(4) Percentages of domestic purchases and imports in direct construction cost

(Unit: Rs. in Lakhs & %)

	Domestic Amount	%	Import Amount	%	Total Amount
Civil & building	28,975	100	0	0	28,975
Machinery, equipment and vehicle	54,143	48	58,395	52	112,538
Erection	12,959	77	3,936	23	16,895
Transport & insurance	3,026	33	6,051	67	9,077
Total	99,103	59	68,382	41	167,485

It is said that in the past, domestic supply capacity in India is very high and 80-90% of steel plant facilities can be obtained domestically.

In comparison, this study, it may be said, shows fairly low percentages. As there are a number of factors to be considered including not only prices but delivery and so forth, it cannot be easily said whether domestic percentage is high or not. This is the matter that requires review under concrete conditions when the project is implemented.

(5) % composition by facilities in the direct construction cost (1st and 2nd steps)

The top six items account for about 70% of the total.

1) Blast furnace facilities	Rs.30,830	Lakhs	18.4%
2) New bar & sect. mill facilities	24,680	"	14.7%
3) Coke plant facilities	22,135	"	13.2%
4) Sinter plant facilities	14,711	"	8.8%
5) BOF plant facilities	14,124	"	8.4%
6) Power plant facilities	10,054	"	6.0%

(6) Customs duties and other taxes

The following tax rates are used.

1) Customs duties: 55% on CIF price

2) Other taxes

a. Excise duty: 15% on domestic purchases

b. Sales tax : 4% -"-

(7) Other investments

1) Engineering fee

Engineering fee is not fixed depending on relation between IISCO and engineering companies. Estimated amount based on experience was used in this study.

2) Expenses for training and technical assistance.

Necessary man-day was estimated for each facilities. See Chapter 7-1-9.

3) Pre-operating expenses

This includes various expenses required for arrangement of construction management and other operation systems before start of operation. Amounts estimated by experience was used.

4) Spares

This includes purchases of spares for machinery and equipment which become necessary after their operation is commenced but must be prepared before the start of operation.

5) Contingencies

For both domestic purchases and imports, 5% of direct construction cost was added as contingencies.

6) Interest during construction

This is interest on long-term loans for payment of construction cost during the construction period. The conditions for borrowing are explained in 8-3.

(8) Investment for environmental measures (Total of 1st and 2nd steps)

Included in the investment for "Machinery & equipment" are the investment for environmental measures as given below. (% shows that as against "Machinery & equipment" in each item.)

	Amount (Rs. in Lakhs)	%
1) Raw materials yards facilities	96	2.9
2) Sinter plant facilities	1,309	15.1
3) Coke plant facilities	3,378	22.1
4) Blast furnace facilities	1,604	6.9
5) Lime calcining facilities	66	4.1
6) BOF plant facilities	2,325	24.6
Total	8,778	8.2

(9) About investment per tonne of crude steel

Usually "Investment per tonne of crude steel" is used as a measure of checking the level of investment of an integrated steel plant. For the type of project as this where additional investment is made to increase production while utilizing existing facilities effectively, the measure should be the increment of production corresponding to such additional investment. However, the processes, preceding and following, in steel plants are so closely interrelated that it is extremely difficult theoretically as well as practically to extract such relation (additional investment as input and production increment as output). Therefore this study avoided use of "investment per tonne of crude steel" and this has direct relation with the method of calculation of effect of investment in financial analysis and is discussed in 8-3 in more detail.

Table 8.1.1 Total Investment (1st & 2nd Steps)

(Unit: Rs. in Lakhs)

Cost Item	Domestic	Import	Total	%
1) Land reclamation	5,450	0	5,450	2.2
2) Civil	10,300	0	10,300	4.2
3) Building	13,225	0	13,225	5.4
4) Machinery & equipment	48,674	58,374	107,048	43.7
5) Erection	12,959	3,936	16,895	6.9
6) Vehicle	5,469	21	5,490	2.3
7) Transport & insurance	3,026	6,051	9,077	3.7
A (Direct construction cost, 1 - 7)	(99,103)	(68,382)	(167,485)	(68.4)
8) Duties & taxes	45,872	0	45,872	18.7
B (of which, duties)	(36,222)		(36,222)	(14.8)
9) Engineering fee	2,219	5,177	7,396	3.0
10) Training	0	300	300	0.1
11) Technical assistance	0	471	471	0.2
12) Pre-operating expenses	370	0	370	0.2
13) Spares	1,338	2,087	3,425	1.4
14) Contingencies	4,955	3,418	8,373	3.4
15) Interest during construction	2,195	8,979	11,174	4.6
C (Total of other investment, 9 - 15)	(11,077)	(20,432)	(31,509)	(12.9)
A + B + C	(63.7%)	(36.3%)	(100.0%)	100.0
Total investment	156,052	88,814	244,866	

Table 8.1.2 Total Investment (1st Step)

(Unit: Rs. in Lakhs)

Cost Item	Domestic	Import	Total	%
1) Land reclamation	5,450	0	5,450	4.2
2) Civil	5,531	0	5,531	4.3
3) Building	7,476	0	7,476	5.8
4) Machinery & equipment	22,685	32,273	54,958	42.6
5) Erection	6,117	2,473	8,590	6.7
6) Vehicle	381	13	394	0.3
7) Transport & insurance	1,678	3,356	5,034	3.8
A (Direct construction cost, 1 - 7)	(49,318)	(38,115)	(87,433)	(67.7)
8) Duties & taxes	24,823	0	24,823	19.2
B (of which, duties)	(20,301)		(20,301)	(15.7)
9) Engineering fee	1,154	2,692	3,846	3.0
10) Training	0	254	254	0.2
11) Technical assistance	0	391	391	0.3
12) Pre-operating expenses	192	0	192	0.1
13) Spares	733	1,261	1,994	1.5
14) Contingencies	2,466	1,905	4,371	3.4
15) Interest during construction	938	4,911	5,849	4.6
C (Total of other investment, 9 - 15)	(5,483)	(11,414)	(16,897)	(13.1)
A + B + C	(61.6%)	(38.4%)	(100.0%)	100.0
Total investment	79,624	49,529	129,153	

Table 8.1.3 Total Investment (2nd Step)

(Unit: Rs. in Lakhs)

Cost Item	Domestic	Import	Total	%
1) Land reclamation	0	0	0	0.0
2) Civil	4,769	0	4,769	4.1
3) Building	5,749	0	5,749	5.0
4) Machinery & equipment	25,989	26,101	52,090	45.0
5) Erection	6,842	1,463	8,305	7.2
6) Vehicle	5,088	8	5,096	4.4
7) Transport & insurance	1,348	2,695	4,043	3.5
A (Direct construction cost, 1 - 7)	(49,785)	(30,267)	(80,052)	(69.2)
8) Duties & taxes	21,049	0	21,049	18.2
B (of which, duties)	(15,921)		(15,921)	(13.8)
9) Engineering fee	1,065	2,485	3,550	3.1
10) Training	0	46	46	-
11) Technical assistance	0	80	80	0.1
12) Pre-operating expenses	178	0	178	0.2
13) Spares	605	826	1,431	1.2
14) Contingencies	2,489	1,513	4,002	3.5
15) Interest during construction	1,257	4,068	5,325	4.5
C (Total of other investment, 9 - 15)	(5,594)	(9,018)	(14,612)	(12.6)
A + B + C	(66.0%)	(34.0%)	(100.0%)	100.0
Total investment	76,428	39,285	115,713	

Table 8.1.4 Total Direct Construction Cost (1st & 2nd Steps)

(Unit: Rs. in Lakhs)

Facilities	Domestic	Import	Total	%
1. Raw materials yard	3,568	1,839	5,407	3.2
2. Sinter plant	9,643	5,068	14,711	8.8
3. Coke plant	18,945	3,190	22,135	13.2
4. Blast furnace	15,646	15,184	30,830	18.4
5. Lime calcining plant	1,841	702	2,543	1.5
6. BOF plant	10,183	3,941	14,124	8.4
7. Ingot casting plant	1,315	0	1,315	0.8
8. Bloom CC plant	1,604	832	2,436	1.5
9. Billet CC plant	4,528	2,089	6,617	4.0
10. New bar & sect. mill	12,104	12,576	24,680	14.7
11. Blooming mill	1,267	2,044	3,311	2.0
12. Heavy structural mill	394	548	942	0.6
13. Billet mill	190	226	416	0.2
14. Merchant mill	286	482	768	0.5
15. Sheet mill	28	266	294	0.2
16. Power receiving & distributing facil.	759	822	1,581	0.9
17. Power plant	1,876	8,178	10,054	6.0
18. Oxygen plant	1,052	5,378	6,430	3.8
19. BF blower	563	3,112	3,675	2.2
20. Water treatment	343	236	579	0.3
21. Gas facilities	1,619	1,430	3,049	1.8
22. Maintenance facil.	727	239	966	0.6
23. Admin. & common dept.	5,746	0	5,746	3.4
24. Transport dept.	4,876	0	4,876	3.0
	(59.2%)	(40.8%)	(100.0%)	100.0
Total	99,103	68,382	167,485	

Notes: 1. Direct construction cost includes land reclamation, civil, building, machinery & equipment, erection, vehicle, transport & insurance.

2. Admin. & common dept. includes land reclamation of 5,450 Lakhs in Rs.

Table 8.1.5 Direct Construction Cost (1st Step)

(Unit: Rs. in Lakhs)

Facilities	Domestic	Import	Total	%
1. Raw materials yard	3,046	1,739	4,785	5.5
2. Sinter plant	5,037	2,521	7,558	8.6
3. Coke plant	1,243	42	1,285	1.5
4. No.5 BF plant	8,028	7,715	15,743	18.0
5. No.1 lime calcining plant	1,291	443	1,734	2.0
6. Nos.1&2 BOF plant	7,883	2,813	10,696	12.2
7. Ingot casting plant	1,315	0	1,315	1.5
8. BL-1 CC plant	1,604	832	2,436	2.8
9. BT-1 CC plant	1,678	741	2,419	2.8
10. No.1 new bar & sect. mill	5,576	5,700	11,276	12.9
11. Blooming mill	1,267	2,044	3,311	3.8
12. Heavy structural mill	394	548	942	1.1
13. Billet mill	190	226	416	0.5
14. Merchant mill	286	482	768	0.9
15. Sheet mill	28	266	294	0.3
16. Power receiving & distributing facil.	529	662	1,191	1.4
17. No.1 power plant	1,032	4,089	5,121	5.9
18. No.1 oxygen plant	702	3,585	4,287	4.9
19. No.1 BF blower	373	2,075	2,448	2.8
20. Water treatment	343	236	579	0.7
21. Gas facilities	1,553	1,356	2,909	3.2
22. Admin. & common dept.	5,746	0	5,746	6.5
23. Transport dept.	174	0	174	0.2
	(56.4%)	(43.6%)	(100.0%)	100.0
Total	49,318	38,115	87,433	

Table 8.1.6 Direct Construction Cost (2nd Step)

(Unit: Rs. in Lakhs)

Facilities	Domestic	Import	Total	%
1. Raw materials yard	522	100	622	0.8
2. Sinter plant	4,606	2,547	7,153	8.9
3. Coke plant	17,702	3,148	20,850	26.0
4. No.6 BF plant	7,618	7,469	15,087	18.8
5. No.2 lime calcining plant	550	259	809	1.0
6. No.3 BOF plant	2,300	1,128	3,428	4.3
7. No.2 BT CC plant	1,425	674	2,099	2.6
8. No.3 BT CC plant	1,425	674	2,099	2.6
9. No.2 new bar & sect. mill	6,528	6,876	13,404	16.7
10. Power receiving & distributing facil.	230	160	390	0.5
11. No.2 power plant	844	4,089	4,933	6.2
12. No.2 oxygen plant	350	1,793	2,143	2.7
13. No.2 BF blower	190	1,037	1,227	1.5
14. Gas facilities	66	74	140	0.2
15. Machine assembly shop	282	13	295	0.4
16. Electric repair shop	219	0	219	0.3
17. Forging shop	146	226	372	0.5
18. Structure shop	80	0	80	0.1
19. Transport dept.	4,702	0	4,702	5.9
	(62.2%)	(37.8%)	(100.0%)	100.0
Total	49,785	30,267	80,052	

8-1-3. Acquisition cost of fixed assets

For production cost accounting, it is necessary to reclassify the investment in 8-1-2 by kind of fixed assets and by cost depts. The results are shown in Table 8.1.7, Table 8.1.8 and Table 8.1.9.

