conveyor	1
3	728340345096972	Balling drum	6
4	728310635014762	Self balanced screen	12
63	744260263016982	Belt conveyor	1
64	744268065013732	Roll feeder	1

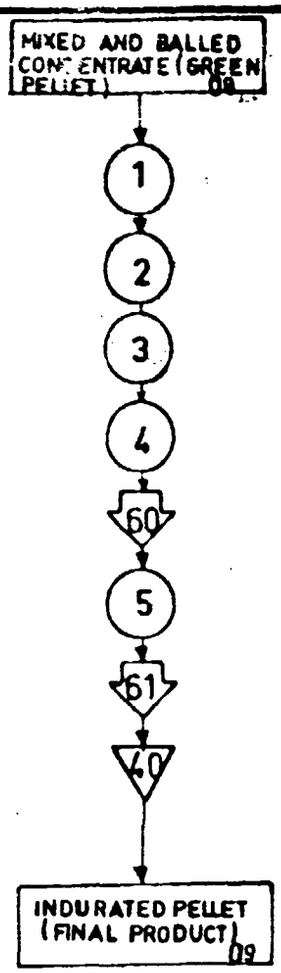
UNIDO/ SPO (T.D.Ç.I.)
CAPITAL GOODS DEVELOPMENT PROJECT

MODULAR PROCESS FLOW DIAGRAM

Industry	product	Technology
2301 1	MIXED AND BALLED CONCENTRATE(Green Pellet)	Balling
Date MARCH 1992	sample plant HASANCELEBİ	Capacity per HOUR 379
Prepared By HEROL AKÇA	Drawn By AHMET İSCİ	Checked By
Checked By J MALKUS	Approved By M.M.LUTHER	

CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT BALLING DRUM
DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR — 80 TONS
NO OF CRITICAL EQUIPMENT 6
DESIGN LINE CAPACITY PER HOUR - 379 TONS
PER SHIFT - 3032 "
PER DAY - 9096 "
PER YEAR 3000000 "



ACTIVITY CODE		INDUSTRY	PROD.	TEC.	CAP
		2301 1	09	1	1
N	Machine code	Machine name			qty
1	741635096399232	Straight Grate			1
2	743610270023432	Electrostatic prespirator			5
3	743611201023522	Cyclones			12
4	728311546014752	Double sprial classfier			2
60	744260263017992	Belt conveyor			1
5	728310645014762	Self balanced screen			3
61	744260243019992	Belt conveyor			2
40	692110112323911	Steel bin			4

CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT STAIGHT GRATE
DESGN THEORETICA CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR— 450 tons
NO OF CRITICAL EQUIPMENT — 1
DESIGN LINE CAPACITY PER HOUR — 379 tons
PER SHIFT — 3032 "
PER DAY — 9096 "
PER YEAR — 3000000 "

UNIDO / SPO (T.D.Ç.İ.)
CAPITAL GODDS DEVELOPMENT PROJECT

MODULAR PROCESS FLOW DIAGRAM

Industry	Product	Technology
2301 1	INDURATED PELLET (FINAL PRODUCT)	Straight grate
Date	sample plant	capacity per:
MARCH 1982	HASANCELEBI	HOUR 3032
Prepared By	Drawn By	Checked By
H EROL AKCA	AHMET ISCI	
Checked By	Approved By	
J. M MALKUS	M.M LUTHER	

UNIDO/SPO (TDC1)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

PLANT SURVEY FORM

Sample plant : HASANCELEBI

PRODUCTION ACTIVITY Code : 2301 1 0211

Sr. no.	Mark Model	Basic Machine Nomenclature	Major Specific (Capacity)	Major Specif (optional)	Major Specif-2 (optional)	Type (Description)	Manufac Characte ristic-1	Manufac Characte ristic-2	Manufac Characte ristic-3	Origin	Qty	Purchase Cost (in thousands) And Currency US $ Unit	Purchase Cost (in thousands) And Currency US $ Total	Constant 1980 Year Cost US $ (in thousand) Unit	Constant 1980 Year Cost US $ (in thousand) Total	Year of Purchase and Remarks	SITC Code (for Computer)
1	2	3	4	5	6	7	MT/Tons 8	9	MT(Tons) 10	11	12	13	14	15	16	17	18
1		Rotary blast hole drill	125	10	60	Crawler	3.5	Alloy steel (duplin)	1.5	Imported	4	33790	135160	33790	135160		7 7 2 3 4 3 3 1 5 1 3 2 1 7 2 2
2		Rotary blast hole drill	250	25	110	Crawler	.65	Alloy steel (sealing	5	Imported	12	258395	3100740	258395	3100740		7 7 2 3 4 3 3 1 7 2 5 2 5 7 4 2
3		Blast hole charging vehicle	18	40	--	--	9	Steel (Spiralate	1.5	Imported	3	43299	129897	43299	129897		7 7 4 4 1 1 1 1 6 4 0 0 2 9 2 2
4		Blast hole stemming vehicle	10	40	--	--	11	Steel (Spiralate	2	Imported	3	52921	158763	52921	158763		7 7 4 4 1 1 1 1 5 4 0 0 3 9 3 2
5		Secondary breaking equipment	7	--	--	Mire	10	Steel (Structu	2	Imported	3	39753	119259	39753	119259		7 7 2 8 1 2 2 1 5 3 0 1 2 9 3 2
30		Shovels	8	13	500	Crawler	30	Alloy steel (Hydra	20	Imported	24	1330679	31936296	1330679	31936296		7 7 2 3 4 3 1 2 9 8 8 2 8 7 5 2
31		Front end loader	2.3	8	100	Mire	10	Alloy steel (Hydra	12	Imported	2	153012	306024	153012	306024		7 7 2 3 4 2 0 2 3 4 4 1 4 7 5 2
40		Dump trucks	15	40	--	--	53	Steel (Structu	15	Imported	41	327143	13413063	327143	13413063		7 7 4 4 1 1 2 2 5 5 0 0 5 9 5 2
42		Bulldozers	220	13	--	Crawler	25.3	Alloy steel (Hydra	13	Imported	7	513176	3591232	135371	3591232		7 7 2 3 4 1 3 2 1 6 3 3 2 4 7 5 2

UNIDO/SPO (TDCI)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

PLANT SURVEY FORM

Sample plant: HASANÇELEBI

PRODUCTION ACTIVITY Code 2301 1 03 11

Sr No	Mark Model	Basic Machine Nomenclature	Major Specific (Capacity)	Major Spec-1 (Optional)	Major Spec-2 (Optional)	Type (Description)	Purchase Price Relative Spec-1 (%)	Manufac Characte-istic-2 (Material)	Manufac Characte-istic-3 (Material)	Origin	Yr	Purchase Cost (in Thousands) And Current US $ Unit	Total	Constant 1975 Year Cost (US $ in Thousands) Unit	Total	Year of Purchase and Remarks	SITC Code (for computer)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
[illegible]		Jaw crusher	1.[illegible]	150	10[illegible]	Horizontal	100	Alloy steel casting	20	Imported	8	516000	2064000	516000	2064000		7 2 8 3 3 0 4 3 1 6 5 6 2
[illegible]		Belt Conveyor	600	2000	—	Bulk material handling	100	Steel fabricate	—	Imported	4	2220000	8880000	2220000	8880000		7 4 4 2 6 0 2 4 0 1 5 5 0 2
[illegible]		Steel bins	3300	20	30-(-15)	Cylindrical	100	Steel fabricate	50	Turkey	5	122753	613765	122753	613765		6 9 2 1 1 0 1 5 4 4 2 6 5 3 1
[illegible]		Apron feeder	800	1800	—	Bulk material handling	30	Alloy steel casting	10	Imported	3	129000	387000	129000	387000		7 4 4 2 6 7 4 6 0 1 4 7 5 2
62		Belt conveyor	450	650	—	Bulk material handling	6	Steel fabricate	—	Turkey	1	24000	24000	24000	24000		7 4 4 2 6 0 2 5 2 0 1 2 9 0 1
[illegible]		Grizzly	500	300	—	Open type	6	Steel fabricate	6	Turkey	5	7416	37080	7416	37080		7 2 8 3 1 0 1 5 9 0 1 2 6 4 1
3		Cone crusher	1000	100	150	Vertical	90	Alloy Steel casting	25	Imported	5	387000	1935000	387000	1935000		7 2 8 3 2 0 1 0 4 3 1 5 7 7 2
4		Unbalanced three screen	200	25	—	Open type	5	Steel fabricate	5	Turkey	15	22660	339900	22660	339900		7 2 8 3 1 0 3 4 7 5 3 3 8 4 1
5		Cone crusher	300	125	150	Vertical	88	Alloy Steel casting	25	Imported	10	378400	3784000	378400	3784000		7 2 8 3 3 0 1 4 4 8 1 5 7 7 2
41		Steel bins	5000	20	30 -(-15)	Cylindrical	120	Steel fabricate	50	Turkey	15	147303	2209545	147303	2209545		6 9 2 1 1 0 1 5 4 4 2 6 8 3 1
63		Belt Conveyor	250	1000	—	Bulk material handling	10	Steel fabricate	5	Turkey	15	35000	525000	35000	525000		7 4 4 2 6 0 2 4 3 0 1 3 9 4 1

UNIDO/SPO (TDÇI)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

PLANT SURVEY FORM

Sample plant : HASANÇELEBİ

PRODUCTION ACTIVITY Code: 2301 1 04

Sr. No.	Mark / Model	Basic Machine Nomenclature	Major Specific (capacity)	Major Spec. 1 (annual)	Major Spec. 2 (annual)	Type (Description)	Manufac. Characte. (istic 1)	Manufac. Characte. (istic 2)	Manufac. Characte. (istic 3)	Origin	Qty	Purchase Cost (in thousands) and Currency (US $)		Constant 1990 Year Cost (US$ in thousands)		Year of Purchase and Remarks	SITC Code (For Computer)
												Unit	Total	Unit	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1		Dry magnetic separator	200	—	—	Dry drum	12	Alloy Steel casting	5	Imported	15	384000	5760000	384000	5760000		7283110 4001137 42
50		Belt conveyor	1000	1500	—	Bulk materials	200	Steel fabriate	100	Imported	2	800000	1600000	800000	1600000		7442602 8401798 2
60		Steel bin	1300	20	30-6-15)	Cylinderical	100	Steel fabriate	50	Turkey	10	122753	1227530	122753	1227530		6321101 5442693 1
61		Belt conveyor	500	12.2		Bulk materials	5	Steel fabriate	8	Imported	10	56250	562500	56250	562500		7442502 7301394
62		Belt conveyor	750	1200	—	Bulk materials	25	Steel fabriate	20	Imported	5	111250	556250	111250	556250		7442602 8301495

PLANT SURVEY FORM

UNIDO/SPO (T.D.C.I)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

Sample plant: HASANÇELEBİ

PRODUCTION ACTIVITY Code 2301 1 05 01

Sl. No.	Maker/ Model	Basic Machine Nomenclature	Major Specific (Capacity)	Major Specific 1 (Optional)	Major Specific 2 (Optional)	Type (Description)	Manufac. Characteristic 1	Manufac. Characteristic 2	Manufac. Characteristic 3	Origin	Qty	Purchase Cost (in thousands) And Currency US $ Unit	Purchase Cost (in thousands) And Currency US $ Total	Constant 1980 Year cost US $ (in Thousand) Unit	Constant 1980 Year cost US $ (in Thousand) Total	Year of Purchase and Remarks	SITC Code (for computer)
							WT (Tons)	MATL	WT (Tons)								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1		Rod mill	350	15	2500	Horizontal	330	Alloy Steel casting	100	Imported	5	1056000	5280000	1056000	5280000		7 2 8 3 2 1 5 4 1 7 1 8 7 7 2
2		Ball mill	350	15	4000	Horizontal	705	Alloy Steel casting	100	Imported	5	2259200	11296000	2259200	11296000		7 2 8 3 2 1 1 4 1 9 1 9 9 2
3		Hydrocyclone	50	—	—	Open Type	15	Grey iron casting	00.750	Imported	50	5450	322500	5450	322500		7 7 5 3 1 1 2 2 0 0 1 1 2 1 2
4		Slurry pump	1000	50	Slurry	Vertical	7.8	Grey iron casting	2	Imported	10	45955	459560	45956	459550		7 4 2 2 5 0 2 6 3 9 2 2 2 3 2

PLANT SURVEY FORM

UNIDO/SPO (TDC11)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

Sample plant : HASANCELEBİ

PRODUCTION ACTIVITY Code : 2351

Sr No	Mark / Model	Basic Machine - nomenclature	Major Specific (Capacity)	Major Spec. 1 (Optional)	Major Spec. 2 (Optional)	Type (Description)	Manufac Characteristic - 1 (Weight)	Manufac Characteristic - 2 (Mat'l)	Manufac Characteristic - 3 (Wt. Tons)	Origin	Qty	Purchase Cost (in thousands) And Currency/US $ Unit	Purchase Cost (in thousands) And Currency/US $ Total	Constant 1980 Year Cost US$ (in thousand) Unit	Constant 1980 Year Cost US$ (in thousand) Total	Year of Purchase and Remarks	SITC Code (For computer)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1		wet magnetic seperators	25	—	—	Low intensity	55	Alloy steel coating	25	Imported	70	20800	1456000	20800	1456000		7 2 8 3 1 3 2 2 0 0 1 2 7 3 2
2		Tailing thickeners	550	100	—	—	190	Steel fabricate	50	Turkey	2	265449	530898	265449	530898		7 4 3 6 2 0 1 7 5 0 0 5 3 4 1

PLANT SURVEY FORM

UNIDO/SPO (T.D.Ç.İ)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

Sample plant : HASANÇELEBİ

PRODUCTION ACTIVITY Code 2301 1 07 11

Sr No	Mark Model	Basic Machine Nomenclature	Major Specific Capacity	Major Spec. 1 (optional)	Major Spec. 2 (optional)	Type (Description)	Manufac Characteristic 1	Manufac Characteristic 2	Manufac Characteristic 3	Origin	Qty	Purchase Cost (in thousands) And Currency US $		Constant 1980 Year cost US $(in thousand)		Year of Purchase and Remarks	SITC Code (For computer)
							WT (Tons)	Mat.	WT (Tons)			Unit	Total	Unit	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1		Concentrate thickeners	200	50	—	—	100	Steel fabricate	50	Turkey	1	144563	144563	144563	144563		7 4 3 5 2 0 1 5 5 0 0 5 3 4
90		Slurry agitator tank	12.50	12	100 - 0	Cylindrical	25.4	Steel fabricate	15	Turkey	2	35674	71348	35574	71343		6 9 2 1 1 0 7 6 4 3 2 4 9 1
81		Slury pump	400	40	Slurry	Vertical	5	Grey iron casting	2	Imported	8	30100	240800	30100	240800		7 4 2 2 9 0 2 3 2 8 2 1 2 3
2		Vacuum disc filter	45	100	—	Multiple zone	17	Steel fabricate	1	Imported	10	59075	590750	59075	590750		7 4 3 5 2 4 2 3 1 0 2 3 9 1 2
82		Vacuum pump	3500	—	Air	Horizontal	2.8	Grey iron casting	0.3	Imported	4	16856	67424	16856	67424		7 4 3 1 2 1 2 8 0 1 1 1 2 1
60		Belt conveyor	375	1200	—	Bulk materials	300	Steel fabricate	150	Imported	1	1050000	1050000	1050000	1050000		7 4 4 2 5 0 2 5 3 0 1 8 9 9
40		Self propelled bin	35	4	100-0	Cylindrical	10	Steel fabricate	5	Turkey	3	12275	36825	12275	36825		6 8 2 1 1 0 1 1 1 3 2 3 3 1
51		Belt feeder	150	1200	—	Bulk materials	45	Alloy steel casting	15	Imported	3	20250	60750	20250	60750		7 4 4 2 5 7 2 3 3 0 1 1 7 2
52		Belt conveyor	400	1400	—	Bulk materials	150	Steel fabricate	75	Imported	1	500000	500000	500000	500000		7 4 4 2 5 0 2 5 3 0 1 5 9 3
93		Belt conveyor	600	1600	—	Bulk materials	220	Steel fabricate	100	Imported	1	980000	980000	980000	980000		7 4 4 2 5 0 2 5 3 0 1 7 9 3

UNIDO/SPO(IDC.1)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

PLANT SURVEY FO

Sample plant

S. No	Mark Number	Basic Machine Nomenclature	Major Specific Capacity	Major Spec - 1 Dimension	Major Spec - 2 Dimension	Type Description	Manufac. Characteristic 1	Manufac. Characteristic 2	Manufac. Characteristic 3
	1	3	5	5	6	7	8	9	10
50		Belt weight feeder	75	1400	----	Bulk materials	4	Alloy steel duties	2
51		Belt weight feeder	50	300	----	Bulk materials	2.5	Alloy steel dealing	1
1		Ball mill	150	15	1500	Horizontal	1.5	Alloy steel	15
2		Rotary dryer	600	40		Continuous	1.5	Grade	1
30		Cyclones	4.5	----	----	----	1.5	Wear	1
52		Belt conveyor	600	1400	----	Bulk materials	3.5	Steel	1.5
3		Balling drum	150	15	----	Horizontal	1.5		1
4		Self balanced screen	50	5	----	Open type	3	Alloy steel	1
53		Bit conveyor	400	1400	----	Bulk materials	1.5		1
54		Roll feeder	400	1000		Bulk materials	2	Steel	1

R.4

SANÇELEBİ

PRODUCTION ACTIVITY Code : 2301 1 08

	Origin	Qty	Purchase Cost (in thousands) And Currency US $ unit	Purchase Cost (in thousands) And Currency US $ total	Constant 1980 Year Cost US$ in thousand unit	Constant 1980 Year Cost US$ in thousand total	Year of Purchase and Remarks	SITC Code (for computer)
	11	12	13	14	15	16	17	18
	Expor-ted	3	2 0250	60750	20250	60750		7 4 4 2 6 8 1 2 3 0 1 1 7 3 2
	Expor-ted	5	11250	56250	11250	56250		7 4 4 2 6 8 1 2 2 0 1 1 7 2 2
	Expor-ted	2	544000	1088000	544000	1088000		7 2 8 3 3 1 1 2 1 7 1 6 7 7 2
	Expor-ted	1	45870	45870	45870	45870		7 2 8 7 1 0 0 7 7 0 2 3 9 4 2
	Expor-ted	6	5160	30360	5160	30360		7 2 8 7 1 4 3 5 0 0 0 1 2 1 2
	Expor-ted	1	1400000	1400000	1400000	1400000		7 4 4 2 6 0 2 5 3 1 1 8 3 3 2
	Expor-ted	5	347500	1085000	347500	2085000		7 2 8 3 4 0 3 4 5 3 3 6 0 7 2
	Expor-ted	12	140432	1685304	140432	1685304		7 2 8 3 1 0 6 3 5 3 1 4 7 5 2
	Expor-ted	1	581000	581000	581000	581000		7 4 4 2 6 0 2 5 3 3 1 5 8 8 1
	Expor-ted	1	40000	40000	40000	40000		7 4 4 2 6 8 0 5 5 3 1 3 7 3 1

UNIDO/SPD (TUR/81)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

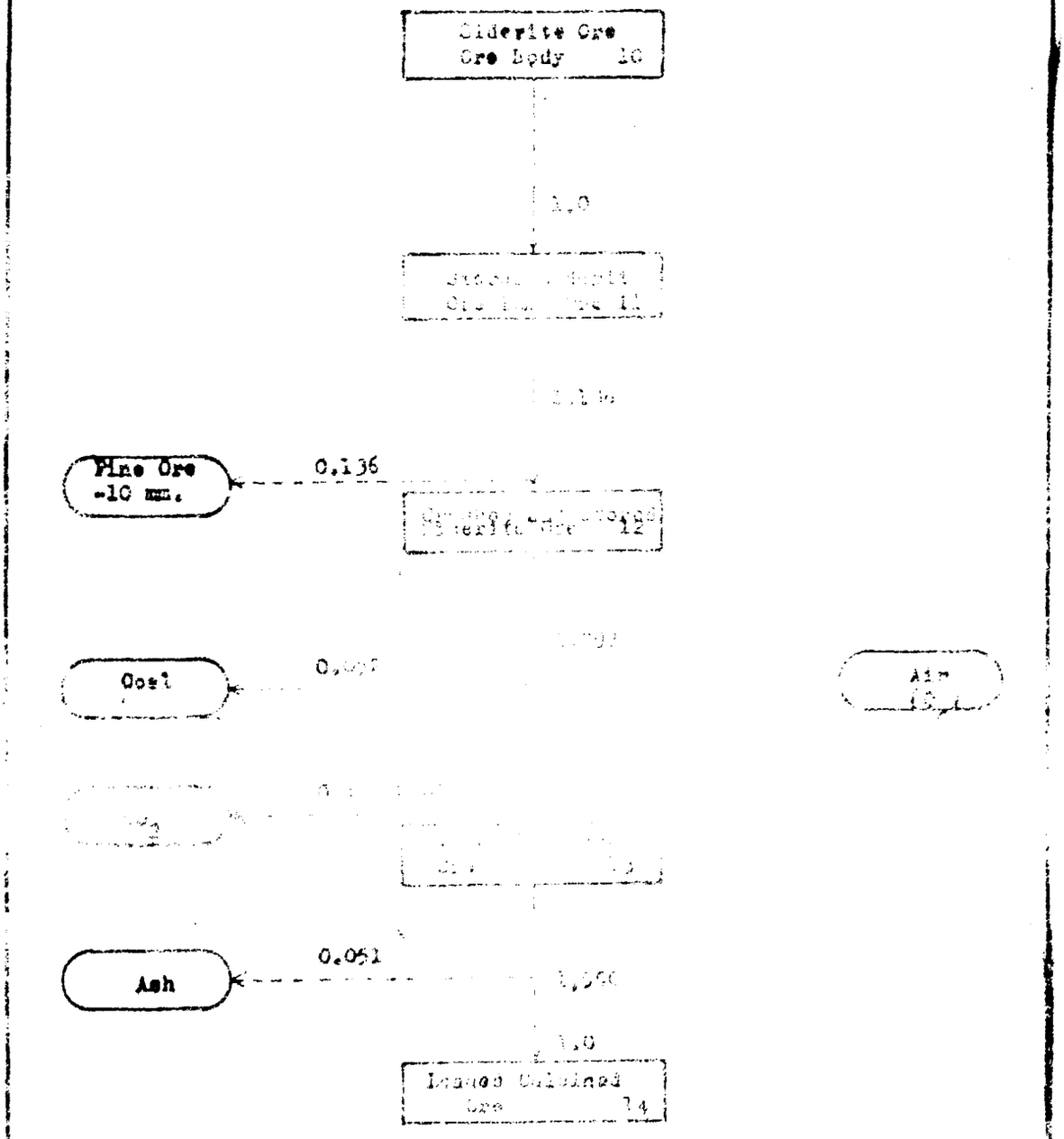
Item No.	Make / Model	Basic Machine Nomenclature	Major Specific (capacity)	Major Spec - 1 (optional)	Major Spec - 2 (optional)	Type (Description)	Manufacturer's Name & Address
1	2	3	4	5	6	7	8
		Straight Grate	450	1320	Gaseous fuel	Induratio	
		Electrostatic precipitator	700	--	--	Multiple zones	
		Cyclones	400	24	--	Multiple zones	
		Double spiral classifier	225	13		Open type	
		Belt conveyor	450	1200		Fine materials	
		Self balanced screen	152	7		Open type	
		Belt conveyor	325	1200		Fine materials	
		Steel bin	450	6	1.5	Cylindrical	

FORM

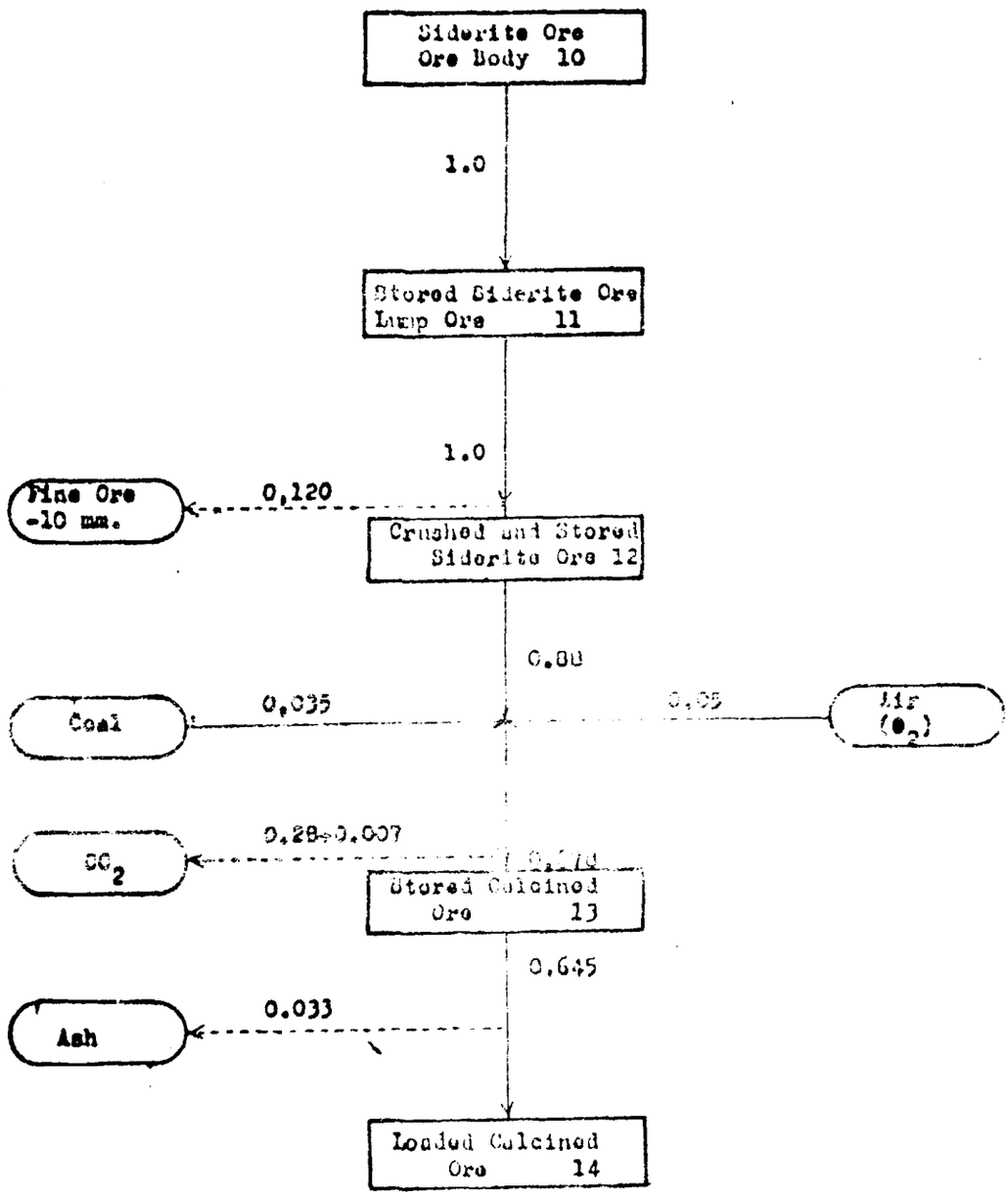
HASANÇELEBİ

PRODUCTION ACTIVITY Code 2301 1 09 11

	Name of Machine (Plant Item)	Origin	Qty	Purchase Cost (in thousands) And Currency US $		Cost of Machine New Cost		Year of Purchase and Remarks	SITC Code (For computer)
	Additional			Unit	Total	Unit	Total		
	10	11	12	13	14	15	16	17	18
		Imported	1	1754875	1754875	1754875	1754875		7 4 5 8 3 5 0 9 6 3 9 9 2 3 2
		Imported	5	144765	723825	144765	723825		7 4 3 6 1 0 2 7 0 0 2 3 4 3 2
		Imported	12	43000	516000	43000	516000		7 4 3 6 1 1 2 0 1 0 2 3 5 2 2
		Imported							7 7 8 3 1 1 5 4 6 0 1 4 7 5 4
		Imported	1						7 4 4 2 6 0 2 6 3 0 1 7 9 3 2
		Imported	3						7 2 8 3 1 0 6 4 5 0 1 4 7 6 4
		Imported	2						7 4 4 2 6 3 2 4 3 0 1 9 5 9 2
		Other	4						5 3 2 1 1 0 1 1 2 3 2 3 9 1



IRON ORE MINING - IRON ORE PART II - Siderite ore	COMMODITY CODE 23011
UNIDO / SPO (T.D.C.I.) NATIONAL GOODS DEVELOPMENT PROJECT	
MATERIAL PRODUCTION DIAGRAM	
PREPARED BY	DRAWN BY / CHECKED BY
	CHECKED BY / APPROVED BY



IRON ORE MINING - IRON ORE	COMMODITY CODE
PART II - Siderite Ore	23011
UNIDO / SPO (T.D.Ç.İ.)	
CAPITAL GOODS DEVELOPMENT PROJECT	
MODULAR PRODUCTION DIAGRAM	
MATERIAL BALANCE	

PREPARED BY	DRAWN BY	CHECKED BY
Gönül GÜNVARAN	Ali ÇETİN	[illegible] AYTUĞ
DATE	CHECKED BY	APPROVED BY

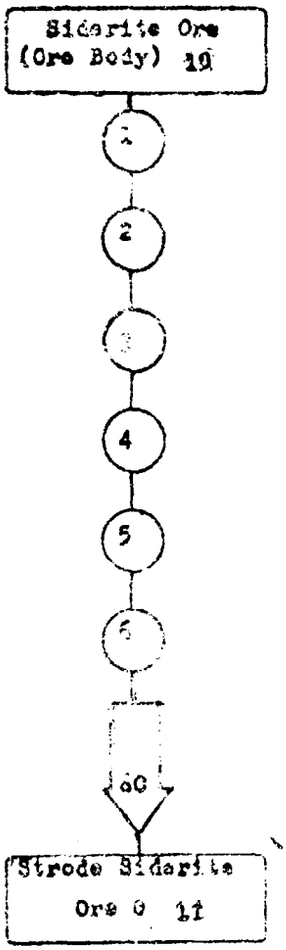
UNIDO/SPO (T.D.Ç.İ.)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

COMMODITY CODE: 2301 1
COMMODITY NAME: IRON ORE AGGLOMERATES-IRON ORE.

PREPARED BY	CHECKED BY	APPROVED BY
Gönül GÜNVARAN	UNIDO EXPERT	UNIDO CTA

PRODUCTION ACTIVITIES CHART
Part II- Siderite Ore

PRODUCTION STAGE		TECHNOLOGY		CRITICAL EQUIPMENT		DESIGN LINE CAPACITY	
Code	Name	Code	Name	Name	Capacity Range	Code	Capacity
11	Stored Siderite Ore	1	Open pit mining	Shovel	Bucket: 5 m^3	1	920 t/h
12	Crushed and Stored Siderite Ore.	1	Crushing	Jaw Crusher	650 t/h	1	556 t/h
13	Stored Calcined Ore	1	Calcination	Calcination Kiln	10 t/h	1	164 t/h
14	Loaded Calcined Ore	1	Loading	Loader	Bucket: 2.32 m^3	1	240 t/h



CAPACITY CALCULATION:

NAME OF CRITICAL EQUIPM: Shovel
DESIGN THEORETICAL CAPACITY OF THE
CRITICAL EQUIPMENT PER HOUR- [illegible] m³.
NO OF CRITICAL EQUIPMENT - 4
DESIGN LINE CAPACITY PER HOUR 920 t.
" " " PER SHIFT 5928t.
" " " PER DAY 11856 t.
" " " PER YEAR
2668000 t.