Table 8.1.7 Acquisition Cost of Fixed Assets

(Unit: Rs. in Lakhs)

Kind	1st Step	2nd Step	Total
Land	5,737	0	5,737
Building	9,066	6,261	15,327
Machinery & equipment	100,254	92,707	192,961
Vehicle	477	5,410	5,887
Total of Tangible fixed assets	115,534	104,378	219,912
Engineering fee	3,846	3,550	7,396
Training	254	46	300
Technical assistance	391	80	471
Pre-operating expenses	192	178	370
Interest during construction	5,849	5,325	11,174
Total of Deferred assets	10,532	9,179	19,711
Grand total	126,066	113,557	239,623
(of which, total of depreciable assets)	(120,329)	(113,557)	(233,886)

Table 8.1.8 Allocation of Depreciable Assets by Cost Dept. (1st Step)

(Unit: Rs. in Lakhs)

Cost department	Acquisition Cost of Fixed Assets				
	Building	Machinery & equipment	Vehicle	Deferred assets	Total
Raw materials yard	981	5,184	29	396	6,590
Sinter plant	1,890	7,747	14	596	10,247
Coke plant	47	1,505	0	75	1,627
Blast furnace	857	20,629	23	1,147	22,656
Lime calcining plant	137	2,000	0	114	2,251
BOF plant	2,026	11,272	237	847	14,382
Ingot casting plant	299	1,076	174	74	1,623
BL CC plant	471	2,698	0	180	3,349
BT-1 CC plant	471	2,644	0	178	3,293
No.1 new bar & sect. mill	814	14,618	0	874	16,306
Blooming mill	26	4,672	0	231	4,929
Heavy structural mill	26	1,289	0	64	1,379
Billet mill	31	545	0	28	604
Merchant mill	46	1,045	0	54	1,145
Sheet mill	0	452	0	22	474
Power receiving & distributing facilities	41	1,556	0	77	1,674
Power plant	99	7,326	0	358	7,783
Oxygen plant	133	6,195	0	300	6,628
BF blower	105	3,425	0	169	3,699
Water treatment	33	659	0	33	725
Gas facilities	54	3,717	0	182	3,953
Admin. (Overhead)	296	0	0	4,524	4,820
Transport	183	0	0	9	192
Total	9,066	100,254	477	10,532	120,329

Table 8.1.9 Allocation of Depreciable Assets by Cost Dept.
(2nd Step - Total)

(Unit: Rs. in Lakhs)

Cost Department	Acquisition Cost of Fixed Assets				
	Building	Machinery & equipment	Vehicle	Deferred assets	Total
Raw materials yard	1,168	5,749	29	435	7,381
Sinter plant	3,584	15,259	14	1,082	19,939
Coke plant	1,162	25,941	278	1,326	28,707
Blast furnace	1,543	40,253	36	2,249	44,081
Lime calcining plant	152	3,001	0	166	3,319
BOF plant	2,422	15,214	347	1,071	19,054
Ingot casting plant	299	1,076	174	74	1,623
BL-1 CC plant	471	2,698	0	181	3,350
BT-1 CC plant	471	2,644	0	179	3,294
BT-2 & BT-3 CC plant	818	4,536	72	262	5,688
No.1 new bar & sect. mill	814	14,618	0	880	16,312
No.2 -"-	895	17,512	0	909	19,316
Blooming mill	26	4,672	0	232	4,930
Heavy structural mill	26	1,289	0	65	1,380
Billet mill	31	545	0	28	604
Merchant mill	46	1,045	0	54	1,145
(Sheet mill)	(0)	(452)	(0)	(22)	(474)
Power receiving & distributing facilities	41	2,044	0	101	2,186
Power plant	142	14,510	0	712	15,364
Oxygen plant	216	9,277	0	454	9,947
BF blower	158	5,142	0	255	5,555
Water treatment	33	659	0	33	725
Gas facilities	54	3,900	0	192	4,146
Maintenance	276	925	0	66	1,267
Admin.	296	0	0	8,428	8,724
Transport	183	0	4,937	255	5,375
		(452)		(22)	(474)
Total	15,327	192,509	5,887	19,689	233,412

8-1-4. Book value of existing facilities

Book value of existing facilities of BURNPUR Works is as follows:

(Unit: Rs. in Lakhs)

Kind	End of March 1986	Additional investment	End of March 1993
Land	38	-	38
Building	2,215	-	1,812
Machinery & equipment	5,421	9,205	6,003
Vehicle	1,246	-	735
Total	8,920	9,205	8,588

Remarks: 1. Additional investment includes No.8 coke oven battery (scheduled to start up in 1987) and No.9 coke oven battery (startup in 1991). The amount is the budgets of IISCO.

2. Book value as at End of March 1993 is estimated residual value after depreciation since April 1986.

The reason why book value of existing facilities is desired will be explained in 8-3. Incidentally, production cost accounting is made by incorporating depreciation related to the above book value.

8-1-5. Investment for fine ore washing facilities at GUA mine

Though this investment is outside of this study, an estimated amount of the investment is shown in Table 8.1.9 for reference.

Table 8.1.9 Investment for fine ore washing facilities

(Unit: Rs. in Lakhs)

Cost Item	Amount
Land & building	760
Machinery & equipment	1,647
Erection	138
Vehicle	103
Spares	11
Contingencies	118
Total	2,777

100% domestic purchase

8-2. Estimation of production cost

8-2-1. Basic preconditions and method of cost accounting

(1) Basic preconditions

1) Operating rate is assumed to be in normal operation condition.
1st step (1993) is 1 million T/Y (crude steel) and 2nd step (1994 and after) 2.15 million T/Y.

The levels of variable costs and fixed costs in the years of relining of BFs are assumed to be same as those in the normal operation in the 2nd step.

2) Basic period of elementary price: July 1986

3) Unit of calculation: Metric system

4) Effect of price fluctuation: None considered

(2) Method of cost accounting

1) Process cost system

However, process here means plant unit in principle, and no further division of process was used.

2) Method of allocation among auxiliary depts.

Allocation of utilities among themselves was made by mutual allocation method, but the method was not used for mutual allocation among the other auxiliary dept.

3) Kinds of production cost

Two kinds of cost accounting, "variable cost" and "full cost", were made.

4) Division of variable cost and fixed cost

Labour cost, repair expenses excluding refractories, depreciation, interest on long-term loans, increase in reserve for blast furnace relining, plant administration expenses and expenses of transport dept. are all considered as fixed costs.

All costs which can be grasped by yield and unit consumption are considered as variable costs, and some consumables are also made variable cost though they can hardly be expressed in unit consumption.

5) Handling of by-product chemicals plant

In this study, in consideration of economy in calculation and little effect, by-product chemicals plant was put outside of the cost accounting. Namely, accounting stops at the stage where by-products for chemicals are reckoned by Coke plant.

6) Handling of interest on long-term loans

"Full cost" includes interst on long-term loans. As a matter of course, payment of interest on long-term loans is highest in early days of operation and decreases as years pass. Therefore, to make it level off, capital recovery factor was used and the amount remaining after depreciation is deducted from annuity was made the average payment of the interest. Where there is residual rate (5%), it was taken into consideration of the capital recovery factor.

8-2-2. Price of cost elements

Price of cost elements is, in principle, based on the 1986 fiscal year budget of IISCO though some are estimated from the price level in Japan.

In the following are given a table of unit price of main raw materials and some by-products (Table 8.2.1) and a table of unit labour cost (Table 8.2.2).

Table 8.2.1 Unit Price of Main Raw Materials and By-products

(Unit: Rs.)

Name of article	Unit	Price	Remarks
Fine iron ore (for sinter)	Tonne	112	
Fine ferruginous manganese ore (for sinter)	"	183	85% of lump ore
Iron ore, high grade (BF)	"	142	Monoharpur & MMTC
-"- low grade (BF)	"	135	GUA & Monoharpur
-"- (BOF)	"	145	MMTC (Banspani)
Limestone (for sinter)	"	190	Bistra
" (BF)	"	190	"
" (BOF)	"	250	Rama
Dolomite (for sinter)	"	195	Bistra
" (BOF)	"	200	" (SMS grade)
Silicastone	"	155	
Fluorspar	"	4,007	
Ferromanganese	"	7,800	
Ferrosilicon	"	13,800	
Aluminium	"	23,300	
Coal (Strong coking)	"	675	Pathardih 30% CHASNALLA 70%
" (Semi-strong coking)	"	613	Kargali 67% Victoria W 33%
" (Weak coking)	"	473	Barmondia 50% Sripur 50%
" (Australian coal)	"	1,020	FOB US$49.25
" (Boiler)	"	356	
Purchased power	kWh	0.577	
Purchased scrap (BOF)	Tonne	2,030	Same as return scrap
Refractories (BOF, Main)	"	4,000	
" (" Furnace)	"	7,450	
" (" Ladle)	"	1,200	
" (Teeming & CC ladle)	"	2,077	
" Sliding nozzle (Teeming & CC)	"	59,200	
" Castable (CC)	"	3,800	Hi-Al
" Nozzle (CC)	"	61,500	Zircon
Mold (Ingot casting)	"	6,206	
Stool or bottom plate (-"-)	"	6,408	
Rolling roll	"	20,000-28,000	

Table 8.2.1 Unit Price (Cont'd)

(Unit: Rs.)

Name of article	Unit	Price	Remarks
(By-products)			
Scrap (Steel)	Tonne	2,030	
" (Iron)	"	1,830	
" (Skull)	"	1,220	
" (Scale)	"	30	
Gas	10^6kcal	113	BFG, COG, LDG
Coke breeze	Tonne	422	Ave. of pearl & breeze
BF slag (Granulated)	"	237	After tax
BF dust	"	67	

Table 8.2.2 Unit Labour Cost

(Unit: Rs./Man·Year)

Classification	Unit Cost	Remarks
(Executive)		
General Superintendent	78,000	E-9
Deputy General Superintendent	76,200	E-8
General Manager	72,800	E-7
Deputy General Manager	70,400	E-6-B
Manager	69,300	E-6-A
Deputy Manager	59,200	E-4
(Non-Executive)		
Technical	30,700	Unit cost of Secondary staff applied
Clerical	"	-"-
General Foreman	"	-"-
Foreman	27,500	Estimated
Muster Roll	22,400	

8-2-3. Depreciation and amortization

Depreciation and amortization is all based on a fixed installment method. Shown in the following is depreciation by kind of fixed assets and deferred assets.

Table 8.2.3 Depreciation Expenses (1st Step)

(Unit: Rs. in Lakhs)

Kind	Acquisition cost	Life	Annual Depreciation	Residual rate
		Yrs.		
Building	9,066	30	287	5%
Machinery & equipment	100,254	13	7,326	5
Vehicle	477	20	23	5
Total of tangible fixed assets	109,797		7,636	
Engineering fee	3,846	10	385	0
Training, Technical assistance	645	10	65	0
Pre-operating expenses	192	10	19	0
Interest during construction	5,849	10	585	0
Total of deferred assets	10,532		1,054	
Grand total	120,329		8,690	

Table 8.2.4 Depreciation Expenses (2nd Step - Total)

(Unit: Rs. in Lakhs)

Kind	Acquisition cost	Annual Depreciation
Building	15,327	485
Machinery & equipment	192,961	14,101
Vehicle	5,887	280
Total of tangible fixed assets	214,175	14,866
Engineering fee	7,396	740
Training, Technical assistance	771	77
Pre-operating expenses	370	37
Interest during construction	11,174	1,117
Total of deferred assets	19,711	1,971
Grand total	233,886	16,837

8-2-4. Reserve for special repair of blast furnaces

To level off cost, the method to set aside reserve every year was adopted for special repair cost of blast furnaces.

1) The repair (relining) takes place every 8 years, and estimated cost of special repair per blast furnace is 1,624 Rs. in Lakhs. And annual increase of reserve is 203 Rs. in Lakhs per furnace.

2) Year when special repair of BF takes place:
No.5 BF: 2000 and 2008
No.6 BF: 2001 and 2009

8-2-5. Auxiliary departments

Major matters concerning auxiliary departments are given below.

(1) Repair dept. cost

Repair cost is cost which is very difficult to foresee and the method to reckon individual elements can hardly be adopted.

In this study the following methods are employed.

1) Newly installed facilities:
3% of "Acquisition cost" of relevant machinery and equipment

2) Existing facilties:
Estimated based on the 1986 fiscal year budget figures of IISCO

Then, after deducting labour cost related to repair dept. from the total repair expenses (in each cost department), materials cost for repair were calculated.

(2) Administration dept. cost

Administration cost covers many, varied functions of personnel, labour, welfare, production control technique, etc., and apart from labour cost, it is difficult to use an estimation method to add up every cost items.

Therefore, the cost is estimated based on the 1986 budget figures and past results of IISCO. This resulted in the estimate of 87 Rs. in Lakhs (annual) of the scale of various expenses excluding labour cost, depreciation and interest. The total amount that includes labour cost, depreciation and others is

1st step: 203 Rs. in Lakhs
2nd step: 247 Rs. in Lakhs

(3) Transport dept. cost

Based on the 1986 budget figures and past results of IISCO, the level of various expenses excluding labour cost, depreciation and interest in this dept. was estimated to be Rs.37 Lakhs in 1st step & Rs.50 Lakhs in 2nd step. The total amount that includes labour cost, depreciation and interest is

1st step: 147 Rs. in Lakhs

2nd step: 187 Rs. in Lakhs

8-2-6. Result of production cost accounting

Shown in the following are production cost by product and production cost of utilities. For details, see the data attached at the end of Chapter.

Table 8.2.5 Production Cost by Product

(Unit: Rupees per tonne)

Product	Variable cost 1st Step*	Variable cost 2nd Step*	Full cost 1st Step*	Full cost 2nd Step*
Sinter	205.45	200.73	362.63	323.71
Coke	1,027.60	981.21	1,305.02	1,415.91
Hot metal	847.11	773.36	1,714.71	1,592.81
Cold pig iron	848.99	774.74	1,784.25	1,650.24
Molten steel	1,393.92	1,327.02	2,586.27	2,344.82
Ingot casting	1,590.49	1,521.34	2,866.12	2,645.25
Bloom (BL-1 CC)	1,472.99	1,401.62	2,885.84	2,597.62
Billet (BT-1 CC)	1,499.99	1,429.03	2,970.61	2,662.92
Billet (BT-2,3 CC)	-	1,400.66	-	2,522.04
Bloom (existing)	1,630.29	1,522.02	3,188.83	2,915.98
Billet (existing)	1,705.33	1,615.45	3,454.41	3,256.65
Sheet	1,941.06	-	4,650.53	-
Galv. sheet	4,193.40	-	7,754.30	-
Merchant mill products	1,841.26	1,554.55	3,883.03	3,061.45
No.1 new bar mill products	1,648.35	1,487.81	4,175.63	3,057.01
No.2 -"-	-	1,494.33	-	3,093.34
Heavy struc. mill products	1,689.87	1,586.97	3,738.46	3,399.07
(Saleable steel products)	(1,829.56)	(1,525.33)	(4,122.26)	(3,135.34)
(Saleable products)	(1,753.58)	(1,515.88)	(3,901.61)	(3,116.63)

Note: Saleable products include pig iron for sale and coke for sale.

*Under normal operation

1st Step: 1.0 Million T/Y

2nd Step: 2.15 Million T/Y

Table 8.2.6 Production Cost of Utilities

(Unit: Rupees per unit)

Product	Variable Cost 1st Step	Variable Cost 2nd Step	Full Cost 1st Step	Full Cost 2nd Step
Gas, /10^6kcal	113	113	127.92	120.84
Electricty /kWh	0.348	0.244	0.606	0.484
Steam /tonne	93.35	91.88	102.18	100.89
Oxygen /Nm^3	0.256	0.180	1.407	1.018
Nitrogen/Nm^3	"	"	"	"
Industrial water /10^3lit.	0.749	0.672	1.880	1.238
Filtered water /10^3lit.	0.306	0.214	0.927	0.793

Notes: 1. Industrial water is that for supplementary water.