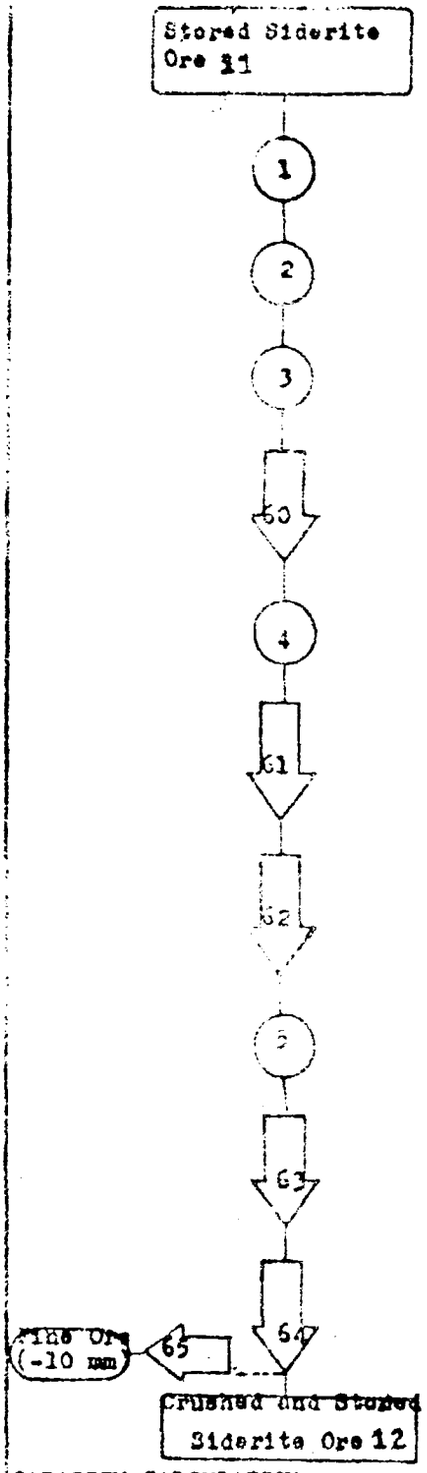
ACTIVITY CODE	INDUSTRY	PROD	TEC	CAT
	2301 1	11	1	1

N	Machine Code	Machine Name	Qt
1	72343 03 66514942	Blast Hole Drill	4
2	72343 01 46322922	Truck Drill	2
3	74313 23 22121X1	Compressor	1
4	72342 10 66526972	Shovel	4
5	72341 00 43024742	Bull Dozer	5
6	72341 10 270 13732	Grexder	1
60	74411 20 46004942	Dump Truck	27

UNIDO/SPO (I.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT

MODULAR PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
Iron ore Mining	Sponsd ging pits opn	Open pit mining
DATE	SAMPLE PLANT	CAPACITY
	PHASE1	920 t/h
PREPARED BY	DRAWN BY	CHECKED BY
[illegible]	[illegible]	[illegible]
CHECKED BY		APPROVED BY
UNIDO/Expert		UNIDO/CTA



ACTIVITY CODE	INDUSTRY	PROD	TEC	CAP
	2301 1	12	1	1

N	Machine Code	Machine Name	Qt
1	72342 00 63514752	Front end loader	1
2	74426 75 73012941	Fibratory Feeders	1
3	72832 02 66315672	Jaw Crusher	1
60	74426 01 73011921	Belt Conveyor	1
4	72832 01 64415672	Cone Crusher	1
61	74426 01 73011911	Belt Conveyor	1
62	74426 01 73017931	Belt Conveyor	1
5	72831 06 66012921	Vibrating screen	1
63	74426 01 73013931	Belt Conveyor	1
64	74426 14 73013931	Reversible movable belt Conveyor	1
65	74426 01 22013521	Belt Conveyor	1

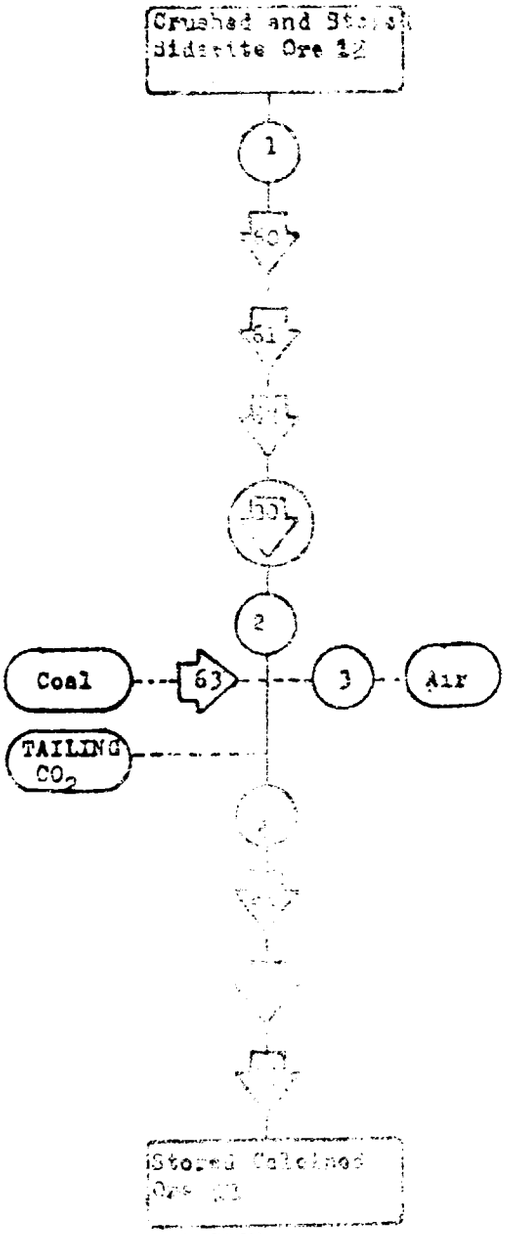
UNIDO/SPO (P.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT

MODULAR PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
Iron ore mining	Crushed ore	Crushing
DATE	SAMPLE PLANT LEVEL	CAPACITY 556 t/h
PREPARED BY G. SHIVARAN	DRAWN BY Ali Ri/Mat TOP	CHECKED BY Gunar EYSEN
CHECKED BY UNIDO/Expert	APPROVED BY UNIDO/CPA	

CAPACITY CALCULATION:

NAME OF CRITICAL EQUPM: Jaw Crusher
DESIGN THEORETICAL CAPACITY OF THE CRITICAL
EQUIPMENT PER HOUR. 650 t/h
NO OF CRITICAL EQUIPMENT 1
DESIGN LOAD CAPACITY PER HOUR- 556 t
" " " PER SHIFT-3330
" " " PER DAY 6672 t
" " " PER YEAR.2001600 t.



		INDUSTRY	PROD	TEC	CAP
		2301 1	11	1	1

N	Machine Code	Machine Name	Qt
1	74426 75 43012931	Vibrating feeder	8
60	74426 01 3201293[illegible]	Belt Conveyor	2
61	74426 01 3201[illegible]911	Belt Conveyor	2
62	74426 01 4301[illegible]921	Belt Conveyor	1
80	74426 14 4301[illegible]931	Kiln Charging Conveyor and charging car	1
2	74132 93 [illegible]4101[illegible]28	Calcination Kiln	18
63	74426 01 3101[illegible]2921	Belt Conveyor	1
3	74342 10 6[illegible]1[illegible]2[illegible]3	[illegible] Blower Units	3
4	74426 75 4301[illegible]4[illegible]	Kiln discharging Vibrating feeder	18
64	74426 01 4301[illegible]993[illegible]	Belt Conveyor	1
65	74426 01 4301[illegible]9931	Belt Conveyor	1
66	74426 01 4301[illegible]9931	Reversible Tripper Conveyor.	1

CAPACITY CALCULATION

NAME OF CRITICAL EQUIPMENT: Calcination kiln

DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR- 10 t

NO OF CRITICAL EQUIPMENT-18

DESIGN LINE CAPACITY PER HOUR-164 t

" " " PER SHIFT-1312 t

" " " PER DAY-3936 t

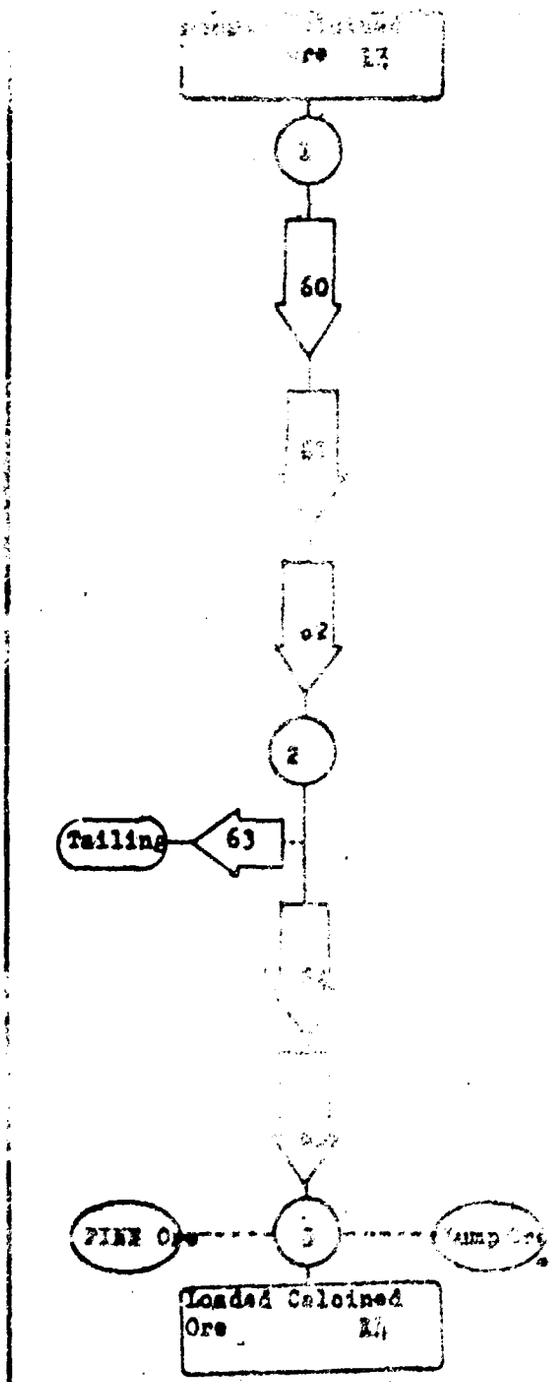
" " " PER YEAR-1200000 t

[illegible] (I.D.[illegible])

CRITICAL EQUIPMENT DEVELOPMENT PROJECT

[illegible] PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
Iron ore mining	Calcined ore	Calcination
BASE	SAMPLE PLANT DEVELOPMENT	CAPACITY 164 t/h
[illegible] BY	[illegible]	CHECKED BY



ACTIVITY CODE		2301 1	14	1	1
N ℕ	Machine Code	Machine name			
1	74426 75 42012931	Vibrating geeder	6		
60	74426 01 32012921	Belt Conveyor	2		
61	74426 01 32011911	Belt Conveyor	2		
62	74426 01 43012931	Belt conveyor	1		
2	72831 06 56012921	Boreen	1		
63	74426 01 63013931	Belt Conveyor	1		
64	74426 01 12013021	Belt Conveyor	1		
	74426 01 11011321	Belt Conveyor	1		
	74426 00 31213741	Loader	2		

CAPACITY CALCULATION
NAME OF CRITICAL EQUIP :
DESIGN THEORETICAL CAPACITY OF THE CRITICAL EQUIPMENT PER HOUR-270 t
NO OF CRITICAL EQUIPMENT - 2
DESIGN LINE CAPACITY PER HOUR-240 t
" " " PER-SHIFT-1920 t
" " " PER-DAY 4680 t
" " " PER YEAR- 1708000 t

(M.T.A.D.S.I.)
MARBLE GOODS DEVELOPMENT PROJECT

MARBLE PROCESS FLOW DIAGRAM

INDUSTRY	PRODUCT	TECHNOLOGY
Iron ore mining	Loaded ore	Loading
DATE	SAMPLE PLANT DEVECI	CAPACITY 240 t/h
PREPARED BY G. GÜNAYDIN	DRAWN BY Ali Niyazi TOP	CHECKED BY Oüner AYTUĞ
CHECKED BY UNIDO/Expert	APPROVED BY UNIDO/CTA	

UNIDO/SPO (T.D.Ç.I.)

PLANT SURVEY FORM

CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

Sample Plant: Devecİ

PRODUCTION ACTIVITY Code. 2301 [illegible]

Sr. No.	Mark/ Model	Basic Machine Nomenclature	Major Specific. (Capacity)	Major Spec-1 (Optional,	Major Spec-2 (Optional)	Type (Description)	Manufac. Character-istic-1	Manufac. Character-istic-2	Manufac. Character-istic-3	Origin	Qty.	Purchase Cost $ (in Thousands) And Currency		Consonant 1980 Year Cost US$ (in Thousand)		Year of Purchase and Remarks	SITC Code (For [illegible]		
							WT (Tons)	MATL	WT (Tons)			Unit	Total	Unit	Total		1 2 3 4 5 6 7 8 9 10 11 [illegible]		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1	-	DTH Blast Hole Drill	200 mm	25 m	110 Kw	Rubber tired	40 t	St.Fab	5 t	Imp.	4	540	2160	497	1988	1981	72343	03	665[illegible]
2	-	Rotart Truck Drill	100 mm	12 m	50 Kw	Crawler	6 t	St.Fab	1.5 t	Imp.	2	153	306	141	282	1981	72343	01	46322922
3	-	Screw Compressor	7 m^3/min	7 Kg/cm^2	Air	V.O.	1.5 t	A.S.C.	0.5t	Tur	1	37	37	34	34	1981	74313	23	22121311
4	-	Power showel	5 m^3	10.3 m	250 Kw	Crawler	150 t	St.Fab	25 t	Imp.	4	1021	4084	347	3788	1981	72342	10	66526973
5	-	Bull Dozer	220 Kw	10 km/h	-	Crawler	31 t	A.S.C.	5 t	Imp	5	241	1205	222	1110	1981	72341	90	43024742
6	-	Grader	110 Kw	40 km/h	-	Rubber tired	13 t	A.S.C.	3 t	Imp.	1	123	123	114	114	1981	72341	10	27013732
60	-	Dump Truck	36 t	60 km/h	-	-	32.5 t	St.Fab	7 t	Imp.	27	270	7290	250	6750	1981	74411	20	46004942

UNIDO/SPO (T.D.Ç.I.)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

PLANT SURVEY FORM

Sample Plant: Deveci

PRODUCTION ACTIVITY Code: 23011 12 11

Sr. No.	Mark/ Model	Basic Machine Nomenclature	Major Specific. (Capacity)	Major Spec-1 (Optional)	Major Spec-2 (Optional)	Type (Descrip- ion)	Manufac. Character- tic-1	Manufac. Character- istic-2	Manufac. Character- istic-3	Ori- gin	Qty	Purchase Cost (in Thoursands) And Currency $		Constant 1980 Year Cost US$ (in thousand)		Year or Purchase and Remarks	SITC Code (For Computer)		
							WT (Tons)	MATL	WT (Tons)			Unit	Total	Unit	Total		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1	-	Front and Loader	5 m^3	6 m.	280 Kw	Rubber tired	42 t	A.S.C.	10 t	Imp.	1	321	321	297.6	297.6	1981	72342	00	63514752
2	-	Fibratory Feeders	650 t/h	1000 mm	-	B.mat	8 t	St.Fab	4 t	Tur	1	100	100	92.7	92.7	1981	74426	75	73012941
3	-	Jaw Crusher	650 t/h	985 r.p.m.	160 Kw.	H.R.	88 t	C.S.	30 t	Imp.	1	810	810	746	746	1981	72832	02	66315672
60	-	Belt Conveyor	650 t/h	1000 mm	-	B.mat	2 t	St.Fab	1 t	Tur	1	17.3	17.3	16.04	16.04	1981	74426	01	73011921
4	-	Cone Crusher	650 t/h	425 r.p.m.	250 Kw	H.R.	66 t	C.S.	40 t	Imp.	1	864	864	795.74	795.74	1981	72832	01	64415672
61	-	Belt Conveyor	650 t/h	1000 mm	-	B.mat	1.5 t	St.Fab	0.8 t	Tur	1	11.59	11.59	10.74	10.74	1981	74426	01	73011911
62	-	Belt Conveyor	650 t/h	1000 mm	-	B.mat	250 t	St.Fab	4 t	Tur	1	1279.9	1279.9	1186.90	1186.90	1981	74426	01	73017931
5	-	Vibrating screens	650 t/h	10 mm	-	Op	6 t	St.Fab	1.5 t	Tur	1	100	100	92.80	92.80	1981	72831	06	66012921
63	-	Belt Conveyor	575 t/h	1000 mm	-	B.mat	20 t	St.Fab	2 t	Tur	1	104.31	104.31	96.66	96.66	1981	74426	01	73013931
64	-	ReversibTe Movable Belt Conveyor	575 t/h	1000 mm	-	B.mat	17 t	St.Fab	3 t	Tur	1	110	110	101.97	101.97	1981	74426	14	73013931
65	-	Belt Conveyor	75 t/h	600 mm	-	B.mat	10 t	St.Fab	1.5 t	Tur	1	69.54	69.54	64.44	64.44	1981	74426	01	220013921

UNIDO/SPO (T.D.C.I.)