2. Oxygen and nitrogen costs are assumed same.

8-2-7. Outline of cost construction based on itemized production cost table

Table 8.2.7 shows itemized production cost under normal operation in the 2nd step. From this table it is possible to have general view of cost construction when 2.15 million T/Y of crude steel and 2,064,500 T/Y of rolled steels are being produced.

(1) Overall construction

	Rs. in Lakhs	%
Gross input amount	81,238	119
Reused amount	(-)12,861	(-) 19
Net input amount	68,377	100
Outside sale & by-products	4,034	6
Production cost	64,343	94
Output amount	68,377	100

Of production cost, variable cost: 31,295

fixed cost : 33,048

Fixed cost includes interest of 4,336 Lakhs.

(2) Cost construction

1) Cost elements having large weight

The top three elements, in variable cost and fixed cost, having large weight in production cost are as follows:

(Reused amount excluded)

Variable cost		Fixed cost	
1. Coking coal	25.0%	1. Depreciation	27.0%
2. Iron ore (incl. fines)	6.6	2. Fixed material	9.7
3. Scrap (purchased)	5.4	3. Interest	6.7

2) By-products

Reused amount of by-products as against gross input reaches 16%, indicating the significance of utilization of by-products in integrated steel plants. The increase of this utilization rate contributes toward cost reduction.

3) Outside sales of by-products and others

Main items are:

1. Granulated BF slag : 2,398 Rs. in Lakhs
2. Coke breeze : 1,051 -"-
3. Gas for chemicals plant: 356 -"-

Table 8.2.7 Itemized Production Cost List - 2nd Step
(Under normal operation of 2.15 Mil. T/Y)

Item	Quantity	Unit Price (Rs.)	Amount (10^3Rs.)	Rs./ Tonne
Iron ore	1,270.2x10^3T	137.5	174,642	84.6
Iron ore, fine	2,204.9 "	112	246,949	119.6
Limestone	936.4 "	222.2	208,036	100.8
Dolomite stone	396.0 "	195.7	77,482	37.5
Manganese ore,fine	95.7 "	183	17,513	8.5
Coking coal	2,394.0 "	670.7	1,605,656	777.7
Boiler coal	179.7 "	356	63,965	31.0
Fluorspar	8.6 "	4,007	34,460	16.7
Ferro-alloy	24.5 "	8,951	219,300	106.2
Ingot mold & bottom plate	7,522.5 "	6,233.7	46,893	22.7
Scrap (purchased)	171.0 "	2,030	347,130	168.1
Scrap incl. dust (reused)	290.6 "	1,436.6	417,473	202.2
Coke breeze (reused)	253.4 "	422	106,935	51.8
Gas (reused)	6,740,445x10^6kcal	113	761,670	368.9
Refractories	-	-	318,620	154.3
Roll	893.6T	24,194	21,620	10.5
Other materials	-	-	156,829	76.0
By-products:				
(Scrap)incl.dust	(-) 349.4x10^3T	1,233.9	(-) 431,117	(-) 208.8
(Slag)	(-)1,012.0 "	237	(-) 239,844	(-) 116.2
(Gas)	(-) 6,740,445x10^6kcal	113	(-) 761,670	(-) 368.9
(" for chemicals)	-	-	(-) 35,616	(-) 17.3
(Coke breeze)	(-) 502.5x10^3T	422	(-) 212,055	(-) 102.7
Labour cost	13,149 persons	24,639	323,982	156.9
Fixed material cost	-	-	626,949	303.7
Depreciation	-	-	1,736,800	841.3
Interest	-	-	433,565	210.0
Reserve for BF relining		-	40,600	19.7
Other expenses (Overhead & traffic, etc.)	-	-	127,523	61.8
Total cost	2,064.5x10^3T		6,434,290	3,116.6

8-2-8. Sensitivity analysis of production cost

The degree of effect of fluctuation of main cost elements on basic production cost (Saleable products) under normal operation in the 2nd step is shown in Table 8.2.8.

Table 8.2.8 Sensitivity Analysis

Case	Element	% change	Effect (Rs/T)
(Base)	-	-	(3,116.6)
1)	Investment amount*1	± 10%	± 105.1
2)	Unit price of coking coal	± 10%	± 77.8
3)	Unit price of purchased scrap	± 10%	± 16.8
4)	Unit price of iron ore	± 10%	± 20.4
5)	Operating rate*2	- 10%	+ 177.9

Notes: 1. Effect of depreciation only was considered for "Investment."

2. Change in Rs/T:

Total fixed cost/operating rate

8-3. Financail analysis

8-3-1. Basic preconditions

(1) The matters related to treatment of accumulated deficit of BURNPUR Works at present (39,583 Rs. in Lakhs as of the end of March 1986 for the entire IISCO) are outside of this study.

(2) The profit and loss which will occur from the existing condition from the 1987 fiscal year (F.Y.) to the 1992 is also outside of the study.

(3) This study will forecast the financial condition after 1987 and subsequent years when modernization investment is made.

(4) Forecasting period of the project

1) 26 years from 1987 to 2012

2) Preparation and construction periods

1st step: 1987 to 1992

2nd step: 1988 to 1993

3) Operating period

20 years from 1993 to 2012

"20 years" is instructed by SAIL and IISCO.

(5) Production scale

1) 1st step: Crude steel 1 million T/Y base

2) 2nd step: -"- 2.15 million T/Y base

3) BF relining year: -"- 1.8 million T/Y base

(6) Point of time of calculation

December 1986

No effect of future price fluctuation is considered.

8-3-2. On book value of existing facilities

That investment made in the past is sunk cost is one of rudimentary knowledge of investment efficiency calculation. None the less, this study takes up book value of existing facilities as investment (a kind of investment in kind). In the

following are given the reasons.

(1) As briefly discussed in 8-1-2 (9), the modernization in this study is conditioned that existing facilities be effectively utilized. Facilities of an integrated steel plant are closely interrelated and have big effect each other as preceding or subsequent processes, and it is practically next to impossible to show quantitatively the net increment of production (output) as against the additional investment (input).

(2) From the viewpoint of computing technique to prepare the three major financial statements (P/L, B/S & C/F) which are interrelated and consistent each other, it is difficult to take up only such additional investment and the net increment of production.

(3) The large part of residual book value is the additional investment for coke ovens which are scheduled by IISCO to start operation in 1987 and 1991.

For the above three reasons, the book value of existing facilities was included in investment amount. Source of fund is capital, considering it as a kind of investment in kind.

8-3-3. Preconditions for profit and loss statement

(1) Production and sales plan

1) Production is deemed to be all sold.
However, goods in process and stocks of semis and finished products are treated separately as working capital conventionally.

2) Startup plan
In "Base" case, both in the 1st and 2nd steps, it was assumed that normal operating rate could be attained from the first business year, respectively.

3) Production plan and sales plan are shown in Tables 8.3.1 and 8.3.2, respectively.

Table 8.3.1 Production Plan

(Unit: 1,000T/Y)

Product	1993	1994-1999	2000-2001	2002-2007	2008-2009	2010-2012
Sinter	1,334	2,816				
Coke	713	1,296				
Hot metal	1,029	2,156				
Pig iron	62.6	76	Crude steel 1.8 mil. T/Y base	Same as 1994-1999	Crude steel 1.8 mil. T/Y base	Same as 1994-1999
Molten steel	1,036.3	2,229.6				
Steel ingot	515	295				
Bloom (BL-1 CC)	285	335				
Billet (BT-1 CC)	200	250				
Billet (BT-2,3 CC)	0	1,270				
Bloom	756	603				
Billet	453.6	249.5	148		148	
Sheet	100	0	0		0	
Galv. sheet	30	0	0		0	
Merchant mill products	250	250	248		248	
No.1 new bar mill products	254	600	372		372	
No.2 new bar mill products	0	700	700		700	
Heavy structural mill products	250	250	250		250	

Table 8.3.2 Sales Plan (Base Case)

(Unit: 1,000T/Y)

Product	1993	1994-1999	2000-2001	2002-2007	2008-2009	2010-2012
Coke, lump	41	0	0			
Pig iron	39.3	26	11			
Billet	5.6	238.5	148			
Black sheet	70	0	0	Same as 1994-1999	Same as 2000-2001	Same as 1994-1999
Galv. sheet	30	0	0			
Merchant mill products	250	250	248			
No.1 new bar mill products	254	600	372			
No.2 -"-	0	700	700			
Heavy structural mill products	250	250	250			
Total	939.9	2,064.5	1,729.0	2,064.5	1,729.0	2,064.5

(2) Selling price

Selling price in IISCO's 1986 F.Y. budget is shown in Table 8.3.3. In this study, however, the price is ex-factory base and does not include transportation cost.

In addition, it is "net" base after deduction of other selling expenses (excise duty, EGEAF, and contribution to SDF and JPC cess).

However, products other than coke and pig iron include stock yards extra of 210 Rs./T (=300 Rs./T x 70%).

Table 8.3.3 A List of Selling Prices
(Ex-factory & net bases)

(Unit: Rs./T)

Product	Selling Price	Remarks
Coke, lump	1,355	
Pig iron	2,540	
Billet	3,020	
Black sheet	6,230	24G
Galv. sheet	9,800	24G
Merchant mill products	3,730	Rounds 22
No.1 new bar mill "	3,810	Rounds 16/18
No.2 -"-	3,730	Rounds 22
Heavy structural mill "	4,331	Square 125 (40%) Angle 150x150(30%) Joist 250x250(30%)

Selling price by product is applied according to typical size shown in "Remarks" column.

(3) Cost of sales

Cost of sales applied in profit and loss for 20 years of operating period is conceived as follows:

1) Variable cost/T by product x Sales tonnage/Year
2) Fixed cost/Year
    a. Operating fixed cost
    b. Depreciation & amortization
    c. Interest on long-term & short-term loans
    d. Increase in reserve for BF repair (relining)

Therefore, full cost in 8-2 is not applied as cost of sales for the 20 years. This is because the full cost includes average interest and excludes fixed cost in selling cost of gas to KULTI.

(4) Sales transportation cost

As profit and loss in this study is made on ex-factory base, this cost is not calculated.

(5) General administration and selling overhead

In conformity with the cost accounting method of BURNPUR Works, these are already included in "Plant administration dept. cost."

(6) Corporate income tax rate: 50%

(7) Validity of loss fowarded: 8 years

(8) Tax incentive: None

(9) Calculation of sales of by-products sold

Granulated BF slag and coke breeze sold are treated as deductive items as by-products in production cost accounting and not included in sales, and so cost of sales for those by-products is not considered.

By-products for sale are deemed to be sold at the same unit price as that assessed for them. Namely there is no profit or no loss in their sales. In other words, the profit of by-products sold is included in the cost of rolled steels.

8-3-4. Preconditions for fund statement and balance sheet

(1) Forecast of payment by year of the total required fund

The total required fund is already forecasted as the total investment in 8-1. With respect to the total fund, its payment by item, by domestic and foreign source and by year is forecasted as shown in Tables 8.3.4, 8.3.5 and 8.3.6. In forecasting the payment, period of contract, manufacturing period of equipment, their shipping period and construction period according to overall schedule of the construction were taken into consideration.

Table 8.3.4 Payment by Year of Investment and Source of Fund

(Total) (Unit: Rs. in Lakhs)

Item	1987	1988	1989	1990	1991	1992	1993	Total
Land	0	2,008	2,008	1,721	0	* 38 0	0	* 38 5,737
Building	0	0	1,151	4,578	6,287	* 1,812 2,779	532	* 1,812 15,327
Machinery & equipment	0	0	13,033	31,476	71,043	* 6,003 62,597	14,612	* 6,003 192,961
Vehicle	0	0	0	54	483	* 735 2,623	2,727	* 735 5,887
Spares	0	0	0	0	0	3,087	2,156	5,243
Engineering fee	771	1,325	1,183	1,183	1,183	1,183	568	7,396
Training	0	0	0	0	10	252	38	300
Technicalassistance	0	0	0	0	0	391	80	471
Pre-operating expenses	37	69	59	59	59	59	28	370
Sub-total	808	3,402	17,434	39,071	79,065	* 8,588 72,971	20,941	* 8,588 233,692
Interest during construction	16	58	267	833	2,193	4,773	3,034	11,174
Total	824	3,460	17,701	39,904	81,258	* 8,588 77,744	23,975	* 8,588 244,866
a & b						* 8,588		* 8,588
Domestic portion	268	2,475	11,262	26,122	50,380	49,408	16,137	156,052
c Imported "	556	985	6,439	13,782	30,878	28,336	7,838	88,814
(Source of fund)						* 8,588		* 8,588
a. Capital	268	2,475	11,262	26,122	47,640	29,079	0	116,846
b. SDF loan	0	0	0	0	2,740	20,329	16,137	39,206
c. EXIM loan	556	985	6,439	13,782	30,878	28,336	7,838	88,814

Notes: 1. * Book value of existing facilities
2. Amount by item is acquisition cost of fixed assets, etc.