PLANT SURVEY FORM

CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

Sample Plant : Deveci.

PRODUCTION ACTIVITY Code: 23011 13 11

Sr. No.	Mark/ Model	Basic Machine Nomenclature	Major Specific. (Capacity)	Major Spec-1 (Optional)	Major Spec-2 (Optional)	Type (Description)	Manufac Characteristic-1 WT(Tons)	Manufac. Characteristic-2 MATL	Manufac. Characteristic-3 WT (Tons)	Origin	Qty.	Purchase Cost (in Thousands) And Currency Unit	Purchase Cost (in Thousands) And Currency Total	Constant 1980 Year Cost US$ (in thousand) Unit	Constant 1980 Year Cost US$ (in thousand) Total	Year of Purchase and Remarks	SITC Code (For Comparison) 2 3 4 5 6 7 8 9 10 11 12		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15	17	18		
1	-	Vibratory Feeders	250 t/h	800 mm	-	B. mat	7.2 t	St.Fab	4 t	Tu	1	80	80.	74.16	74.160	1981	74426	75	42012931
60	-	Belt Conveyor	125 t/h	800 mm	-	B. mat	8,5 t	St.Fab	1,5 t	Tu	2	46.36	92.720	42.96	85.920	1981	74426	01	32012921
61	-	Belt Conveyor	125 t/h	800 mm	-	B. mat	1,5 t	St. Fab	0,5 t	Tu	2	6,955	13.910	6.45	12.890	1981	74426	01	32011911
62	-	Belt Conveyor	250 t/h	1000 mm	-	B. mat	15 t	St.Fab	1,5 t	Tu	1	115,9	115,900	107.4	107,40	1981	74426	01	43013921
80	-	Kiln charging Conveyor and charging Equipment	250 t/h	1000 mm	-	B. mat	16 t	St.Fab	2 t	Tu	1	97.72	97.720	90.586	90.586	1981	74426	14	43013931
2	-	Calcination Kiln Lime funace	10 t/h	750°C	Sld.	-	0,289 t	St.Fab	35 mm	Tu	18	72.53	1305.60	69.11	1243.89	1981	74132	03	24101921
63	-	Belt Conveyor	10 t/h	400 mm	-	B. mat	6 t	St.Fab	1 t	Tu	1	11.56	11.56	10.720	10.720	1981	74426	01	11012921
3	-	Air Blower Unit	1200m³/min	0,04Kg/cm²	Air	Dist type	7 t	St.Fab	4.5 t	Tu	9	75.	675.	69.15	622.350	1981	74342	10	61112931
4	-	Kiln Discharging Vibrating Feeder	30 t/h	800 mm	-	B. mat	16 t	St.Fab	9 t	Tu	1	180.	180.	166.860	166.860	1981	74426	75	43013941
64	-	Belt Conveyor	250 t/h	1000 mm	-	B. mat	15 t	St.Fab	2 t	Tu	1	81.130	81.130	75.18	75.180	1981	74426	01	43013931
65	-	Belt Conveyor	250 t/h	1000 mm	-	B. mat	18 t	St.Fab	2 t	Tu	1	92.72	92.72	85.92	85.92	1981	74426	01	43013931
66	-	Belt Conveyor	250 t/h	1000 mm	-	B. mat	16 t	St.Fab	2 t	Tu	1	30.	30.	27.810	27.810	1981	74426	01	43013931

UNIDO/SPO (T.D.C.I.)

PLANT SURVEY FORM

CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

Sample Plant: Devecl

PRODUCTION ACTIVITY Code: 23011 14 11

Sr. No.	Mark/ Model	Basic Machine Nomenclature	Major Specific. (Capacity)	Major Spec-1 (Optional)	Major Spec-2 (Optional)	Type Descrip-tion	Manufac. Character-istic-1	Manufac. Character-istic-2	Manufac. Character-istic-3	Ori-gin	Qty.	Purchase Cost $ (in Thousands) And Currency		Constant 1980 Year Cost US$ (in thousand)		Year of Purchase and Remarks	SITC Code (For Computer)		
							WT(Tons)	MATL	WT(Tons)			Unit	Total	Unit	Total		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1	-	Vibratory Feeder	250 t/h	800 mm	-	B.mat	7.2 t	St.Fab.	4.0 t	Tu	1	80.	80.	74.16	74.16	1981	74426	75	42012931
60	-	Belt Conveyor	125 t/h	800 mm	-	B.mat	8.5 t	St.Fab.	1.5 t	Tu	2	46.36	92.72	42.96	85.92	1981	74426	01	32012921
61	-	Belt Conveyor	125 t/h	800 mm	-	B.mat	1.3 t	St.Fab.	0.5 t	Tu	2	6.955	13.91	6.444	12.888	1981	74426	01	32011911
62	-	Belt Conveyor	250 t/h	1000 mm	-	B.mat	8.5 t	St.Fab.	2 t	Tu	1	426.86	426.86	395.64	395.64	1981	74426	01	43012931
2	-	Vibrating Screens	450 t/h	10 mm	-	Op	6 t	St.Fab.	1.5 t	Tu	1	100.	100.	92.8	92.8	1981	72831	06	56012921
63	-	Belt Conveyor	400 t/h	1000 mm	-	B.mat	18 t	St.Fab.	2 t	Tu	1	81.306	81.306	75.36	75.36	1981	74426	01	63013931
64	-	Belt Conveyor	35 t/h	600 mm	-	B.mat	16 t	St.Fab.	1.5 t	Tu	1	91.5	91.5	84.78	84.78	1981	74426	01	12013921
65	-	Belt Conveyor	10 t/h	400 mm	-	B.mat	4 t	St.Fab.	1 t	Tu	1	18.	18.	16.68	16.68	1981	74426	01	11011921
3	-	Loader	2.32 m^3	4 m	52 Kw	Rubber Tired	16.7 t	S.S.C.	7 t	Imp	2	305.	610.	282.74	565.48	1981	72342	00	32112742

UNIDO/SPO (T.D.C. I)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

PLANT SURVEY FORM SIVAS-ERZINCAN-BARTIN DISTRICT

Sample Plant : (Ergani, Otluklise, Catalzeytin, Avnik, Osmancik mines)

PRODUCTION ACTIVITY Code : 2301 1

Sr No	Mark/ Model	Basic Machine Nomenclature	Major Specific. (Capacity)	Major Spec-1 (Optional)	Major Spec-2 (Optional)	Type (Description)	Manufac Characte. ristic-1	Manufac Characte. ristic-2	Manufac Characte. ristic-3	Origin	Qty	Purchase Cost (in Thousands) And Currency		Constant 1980 Year Cost US$ (in Thousand)		Year of Purchase and Remarks	SITC Code (For cumputer)		
							WT(Tons)	MATL	WT(Tons)			Unit	Total	Unit	Total				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
		Rotary blast hole drill	9	15 m	100	Crawler	5	Steel Fabrication	5	Imported	10	45	810	45	810		72343	01	30422942
		Front end loader	2.5	5	200	"	19	"	5	"	21	130	2730	130	2730		72342	00	32423942
		Dump Truck	20	45	-	-	25	"	4	"	41	110	4510	110	4510		74411	20	24003932
		Buldoser	210	12	-	Crawler	30	"	6	"	10	220	2200	220	2200		72341	00	43024942
		Grayder	150	30	-	Rubber tires	15	"	5	"	9	80	720	80	720		72341	10	37013932
		Jaw crusher	100	300	30	Vertical	10	-	-	Turkey	2	40	80	40	80		72832	02	24123001
		Vibrating screen (double deck)	300	100	-	open type	3	Steel Fabrication	2	"	2	30	60	30	60		72831	06	59011931
		Sand washer	250	-	-	"	6	"	4	"	1	40	40	40	40		72831	22	50012931

PLANT SURVEY FORM AYDIN-SALIHLIN DISTRICT

UNIDO/SPO (T.D.C.I)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

Sample Plant : (a.Emir, Ayasmant and Çavdir mines)

PRODUCTION ACTIVITY Code : 2301)

Sr No	Mark/ Model	Basic Machine Nomenclature	Major Specific (Capacity)	Major Spec - 1 (Optional)	Major Spec - 2 (Optional)	Type (Description)	Manufac Characte- ristic - 1	Manufac Characte- ristic - 2	Manufac Characte- ristic - 3	Origin	Qty	Purchase Cost (in Thousands) And Currency		Constant 1980 Year Cost US$ (in Thousand)		Year of Purchase and Remarks	SITC Code (For computer)		
							WT(Tons)	MATL	WT(Tons)			Unit	Total	Unit	Total				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
		Rotary blast hole drill	9	15 m	100	Crawler	8	Steel Fabrication	5	Imported	9	45	405	45	405		72343	01	36422942
		Front end loader	2,5	5	200	"	19	"	5	"	10	130	1300	130	1300		72342	00	32423942
		Dump truck	20	45	-	-	25	"	4	"	17	110	1870	110	1870		74411	20	24003932
		Mill dozer	210	12	-	Crawler	30	"	6	"	4	220	880	220	880		72341	00	43024942
		Grayder	150	30	-	Rubber Tires	15	"	5	"	5	80	400	80	400		72341	10	37013932
		Jaw Crusher	100	300	30	Vertical	10	-	-	Turkey	1	40	40	40	40		72832	02	24123001
		Vibrating Screen (doubledeck)	300	100	-	Open type	3	Steel Fab.	2	"	1	30	30	30	30		72831	06	59011931

PLANT SURVEY FORM

UNIDO/SPO(T.D.Ç.İ)
CAPITAL GOODS DEVELOPMENT PROJECT IN TURKEY

KAYSERI-KAYSERI-ANKARA-DISTRICT

Sample Plant Kartalkaya,Karamadazı,Menteş,Atlepe,Elmadağ and Kemikköprü mines

PRODUCTION ACTIVITY Code : 23011

Sr No.	Mark/ Model	Basic Machine Nomenclature	Major Specific. (Capacity)	Major Spec:-1 (Optional)	Major Spec-2 (Optional)	Type (Description)	Manufac. Characte-ristic-1	Manufac Characte-ristic-2	Manufac. Characte-ristic-3	Origin	Qty	Purchase Cost (in Thousands) And Currency		Constant 1980 Year Cost US$ (in Thousand)		Year of Purchase and Remarks	SITC Code (For Computer)		
							WT(Tons)	MALT	WT(Tons)			Unit	Total	Unit	Total				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
		Rotary Blast Hole drill	9	15m	100	Crawler	6	steel fabrication	5	Imported	23	45	1035	45	1035		72343	01	36422942
		Front end loader	25	5	200	"	19	"	5	"	36	130	4680	130	4680		72342	00	32423942
		Dump Truck	20	45	-	-	25	"	4	"	65	110	7150	110	7150		74411	20	24003932
		Bulldozer	210	12	-	Crawler	30	"	8	"	14	220	3080	220	3080		72341	00	43024942
		Grayder	150	30	-	Rubber Tires	15	"	5	"	10	80	800	80	800		72341	10	37013932
		Jaw Crusher	100	300	30	Vertical	10	-	-	Turkey	2	40	80	40	80		72832	02	24123001
		Vibrating screen (doubledeck)	300	100	-	Open type	3	steel fabrication	2	"	2	30	60	30	60		72831	06	59011931

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
SUMMARY TOTALS OF THE EQUIPMENT REQUIREMENTFOR THE TURKISH IRON
UNIT WEIGHT IN TONS.

SITC	BASIC MACHINE NAME	1981	1982	1983
69211	SLURRY AGITOTOR TANK			
72341	BULL DOZER			285.0
72342	SHOVEL			152.0
72343	ROTARY BLAST HOLE DRILL			152.0
72831	WET MAGNETIC SEPERATOR			18.0
72832	ROD MILL			40.0
72833	ROTARY MIXER			
72834	BALLING DRUM			
74132	CALCINATION KILN			
74163	STRAIGHT GRATE			
74220	SLURRY PUMP			
74312	VACUM PUMP			
74313	SCREW COMPRESSOR			
74342	AIR BLOWER UNIT			
74361	CYCLONES			
74362	VACUM DISCFILTER			
74411	BLAST HOLE CHARGING VEHICLE			966.0
74426	BELT CONVEYOR			

TOTAL

1981	
1982	
1983	1,613.0
1984	797.2
1985	1,607.7
1986	404.2
1987	33.4
1988	544.0
1989	8,996.8
1990	25,515.3
GRAND TOTAL	39,511.6

WEIGHT-BASIS 1981-1990 YEARS

AND STEEL WORKS

1984	1985	1986	1987	1988	1989	1990	TOTAL
						3460.0	3460.0
168.0		115.0			226.8	154.9	944.7
492.0		94.2	33.4	378.0	4798.0	227.0	6174.6
132.0		32.0		10.0	814.0	40.0	1188.0
	12.0	3.0				1337.2	1370.2
	154.0	10.0			30.0	7330.0	7584.0
						13.2	13.2
						600.0	600.0
5.2							5.2
						5050.0	5050.0
						78.0	78.0
						11.2	11.2
	1.5						1.5
	63.0						63.0
						195.0	195.0
						620.0	620.0
	877.5	150.0		150.0	3128.0		5271.5
	499.7					5398.0	5897.7

UNIDO/SPD TURKISH IRON AND STEEL WORKS (T.D.P.1.)
CAPITAL GOODS DEVELOPMENT PROJECT
SUMMARY TOTALS OF THE EQUIPMENT REQUIREMENTFOR THE TURKISH IRON AND STEEL WORKS
UNIT WEIGHT IN TONS.