Table 8.3.5 Payment by Year of Investment and Source of Fund

(1st Step) (Unit: Rs. in Lakhs)

Item	1987	1988	1989	1990	1991	1992	Total
						* 38	* 38
Land	0	2,008	2,008	1,721	0	0	5,737
						* 1,812	* 1,812
Building	0	0	1,151	3,626	3,463	826	9,066
						* 6,003	* 6,003
Machinery & equipment	0	0	13,033	18,404	51,373	17,444	100,254
						* 735	* 735
Vehicle	0	0	0	0	326	151	477
Spares	0	0	0	0	0	3,087	3,087
Engineering fee	771	615	615	615	615	615	3,846
Training	0	0	0	0	10	244	254
Technical assistance	0	0	0	0	0	391	391
Pre-operating expenses	37	31	31	31	31	31	192
						* 8,588	* 8,588
Sub-total	808	2,654	16,838	24,397	55,818	22,789	123,304
Interest during construction	16	44	226	635	1,631	3,297	5,849
						* 8,588	* 8,588
Total	824	2,698	17,064	25,032	57,449	26,086	129,153
a & b						* 8,588	* 8,588
Domestic portion	268	2,224	11,064	16,421	34,415	15,232	79,624
c Imported "	556	474	6,000	8,611	23,034	10,854	49,529
(Source of fund)							
						* 8,588	* 8,588
a. Capital	268	2,224	11,064	16,421	31,675	0	61,652
b. SDF loan	0	0	0	0	2,740	15,232	17,972
c. EXIM loan	556	474	6,000	8,611	23,034	10,854	49,529

Table 8.3.6 Payment by Year of Investment and Source of Fund

(2nd Step) (Unit: Rs. in Lakhs)

Item	1988	1989	1990	1991	1992	1993	Total
Land	0	0	0	0	0	0	0
Building	0	0	952	2,824	1,953	532	6,261
Machinery & equipment	0	0	13,072	19,670	45,153	14,812	92,707
Vehicle	0	0	54	157	2,472	2,727	5,410
Spares	0	0	0	0	0	2,156	2,156
Engineering fee	710	568	568	568	568	568	3,550
Training	0	0	0	0	8	38	46
Technical assistance	0	0	0	0	0	80	80
Pre-operating expenses	38	28	28	28	28	28	178
Sub-total	748	596	14,674	23,247	50,182	20,941	110,388
Interest during construction	14	41	198	562	1,476	3,034	5,325
Total	762	637	14,872	23,809	51,658	23,975	115,713
a & b Domestic portion	251	198	9,701	15,965	34,176	16,137	76,428
c Imported "	511	439	5,171	7,844	17,482	7,838	39,285
(Source of fund)							
a. Capital	251	198	9,701	15,965	29,079	0	55,194
b. SDF loan	0	0	0	0	5,097	16,137	21,234
c. EXIM loan	511	439	5,171	7,844	17,482	7,838	39,285

(2) Source of fund

1) Capital

It was assumed that domestically purchased portion is financed by capital and SDF loans. The percentage of capital was assumed to be 50% of the total required fund excluding interest during construction, as per instruction of SAIL.

2) SDF loans

The part of domestically purchased portion which is not covered by the above capital was financed by SDF loans. In forecasting payment each year, it was assumed that firstly capital is to be applied and SDF loans are made in the year when the capital is short.

3) EXIM loans (Official export credit)

All of imported portion were assumed to be financed by EXIM loans.

(3) Borrowing conditions of long-term loans

The following conditions were set up, and it was assumed the loans are to be made all in the middle of period.

1) SDF loans

a. Rate of interest: 8.0% per annum
b. Grace period: 2 years from commissioning
c. Term of repayment: 15 years including term of deferment
d. Method of repayment: Principle repayable in equal installments
e. Time of repayment: Once a year in the middle of period

2) EXIM loans

OECD guide line was followed in this study.

a. Rate of interest: 5.6% per annum
b. Grace period: 6 months from commissioning
c. Term of repayment: 10 years
d. Method of repayment: Principle repayable in equal installments
e. Time of repayment: Twice a year, middle and end

3) Borrowing conditions related to interest during construction

It was assumed in this study that the interest during construction on SDF Loan and EXIM Loan is included in the principal and repayable according to the term of repayment.

(4) Net working capital

As operation begins, working capital is required to hold current assets. Part of fund required is financed from current liabilities, and any deficit is, in principle, covered by short-term loans.

Table 8.3.7 shows the net working capital in the third year of operation.

Table 8.3.7 Net Working Capital (3rd Year of Operation)

(Unit: Rs. in Lakhs)

Item	Amount	Premises of Estimate
Current assets:		
Cash & deposits	792	0.1 month of sales
Accounts receivable	7,922	1.0 month of sales
Stock in hand	(13,957)	
Raw materials	3,169	0.4 month of sales
Spares	5,243	Initial stock kept
Goods in process	1,584	0.2 month of sales (incl. semis)
Products	3,961	0.5 month of sales
Total	22,671	
Current liabilities:		
Accounts payable	3,961	0.5 month of sales
Reserve for taxes	4,974	Payable next year
Total	8,935	
Net Working Capital	13,736	

(5) Short-term loans

In this study, short-term loans function as balancing item between sources and applications of funds in the fund statement or cash flow. Short-term loans are to be obtained from domestic banks, with interest rate being 14% p.a. and repayable in the following year.

Incidentally, even when the interest rate rises to 18% per annum, its effect on profit and loss is very small

as far as the cash flow in this study is assumed.

(6) Reserve for BF relining

In this study it was assumed that fund set aside as this reserve is managed at 8% p.a. interest until relining time, and interest receivable was reckoned.

8-3-5. Financial forecast

Results of financial forecast made on the various conditions as above are given below.

Table 8.3.8 Profit and Loss Statement

Table 8.3.9 Balance Sheet

Table 8.3.10 Cash Flow Statement

Table 8·3·8 Profit & Loss Statement(Bass Case)

** FINANCIAL STATEMENT OF BURNPUR WORKS (UNIT:LAKHS) PAGE 1 (87/02/13)

CASE BASE (1LAKHS=100,000RUPEES)

*** P / L ***	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
SALES	0	0	0	0	0	0	46,909	95,061	95,061	95,061	95,061
VARIABLE COST	0	0	0	0	0	0	24,537	49,370	49,370	49,370	49,370
MANUFACTUR.COST	0	0	0	0	0	0	16,482	31,295	31,295	31,295	31,295
SELLING EXP.	0	0	0	0	0	0	8,055	18,075	18,075	18,075	18,075
EXCISE DUTY	0	0	0	0	0	0	3,457	7,461	7,461	7,461	7,461
SDF	0	0	0	0	0	0	3,696	8,473	8,473	8,473	8,473
EGEAF	0	0	0	0	0	0	860	2,038	2,038	2,038	2,038
JPC	0	0	0	0	0	0	43	102	102	102	102
FIXED COST	0	0	0	0	0	0	17,927	28,651	28,651	28,651	28,651
LABOR	0	0	0	0	0	0	3,881	3,240	3,240	3,240	3,240
DEPRECIATIONS	0	0	0	0	0	0	9,220	17,368	17,368	17,368	17,368
B.F.RELINING	0	0	0	0	0	0	203	406	406	406	406
FIXED MATERIAL	0	0	0	0	0	0	3,365	6,269	6,269	6,269	6,269
OTHER FIXED EXP.	0	0	0	0	0	0	1,259	1,368	1,368	1,368	1,368
OPERATING COST	0	0	0	0	0	0	42,465	78,021	78,021	78,021	78,021
OPERATING INCOME	0	0	0	0	0	0	4,444	17,039	17,039	17,039	17,039
INTEREST INCOME	0	0	0	0	0	0	8	32	65	97	130
INTEREST PAID	16	59	267	833	2,193	4,774	7,331	7,864	7,156	6,482	5,744
SHORT TERM LOAN	0	0	0	0	0	0	156	156	0	0	0
SDF LOAN	0	0	0	0	110	1,032	2,491	3,136	3,081	2,905	2,664
(STEP1)	(0)(	0)(	0)(	0)(	110)(	828)(	1,488)(	1,438)(	1,382)(	1,272)(	1,161)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	204)(	1,053)(	1,699)(	1,699)(	1,683)(	1,503)
FOREIGN LOAN	16	59	267	833	2,083	3,741	4,685	4,572	4,075	3,577	3,080
(STEP1)	(16)(	44)(	226)(	635)(	1,521)(	2,470)(	2,704)(	2,427)(	2,150)(	1,872)(	1,595)
(STEP2)	(0)(	14)(	41)(	198)(	562)(	1,272)(	1,980)(	2,145)(	1,925)(	1,705)(	1,485)
I.D.C.	16	59	267	833	2,193	4,774	3,034	0	0	0	0
(STEP1)	(16)(	44)(	226)(	635)(	1,630)(	3,298)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(0)(	14)(	41)(	198)(	562)(	1,475)(	3,034)(	0)(	0)(	0)(	0)
INCOME BEFORE TAX	0	0	0	0	0	0	155	9,208	9,949	10,654	11,425
LOSS BROUGHT FWD.	0	0	0	0	0	0	0	0	0	0	0
TAXABLE INCOME	0	0	0	0	0	0	155	9,208	9,949	10,654	11,425
INCOME TAX	0	0	0	0	0	0	77	4,604	4,974	5,327	5,713
INCOME AFTER TAX	0	0	0	0	0	0	77	4,604	4,974	5,327	5,713
ACCUMULATED INCOME	0	0	0	0	0	0	77	4,681	9,656	14,983	20,695

(continued)

** FINANCIAL STATEMENT OF BURNPUR WORKS (UNIT:LAKHS) PAGE 4 (87/02/13)

BASE BASE (1LAKHS=100,000RUPEES)

*** P / L ***	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
SALES	95,061	95,061	80,339	80,339	95,061	95,061	95,061	95,061	95,061	95,061	80,339
VARIABLE COST	49,370	49,370	41,523	41,523	49,370	49,370	49,370	49,370	49,370	49,370	41,523
MANUFACTUR.COST	31,295	31,295	26,294	26,294	31,295	31,295	31,295	31,295	31,295	31,295	26,294
SELLING EXP.	18,075	18,075	15,229	15,229	18,075	18,075	18,075	18,075	18,075	18,075	15,229
EXCISE DUTY	7,461	7,461	6,279	6,279	7,461	7,461	7,461	7,461	7,461	7,461	6,279
SDF	8,473	8,473	7,146	7,146	8,473	8,473	8,473	8,473	8,473	8,473	7,146
EGEAF	2,038	2,038	1,718	1,718	2,038	2,038	2,038	2,038	2,038	2,038	1,718
JPC	102	102	86	86	102	102	102	102	102	102	86
FIXED COST	28,651	28,651	28,651	28,651	28,651	27,598	26,680	26,680	18,915	12,140	12,140
LABOR	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240
DEPRECIATIONS	17,368	17,368	17,368	17,368	17,368	16,815	15,397	15,397	7,632	857	857
B.F.RELINING	406	406	406	406	406	406	406	406	406	406	406
FIXED MATERIAL	6,269	6,269	6,269	6,269	6,269	6,269	6,269	6,269	6,269	6,269	6,269
OTHER FIXED EXP.	1,368	1,368	1,368	1,368	1,368	1,368	1,368	1,368	1,368	1,368	1,368
OPERATING COST	78,021	78,021	70,174	70,174	78,021	76,968	76,050	76,050	68,285	61,511	53,664
OPERATING INCOME	17,039	17,039	10,165	10,165	17,039	18,092	19,010	19,010	26,775	33,550	26,676
INTEREST INCOME	162	195	162	65	32	65	97	130	162	195	162
INTEREST PAID	5,005	4,267	3,528	2,789	2,051	1,381	975	734	493	251	65
SHORT TERM LOAN	0	0	0	0	0	0	0	0	0	0	0
SDF LOAN	2,423	2,181	1,940	1,699	1,458	1,216	975	734	493	251	65
(STEP1)	(1,051)	(940)	(829)	(719)	(608)	(498)	(387)	(276)	(166)	(55)	(0)
(STEP2)	(1,372)	(1,241)	(1,111)	(980)	(849)	(719)	(588)	(457)	(327)	(196)	(65)
FOREIGN LOAN	2,582	2,085	1,588	1,090	593	165	0	0	0	0	0
(STEP1)	(1,317)	(1,040)	(763)	(485)	(208)	(0)	(0)	(0)	(0)	(0)	(0)
(STEP2)	(1,265)	(1,045)	(825)	(605)	(385)	(165)	(0)	(0)	(0)	(0)	(0)
I.D.C.	0	0	0	0	0	0	0	0	0	0	0
(STEP1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
(STEP2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
INCOME BEFORE TAX	12,196	12,968	6,800	7,441	15,021	16,776	18,133	18,406	26,445	33,494	26,773
LOSS BROUGHT FWD.	0	0	0	0	0	0	0	0	0	0	0
TAXABLE INCOME	12,196	12,968	6,800	7,441	15,021	16,776	18,133	18,406	26,445	33,494	26,773
INCOME TAX	6,098	6,484	3,400	3,720	7,511	8,388	9,066	9,203	13,223	16,747	13,387
INCOME AFTER TAX	6,098	6,484	3,400	3,720	7,511	8,388	9,066	9,203	13,223	16,747	13,387
ACCUMULATED INCOME	26,794	33,277	36,677	40,398	47,908	56,296	65,363	74,566	87,788	104,535	117,922

(continued)

** FINANCIAL STATEMENT OF BURNPUR WORKS (UNIT=LAKHS) PAGE 7 (87/02/13)

CASE BASE (1LAKHS=100,000RUPEES)

*** P / L ***	2009	2010	2011	2012	TOTAL
SALES	80,339	95,061	95,061	95,061	1,794,176
VARIABLE COST	41,523	49,370	49,370	49,370	981,184
MANUFACTUR.COST	26,294	31,295	31,295	31,295	591,086
SELLING EXP.	15,229	18,075	18,075	18,075	340,098
EXCISE DUTY	6,279	7,461	7,461	7,461	140,494
SDF	7,146	8,473	8,473	8,473	159,379
EGEAF	1,718	2,038	2,038	2,038	38,309
JPC	86	102	102	102	1,915
FIXED COST	12,140	12,140	12,140	12,140	448,503
LABOR	3,240	3,240	3,240	3,240	65,437
DEPRECIATIONS	857	857	857	857	225,417
B.F.RELINING	406	406	406	406	7,917
FIXED MATERIAL	6,269	6,269	6,269	6,269	122,485
OTHER FIXED EXP.	1,368	1,368	1,368	1,368	27,247
OPERATING COST	53,664	61,511	61,511	61,511	1,379,686
OPERATING INCOME	26,676	33,550	33,550	33,550	414,490
INTEREST INCOME	65	32	65	97	2,022
INTEREST PAID	0	0	0	0	64,256
SHORT TERM LOAN	0	0	0	0	311
SDF LOAN	0	0	0	0	28,855
(STEP1)	(0)(	0)(	0)(	0)(	13,159)
(STEP2)	(0)(	0)(	0)(	0)(	15,696)
FOREIGN LOAN	0	0	0	0	35,090
(STEP1)	(0)(	0)(	0)(	0)(	19,472)
(STEP2)	(0)(	0)(	0)(	0)(	15,617)
I.D.C.	0	0	0	0	11,174
(STEP1)	(0)(	0)(	0)(	0)(	5,849)
(STEP2)	(0)(	0)(	0)(	0)(	5,325)
INCOME BEFORE TAX	26,741	33,582	33,615	33,647	363,429
LOSS BROUGHT FWD.	0	0	0	0	0
TAXABLE INCOME	26,741	33,582	33,615	33,647	363,429
INCOME TAX	13,370	16,791	16,807	16,824	181,715
INCOME AFTER TAX	13,370	16,791	16,807	16,824	181,715
ACCUMULATED INCOME	131,292	148,083	164,891	181,715	

Table 8·3·9 Balance Sheet(Base Case)

** FINANCIAL STATEMENT OF BURNPUR WORKS (UNIT:LAKHS) PAGE 2 (87/02/13)

CASE BASE (1LAKHS=100,000RUPEES)

*** B / S ***	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
DEPO(RELINING)	0	0	0	0	0	0	203	609	1,015	1,421	1,827
CASH-IN-HAND	0	0	0	0	0	0	391	792	792	792	792
EXCESS CASH	0	0	0	0	0	0	0	8,572	21,021	32,172	43,741
ACCT. RECEIVABLE	0	0	0	0	0	0	3,909	7,922	7,922	7,922	7,922
LIQUID ASSETS	0	0	0	0	0	0	4,503	17,895	30,750	42,307	54,282
FINISHED GOODS	0	0	0	0	0	0	1,955	3,961	3,961	3,961	3,961
WORK-IN-PROCESS	0	0	0	0	0	0	782	1,584	1,584	1,584	1,584
MATERIALS,SUPPLIES	0	0	0	0	0	0	1,564	3,169	3,169	3,169	3,169
SPARES&STORES	0	0	0	0	0	0	3,087	5,243	5,243	5,243	5,243
CURRENT ASSETS	0	0	0	0	0	0	11,890	31,852	44,707	56,264	68,239
1.LAND	0	2,008	4,016	5,737	5,737	5,737	5,737	5,737	5,737	5,737	5,737
2.BUILDINGS	0	0	1,151	6,729	12,016	14,795	15,040	14,555	14,069	13,584	13,098
3.MACHINERY	0	0	13,033	44,509	115,552	178,149	185,635	171,534	157,433	143,332	129,231
4.VEHICLES	0	0	0	54	537	3,160	5,864	5,585	5,305	5,025	4,746
5.INVENTORIES	0	0	0	0	0	3,087	2,156	0	0	0	0
6.PRE-OPERAT. EXP.	808	2,202	3,444	4,686	5,938	7,823	8,069	7,215	6,361	5,508	4,654
7.I.D.C.	16	74	841	1,174	3,366	8,140	10,589	9,471	8,354	7,237	6,119
OLD PLANT	0	0	0	0	0	8,588	8,057	7,526	6,995	6,464	5,933
FIXED ASSETS	824	4,284	21,985	61,889	143,146	229,479	241,147	221,623	204,255	186,886	169,518
ASSETS TOTAL	824	4,284	21,985	61,889	143,146	229,479	253,037	253,475	248,961	243,150	237,757
ACCOUNT PAYABLE	0	0	0	0	0	0	1,955	3,961	3,961	3,961	3,961
RESERVE FOR TAX	0	0	0	0	0	0	77	4,604	4,974	5,327	5,713
SHORT LOAN	0	0	0	0	0	0	2,223	0	0	0	0
CURRENT LIABILITIES	0	0	0	0	0	0	4,255	8,565	8,935	9,288	9,674
RESERVE(RELINING)	0	0	0	0	0	0	203	609	1,015	1,421	1,827
SDF LOAN	0	0	0	0	2,740	23,069	39,206	89,206	37,824	84,808	31,792
(STEP1)	(0)(	0)(	0)(	0)(	2,740)(	17,972)(	17,972)(	17,972)(	16,590)(	15,207)(	13,825)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	5,097)(	21,234)(	21,284)(	21,284)(	19,601)(	17,967)
FOREIGN LOAN	556	1,541	7,980	21,762	52,640	80,976	83,861	74,979	66,098	57,217	48,335
(STEP1)	(556)(	1,030)(	7,030)(	15,640)(	38,674)(	49,529)(	44,576)(	39,623)(	34,670)(	29,717)(	24,764)
(STEP2)	(0)(	511)(	950)(	6,121)(	13,966)(	31,447)(	39,285)(	35,356)(	31,428)(	27,499)(	23,571)
FIXED LIABILITIES	556	1,541	7,980	21,762	55,379	104,045	123,270	114,795	104,937	93,445	81,954
LIABILITIES TOTAL	556	1,541	7,980	21,762	55,379	104,045	127,525	123,359	113,872	102,733	91,628
CAPITAL STOCK	268	2,743	14,005	40,127	87,767	125,434	125,434	125,434	125,434	125,434	125,434
RETAINED EARNING	0	0	0	0	0	0	77	4,681	9,656	14,983	20,695
EQUITY	268	2,743	14,005	40,127	87,767	125,434	125,511	130,115	135,090	140,417	146,129
LIABILITY&EQUITY	824	4,284	21,985	61,889	143,146	229,479	253,037	253,475	248,961	243,150	237,757

(continued)

** FINANCIAL STATEMENT OF BURNPUR WORKS (UNIT:LAKHS) PAGE 5 (87/02/13)

CASE BASE (1LAKHS=100,000RUPEES)

*** B / S ***	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
DEPO(RELINING)	2,233	2,639	1,421	203	609	1,015	1,421	1,827	2,233	2,639	1,421
CASH-IN-HAND	792	792	669	669	792	792	792	792	792	792	669
EXCESS CASH	55,696	68,036	75,908	85,420	100,106	118,742	140,868	162,589	184,447	202,559	213,895
ACCT. RECEIVABLE	7,922	7,922	6,695	6,695	7,922	7,922	7,922	7,922	7,922	7,922	6,695
LIQUID ASSETS	66,642	79,389	84,693	92,987	109,429	128,471	151,002	173,130	195,394	213,912	222,680
FINISHED GOODS	3,961	3,961	3,347	3,347	3,961	3,961	3,961	3,961	3,961	3,961	3,347
WORK-IN-PROCESS	1,584	1,584	1,339	1,339	1,584	1,584	1,584	1,584	1,584	1,584	1,339
MATERIALS,SUPPLIES	3,169	3,169	2,678	2,678	3,169	3,169	3,169	3,169	3,169	3,169	2,678
SPARES&STORES	5,248	5,243	6,243	5,248	5,243	5,248	5,243	5,248	5,243	5,243	5,243
CURRENT ASSETS	80,599	93,346	97,301	105,595	123,386	142,428	164,959	187,086	209,351	227,869	235,288
1.LAND	5,737	5,737	5,737	5,737	5,737	5,737	5,737	5,737	5,737	5,737	5,737
2.BUILDINGS	12,613	12,128	11,642	11,157	10,672	10,186	9,701	9,216	8,730	8,245	7,760
3.MACHINERY	115,130	101,029	86,928	72,827	58,726	44,625	30,524	16,423	9,648	9,648	9,648
4.VEHICLES	4,466	4,187	3,907	3,627	3,348	3,068	2,788	2,509	2,229	1,949	1,670
5.INVENTORIES	0	0	0	0	0	0	0	0	0	0	0
6.PRE-OPERAT. EXP.	3,800	2,947	2,093	11,239	385	0	0	0	0	0	0
7.I.D.C.	5,002	3,885	2,767	1,650	532	0	0	0	0	0	0
OLD PLANT	5,402	4,871	4,340	3,809	3,278	2,747	2,216	1,685	1,593	1,501	1,408
FIXED ASSETS	152,150	134,782	117,414	100,046	82,678	66,363	50,966	35,570	27,938	27,080	26,223
ASSETS TOTAL	232,750	228,128	214,715	205,641	206,064	208,791	215,926	222,656	237,288	254,949	261,511
ACCOUNT PAYABLE	3,961	3,961	3,347	3,347	3,961	3,961	3,961	3,961	3,961	3,961	3,347
RESERVE FOR TAX	6,098	6,484	3,400	3,720	7,511	8,388	9,066	9,203	13,228	16,747	13,387
SHORT LOAN	0	0	0	0	0	0	0	0	0	0	0
CURRENT LIABILITIES	10,059	10,445	6,747	7,068	11,471	12,349	13,027	13,164	17,183	20,708	16,734
RESERVE(RELINING)	2,233	2,639	1,421	203	609	1,015	1,421	1,827	2,233	2,639	1,421
SDF LOAN	28,776	25,760	22,744	19,729	16,713	13,697	10,681	7,665	4,649	1,633	0
(STEP1)	(12,442)(	11,060)(	9,677)(	8,295)(	6,912)(	5,530)(	4,147)(	2,765)(	1,382)(	0)(	0)
(STEP2)	(16,334)(	14,701)(	13,067)(	11,434)(	9,800)(	8,167)(	6,534)(	4,900)(	3,267)(	1,633)(	0)
FOREIGN LOAN	39,454	30,578	21,691	12,810	3,928	0	0	0	0	0	0
(STEP1)	(19,812)(	14,859)(	9,906)(	4,953)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(19,642)(	15,714)(	11,785)(	7,857)(	3,928)(	0)(	0)(	0)(	0)(	0)(	0)
FIXED LIABILITIES	70,463	58,972	45,857	32,741	21,250	14,712	12,102	9,492	6,882	4,272	1,421
LIABILITIES TOTAL	80,522	69,416	52,604	39,809	32,722	27,061	25,129	22,656	24,066	24,980	18,155
CAPITAL STOCK	125,434	125,434	125,434	125,434	125,434	125,434	125,434	125,434	125,434	125,434	125,434
RETAINED EARNING	26,794	33,277	36,677	40,398	47,908	56,296	65,363	74,566	87,788	104,535	117,922
EQUITY	152,228	158,711	162,111	165,832	173,342	181,730	190,797	200,000	213,222	229,969	243,356
LIABILITY&EQUITY	232,750	228,128	214,715	205,641	206,064	208,791	215,926	222,656	237,288	254,949	261,511

(continued)

CASE BASE (1LAKHS=100,000RUPEES)

*** B / S ***	2009	2010	2011	2012	TOTAL
DEPO(RELINING)	203	609	1,015	1,421	
CASH-IN-HAND	669	792	792	792	
EXCESS CASH	228,107	247,090	264,771	282,469	
ACCT. RECEIVABLE	6,695	7,922	7,922	7,922	
LIQUID ASSETS	235,674	256,413	274,500	292,603	
FINISHED GOODS	3,347	3,961	3,961	3,961	
WORK-IN-PROCESS	1,839	1,584	1,584	1,584	
MATERIALS,SUPPLIES	2,678	3,169	3,169	3,169	
SPARES&STORES	5,243	5,243	5,243	5,243	
CURRENT ASSETS	248,281	270,370	288,457	306,560	
1.LAND	5,737	5,737	5,737	5,737	
2.BUILDINGS	7,274	6,789	6,304	5,818	
3.MACHINERY	9,648	9,648	9,648	9,648	
4.VEHICLES	1,390	1,111	831	551	
5.INVENTORIES	0	0	0	0	
6.PRE-OPERAT. EXP.	0	0	0	0	
7.I.D.C.	0	0	0	0	
OLD PLANT	1,316	1,224	1,132	1,039	
FIXED ASSETS	25,366	24,508	23,651	22,794	
ASSETS TOTAL	273,647	294,878	312,108	329,354	
ACCOUNT PAYABLE	3,347	3,961	3,961	3,961	
RESERVE FOR TAX	13,370	16,791	16,807	16,824	
SHORT LOAN	0	0	0	0	
CURRENT LIABILITIES	16,718	20,752	20,768	20,785	
RESERVE(RELINING)	203	609	1,015	1,421	
SDF LOAN	0	0	0	0	
(STEP1)	(0)(	0)(	0)(	0)	
(STEP2)	(0)(	0)(	0)(	0)	
FOREIGN LOAN	0	0	0	0	
(STEP1)	(0)(	0)(	0)(	0)	
(STEP2)	(0)(	0)(	0)(	0)	
FIXED LIABILITIES	203	609	1,015	1,421	
LIABILITIES TOTAL	16,921	21,361	21,783	22,206	
CAPITAL STOCK	125,434	125,434	125,434	125,434	
RETAINED EARNING	131,292	148,083	164,891	181,715	
EQUITY	256,726	273,517	290,325	307,149	
LIABILITY&EQUITY	273,647	294,879	312,108	329,354	

Table 8·3·10 Cash Flow Sheet(Base Case)

** FINANCIAL STATEMENT OF BURNPUR WORKS (UNIT:LAKHS) PAGE 3 (87/02/13)

CASE BASE (1LAKHS=100,000RUPEES)