WEIGHT-BASIS 1991-2000 YEARS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOTAL
72341	GRAYDER			285.0								285.0
72342	POWER SHOVEL			133.0			110.0				1330.0	1573.0
72343	DTHBLAST BLAST HOLE DRILL	32.0		48.0			256.0					336.0
72531	WET MAGNETIC SEPERATOR					16.5			95.4			111.9
74121	KILN BURNER			.6								.6
74220	PORTABLE VERTICAL PUMP			15.4								15.4
74240	SLURRY PUMP			1.8								1.8
74312	VACUUM PUMP			110.4								110.4
74313	COMPRESSOR			16.5								16.5
74341	WASTE GAS FAN										98.2	98.2
74342	PNEVMATIC PUMP											
74361	HYDRO-CYCLONES								8.4			8.4
74362	DISC-FILTERS								73.0			73.0
74411	DUMP TRUCK			325.0			733.4					1058.4
74426	VIBRATING FEEDER			3.5		53.0			5.0			61.5

TOTAL

1991	32.0
1992	
1993	939.2
1994	
1995	69.5
1996	1,099.4
1997	
1998	181.8
1999	
2000	1,428.2
GRAND TOTAL	3,750.1

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.C.I.) COST-BASIS 1981-1990 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
SUMMARY TOTALS OF THE EQUIPMENT REQUIREMENTFOR THE TURKISH IRON AND STEEL WORKS
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.COST
69211	SLURRY AGITOTOR TANK										4257.0	4257.0
72341	BULL DOZER			1880.0	1224.0		720.0			1091.1	975.0	5890.1
72342	SHOVEL			1040.0	3138.6		640.0	565.4	1627.7	19073.4	1493.9	27579.0
72343	ROTARY BLAST HOLE DRILL			975.0	1773.0		170.0		90.0	3235.8	497.0	6740.8
72831	WET MAGNETIC SEPERATOR			160.0		185.6	30.0				5043.3	5416.9
72832	ROD MILL			160.0		1541.7	40.0			119.2	25447.0	27307.9
72833	ROTARY MIXER										45.8	45.8
72834	BALLING DRUM										1440.0	1440.0
74132	CALCINATION KILN				1243.9							1243.9
74163	STRAIGHT GRATE										17548.7	17548.7
74220	SLURRY PUMP										469.5	469.5
74312	VACUM PUMP										67.4	67.4
74313	SCREW COMPRESSOR					34.0						34.0
74342	AIR BLOWER UNIT					622.3						622.3
74361	CYCLONES										1239.8	1239.8
74362	VACUM DISEFILTER										1266.1	1266.1
74411	BLAST HOLE CHARGING VEHICLE			4260.0		6750.0	660.0		660.0	14901.5		27231.5
74426	BELT CONVEYOR					3051.3					23682.3	26733.6

TOTAL

1981	
1982	
1983	8,475.0
1984	7,379.5
1985	12,184.9
1986	2,260.0
1987	565.4
1988	2,377.7
1989	38,421.0
1990	83,472.8
GRAND TOTAL	155,136.3

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) COST-BASIS 1991- 2000 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
SUMMARY TOTALS OF THE EQUIPMENT REQUIREMENTFOR THE TURKISH IRON AND STEEL WORKS
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOTAL
72341	GRAYDER			1940.0								1940.0
72342	POWER SHOVEL			910.0			620.0				5320.0	6850.0
72343	DTHBLAST BLAST HOLE DRILL	160.0		270.0			1760.0					2190.0
72931	WET MAGNETIC SEPERATOR					48.3			323.0			371.3
74121	KILN BURNER			3.4								3.4
74220	PORTABLE VERTICAL PUMP			20.7								20.7
74240	SLURRY PUMP			13.6								13.6
74312	VACUUM PUMP			389.4								389.4
74313	COMPRESSOR											
74341	WASTE GAS FAN										237.0	237.0
74342	PNEVMATIC PUMP											
74361	HYDRO-CYCLONES								140.0			140.0
74362	DISC-FILTERS								180.0			180.0
74411	DUMP TRUCK			1430.0			5510.0					6940.0
74426	VIBRATING FEEDER			15.2		6986.0			46.6			7047.8

TOTAL

1991	160.0
1992	
1993	4,992.3
1994	
1995	7,034.3
1996	7,890.0
1997	
1998	695.6
1999	
2000	5,557.0
GRAND TOTAL	26,329.2

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) WEIGHT-BASIS 1981-1990 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2336 T/H:RAW ORE 18 500 000 TPY RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATYA
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT WEIGHT IN TONS.

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WEI.
69211	SLURRY AGITOTOR TANK										3460.8	3460.8
72341	BULL DOZER									226.8		226.8
72342	SHOVEL									4796.0		4796.0
72343	ROTARY BLAST HOLE DRILL									814.0		814.0
72931	WET MAGNETIC SEPERATOR										1337.2	1337.2
72932	SECUNDARY BREAKING EQUIP.									30.0	7330.0	7360.0
72933	ROTARY MIXER										13.2	13.2
72934	BALLING DRUM										600.0	600.0
74163	STRAIGHT GRATE										5050.0	5050.0
74220	SLURRY PUMP										78.0	78.0
74312	VACUM PUMP										11.2	11.2
74361	CYCLONES										195.0	195.0
74362	VACUM DISEFILTERS										620.0	620.0
74411	DUMP TRUCK									2845.0		2845.0
74420	BELT CONVEYOR										6396.0	6396.0

TOTAL

1981	
1982	
1983	
1984	
1985	
1986	
1987	
1988	
1989	8,710.8
1990	25,093.4
GRAND TOTAL	33,810.2

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) WEIGHT-BASIS 1981-1990 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DEVECI
PLANT CAPACITY:1,290,000 TPY
LOCATION:HEKIMHAN MALATYA
ANTICIPATED DATE OF COMMISSIONING:1988
UNIT WEIGHT IN TONS.

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WE.
72341	GRADER				166.0						.	166.0
72342	POWER SHOVEL				492.0			33.4			150.0	675.4
72343	DTH BLAST HOLE DRILL				132.0						40.0	172.0
72331	VIBRATING SCREENS					12.0						12.0
72932	JAW CRUSHER					154.0						154.0
74132	CALCINATION KILN				5.2							5.2
74313	SCREW COMPRESSOR					1.5						1.5
74342	AIR BLOWER UNIT					63.0						63.0
74411	DUMP TRUCK					877.5						877.5
74426	VIBRATORY FEEDERS					499.7						499.7

TOTAL

1981	
1982	
1983	
1984	797.2
1985	1,607.7
1986	
1987	33.4
1988	
1989	
1990	190.0
GRAND TOTAL	2,628.3

DIVRIGI/SPO TURKISH IRON AND STEEL WORKS (T.I.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY: 4 500 000 DRY RAW ORE
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

WEIGHT-BASIS 1981-1990 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WGT.
72141	BULL DOZER						70.0				154.9	224.9
72142	POWER SHOVEL						37.2		340.0		77.0	454.2
72343	DTH BLAST HOLE DRILL			80.0			16.0					96.0
74411	DUMP TRUCK			316.0						280.0		596.0

TOTAL

1981	
1982	
1983	396.0
1984	
1985	
1986	123.2
1987	
1988	340.0
1989	280.0
1990	231.9
GRAND TOTAL	1,371.1

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T...C.I.) WEIGHT-BASIS 1981-1990 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:BASEMIR-AYDINCIK-CAYCAR
PLANT CAPACITY:
LOCATION:AYDIN-BALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
72341	GRAYDER			105.0								105.0
72342	FRONT END LOADER			76.0								76.0
72343	ROTARY BLAST HOLE DRIL			16.0					8.0			24.0
72531	VIBRATING SCREEN			3.0								3.0
72932	JAW CRUSHER			10.0								10.0
74411	DUMP TRUCK			125.0					25.0			150.0

TOTAL

1981	
1982	
1983	335.0
1984	
1985	
1986	
1987	
1988	33.0
1989	
1990	
GRAND TOTAL	368.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.E.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMADZI-BITLIS-KUSTAMONU
PLANT CAPACITY:
LOCATION:KAYSERI-ADATE-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

WEIGHT-BASIS 1981-1990 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE TYPE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
72341	DRAYDER			105.0								105.0
72342	FRONT END LOADER			57.0					36.0			93.0
72343	ROTARY BLASTHOLE DRILL			32.0					9.0			41.0
72831	VIBRATING SCREEN			6.0								6.0
72832	JAW CRUSHER			20.0								20.0
74411	DUMP TRUCK			350.0					100.0			450.0

TOTAL

1981	
1982	
1983	570.0
1984	
1985	
1986	
1987	
1988	145.0
1989	
1990	
GRAND TOTAL	715.0

UNIDO/SPD TURKISH IRON AND STEEL WORKS (T. .01.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENT FOR THE NEW PLANT
PLANT NAME:ERDAR-ELEKTRIK-ESYA-KAYNAK
PLANT CAPACITY:
LOCATION:DIVAS-ERZINCAN-BINGOL
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS

PLANT

SITC NO.	ITEM DESCRIPTION	1981	1982
72341	CRANES		
72342	FRONT END LOADER		
72343	POTTERY PLANT HEAT DRILL		
72731	SAND WASHER		
72732	JAW CRUSHER		
74411	DUMP TRUCK		
TOTAL			
1981			
1982			
1983	312.0		
1984			
1985			
1986	201.0		
1987			
1988	25.0		
1989			
1990			
GRAND TOTAL	538.0		

SUMMARY TOTALS

1983	1984	1985	[illegible]	[illegible]	1988	1989	1990	TOTALS
75.0			45.0					120.0
19.0			[illegible]					79.0
24.0			[illegible]					48.0
2.0			8.0					12.0
10.0			[illegible]					20.0
175.0			150.0		25.0			350.0

U.I.D.C/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2336 T/H:RAW ORE 18 500 000 TPY RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATYA.
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.MC.
69211	SLURRY AGITATOR TANK										4257.0	4257.0
72341	BULL DOZER									1091.1		1091.1
72342	SHOVEL									19073.4		19073.4
72343	ROTARY BLAST HOLE DRILL									3233.8		3233.8
72831	WET MAGNETIC SEPERATOR										5043.3	5043.3
72832	SECONDARY BREAKING EQUIP									119.2	25447.0	25566.2
72833	ROTARY MIXER										45.8	45.8
72834	BALLING DRUM										1440.0	1440.0
74163	STRAIGHT GRATE										17548.7	17548.7
74220	SLURRY PUMP										469.5	469.5
74312	VACUM PUMP										67.4	67.4
74361	CYCLONES										1239.8	1239.8
74362	VACUM DISEFILTER										1200.1	1200.1
74411	DUMP TRUCK									13701.5		13701.5
74426	BELT CONVEYOR										23682.3	23682.3

TOTAL

1981
1982
1983
1984
1985
1986
1987
1988
1989 37,221.0
1990 80,506.9
GRAND TOTAL 117,727.9

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DEVECI
PLANT CAPACITY:1.290.000 TPY
LOCATION:HEKIMHAN MALATYA
ANTICIPATED DATE OF COMMISSIONING:1988
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
72341	GRADER				1224.0							1224.0
72342	POWER SHOVEL				3138.6			565.4			947.0	4651.0
72343	DTH BLAST HOLE DRILL				1773.0						497.0	2270.0
72831	VIBRATING SCREENS					185.6						185.6
72832	JAW CRUSHER					1541.7						1541.7
74132	CALCINATION KILN				1243.9							1243.9
74313	SCREW COMPRESSOR					34.0						34.0
74342	AIR BLOWER UNIT					622.3						622.3
74411	DUMP TRUCK					6750.0						6750.0
74426	VIBRATORY FEEDERS					3051.3						3051.3

TOTAL

1981	
1982	
1983	
1984	7,379.5
1985	12,184.9
1986	
1987	565.4
1988	
1989	
1990	1,444.0
GRAND TOTAL	21,573.8

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY: 4 500 000 TPY RAW ORE
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
72341	BULL DOZER						420.0				975.0	1395.0
72342	POWER SHOVEL						250.0		1367.7		546.9	2164.6
72343	DTH BLAST HOLE DRILL			570.0			80.0					650.0
74411	DUMP TRUCK			1400.0						1200.0		2600.0

TOTAL

1981	
1982	
1983	1,970.0
1984	
1985	
1986	750.0
1987	
1988	1,367.7
1989	1,200.0
1990	1,521.9
GRAND TOTAL	6,809.6

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) COST-BASIS 1981-1990 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:B.EGMIR-AYAZMANT-CAVDAR
PLANT CAPACITY:
LOCATION:AYDIN-BALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WE.
72341	GRAYDER			680.0								680.0
72342	FRONT END LOADER			520.0								520.0
72343	ROTARY BLAST HOLE DRIL			90.0					45.0			135.0
72831	VIBRATING SCREEN			30.0								30.0
72832	JAW CRUSHER			40.0								40.0
74411	DUMP TRUCK			550.0					110.0			660.0

TOTAL

1981	
1982	
1983	1,910.0
1984	
1985	
1986	
1987	
1988	155.0
1989	
1990	
GRAND TOTAL	2,065.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMADAZI-ATTEPE-KESIKKOPRU
PLANT CAPACITY:
LOCATION:KAYSERI-ADANA-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.MF.
72341	GRAYDER			680.0								680.0
72342	FRONT END LOADER			390.0					260.0			650.0
72343	ROTARY BLASTHOLE DRILL			180.0					45.0			225.0
72831	VIBRATING SCREEN			60.0								60.0
72832	JAW CRUSHER			80.0								80.0
74411	DUMP TRUCK			1540.0					440.0			1980.0

TOTAL

1981	
1982	
1983	2,930.0
1984	
1985	
1986	
1987	
1988	745.0
1989	
1990	
GRAND TOTAL	3,675.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:AKDAG-OTLUKILISE-CETINKAYA-AVNIK
PLANT CAPACITY:
LOCATION:SIVAS-ERZINCAN-BINGOL
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WE.
												820.0
72341	GRAYDER			520.0			300.0					520.0
72342	FRONT END LOADER			130.0			390.0					225.0
72343	ROTARY BLAST HOLE DRIL			135.0			90.0					100.0
72331	SAND WASHER			70.0			30.0					80.0
72332	JAW CRUSHER			40.0			40.0					1540.0
74411	DUMP TRUCK			770.0			660.0		110.0			

TOTAL

1981	
1982	
1983	1,665.0
1984	
1985	
1986	1,510.0
1987	
1988	110.0
1989	
1990	
GRAND TOTAL	3,285.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) WEIGHT-BASIS 1991-2000 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY:4 500 000 TPY RAW ORE
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE.
72342	POWER SHOVEL						110.0				1330.0	1440.0
72343	DTHDLAST BLAST HOLE DRILL	32.0					256.0					288.0
72931	WET MAGNETIC SEPERATOR					16.5			95.4			111.9
74121	KILN BURNER			.6								.6
74220	PORTABLE VERTICAL PUMP			15.4								15.4
74240	SLURRY PUMP			1.8								1.8
74312	VACUUM PUMP			110.4								110.4
74313	COMPRESSOR			16.5								16.5
74341	WASTE GAS FAN										98.2	98.2
74342	PNEVMATIC PUMP											
74361	HYDRO-CYCLONES								8.4			8.4
74362	DISC-FILTERS								73.0			73.0
74411	DUMP TRUCK						733.4					733.4
74426	VIBRATING FEEDER			3.5		53.0			5.0			61.5

TOTAL

1991	32.0
1992	
1993	148.2
1994	
1995	69.5
1996	1,099.4
1997	
1998	181.8
1999	
2000	1,428.2
GRAND TOTAL	2,959.1

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:B.EGMIR-AYAZMANT-CAVDAR
PLANT CAPACITY:
LOCATION:AYDIN-BALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

WEIGHT-BASIS 1991-2000 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE.
72341	GRAYDER			60.0								60.0
72342	FRONT END LOADER			57.0								57.0
72343	BLAST HOLE DRILL			16.0								16.0
74411	DUMP TRUCK			125.0								125.0

TOTAL

1991	
1992	
1993	258.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	258.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) WEIGHT-BASIS 1991-2000 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMADAZI-ATTEPE-KESIKKOPRU
PLANT CAPACITY:
LOCATION:KAYSERI-ADANA-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE.
72341	GRAYDER			90.0								90.0
72342	FRONT END LOADER			38.0								38.0
72343	ROTARY BLASTHOLE DRILL			8.0								8.0
74411	DUMP TRUCK			75.0								75.0

TOTAL

1991	
1992	
1993	211.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	211.0

[illegible]
[illegible]
EQUIPMENT REQUIREMENTS FOR THE NPL PLANT
[illegible]
PLANT CAPACITY:
[illegible]
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

PLANT SUMMARY TOTALS

SEC	BASIC MACHINE TYPE	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
72341	SPAYDER			135.0								135.0
72342	FRONT END LOADER			30.0								30.0
72343	ROTARY PERCUSSION DRILL			24.0								24.0
74211	DUMP TRUCK			125.0								125.0

TOTAL

1991	
1992	
1993	322.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	322.0

CAPITAL COST ESTIMATE FOR PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME/DESIGN:
PLANT CAPACITY:
LOCATION: DIVERSIFIED/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 2000 U.S.A. DOLLARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
72342	POWER SHOVEL						620.0				5320.0	5940.0
72343	DTHBLAST BLAST HOLE DRILL	160.0					1760.0					1920.0
72931	WET MAGNETIC SEPERATOR					48.3			323.6			371.9
74121	KILN BURNER			3.4								3.4
74220	PORTABLE VERTICAL PUMP			20.7								20.7
74240	SLURRY PUMP			13.6								13.6
74312	VACUUM PUMP			339.4								339.4
74313	COMPRESSOR											
74341	WASTE GAS FAN										237.0	237.0
74342	PNEUMATIC PUMP											
74361	HYDRO-CYCLONES								140.0			140.0
74362	DISC-FILTERS								160.0			160.0
74411	DUMP TRUCK						3510.0					3510.0
74426	VIBRATING FEEDER			15.3		5965.0			46.6			7046.9

TOTAL

1991	160.0
1992	
1993	442.3
1994	
1995	7,034.3
1996	7,890.0
1997	
1998	695.6
1999	
2000	5,557.0
GRAND TOTAL	21,779.2

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.W.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:E.EGMIR-AYAZMANT-CAYCAR
PLANT CAPACITY:
LOCATION:AYDIN-SALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1991-2000 YEARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOTAL
72341	GRAYDER			380.0								380.0
72342	FRONT END LOADER			390.0								390.0
72343	BLAST HOLE DRILL			90.0								90.0
74411	DUMP TRUCK			550.0								550.0

TOTAL

1991	
1992	
1993	1,410.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	1,410.0

UNIDO/SPO TURKISH IRO. AND STEEL WORKS (T.O.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMADAZI-ATTEPE-KESIKKOPRU
PLANT CAPACITY:
LOCATION:KAYSERI-ADANA-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

PLANT SUMMARY

SITC	BASIC MACHINE NAME	1991	1992	1993
72341	GRADER			600.0
72342	FRONT END LOADER			260.0
72343	ROTARY BLASTHOLE DRILL			45.0
74611	DUMP TRUCK			330.0

TOTAL

1991	
1992	
1993	1,235.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	1,235.0

Ann. XVIII

COST-BASIS 1991-2000 YEARS PAGE: 71

RY TOTALS

1994	1995	1996	1997	1998	1999	2000	TOTAL
							600.0
							200.0
							45.0
							330.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) COST-BASIS 1991- 2000 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:AKDAG-DTLUKTLISE-CETINKAYA-AVNIK
PLANT CAPACITY:
LOCATION:SIVAS-ERZINCAN-BINGOL
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

PLANT SUMMARY TOTALS

SITC	BASIC MACHINE NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOTAL
72341	GRAYDER			960.0								960.0
72342	FRONT END LOADER			260.0								260.0
72343	ROTARY BLASTHOLE DRILL			135.0								135.0
74411	DUMP TRUCK			550.0								550.0

TOTAL

1991	
1992	
1993	1,905.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	1,905.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2336 T/HERAW ORE 18'500 000 TPY RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATYA
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.
69211	0111323911	SELF PROPULLED BIN	3	10.000
69211	0112323911	STEEL BIN	4	20.000
69211	0154426931	STEEL BIN	5	100.000
69211	0154426931	STEEL BIN	15	120.000
69211	0154426931	STEEL BIN	10	100.000
69211	0744324911	SLURRY AGITOTOR TANK	2	25.400
72341	0043024752	BULL DOZER	7	32.400
72342	0034414752	FRONT END LOADER	2	40.000
72342	1088328762	SHOVEL	14	337.000
72343	0151321722	ROTARY BLAST HOLE DRILL	4	8.500
72343	0172525742	ROTARY BLAST HOLE DRILL	12	65.000
72831	0169012941	GRIZZLY	5	6.000
72831	0347012941	UNBALANCED THROW SCREEN	15	5.000
72831	0635014762	SELF BALANCED SCREEN	12	31.000
72831	0645014762	SELF BALANCED SCREEN	3	31.000
72831	1220011212	HYDROCYCLONE	50	1.500
72831	1546014752	DOUBLE SPRIAL CONSTIER	2	25.000
72831	3040013742	DRY MAGNETIC SEPERATOR	15	12.000
72831	3220012732	WET MAGNETIC SEPERATOR	70	6.500
72831	4350001212	CYCLONE	6	1.200
72832	0144315772	CONE CRUSHER	10	88.000
72832	0184315772	CONE CRUSHER	5	90.000
72832	0284316762	JAW CRUSHER	4	120.000

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	******
									30.0	30.0
									80.0	80.0
									500.0	500.0
									1500.0	1500.0
									1000.0	1000.0
									50.0	50.0
								226.0		226.0
								80.0		80.0
								4710.0		4710.0
								34.0		34.0
								750.0		750.0
									30.0	30.0
									75.0	75.0
									372.0	372.0
									93.0	93.0
									75.0	75.0
									50.0	50.0
									180.0	180.0
									455.0	455.0
									7.2	7.2
									880.0	880.0
									450.0	450.0
									400.0	400.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2336 T/H:RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATYA
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1981
72832	1121716772	BALL MILL	2	170.000	
72832	1141819992	BALL MILL	5	706.000	
72832	1541718792	ROD MILL	5	330.000	
72832	2150013932	SECONDARY BREAKING EQUIP.	3	10.000	
72833	0077023942	ROTARY MIXER	1	13.200	
72834	0543096972	BALLING DRUM	6	100.000	
74163	5096399232	STRAIGHT GRATE	1	3050.000	
74220	0263822232	SLURRY PUMP	10	7.300	
74312	1280111212	VACUM PUMP,	4	2.300	
74361	0270023432	ELECTROSTATIC PRESPI[illegible]	5	15.000	
74361	1201023522	CYCLONES	12	10.000	
74362	0165006941	CONCENTRATE THICKENER	1	100.000	
74362	0175006941	TAILING THICKENER	2	175.000	
74362	4231023912	VACUM DISEFILTER,	10	17.000	
74411	1064002922	BLAST HOLE CHARGING VEHICLE	3	9.000	
74411	1064003932	BLAST HOLE STEMMING VEHICLE	3	11.000	
74411	2055005962	DUMP TRUCK	41	63.000	
74426	0243013941	BELT CONVEYOR	15	12.000	
74426	0243019992	BELT CONVEYOR	2	700.000	
74426	0253018992	BELT CONVEYOR	1	300.000	
74426	0262012901	BELT CONVEYOR	1	8.000	
74426	0263016992	BELT CONVEYOR	1	150.000	
74426	0263016992	BELT CONVEYOR	1	170.000	

1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.HE
*****	*****	*****	*****	*****	*****	*****	*****	*****	******
								340.0	340.0
								3530.0	3530.0
								1650.0	1650.0
							30.0		30.0
								13.2	13.2
								600.0	600.0
								5050.0	5050.0
								78.0	78.0
								11.2	11.2
								75.0	75.0
								120.0	120.0
								100.0	100.0
								350.0	350.0
								170.0	170.0
							27.0		27.0
							33.0		33.0
							2758.0		2758.0
								180.0	180.0
								1400.0	1400.0
								300.0	300.0
								8.0	8.0
								150.0	150.0
								170.0	170.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2336 T/H:RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATYA
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.
74426	0263017992	BELT CONVEYOR	1	220.000
74426	0263017992	BELT CONVEYOR	1	200.000
74426	0263018992	BELT CONVEYOR	1	350.000
74426	0273013942	BELT CONVEYOR	10	15.000
74426	0274019902	BELT CONVEYOR	4	550.000
74426	0283014962	BELT CONVEYOR	5	35.000
74426	0284017932	BELT CONVEYOR	2	200.000
74426	7233011722	BELT FEEDER	3	45.000
74426	7484014752	APRON FEEDER	3	30.000
74426	8065013732	ROLL FEEDER	1	10.000
74426	8122011722	BELT WEIGHT FEEDER	5	25.000
74426	8123011732	BELT WEIGHT FEEDER	3	45.000

TOTAL

1991
1982
1993
1984
1985
1986
1987
1988
1989 8,716.8
1990 25,093.4
GRAND TOTAL 33,810.2

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	******
									220.0	220.0
									200.0	200.0
									350.0	350.0
									150.0	150.0
									2200.0	2200.0
									175.0	175.0
									400.0	400.0
									135.0	135.0
									90.0	90.0
									10.0	10.0
									125.0	125.0
									135.0	135.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DEVECI
PLANT CAPACITY:1.290.000 TPY
LOCATION:HEKIMHAN MALATYA
ANTICIPATED DATE OF COMMISSIONING:1988
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.
72341	0043024742	BULL DOZER	5	31.000
72341	1027013732	GRADER	1	13.000
72342	0032113742	FRONT END LOADER	2	15.700
72342	0063514752	FRONT END LOADER	1	42.000
72342	1066526972	POWER SHOVEL	4	150.000
72343	0146322922	ROTART TRUCK DRILL	2	6.000
72343	0361514942	DTH BLAST HOLE DRILL	4	40.000
72831	0656012921	VIBRATING SCREENS	1	6.000
72831	0666012921	VIBRATING SCREENS	1	5.000
72832	0164415672	CONE CRUSHER	1	66.000
72832	0266315672	JAW CRUSHER	1	88.000
74132	0324101921	CALCINATION KILN	13	.289
74313	2322121311	SCREW COMPRESSOR	1	1.500
74342	1061112931	AIR BLOWER UNIT	9	7.000
74411	2046004942	DUMP TRUCK	27	32.500
74426	0111011921	BELT CONVEYOR	1	4.000
74426	0111012921	BELT CONVEYOR	1	15.000
74426	0111012921	BELT CONVEYOR	1	6.000
74426	0112013921	BELT CONVEYOR	1	16.000
74426	0122013921	BELT CONVEYOR	1	10.000
74426	0132011911	BELT CONVEYOR	2	1.500
74426	0132011911	BELT CONVEYOR	2	1.300
74426	0132012921	BELT CONVEYOR	2	2.500

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
			155.0							155.
			13.0							13.
						33.4				33.
			42.0							42.
			450.0						150.0	600.
			12.0							12.
			120.0						40.0	160
				6.0						
				6.0						6.
				56.0						56.
				85.0						85.
			5.2							5.
				1.5						1.
				63.0						63
				877.5						877.
				4.0						4.
				15.0						15.
				6.0						6.
				16.0						16.0
				10.0						10.0
				3.0						3.0
				2.6						2.6
				5.0						5.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:CEVECI
PLANT CAPACITY:1.29[illegible]000 TPY
LOCATION:HEKIMHAN MALATYA
ANTICIPATED DATE OF COMMISSIONING:1988
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.
74426	0132012921	BELT CONVEYOR	2	8.500
74426	0143012931	BELT CONVEYOR	1	8.500
74426	0143013931	BELT CONVEYOR	1	15.000
74426	0143013931	BELT CONVEYOR	1	18.000
74426	0143013931	BELT CONVEYOR	1	18.000
74426	0163013931	BELT CONVEYOR	1	18.000
74426	0173011911	BELT CONVEYOR	1	1.500
74426	0173011921	BELT CONVEYOR	1	2.000
74426	0173013931	BELT CONVEYOR	1	20.000
74426	0173017931	BELT CONVEYOR	1	250.000
74426	1443013931	KILN CHARGING CONVEYOR	1	16.000
74426	1473013931	REVERSIBLE MOVABLE BELT CONVEYOR	1	17.000
74426	7542012931	VIBRATORY FEEDERS	1	7.200
74426	7542012931	VIBRATORY FEEDER	1	7.200
74426	7543013941	KILN DISCHARGING VIBRATING FEEDER	1	16.700
74426	7573012941	VIBRATORY FEEDERS	1	8.000

TOTAL

1981	
1982	
1983	
1984	797.2
1985	1,607.7
1986	
1987	33.4
1988	
1989	
1990	190.0
[illegible] TOTAL	[illegible]

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WE
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	******
				17.0						17.0
				8.5						8.5
				15.0						15.0
				13.0						13.0
				16.0						16.0
				18.0						18.0
				1.5						1.5
				2.0						2.0
				20.0						20.0
				250.0						250.0
				10.0						10.0
				17.0						17.0
				7.2						7.2
				7.2						7.2
				16.7						16.7
				8.0						8.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY: 4 500 000 TPY RAW ORE
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.
72341	0043024752	BULL DOZER	2	31.000
72341	0043024752	BULL DOZER	2	31.970
72341	0064024752	BULL DOZER	2	45.500
72342	0022223732	FRONT END LOADER	4	19.250
72342	0022323732	FRONT END LOADER	2	18.600
72342	1023425762	POWER SHOVEL	4	85.000
72343	0131522722	ROTARY BLAST HOLE DRILL	2	8.000
72343	0362524742	DTH BLAST HOLE DRILL	2	40.000
74411	2022003742	DUMP TRUCK	10	31.600
74411	2034003742	DUMP TRUCK	8	35.000

TOTAL

1931	
1932	
1933	396.0
1934	
1935	
1936	123.2
1937	
1938	340.0
1939	280.0
1990	231.9
GRAND TOTAL	1,371.1

Ann. XXVII

WEIGHT-BASIS 1981-1990 YEARS PAGE: 78

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WE
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	******
					70.0					70.0
									63.9	63.9
									91.0	91.0
									77.0	77.0
					37.2					37.2
							340.0			340.0
					10.0					10.0
		80.0								80.0
		316.0								316.0
								280.0		280.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) WEIGHT BASIS 1981-1990 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:B.EGMIR-AYAZMANT-CAYCAR
PLANT CAPACITY:
LOCATION:AYDIN-BALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.WE
72341	0043024942	BULLDOZER	2	30.000			60.0								60.0
72341	1037013932	GRAYDER	3	15.000			45.0								45.0
72342	0032423942	FRONT END LOADER	4	19.000			76.0								76.0
72343	0136422942	ROTARY BLAST HOLE DRIL	3	8.000			16.0					8.0			24.0
72831	0659011931	VIBRATING SCREEN	1	3.000			3.0								3.0
72932	0224123001	JAW CRUSHER	1	10.000			10.0								10.0
74411	2024003932	DUMP TRUCK	5	25.000			125.0					25.0			150.0

TOTAL

1981	
1982	
1983	335.0
1984	
1985	
1986	
1987	
1988	33.0
1989	
1990	
GRAND TOTAL	368.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMADAZI-ATTEPE-KESIKKOPRU
PLANT CAPACITY:
LOCATION:KAYSERI-ADANA-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.
72341	0043024942	BULLDOZER	2	30.000
72341	1037013932	GRAYDER	3	15.000
72342	0032423942	FRONT END LOADER	5	19.000
72343	0136422942	ROTARY BLASTHOLE DRILL	5	8.000
72831	0659011931	VIBRATING SCREEN	2	3.000
72832	0224123001	JAW CRUSHER	2	10.000
74411	2024003932	DUMP TRUCK	13	25.000