*** C / F ***	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
INCOME BEFORE TAX	0	0	0	0	0	0	155	9,208	9,949	10,654	11,425
DEPRECIATIONS	0	0	0	0	0	0	9,220	17,368	17,368	17,368	17,368
B.F.RELINING	0	0	0	0	0	0	203	406	406	406	406
RELEASE(RELINING)	0	0	0	0	0	0	0	0	0	0	0
CAPITAL STOCK	268	2,475	11,262	26,122	47,640	37,667	0	0	0	0	0
(STEP1)	(268)(	2,224)(	11,064)(	16,421)(	31,675)(	0)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(0)(	251)(	198)(	9,701)(	15,965)(	29,079)(	0)(	0)(	0)(	0)(	0)
(OLD PLANT)	(0)(	0)(	0)(	0)(	0)(	8,588)(	0)(	0)(	0)(	0)(	0)
SDF LOAN	0	0	0	0	2,740	20,329	16,137	0	0	0	0
(STEP1)	(0)(	0)(	0)(	0)(	2,740)(	15,232)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	5,097)(	16,137)(	0)(	0)(	0)(	0)
FOREIGN LOAN	556	986	6,439	13,782	30,878	28,336	7,837	0	0	0	0
(STEP1)	(556)(	474)(	6,000)(	8,611)(	23,034)(	10,856)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(0)(	511)(	439)(	5,171)(	7,844)(	17,482)(	7,837)(	0)(	0)(	0)(	0)
SHORT LOAN	0	0	0	0	0	0	2,223	0	0	0	0
SOURCES OF FUNDS	824	3,461	17,701	39,904	81,258	86,333	35,776	26,982	27,723	28,428	29,199
INVESTMENTS	824	3,461	17,701	39,904	81,258	86,333	23,975	0	0	0	0
(STEP1 PLANT)	(808)(	2,654)(	16,838)(	24,397)(	55,818)(	22,789)(	0)(	0)(	0)(	0)(	0)
(I.D.C.)	(16)(	44)(	226)(	635)(	1,630)(	3,298)(	0)(	0)(	0)(	0)(	0)
(STEP2 PLANT)	(0)(	748)(	596)(	14,674)(	23,247)(	50,182)(	20,941)(	0)(	0)(	0)(	0)
(I.D.C.)	(0)(	14)(	41)(	198)(	562)(	1,475)(	3,034)(	0)(	0)(	0)(	0)
(OLD PLANT)	(0)(	0)(	0)(	0)(	0)(	8,588)(	0)(	0)(	0)(	0)(	0)
REPAY SDF	0	0	0	0	0	0	0	0	1,382	3,016	3,016
(STEP1)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	1,382)(	1,382)(	1,382)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	1,633)(	1,633)
REPAY FOREIGN	0	0	0	0	0	0	4,953	8,881	8,881	8,881	8,881
(STEP1)	(0)(	0)(	0)(	0)(	0)(	0)(	4,953)(	4,953)(	4,953)(	4,953)(	4,953)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	3,928)(	3,928)(	3,928)(	3,928)
B.F.RELINING EXP.	0	0	0	0	0	0	0	0	0	0	0
RESERVE(RELINING)	0	0	0	0	0	0	203	406	406	406	406
REPAY SHORT	0	0	0	0	0	0	0	2,223	0	0	0
EXCESS CASH	0	0	0	0	0	0	0	8,572	12,449	11,151	11,569
TAX	0	0	0	0	0	0	0	77	4,604	4,974	5,327
WORKING CAPITAL	0	0	0	0	0	0	6,645	6,821	0	0	0
APPLICATIONS TOTAL	824	3,461	17,701	39,904	81,258	86,333	35,776	26,982	27,723	28,428	29,199
CASHFLOW(BEF.TAX)	-808	-3,402	-17,434	-39,071	-79,065	-81,559	-13,914	27,618	34,472	34,505	34,537
CASHFLOW(AFT.TAX)	-808	-3,402	-17,434	-39,071	-79,065	-81,559	-13,914	27,541	29,868	29,530	29,210
CASHFLOW(R.O.E.)	-268	-2,475	-11,262	-26,122	-47,640	-37,667	0	8,572	12,449	11,151	11,569

(continued)

CASE BASE (1LAKHS=100,000RUPEES)

*** C / F ***	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
INCOME BEFORE TAX	12,196	12,968	6,800	7,441	15,021	16,776	18,133	18,406	26,445	33,494	26,773
DEPRECIATIONS	17,368	17,368	17,368	17,368	17,368	16,815	15,397	15,397	7,632	857	857
B.F.RELINING	406	406	406	406	406	406	406	406	406	406	406
RELEASE(RELINING)	0	0	1,624	1,624	0	0	0	0	0	0	1,624
CAPITAL STOCK	0	0	0	0	0	0	0	0	0	0	0
(STEP1)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(OLD PLANT)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
SDF LOAN	0	0	0	0	0	0	0	0	0	0	0
(STEP1)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
FOREIGN LOAN	0	0	0	0	0	0	0	0	0	0	0
(STEP1)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
SHORT LOAN	0	0	0	0	0	0	0	0	0	0	0
SOURCES OF FUNDS	29,971	30,742	26,198	26,839	32,795	33,497	33,936	34,209	34,483	34,757	29,660
INVESTMENTS	0	0	0	0	0	0	0	0	0	0	0
(STEP1 PLANT)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(I.D.C.)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(STEP2 PLANT)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(I.D.C.)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
(OLD PLANT)	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
REPAY SDF	3,016	3,016	3,016	3,016	3,016	3,016	3,016	3,016	3,016	3,016	1,633
(STEP1)	(1,382)(	1,382)(	1,382)(	1,382)(	1,382)(	1,382)(	1,382)(	1,382)(	1,382)(	1,382)(	0)
(STEP2)	(1,633)(	1,633)(	1,633)(	1,633)(	1,633)(	1,633)(	1,633)(	1,633)(	1,633)(	1,633)(	1,633)
REPAY FOREIGN	8,881	8,881	8,881	8,881	8,881	3,928	0	0	0	0	0
(STEP1)	(4,953)(	4,953)(	4,953)(	4,953)(	4,953)(	0)(	0)(	0)(	0)(	0)(	0)
(STEP2)	(3,928)(	3,928)(	3,928)(	3,928)(	3,928)(	3,928)(	0)(	0)(	0)(	0)(	0)
B.F.RELINING EXP.	0	0	1,624	1,624	0	0	0	0	0	0	1,624
RESERVE(RELINING)	406	406	406	406	406	406	406	406	406	406	406
REPAY SHORT	0	0	0	0	0	0	0	0	0	0	0
EXCESS CASH	11,955	12,340	7,872	9,512	14,686	18,636	22,126	21,721	21,858	18,112	11,336
TAX	5,718	6,098	6,484	3,400	3,720	7,511	8,388	9,066	9,203	13,223	16,747
WORKING CAPITAL	0	0	-2,085	0	2,085	0	0	0	0	0	-2,085
APPLICATIONS TOTAL	29,971	30,742	26,198	26,839	32,795	33,497	33,936	34,209	34,483	34,757	29,660
CASHFLOW(BEF.TAX)	34,570	34,602	29,781	27,598	32,354	34,472	34,505	34,537	34,570	34,602	29,781
CASHFLOW(AFT.TAX)	28,857	28,504	23,297	24,198	28,634	26,962	26,117	25,471	25,366	21,380	13,034
CASHFLOW(R.O.E.)	11,955	12,340	7,872	9,512	14,686	18,636	22,126	21,721	21,858	18,112	11,336

(continued)

** FINANCIAL STATEMENT OF BURNPUR WORKS (UNIT:LAKHS) PAGE 9 (87/02/13)

CASE BASE (1LAKHS=100,000RUPEES)

	2009	2010	2011	2012	TOTAL
*** C / F ***					
INCOME BEFORE TAX	26,741	33,582	33,615	33,647	363,429
DEPRECIATIONS	857	857	857	857	225,417
B.F.RELINING	406	406	406	406	7,917
RELEASE(RELINING)	1,624	0	0	0	6,496
CAPITAL STOCK	0	0	0	0	125,434
(STEP1)	(0)(	0)(	0)(	0)(	61,652)
(STEP2)	(0)(	0)(	0)(	0)(	55,194)
(OLD PLANT)	(0)(	0)(	0)(	0)(	8,588)
SDF LOAN	0	0	0	0	39,206
(STEP1)	(0)(	0)(	0)(	0)(	17,972)
(STEP2)	(0)(	0)(	0)(	0)(	21,234)
FOREIGN LOAN	0	0	0	0	88,814
(STEP1)	(0)(	0)(	0)(	0)(	49,529)
(STEP2)	(0)(	0)(	0)(	0)(	39,285)
SHORT LOAN	0	0	0	0	2,223
SOURCES OF FUNDS	29,628	34,846	34,878	34,911	858,936
INVESTMENTS	0	0	0	0	253,454
(STEP1 PLANT)	(0)(	0)(	0)(	0)(	123,304)
(T.D.C.)	(0)(	0)(	0)(	0)(	5,849)
(STEP2 PLANT)	(0)(	0)(	0)(	0)(	110,388)
(T.D.C.)	(0)(	0)(	0)(	0)(	5,325)
(OLD PLANT)	(0)(	0)(	0)(	0)(	8,588)
REPAY SDF	0	0	0	0	39,206
(STEP1)	(0)(	0)(	0)(	0)(	17,972)
(STEP2)	(0)(	0)(	0)(	0)(	21,234)
REPAY FOREIGN	0	0	0	0	88,814
(STEP1)	(0)(	0)(	0)(	0)(	49,529)
(STEP2)	(0)(	0)(	0)(	0)(	39,285)
B.F.RELINING EXP.	1,624	0	0	0	6,496
RESERVE(RELINING)	406	406	406	406	7,917
REPAY SHORT	0	0	0	0	2,223
EXCESS CASH	14,212	18,984	17,681	17,697	282,469
TAX	13,387	13,370	16,791	16,807	164,891
WORKING CAPITAL	0	2,085	0	0	13,467
APPLICATIONS TOTAL	29,628	34,846	34,878	34,911	858,936
CASHFLOW(BEF.TAX)	27,598	32,854	34,472	77,429	429,107
CASHFLOW(AFT.TAX)	14,212	18,984	17,681	43,798	247,392
CASHFLOW(R.O.E.)	14,212	18,984	17,681	42,377	181,715

(1) Outline of Profit and loss statement

The following can be read.

1) Profit, though small, occurs from the first year of opertion, and the operation thereafter continues in the black.

2) In the years of BF relining, production decreases and the profit also drops, but interest burden from long-term loans decreases and the figures remain in the black.

(2) Outline of Balance sheet

As regards Balance sheet, as excess cash remains as retained internally, financial ratio analysis can hardly reflect the real condition.

However, because of the nature of this study, it is not justified to discuss policy of appropriation of surplus and no more comment will be made on the content of the balance sheet.

(3) Outline of Cash flow statement

Table 8.3.11 shows fund balance (fund deficit or surplus) for 20 years from start of operation.

Thanks to the high percentage of capital, fund deficit occurs in the first year, but from the second year and on, fund surplus continues. The surplus decreases in the years of BF relining, but it does not develop fund deficit.

Table 8.3.11 Fund Balance

(Unit: Rs. in Lakhs)

Year	Application	Source	Balance
1st	35,776	33,553	(-) 2,223
2nd	18,410	26,982	8,572
3rd	15,274	27,723	12,449
4th	17,277	28,428	11,151
5th	17,630	29,199	11,569
6th	18,016	29,971	11,955
7th	18,402	30,742	12,340
8th	18,326	26,198	7,872
9th	17,327	26,839	9,512
10th	18,109	32,795	14,686
11th	14,861	33,497	18,636
12th	11,810	33,936	22,126
13th	12,488	34,209	21,721
14th	12,625	34,483	21,858
15th	16,645	34,757	18,112
16th	18,324	29,660	11,336
17th	15,416	29,628	14,212
18th	15,862	34,846	18,984
19th	17,197	34,878	17,681
20th	17,214	34,911	17,697

8-3-6. Profit and loss by product (2nd step 2.15 million T/Y under normal operation)

Based on full cost by product in 8-2, average profit and loss under normal operation is shown below.

Table 8.3.12 Profit and Loss by Product (2nd Step under Normal Operation)

	Sales Q'ty (1,000 T)	Sales Price (Net Rs./T)	Cost of Sales Rs./T	Profit Rs./T	& Loss (Rs. in Lakhs)
Pig iron	26	2,540	1,650	890	231
Billet	238.5	3,020	3,257	(-) 237	(-) 565
Merchant mill products	250	3,730	3,061	669	1,673
No.1 new bar mill products	600	3,810	3,057	753	4,518
No.2 -"-	700	3,730	3,093	637	4,459
Heavy struct. mill products	250	4,331	3,399	932	2,330
Total	2,064.5	3,729	3,116	613	12,646

Notes: 1) The above profit and loss is not that of specific year, but the average profit and loss.

2) Only billet shows red figures, but it has marginal profit of 1,405 Rs./T.

3) As there are a number of methods for allocation of fixed cost in full cost accounting, selection of products cannot be made from the above calculation alone.

8-3-7. Investment effect analysis (Internal rate of return)

Internal rate of return is calculated using Cash flow in Table 8.3.10. Table 8.3.13 shows DCF table (Base case).

Internal Rate of Return (IRR) in Base Case

ROI after tax : 7.112%/Y

ROI before tax : 9.845%/Y

Cf. ROE : 7.253%/Y

Table 8·3·13(1) DCF table:ROI(after tax)

87/02/13
CASE BASE (1LAKHS=100,000RUPEES)

I.R.R. (448) = 7.112 %

	CASH-FLOW	DIS CASH-FLOW
0	0.000	0.000
1	-808.000	-754.354
2	-3402.000	-2965.251
3	-17434.000	-14186.906
4	-39071.000	-29683.064
5	-79065.000	-56079.228
6	-81559.000	-54007.390
7	-13913.682	-8601.752
8	27540.833	15895.913
9	29868.367	16094.720
10	29530.466	14856.134
11	29210.062	13719.286
12	28856.989	12653.586
13	28503.917	11668.921
14	23297.364	8904.232
15	24198.367	8634.542
16	28638.815	9538.850
17	26961.707	8385.476
18	26116.709	7583.372
19	25470.874	6904.803
20	25366.480	6419.943
21	21379.618	5051.664
22	13034.373	2875.334
23	14211.703	2926.899
24	18983.795	3650.129
25	17681.000	3173.917
26	43798.278	7340.224
TOTAL	247392.034	0.000

Table 8·3·13(2) DCF table:ROI(before tax)

87/02/13
CASE BASE (1LAKHS=100,000RUPEES)

I.R.R. (447) = 9.845 %

	CASH-FLOW	DIS CASH-FLOW
0	0.000	0.000
1	-808.000	-735.582
2	-3402.000	-2819.509
3	-17434.000	-13153.935
4	-39071.000	-26836.925
5	-79065.000	-49440.408
6	-81559.000	-46428.988
7	-13913.682	-7210.725
8	27618.310	13030.274
9	34472.239	14806.264
10	34504.719	13491.929
11	34537.199	12294.255
12	34569.679	11202.888
13	34602.159	10208.394
14	29781.160	7998.626
15	27598.230	6747.992
16	32354.270	7201.857
17	34472.239	6985.571
18	34504.719	6365.470
19	34537.199	5800.410
20	34569.679	5285.505
21	34602.159	4816.304
22	29781.160	3773.739
23	27598.230	3183.692
24	32354.270	3397.824
25	34472.239	3295.781
26	77429.478	6739.299
TOTAL	429106.658	0.000

Table 8·3·13(3) DCF table:ROE

87/02/13
CASE BASE (1LAKHS=100,000RUPEES)

I.R.R. (440) = 7.253 %

	CASH-FLOW	DIS CASH-FLOW
0	0.000	0.000
1	-268.000	-249.876
2	-2475.000	-2151.568
3	-11262.000	-9128.202
4	-26122.000	-19740.859
5	-47640.000	-33567.676
6	-37667.000	-24745.741
7	0.000	0.000
8	8572.256	4895.695
9	12448.842	6628.848
10	11150.837	5536.133
11	11569.057	5355.338
12	11954.610	5159.579
13	12340.162	4965.805
14	7872.235	2953.634
15	9511.862	3327.470
16	14685.935	4790.050
17	18635.998	5667.363
18	22125.798	6278.589
19	21721.172	5742.374
20	21858.047	5387.775
21	18112.454	4162.606
22	11335.644	2428.981
23	14211.703	2839.317
24	18983.795	3536.232
25	17681.000	3070.820
26	42377.278	6862.314
TOTAL	181714.624	0.002

8-3-8. Sensitivity analysis

In making sensitivity analysis it should be remembered that each of various factors in the precondition is variable and uncertain and that the analysis of the Base case alone does not permit a hasty conclusion thinking that it gives a fixed image of the entire project.