TOTAL

1981	
1982	
1983	570.0
1984	
1985	
1986	
1987	
1988	146.0
1989	
1990	
GRAND TOTAL	716.0

WEIGHT-BASIS 1981-1990 YEARS

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
		60.0								60.0
		45.0								45.0
		57.0					38.0			95.0
		32.0					8.0			40.0
		6.0								6.0
		20.0								20.0
		350.0					100.0			450.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:AKDAG-OTLUKILISE-GETINKAYA-AVNIK
PLANT CAPACITY:
LOCATION:SIVAS-ERZINCAN-BINGOL
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1981	1982
72341	0043024942	BULLDOZER	3	30.000		
72341	1037013932	GRAYDER	2	15.000		
72342	0032423942	FRONT END LOADER	4	19.000		
72343	0136422942	ROTARY BLAST HOLE DRIL	5	9.000		
72931	0659011931	VIBRATING SCREEN	2	3.000		
72931	2250012931	SAND WASHER	1	6.000		
72832	0224123001	JAW CRUSHER	2	10.000		
74411	2024003932	DUMP TRUCK	14	25.000		

TOTAL

1981	
1982	
1983	312.0
1984	
1985	
1986	231.0
1987	
1988	25.0
1989	
1990	
GRAND TOTAL	618.0

Ann. XXX

WEIGHT-BASIS 1981-1990 YEARS PAGE: 81

1983	1984	1985	1986	1987	1988	1989	1990	TOT.WE
*****	*****	*****	*****	*****	*****	*****	*****	******
60.0			30.0					90.0
15.0			15.0					30.0
19.0			57.0					76.0
24.0			16.0					40.0
3.0			3.0					6.0
6.0								6.0
10.0			10.0					20.0
175.0			150.0		25.0			350.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.C.O.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2336 T/H:RAW ORE 18 500 000 TPY RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATYA
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.CO.
69211	0111323911	SELF PROPOLLED BIN	3	12.275										36.8	36.8
69211	0112323911	STEEL BIN	4	24.551										98.2	98.2
69211	0154426931	STEEL BIN	6	122.753										613.7	613.7
69211	0154426931	STEEL BIN	15	147.303										2209.5	2209.5
69211	0154426931	STEEL BIN	10	122.753										1227.5	1227.5
69211	0744324911	SLURRY AGITOTOR TANK	2	35.674										71.3	71.3
72341	0043024752	BULL DOZER	7	155.376									1091.1		1091.1
72342	0034414752	FRONT END LOADER	2	159.012									318.0		318.0
72342	1088828762	SHOVEL	14	1339.676									18755.4		18755.4
72343	0151321722	ROTARY BLAST HOLE DRILL	4	33.790									135.1		135.1
72343	0172525742	ROTARY BLAST HOLE DRILL	12	258.395									3100.7		3100.7
72831	0169012941	GRIZZLY	5	7.415										37.0	37.0
72831	0347012941	UNBALANCED THROW SCREEN	15	22.660										339.9	339.9
72831	0635014762	SELF BALANCED SCREEN	12	140.492										1685.9	1685.9
72831	0645014762	SELF BALANCED SCREEN	3	140.492										421.4	421.4
72831	1220011212	HYDROCYCLONE	50	6.450										322.5	322.5
72831	1546014752	DOUBLE SPRIAL DOSSTIER	2	86.875										173.7	173.7
72831	3040013742	DRY MAGNETIC SEPERATOR	15	38.400										576.0	576.0
72831	3220012732	WET MAGNETIC SEPERATOR	70	20.800										1456.0	1456.0
72831	4350001212	CYCLONE	6	5.160										30.9	30.9
72832	0144315772	CONE CRUSHER	10	378.400										3784.0	3784.0
72832	0184315772	CONE CRUSHER	5	387.000										1935.0	1935.0
72832	0284316762	JAW CRUSHER	4	516.000										2064.0	2064.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) COST-BASIS 1981-1990 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2335 T/H:RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATYA
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.CO.
72932	1121716772	BALL MILL	2	544.000										1088.0	1088.0
72932	1141819992	BALL MILL	5	2259.200										11296.0	11296.0
72832	1541718792	ROD MILL	5	1056.000										5280.0	5280.0
72932	2150013932	SECONDARY BREAKING EQUIP.	3	39.733									119.2		119.2
72933	0077023942	ROTARY MIXER	1	45.870										45.8	45.8
72834	0545096972	BALLING DRUM	6	240.000										1440.0	1440.0
74163	5096399232	STRAIGHT GRATE	1	17548.750										17548.7	17548.7
74220	0253822232	SLURRY PUMP	10	46.956										469.5	469.5
74312	1230111212	VACUM PUMP	4	16.856										67.4	67.4
74361	0270023432	ELECTROSTATIC PRESPIT.	5	144.765										723.8	723.8
74361	1201023522	CYCLONES	12	43.000										516.0	516.0
74362	0165006941	CONCENTRATE THICKENER	1	144.663										144.6	144.6
74362	0175006941	TAILING THICKENER	2	265.449										530.8	530.8
74362	4231023912	VACUM DISEFILTER	10	59.073										590.7	590.7
74411	1064002922	BLAST HOLE CHARGING VEHICLE	3	43.299									129.8		129.8
74411	1064003932	BLAST HOLE STEMMING VEHICLE	3	52.921									158.7		158.7
74411	2055005962	DUMP TRUCK	41	327.148									13413.0		13413.0
74426	0243013941	BELT CONVEYOR	15	35.000										525.0	525.0
74426	0243013992	BELT CONVEYOR	2	2800.000										5600.0	5600.0
74426	0253013992	BELT CONVEYOR	1	1050.000										1050.0	1050.0
74426	0262012901	BELT CONVEYOR	1	24.000										24.0	24.0
74426	0263016982	BELT CONVEYOR	1	600.000										600.0	600.0
74426	0263016982	BELT CONVEYOR	1	680.000										680.0	680.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.U.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:HASANCELEBI
PLANT CAPACITY: 2335 T/H:RAW ORE
LOCATIONHASAN CELEBI-HEKIMHAN/MALATY.
ANTICIPATED DATE OF COMMISSIONING:1993
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 [illegible] Annex [illegible]

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
74426	0263017992	BELT CONVEYOR	1	980.000										980.0
74426	0263017992	BELT CONVEYOR	1	700.000										700.0
74426	0263015992	BELT CONVEYOR	1	1400.000										1400.0
74426	0273013942	BELT CONVEYOR	10	56.250										[illegible]
74426	0274019302	BELT CONVEYOR	4	2200.000										[illegible]
74426	0263014962	BELT CONVEYOR	5	131.250										[illegible]
74426	0284017982	BELT CONVEYOR	2	300.000										[illegible]
74426	7233011722	BELT FEEDER	3	20.250										[illegible]
74426	7494014752	APRON FEEDER	3	120.000										[illegible]
74426	8065013732	ROLL FEEDER	1	40.000										[illegible]
74426	8122011722	BELT WEIGHT FEEDER	5	11.250										[illegible]
74426	8123011732	BELT WEIGHT FEEDER	3	20.250										[illegible]

TOTAL

1981
1982
1983
1984
1985
1986
1987
1988
1989 37,221.0
1990 80,506.9
GRAND TOTAL 117,727.9

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:CEVECI
PLANT CAPACITY:1,290,000 TPY
LOCATION:HEKIMHAN MALATYA
ANTICIPATED DATE OF COMMISSIONING:1988
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

SITC CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.CO.
72341 0043024742	BULL DOZER	5	222.000				1110.0							1110.0
72341 1027013732	GRADER	1	114.000				114.0							114.0
72342 0032113742	FRONT END LOADER	2	232.740							[illegible]				565.4
72342 0063514752	FRONT END LOADER	1	297.600				297.6							297.6
72342 1066526972	POWER SHOVEL	4	947.000				2841.0						[illegible].0	3788.0
72343 0146322922	ROTART TRUCK DRIL	2	141.000				282.0							282.0
72343 0366514942	DTH BLAST HOLE DRILL	4	497.000				1491.0						[illegible].0	1988.0
72331 0656012921	VIBRATING SCREENS	1	92.800					92.8						92.8
72331 0666012921	VIBRATING SCREENS	1	92.800					92.8						92.8
72832 0164415672	CONE CRUSHER	1	795.740					795.7						795.7
72832 0266315672	JAW CRUSHER	1	746.000					746.0						746.0
74132 0324101921	CALCINATION KILN	18	69.110				1243.9							1243.9
74213 2322121311	SCREW COMPRESSOR	1	34.000					34.0						34.0
74342 1061112931	AIR BLOWER UNIT	9	69.150					622.3						622.3
74411 2046004942	DUMP TRUCK	27	250.000					6750.0						6750.0
74426 0111011921	BELT CONVEYOR	1	16.580					16.6						16.6
74426 0111012921	BELT CONVEYOR	1	107.400					107.4						107.4
74426 0111012921	BELT CONVEYOR	1	10.720					10.7						10.7
74426 0112013921	BELT CONVEYOR	1	84.780					84.7						84.7
74426 0122013921	BELT CONVEYOR	1	64.440					64.4						64.4
74426 0132011911	BELT CONVEYOR	2	6.450					12.9						12.9
74426 0132011911	BELT CONVEYOR	2	6.444					12.8						12.8
74426 0132012921	BELT CONVEYOR	2	42.960					85.9						85.9

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DEVECI
PLANT CAPACITY:1.290.000 TPY
LOCATION:HEKIMHAN MALATYA
ANTICIPATED DATE OF COMMISSIONING:1988
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981
74426	0132012921	T CONVEYOR	2	42.960	
74426	014301293	CONVEYOR	1	395.640	
74426	01430139	CONVEYOR	1	75.180	
74426	01430139	CONVEYOR	1	85.920	
74426	01430139	CONVEYOR	1	27.810	
74426	01630139	CONVEYOR	1	75.360	
74426	017301191	CONVEYOR	1	10.740	
74426	0173011921	CONVEYOR	1	16.040	
74426	0173013931	BELT CONVEYOR	1	96.660	
74426	0173017931	BELT CONVEYOR	1	1186.900	
74426	1443013931	KILN CHARGING CONVEYOR	1	90.586	
74426	1473013931	REVERSIBLE MOVABLE BELT CONVE	1	101.970	
74426	7542012931	VIBRATORY FEEDERS	1	74.160	
74426	7542012931	VIBRATORY FEEDERS	1	74.160	
74426	7543013941	KILN DISCHARGING VIBRATING FE	1	160.860	
74426	7573012941	VIBRATORY FEEDERS	1	92.700	

TOTAL

1981	
1982	
1983	
1984	7,379.5
1985	12,184.9
1986	
1987	565.4
1988	
1989	
1990	1,444.0
GRAND TOTAL	21,573.8

1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.CO.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*******
			85.9						85.9
			395.6						395.6
			75.1						75.1
			85.9						85.9
			27.8						27.8
			75.3						75.3
			10.7						10.7
			16.0						16.0
			96.6						96.6
			1166.9						1166.9
			90.5						90.5
			101.9						101.9
			74.1						74.1
			74.1						74.1
			166.8						166.8
			92.7						92.7

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.U.S.I.S.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY: 4 500 000 TPY RAW ORE
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1981-1990 YEARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.CO.
72341	0043024752	BULL DOZER	3	210.000						420.0					420.0
72341	0043024752	BULL DOZER	2	195.000										390.0	390.0
72341	0064024752	BULL DOZER	2	292.500										585.0	585.0
72342	0022223732	FRONT END LOADER	4	136.745										546.9	546.9
72342	0022323732	FRONT END LOADER	2	125.000						250.0					250.0
72342	1023425762	POWER SHOVEL	4	341.933								1367.7			1367.7
72343	0131522722	ROTARY BLAST HOLE DRILL	2	40.000						80.0					80.0
72343	0362524742	DTH BLAST HOLE DRILL	2	285.000			570.0								570.0
74411	2022003742	DUMP TRUCK	10	140.000			1400.0								1400.0
74411	2034003742	DUMP TRUCK	8	150.000									1200.0		1200.0

TOTAL

1981	
1982	
1983	1,970.0
1984	
1985	
1986	750.0
1987	
1988	1,367.7
1989	1,200.0
1990	1,521.9
GRAND TOTAL	6,809.6

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) COST-BASIS 1981-1990 YEARS PAGE: 88
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:B.EGMIR-AYAZMANT-CAYCAR
PLANT CAPACITY:
LOCATION:AYDIN-BALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.CO.
72341	0043024942	BULLDOZER	2	220.000			440.0								440.0
72341	1037013932	GRAYDER	3	80.000			240.0								240.0
72342	0032423942	FRONT END LOADER	4	130.000			520.0								520.0
72343	0136422942	ROTARY BLAST HOLE DRIL	3	45.000			90.0					45.0			135.0
72931	0659011931	VIBRATING SCREEN	1	30.000			30.0								30.0
72832	0224123001	JAW CRUSHER	1	40.000			40.0								40.0
74411	2024003932	DUMP TRUCK	6	110.000			550.0					110.0			660.0

TOTAL

1981	
1982	
1983	1,910.0
1984	
1985	
1986	
1987	
1988	155.0
1989	
1990	
GRAND TOTAL	2,065.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMACAZI-ATTEPE-KESIKKOPRU
PLANT CAPACITY:
LOCATION:KAYSERI-ADANA-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