In the following sensitivity analysis was made by making changes in factors which have big influence on investment efficiency. Description of cases involving changes and their influence on investment efficiency are given in Table 8.3.14.

Attached to the end of Chapter are data for calculation in Case-1 and Case-4-1.

Table 8.3.14 Sensitivity Analysis: Nine Cases and Effect on IRR

Case	Description	Internal Rate of Return: After Tax ROI	Before Tax ROI	(Cf.) ROE
Case-1	Decrease in operating rate in startup year:	6.572%	8.895%	6.407%
	1993 - 0.8 million T/Y (80%) (crude steel)			
	1994 - 1.4 -"- (65%) (-"-)			
	1995 - 1.8 -"- (84%) (-"-)			
Case-2	No customs duties included in the investment:	8.301	11.781	9.128
Case-3	Life of machinery & equipment to be 10 years (instead of 13 years in Base case):	7.344	9.845	7.607
Case-4-1	Variable cost of production to be 10% higher:	6.374	8.723	6.156
Case-4-2	Variable cost of production to be 10% lower:	7.827	10.920	8.320
Case-5-1	Fixed cost of operation (Fixed cost excl. depreciation, interest & reserve for BF relining) to be 10% higher:	6.844	9.439	6.854
Case-5-2	Fixed cost of operation to be 10% lower:	7.375	10.245	7.647
Case-6-1	Total investment (excl. interest during construction) to be 10% higher:	6.441	8.806	6.268
Case-6-2	Total investment (-"-) to be 10% lower:	7.889	11.037	8.388

Table 8.3.15 shows profit & loss and cash flow balance by case (Case-1, Case-4-1, Case-5-1 and Case-6-1 in addition to Base Case).

As regards cash flow balance, it should be noted that there are shortage of funds totalling Rs.153 crores in Case-1 from the first year through the third year. In the other cases, the shortage occurs in the first year, but there are surplus from the second year and thereafter.

As for profit & loss (after tax), in Case-1 there are loss in the first and second years, but the accumulated loss disappears in the fourth year. In the other cases, there is loss in the first year, but it disappears in the second year.

Table 8.3.15 Summary Table of Profit & Loss and Cash Flow Balance by Case

(Unit: Rs. in Crores)

(1) Base Case

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sales (Gross)	469	951	----------	----------	----------	----------	----------	803	-----	951	----------	----------	----------	----------	----------	803	-----	951	----------	
Profit or loss(-)	1	46	50	53	57	61	65	34	37	75	84	91	92	132	167	134	134	168	168	168
Cash flow balance	-22	86	124	112	112	120	123	79	95	147	186	221	217	219	181	113	142	190	177	177

(2) Sensitivity Case-1

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sales (Gross)	375	618	799	951	----------	----------	----------	803	-----	951	----------	----------	----------	----------	----------	803	-----	951	----------	
Profit or loss(-)	-46	-76	20	104	57	61	65	34	37	75	84	91	92	132	167	134	134	168	168	168
Cash flow balance	-56	-81	-16	122	167	120	123	79	95	147	186	221	217	219	181	113	142	190	177	177

(3) Sensitivity Case-4-1

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sales (Gross)	469	951	----------	----------	----------	----------	----------	803	-----	951	----------	----------	----------	----------	----------	803	-----	951	----------	
Profit or loss(-)	-17	38	34	38	41	45	49	21	24	59	68	75	76	117	152	121	121	152	152	152
Cash flow balance	-40	36	118	96	100	104	108	68	82	129	171	206	202	203	165	103	129	172	161	161

(4) Sensitivity Case-5-1

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sales (Gross)	469	951	----------	----------	----------	----------	----------	803	-----	951	----------	----------	----------	----------	----------	803	-----	951	----------	
Profit or loss(-)	- 8	44	44	48	52	56	59	29	32	70	78	85	87	127	162	128	128	162	163	163
Cash flow balance	-31	66	123	106	110	114	118	73	90	141	181	216	212	213	176	108	137	184	171	172

(5) Sensitivity Case-6-1

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sales (Gross)	469	951	----------	----------	----------	----------	----------	803	-----	951	----------	----------	----------	----------	----------	803	-----	951	----------	
Profit or loss(-)	-13	39	37	41	45	50	54	23	27	65	75	82	83	128	167	134	134	168	168	168
Cash flow balance	-33	58	126	106	110	115	119	74	91	143	189	228	223	225	183	112	142	190	177	177

Chapter 9

Economic analysis

Contents

9. Economic Analysis

9-1 Evaluation Method

The Economic Analysis which has been conducted on the Modernization Project for Burnpur Works is fundamentally based on the "UNIDO Method" --- one of the well-known cost-benefit analytical methods. This method is widely used by world financial institutions such as The World Bank and The International Finance Corporation. Since "UNIDO Method" is rather conventional, it is, on the other hand, quite practical and is easily applied to any kind of projects, especially to industrial projects like steel making industry.

The project for Burnpur Works in aiming at the enhancement of India's steel-supplying capacity to the local market, which will attribute to the reduction of her dependence on imported steel products. Therefore, the "Import Substitution Model" is selected as the analytical model.

Salient features of application of "UNIDO Method" are as follows:

a) Economic value is expressed in local currency as the numeraire or the unit of account.

b) Traded goods are expressed in local currency value at a shadow exchange rate.

c) Unskilled labor is expressed in local currency value at a shadow wage rate.

d) All tariffs and taxes are deducted from economic costs as transfer items of national economy.

The analysis which has been done on the Burnpur Works accomodates four points mentioned above but the consideration for external diseconomy is excluded from the analysis due to lack of information and time constraint.

9-2 Assumptions for Economic Analysis

The Economic Analysis of which methodology is the same with that of The World Bank has been conducted for the purpose to ascertain how optimum allocation of econimic resources of India can be achieved for the modernization project for Burnpur Works from an economic viewpoint of India. The analysis is based on "UNIDO Method --- Import Subistution Model". The assumptions used to derive the estimates are described below.

1. General

1) Foreign Exchange Rate

Foreign exchange rates of ¥13.25 to Rs. 1 and Rs.12.39 to US$1 (average figures used at the time of the field survey in July 1986) are adopted to convert prices expressed in foreign currencies to local currency values.

2) Shadow Exchange Rate

For Economic Analysis, costs and benefits of the project are evaluated at economic opportunity costs in order to measure India's net economic benefits attributed to the project. This may require certain price adjustments, since many items are not expressed at real economic prices because of several price distortions caused by, for example, tarrifs and trade restrictions. As the result of discussion with SAIL, it is agreed that Indian rupee is overvalued by 25% compared with the theoretical exchange rate. Therefore, foreign exchange portion valued in local currency by the then-prevailing exchange rate is multiplied by a shadow exchange coefficient of 1.25 for the value adjustment.

3) Shadow Wage Rate

The rural labor market in the State of West Bengal belongs to the most depressed in India mainly due to heavy population pressure and the lack of employment opportunities. According to the recommendation of SAIL,

a shadow wage rate is applied to unskilled labor and it is assumed 40% of the average financial wage rate.

4) Economic Prices of Steel Products

The economic prices for steel products such as Billet, Merchant Bar, Angle, and Galvanized sheet are derived by using FOB prices from Japan to India according to "Japan Exports & Imports, Commodity by Country (Japan Tariff Association) 1986" with assistance of The Japan Iron and Steel Federation and is converted to shadow prices, which are equal to CIF prices at Indian port plus inland transportation costs.

5) Economic Prices of Raw Materials

Main items, which are produced in India and can be exported, are converted to shadow prices, which are equal to FOB prices at Indian port minus inland transportation costs. Imported raw materials are converted to local currency values multiplied by a shadow exchange rate.

2. Economic Investment Costs

1) General

Financial investment costs are estimated according to cost categories such as Land; Earth work; Civil work; Structures; Machinery & Equipment; Erection; Vehicles; Transportation & insurance; Tariffs & taxes; Engineering fee; Training & education; Technical assistance; Pre-operating costs and Spares & Stores.

For Economic Analysis, each category is divided into foreign exchange portion (traded goods) and Indian portion (non-traded goods) except for land category.

Indian portion is further broken down to cost elements of labor (skilled, unskilled), traded goods (imported elements) and non-traded goods (indigenous elements).

All tariffs and taxes are eliminated as transfer items from the investment costs. A shadow exchange rate

is applied to foreign portion and traded goods. A shadow wage rate is applied to unskilled labor. In this way, the financial investment costs are converted to the economic investment costs.

Table of detailed economic investment costs is shown in Exhibit 9-1.

2) Land

Land value is adjusted from an economic point of view in accordance with its each usage. The project site of IISCO - Burnpur Works are roughly categorized as Plant site, Slag bank, Green field and Township.

a) Plant site (642 acres)

Economic value is estimated by conceptual alternative usage for stockyard (Rs. 300/ton). Approximately 70% of all steel products goes through stockyard. The value is calculated at full production scale of Step 2 (2.15 million ton p.a. x 70% x Rs. 300/ton = Rs. 4,515 lacs p.a.).

b) Slag bank (272 acres)

Economic value of the slag bank is assumed to be zero because of no economic alternative usage.

c) Green field (272 acres)

The Green field, which was bought by IISCO for the the future expansion of the Plant site several years ago, is now laid fallow. Economic value is, however, estimated at the substitution price by means of land productivity as a paddy field with single cropping.

Paddy : 800kg/acre

Rice : 800kg x 0.6 = 480kg/acre
1)

Profit : 480kg x Rs. 4/kg = Rs. 1,920/acre
2)

(Water charges are ignored due to the lack of information)

Land value : $\frac{\text{Rs. } 1,920}{14\%}$ = Rs. 13,714/acre

(Long term interest rate is assumed at 14%)

Notes: 1) Estimated milling ratio in terms of polished rice

2) Prevailing selling price of rice

There exists a coal reserve in a part of the Green field. However, the economic value is ignored because of no available information.

d) Township (124 acre)

Since the information on economic price of the township was not obtained during the field survey, it is estimated by the averaged land price, which was recently shown to IISCO by the special land aquisition officer in Burndwan when IISCO acguired the green field adjacent to its boundary (at Rs. 35,000/acre excluding compensation and interest).

3) Labor Cost

In estimating economic investment costs, the percentages shown below are assumed as either skilled or unskilled labor percentage of local portion by the following category.

a) Earth Work	skilled	8 %
	unskilled	2 %
b) Civil Work	skilled	6.4%
	unskilled	1.6%
c) Structures	skilled	16 %
	unskilled	4 %
d) Machinery & Equipment	skilled	16 %
	unskilled	4 %
e) Erection	skilled	48 %
	unskilled	12 %

a), b), c) are based on the research conducted during the field survey. d) is assumed by the experiences in Japan by reducing its labor cost to a half.

4) Utilities

According to the information provided by SAIL, the value of electricity is adjusted to economic price. In case of purchasing electric power, the fee and royality on coals (8.5 p/kwh) are deducted from the purchasing price. In case of the self power generation, the electricity duty (4 p/kwh) is deducted from the unit price. Both sources of electric power are considered fully utilized and reflected a real economic price.

5) Old Plant

The existing old plant is absorbed in the new plant at the book value at the end of 1992 in the calculation of Financial Analysis. In Economic Analysis, however, it is considered to be zero as a sunk cost with the exception of land.

3. Economic Operating & Maintenance Cost

1) Variable Cost

Variable Cost is traced down to cost elements such as raw materials and utilities. The following conversion factors are used to convert financial prices to economic prices.

Table 9.2.1 Variable Costs

Cost Element	Step 1 (1993) %	Step 1 (1993) C.F.	Step 2 (1994-2012) %	Step 2 (1994-2012) C.F.
1. Iron Ore	12.23	1.30369	13.47	1.30337
2. Coal	45.93	0.96130	43.50	0.96130
3. Imported Coal	8.24	1.20000	7.80	1.20000
4. Iron Scrap	0	0.67390	8.86	0.67390
5. Limestone	5.92	0.64180	6.65	0.64050
6. Electricity	8.92	0.85057	6.39	0.83607
7. Others	18.76	1	13.33	1
Total (Weighted Ave)	100.00	(1.00131)	100.00	(0.97636)

(Notes) Prerequisites to the estimates for economic prices.

a) Iron Ore

	Fe (%)	F.O.B. (US$/t)	Inland Freight (Rs./t)
Ore fine	60	14.74	90
High grade ore	64	19.23	90
low grade ore	60	17.25	90
Lump ore	64	19.23	90

After blending ores, the weighted average of FOB prices adjusted by a shadow exchange rate, minus inland freight is compared with the same financial figure in calculating the conversion factor.