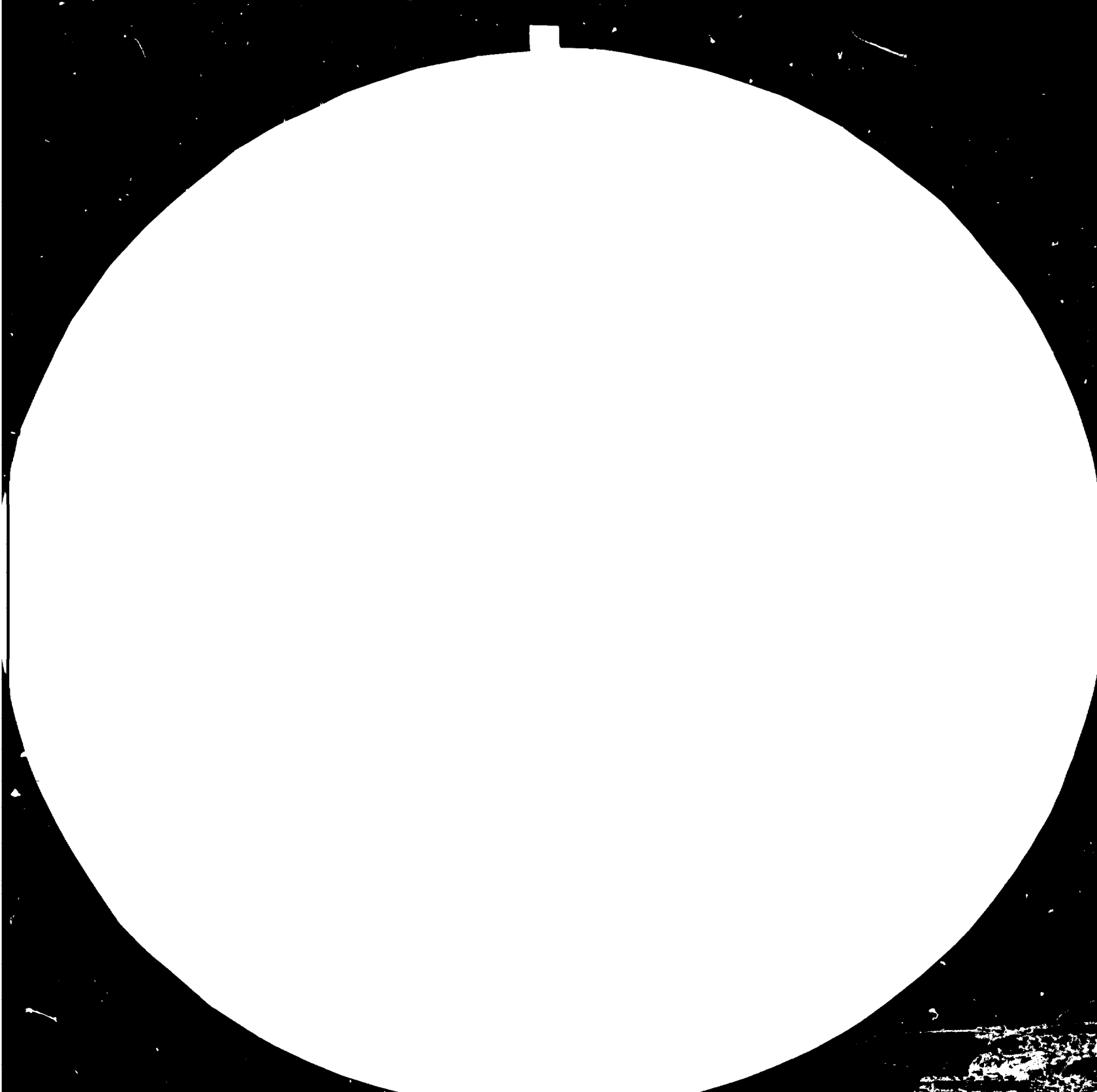
COST-BASIS 1981-1990 YEARS

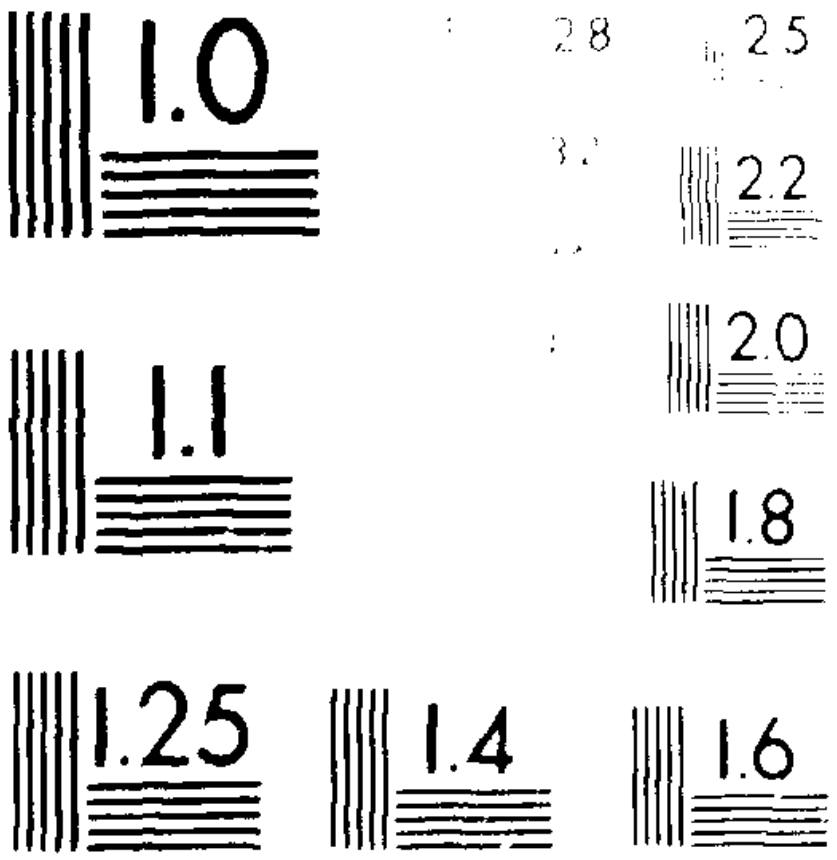
SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOT.CO.
72341	0043024942	BULLDOZER	2	220.000			440.0								440.0
72341	1037013932	GRAYDER	3	80.000			240.0								240.0
72342	0032423942	FRONT END LOADER	5	130.000			390.0					260.0			650.0
72343	0136422942	ROTARY BLASTHOLE DRILL	5	45.000			180.0					45.0			225.0
72831	0659011931	VIBRATING SCREEN	2	30.000			60.0								60.0
72832	0224123001	JAW CRUSHER	2	40.000			80.0								80.0
74411	2024003932	DUMP TRUCK	18	110.000			1540.0					440.0			1980.0

TOTAL

1981	
1982	
1983	2,930.0
1984	
1985	
1986	
1987	
1988	745.0
1989	
1990	
GRAND TOTAL	3,675.0


84.11.06
AD.86.07





UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.W.P.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:AKDAG-OTLUKILISE-CETINKAYA-AVNIK
PLANT CAPACITY:
LOCATION:SIVAS-ERZINCAN-BINGOL
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1981	1982
72341	0043024942	BULLDOZER	3	220.000		
72341	1037013932	GRADER	2	80.000		
72342	0032423942	FRONT END LOADER	4	130.000		
72343	0136422942	ROTARY BLAST HOLE DRILL	5	40.000		
72931	0659011931	VIBRATING SCREEN	2	30.000		
72831	2250012931	SAND WASHER	1	40.000		
72832	0224123091	JAW CRUSHER	2	40.000		
74411	2024003932	DUMP TRUCK	14	110.000		

TOTAL

1981	
1982	
1983	1,665.0
1984	
1985	
1986	1,510.0
1987	
1988	110.0
1989	
1990	
GRAND TOTAL	3,285.0

1983 *****	1984 *****	1985 *****	1986 *****	1987 *****	1988 *****	1989 *****	1990 *****	TOT.CO. *******
440.0			220.0					660.0
80.0			80.0					160.0
130.0			390.0					520.0
135.0			90.0					225.0
30.0			30.0					60.0
40.0								40.0
40.0			40.0					80.0
770.0			660.0		110.0			1540.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.O.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY: 4 500 000 TPY RAW ORE
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

WEIGHT-BASIS 1991-2000 YEARS

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE
72342	0134425762	POWER SHOVEL	1	110.000						110.0					110.0
72342	1045426772	POWER SHOVEL	7	190.000										1330.0	1330.0
72343	0131522722	ROTARY BLAST HOLE DRILL	4	8.000	32.0										32.0
72343	0362524742	DTHBLAST BLAST HOLE DRILL	8	32.000						256.0					256.0
72931	0636011912	GREEN PELLET SEEDSCREENS	4	6.600								26.4			26.4
72931	0657012921	VIBRATING SCREEN	4	4.000								16.0			16.0
72931	0659012332	VIBRATING SCREEN	2	3.600								7.2			7.2
72931	3250021912	DRY MAGNETIC SEPERATOR	6	2.750					16.5						16.5
72931	3250031912	WET MAGNETIC SEPERATOR	9	5.080								45.8			45.8
74121	0015051712	KILN BURNER	1	.600			.6								.6
74220	0111821612	VERTICAL SUMP PUMP	5	3.030			15.2								15.2
74220	0111821612	PORTABLE VERTICAL PUMP	2	.130			.2								.2
74240	0133811712	SLURRY PUMP	1	1.800			1.8								1.8
74312	1243111611	CENTRIFUGAL PUMP	25	2.060			51.5								51.5
74312	2352131212	VACUUM PUMP	4	14.725			58.9								58.9
74313	1213131312	COMPRESSOR	10	1.650			16.5								16.5
74341	0225111912	COOLING FAN	2	7.600										15.2	15.2
74341	0235111911	COOLING FAN	1	2.000										2.0	2.0
74341	0361114922	PREHEAT FANS	2	26.000										52.0	52.0
74341	1034134922	WASTE GAS FAN	1	29.000										29.0	29.0

CAPITAL GUODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY:
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE
74411	2054004742	DUMP TRUCK	19	38.600						733.4					733.4
74426	0263019932	BANT CONVEYOR	31	.804					25.0						25.0
74426	5111011922	WEIGH-FEEDER	2	2.500								5.0			5.0
74426	7541011922	RECIPROCATING CONVEYOR	1	3.500			3.5								3.5
74426	7541012922	LOW HEAD FEEDER	2	14.000					28.0						28.0
74426	7561012922	VIBRATING FEEDER	2												

TOTAL

1991	32.0
1992	
1993	148.2
1994	
1995	69.5
1996	1,099.4
1997	
1998	181.8
1999	
2000	1,423.2
GRAND TOTAL	2,959.1

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.C.) WEIGHT-BASIS 1990-2000 YEARS

CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:8.EGMIR-AYAZMANT-GAVCAR
PLANT CAPACITY:
LOCATION:AYDIN-BALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE
72341	0043024942	BULLDOZER	1	30.000			30.0								30.0
72341	1037013932	GRAYDER	2	15.000			30.0								30.0
72342	0032423942	FRONT END LOADER	3	19.000			57.0								57.0
72343	0136422942	BLAST HOLE DRILL	2	8.000			16.0								16.0
74411	2024003932	DUMP TRUCK	5	25.000			125.0								125.0

TOTAL

1991	
1992	
1993	258.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	258.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMADAZI-ATTEPE-KESIKKOPRU
PLANT CAPACITY:
LOCATION:KAYSERI-ADANA-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

WEIGHT-BASIS 1991-2000 YEARS

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE
72341	0043024942	BULLDOZER	2	30.000			60.0								60.0
72341	1037013932	GRAYDER	2	15.000			30.0								30.0
72342	0032423942	FRONT END LOADER	2	19.000			38.0								38.0
72343	0136422942	ROTARY BLASTHOLE DRILL	1	8.000			8.0								8.0
7441[illegible]	2024003932	DUMP TRUCK	3	25.000			75.0								75.0

TOTAL

1991	
1992	
1993	211.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	211.0

Ann. XXXX

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.C.I.) WEIGHT-BASIS 1991-2000. YEARS PAGE: 35
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:AKDAG-OTLUKILISE-CETINKAYA-AVNIK
PLANT CAPACITY:
LOCATION:SIVAS-ERZINCAN-BINGOL
ANTICIPATED DATE OF COMMISSIONING:
UNIT WEIGHT IN TONS.

SITC	CODE	BASIC MACHINE NAME	QT	UN.WT.	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.WE
72341	0043024942	BULLDOZER	4	30.000			120.0								120.0
72341	1037013932	GRAYDER	1	15.000			15.0								15.0
72342	0032423942	FRONT END LOADER	2	19.000			38.0								38.0
72343	0136422942	ROTARY BLASTHOLE DRILL	3	8.000			24.0								24.0
74411	2024003932	DUMP TRUCK	5	25.000			125.0								125.0

TOTAL

1991	
1992	
1993	322.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	322.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) COST-BASIS 1991-2000 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY: 4 500 000 TPY RAW ORE
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.COS.
72342	0134425762	POWER SHOVEL	1	620.000						620.0					620.0
72342	1046426772	POWER SHOVEL	7	760.000										5320.0	5320.0
72343	0131522722	ROTARY BLAST HOLE DRILL	4	40.000	160.0										160.0
72343	0362524742	OTHBLAST BLAST HOLE DRILL	8	220.000						1760.0					1760.0
72831	0636011912	GREEN PELLET SEEDSCREENS	4	37.389								144.5			144.5
72831	0657012921	VIBRATING SCREEN	4	6.917								27.6			27.6
72831	0659012332	VIBRATING SCREEN	2	12.056								24.1			24.1
72831	3250021912	DRY MAGNETIC SEPERATOR	6	8.059					48.3						48.3
72831	3250031912	WET MAGNETIC SEPERATOR	9	13.540								121.8			121.8
74121	0015051712	KILN BURNER	1	3.400			3.4								3.4
74240	0111821612	VERTICAL SUMP PUMP	5	2.859			14.2								14.2
74240	0111821512	PORTABLE VERTICAL PUMP	2	3.287			6.5								6.5
74240	0133811712	SLURRY PUMP	1	13.695			13.6								13.6
74312	1243111611	CENTRIFUGAL PUMP	25	9.656			241.4								241.4
74312	2352131212	VACUUM PUMP	4	37.004			148.0								148.0
74313	1213131312	COMPRESSOR	10												
74341	0225111912	COOLING FAN	2	17.800										35.6	35.6
74341	0235111911	COOLING FAN	1	3.600										3.6	3.6
74341	0361114922	PREHEAT FANS	2	63.500										127.0	127.0
74341	1034134922	WASTE GAS FAN	1	70.800										70.8	70.8

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.I.S.C.I.) COST-BASIS 1991-2000 YEARS
CAPITAL GOODS DEVELOPMENT PROJECT.
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:DIVRIGI
PLANT CAPACITY:
LOCATION: DIVRIGI/SIVAS
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.CO.
74411	2054004742	DUMP TRUCK	19	290.000						5510.0					5510.0
74426	0263019992	BANT CONVEYOR	31	223.323					6923.0						6923.0
74426	5111011922	WEIGH-FEEDER	2	23.340								46.6			46.6
74426	7541011922	RECIPROCATING CONVEYOR	1	15.204			15.2								15.2
74426	7541012922	LOW HEAD-FEEDER	2	31.500					63.0						63.0
74426	7561012922	VIBRATING FEEDER	2												

TOTAL

1991	160.0
1992	
1993	442.3
1994	
1995	7,034.3
1996	7,890.0
1997	
1998	695.6
1999	
2000	5,557.0
GRAND TOTAL	21,779.2

Ann. XXXXII

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.D.C.I.) COST-BASIS 1991- 2003 YEARS PAGE: 93
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:B.EGMIR-AYAZMANT-CAYCAR
PLANT CAPACITY:
LOCATION:AYDIN-BALIKESIR
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	TOT.CO.
72341	0043024942	BULLDOZER	1	220.000			220.0								220.0
72341	1037013932	GRAYDER	2	80.000			160.0								160.0
72342	0032423942	FRONT END LOADER	3	130.000			390.0								390.0
72343	0136422942	BLAST HOLE DRILL	2	45.000			90.0								90.0
74411	2024003932	DUMP TRUCK	5	110.000			550.0								550.0

TOTAL

1991	
1992	
1993	1,410.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	1,410.0

U.(00/SPD TURKISH IRON AND STEEL WORKS (T.D.C.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME:KARTALKAYA-KARAMADAZI-ATTEPE-KESTKKOPRU
PLANT CAPACITY:
LOCATION:KAYSERI-ADANA-ANKARA
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

COST-BASIS 1991-2000 YEARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000.	TOT.CO.
72341	0043024942	BULLDOZER	2	220.000			440.0								440.0
72341	1037013932	GRAYDER	2	80.000			160.0								160.0
72342	0032423942	FRONT END LOADER	2	130.000			260.0								260.0
72343	0136422942	ROTARY BLASTHOLE DRILL	1	45.000			45.0								45.0
74411	2024003932	DUMP TRUCK	3	110.000			330.0								330.0

TOTAL

1991	
1992	
1993	1,235.0
1994	
1995	
1996	
1997	
1998	
1999	
2000	
GRAND TOTAL	1,235.0

UNIDO/SPO TURKISH IRON AND STEEL WORKS (T.O.S.I.)
CAPITAL GOODS DEVELOPMENT PROJECT
EQUIPMENT REQUIREMENTS FOR THE NEW PLANT
PLANT NAME: AKDAG-OTLUKILISE-CETINKAYA-AVNIK
PLANT CAPACITY:
LOCATION: SIVAS-ERZINCAN-BINGOL
ANTICIPATED DATE OF COMMISSIONING:
UNIT COSTS IN 1000 U.S.A. DOLLARS

SITC	CODE	BASIC MACHINE NAME	QT	UNIT COST	1991	1992
72341	0043024942	BULLDOZER	4	220.000		
72341	1037013932	GRAYDER	1	80.000		
72342	0032423942	FRONT END LOADER	2	130.000		
72343	0136422942	ROTARY BLASTHOLE DRILL	3	45.000		
74411	2024003932	DUMP TRUCK	5	110.000		

TOTAL

1991
1992
1993 1,905.0
1994
1995
1996
1997
1998
1999
2000
GRAND TOTAL 1,905.0

1993	1994	1995	1996	1997	1998	1999	2000	TOT.CO.
*****	*****	*****	*****	*****	*****	*****	*****	******
880.0								880.0
80.0								80.0
260.0								260.0
135.0								135.0
550.0								550.0

DPT YAYINLARI ÜCRETSİZDİR, SATILAMAZ

YAYIN ve TEMSİL DAİRESİ MATBAA BİRİMİ 1983 ANKARA