(Economic)

Step 1 $16.025 x*12.39 x 1.25 - 90 = Rs.158.203/t

Step 2 $16.021 x 12.39 x 1.25 - 90 = Rs.158.125/t

(Financial)

Step 1 RS. 121.35/t

Step 2 RS. 121.32/t

* Exchange rate @Rs.12.39/US$

b) Coal

Indian coals are assumed to be non-traded goods according to the suggestion from SAIL that there exists no possibility of coal exporting in India. Therefore financial prices are used in the calculation after adjusting tax elements.

c) Imported Coal

C.I.F. price of Australian coal is adjusted to shadow price at Rs.1,224/t.

d) Iron Scrap

Estimated F.O.B. price of Rs.1,167/ton is adjusted to economic price.

e) Limestone

F.O.B. price of US$15.0/ton is adjusted to economic price at Rs.142.31/ton.

All selling expenses such as Excise Duty, Steel Development Fund, Engineering Goods Export Assistance Fund and JPC (Joint Plant Committee) fees are deducted from economic cost as transfer items (Freight Equalization Fund is not included in selling expenses because the analysis is conducted on an ex-factory basis).

2) Fixed Cost

a) Labor

Semi-skilled and unskilled categories of Muster Roll are assumed as unskilled labor. The percentage of unskilled labor in Muster Roll is assumed to remain constant at the current level.

b) Blast furnace relining and Fixed material cost

They are converted to economic costs in the same way with economic investment costs.

c) Other fixed expenses

This category includes overhead & travel expenses, and utilities for repair shops. Financial data are used at the same value except for electicity.

3) Incremental Working Capital

In calculating incremental working capital, the following conversion factors are used:

Table 9.2.2 Incremental working capital

Items	Step 1 (1993) C.F.	Step 2 (1994-2012) C.F.
1. Cash-in-hand	1	1
2. Account receivables	1	1
3. Finished products 1)	0.92163	0.91797
4. Work-in-progress	1	1
5. Raw materials 2)	0.92544	0.92293
6. Spares & stores 3)	1.02600	1.02600
7. Account payables	1	1
8. Reserve for tax.	1	1
9. Short loan	1	1

(Notes) 1) Weighted average of conversion factors for sales is applied.

2) Weighted average of conversion factors for variable costs excluding electricity is applied.

3) Conversion factor which is the same with that of fixed material cost is applied.

4. Economic Benefits

1) Gross Value of Project

All selling prices are converted to economic prices at factory gate, which are equal to CIF prices at Indian port plus inland transportation costs.

Table 9.2.3 Economic prices of products

Products	C.I.F. Price (Rs/ton)	Inland Freight (Rs./ton)	Economic Price (Rs/ton)
1. Black plate	6,114	110	6,224
2. Galvanized sheet	6,423	110	6,533
3. Billet	3,831	110	3,941
4. Angle	5,322	110	5,432
5. Joist	5,576	110	5,686
6. Merchant bar	4,036	110	4,146
7. Bar (No.1 Mill)	4,036	110	4,146
8. Bar (No.2 Mill)	4,036	110	4,146
9. Pig iron	3,287	110	3,397
10. Lump coke	1,547	80	1,627
	(adjusted by Shadow E.X. rate)		(ex-factory)

2) Working Capital & Salvage Value

At the end of economic project life, the value of working capital and land are salvaged from an economic point of view. However the economic value of the plant facilities is assumed to be zero because they will not be utilized for other economic purposes (the scrap value is ignored in the analysis).

9-3 Results of Calculation

Based on the assumptions described in 9-2, Economic Analysis on the Modernization Project for Burnpur Works has been conducted. "Economic Internal Rate of Return (E.I.R.R.)" is employed as a criteria to evaluate the project from an economic point of view. The resultant E.I.R.R. is a relative yardstick with which past and existing iron and steel projects will be compared one another and by which all Indian industrial projects will be ranked in terms of priority for starting-up.

What an economic cost-benefit analysis shows is as follows:

(Case Base)

	Financial	Economic
	lacs	lacs
a) Capital Cost		
Investment	233,692	207,524
Old plant	8,588	4,596
	242,280	212,120
b) Operating Cost (Step 2)		
Variable	49,370	30,555
Fixed	* 10,877	10,337
	60,247	40,892
c) Sales (Step 2)	95,061	86,825
(Net Cash Flow	34,814	45,933)
d) Internal Rate of Return	9.845% (before tax)	15.397%

* excluding depreciation and interest on loan

The results indicate a moderate economic viability of the Modernization Project for Burnpur Works which has been proposed by JICA feasibility study team. Considering the opportunity cost of capital of India, which is said now

around 12%, the estimate shows that this project will, at least, pass the hurdle of minimum requirement for optimum-resource-allocation in Indian national economy.

Detailed economic cost-benefit streams are shown in Exhibit 9-2.

(Reference table)

Internal Rate of Return

	Financial	Economic
Tata (Phase I)	17.5 %	26.5 %
Nagarjuna Steel	16.7 %	21.4 %
Bharat Forge	?	33 %
Bokaro (Expansion)	6.98%	?
Bhilai (Expansion)	negative I.R.R.	7.85%
Bihar (Sponge Iron)	?	16.1 %
Tata (Phase II)	14.9 %	17.3 %

9-4 Sensitivity Analysis

Several tests have been performed to evaluate the sensitivity of assumptions of the project according to the same scenarios of Financial Analysis, if they have meanings in Economic Analysis, too.

Table 9.4.1 Results of sensitivity analysis

Sensitivity Cases	Prerequisites to Tests	Economic I.R.R. (%)	Financial I.R.R. (before tax) (%)
a) Case 1	Slowdown of production level during the starting period (1993-1995)	14.036%	8.895%
b) Case 2	No tariffs	-	11.781%
c) Case 3	Shortening depreciation term for machinery & equipment from 13 years to 10 years	-	9.845%
d) Case 4	Variable cost changes		
4-1	10% up	14.372%	8.723%
4-2	10% down	16.390%	10.920%
e) Case 5	Fixed cost changes (excl. BF relining)		
5-1	10% up	15.036%	9.439%
5-2	10% down	15.755%	10.245%
f) Case 6	Investment cost changes		
6-1	10% up	14.134%	8.806%
6-2	10% down	16.843%	11.037%

Exhibit 9 - 1

** COST & BENEFIT STREAMS - MODERNIZATION OF BURNPUR WORKS (UNIT:LAKHS)

CASE BASE (1LAKHS=100,000RUPEES)

	1987	1988	1989	1990	1991	1992	1993	1994
B ECONOMIC INVESTMENT COSTS								
1.LAND	0	1,984	1,984	1,700	0	0	0	0
LAND VALUE	0	0	0	0	0	0	0	0
EARTH WORK	0	1,984	1,984	1,700	0	0	0	0
LABOR	0	177	177	151	0	0	0	0
SKILLED	0	161	161	138	0	0	0	0
UNSKILLED	0	16	16	14	0	0	0	0
OTHERS	0	1,807	1,807	1,549	0	0	0	0
2.BUILDINGS	0	0	1,126	4,477	6,148	2,717	520	0
CIVIL WORK	0	0	155	618	848	375	72	0
LABOR	0	0	11	46	67	31	6	0
SKILLED	0	0	10	42	61	29	6	0
UNSKILLED	0	0	1	4	6	3	1	0
OTHERS	0	0	144	571	781	343	66	0
STRUCTURES	0	0	970	3,859	5,300	2,342	448	0
LABOR	0	0	175	696	956	422	81	0
SKILLED	0	0	159	633	869	384	73	0
UNSKILLED	0	0	16	63	87	38	7	0
OTHERS	0	0	795	3,163	4,344	1,920	367	0
3.MACHINERY	0	0	11,272	27,223	61,444	54,069	12,812	0
CIVIL WORK	0	0	549	1,325	2,991	2,634	624	0
LABOR	0	0	39	94	213	187	44	0
SKILLED	0	0	35	86	193	170	40	0
UNSKILLED	0	0	4	9	19	17	4	0
OTHERS	0	0	510	1,231	2,778	2,447	580	0
MACHINERY	0	0	8,922	21,546	48,632	42,781	10,140	0
FOREIGN	0	0	5,293	12,784	28,854	25,383	6,016	0
INDIA	0	0	3,628	8,762	19,778	17,398	4,124	0
LABOR	0	0	623	1,505	3,397	2,988	708	0
SKILLED	0	0	567	1,370	3,092	2,720	645	0
UNSKILLED	0	0	56	135	305	268	64	0
OTHERS	0	0	3,005	7,257	16,381	14,410	3,415	0
TRADE GOODS	0	0	884	2,135	4,818	4,238	1,005	0
NON-TRADE	0	0	2,121	5,123	11,563	10,172	2,411	0
ERECTIONS	0	0	1,144	2,764	6,239	5,497	1,301	0
FOREIGN	0	0	332	803	1,812	1,596	378	0
INDIA	0	0	812	1,962	4,427	3,901	923	0
LABOR	0	0	462	1,116	2,518	2,218	525	0
SKILLED	0	0	420	1,014	2,289	2,017	477	0
UNSKILLED	0	0	42	101	229	202	48	0
OTHERS	0	0	350	846	1,910	1,682	398	0
TRANSPORTAION	0	0	658	1,587	3,582	3,157	747	0
FOREIGN	0	0	493	1,190	2,687	2,368	560	0
INDIA	0	0	164	397	895	789	187	0
TAX	0	0	0	0	0	0	0	0
4.VEHICLES	0	0	0	52	468	2,549	2,650	0
VEHICLES	0	0	0	50	450	2,448	2,546	0
FOREIGN	0	0	0	0	2	12	13	0
INDIA	0	0	0	50	448	2,436	2,533	0
TRANSPORTATION	0	0	0	2	18	100	104	0
FOREIGN	0	0	0	0	0	1	1	0
INDIA	0	0	0	2	18	99	103	0
TAX	0	0	0	0	0	0	0	0
5.INVENTORIES	0	0	0	0	0	2,535	1,771	0
INVENTORIES	0	0	0	0	0	2,341	1,635	0
FOREIGN	0	0	0	0	0	1,547	1,081	0
INDIA	0	0	0	0	0	793	554	0
TRANS&INSURE	0	0	0	0	0	194	136	0
FOREIGN	0	0	0	0	0	154	108	0
INDIA	0	0	0	0	0	40	28	0
TAX	0	0	0	0	0	0	0	0
6.PRE-OPERATING	943	1,626	1,449	1,449	1,462	2,253	843	0
ENGINEERING FEE	906	1,557	1,390	1,390	1,390	1,390	667	0
FOREIGN	675	1,159	1,035	1,035	1,035	1,035	497	0
INDIA	231	397	355	355	355	355	170	0
TRAINING	0	0	0	0	13	315	48	0
TECHNICAL ASSIST	0	0	0	0	0	489	100	0
PRE-OPENING EXP.	37	69	59	59	59	59	28	0
7.OLD PLANT	0	0	0	0	0	4,596	0	0
TOTAL INVESTMENT	943	3,610	15,831	34,901	69,522	68,718	18,595	0

** COST & BENEFIT STREAMS - MODERNIZATION OF BURNPUR WORKS (UNIT:LAKHS) PAGE 1

CASE BASE (1LAKHS=100,000RUPEES)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
A ECONOMIC PROFITS OF PROJECT											
1.GROSS VALUE OF PROJECT	0	0	0	0	0	0	41,714	86,825	86,825	86,825	86,825
2.SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0
WORKING CAPITAL	0	0	0	0	0	0	0	0	0	0	0
PLANT VALUE	0	0	0	0	0	0	0	0	0	0	0
TOTAL BENEFITS	0	0	0	0	0	0	41,714	86,825	86,825	86,825	86,825
B ECONOMIC INVESTMENT COSTS											
1.LAND	0	1,984	1,984	1,700	0	0	0	0	0	0	0
2.BUILDINGS	0	0	1,126	4,477	6,148	2,717	520	0	0	0	0
3.MACHINERY	0	0	11,272	27,223	61,444	54,069	12,812	0	0	0	0
4.VEHICLES	0	0	0	52	468	2,549	2,650	0	0	0	0
5.INVENTORIES	0	0	0	0	0	2,535	1,771	0	0	0	0
6.PRE-OPERATING	943	1,626	1,449	1,449	1,462	2,253	843	0	0	0	0
7.OLD PLANT	0	0	0	0	0	4,596	0	0	0	0	0
TATAL COSTS	943	3,610	15,831	34,901	69,522	68,718	18,595	0	0	0	0
C ECONOMIC PRODUCTION & MAINTENANCE COSTS											
1.VARIABLE COST	0	0	0	0	0	0	16,503	30,555	30,555	30,555	30,555
2.FIXED COST	0	0	0	0	0	0	7,745	10,336	10,336	10,336	10,336
LABOR	(0)(	0)(	0)(	0)(	0)(	0)(	3,035)(	2,537)(	2,537)(	2,537)(	2,537)
B.F.RELINING COS	(0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)(	0)
FIXED MATERIAL	(0)(	0)(	0)(	0)(	0)(	0)(	3,452)(	6,432)(	6,432)(	6,432)(	6,432)
OTHER FIXED EXP.	(0)(	0)(	0)(	0)(	0)(	0)(	1,258)(	1,367)(	1,367)(	1,367)(	1,367)
3.INCREMENTAL WORKING CAPITAL	0	0	0	0	0	0	4,772	4,321	0	0	0
TATAL COSTS	0	0	0	0	0	0	29,020	45,213	40,892	40,892	40,892
D NET BENEFITS	-943	-3,610	-15,831	-34,901	-69,522	-68,718	-5,901	41,612	45,934	45,934	45,934

** COST & BENEFIT STREAMS - MODERNIZATION OF BURNPUR WORKS (UNIT:LAKHS)

CASE BASE

(1LAKHS=100,000RUPEES)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
A ECONOMIC PROFITS OF PROJECT											
1.GROSS VALUE OF PROJECT	86,825	86,825	73,213	73,213	86,825	86,825	86,825	86,825	86,825	86,825	73,213
2.SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0
WORKING CAPITAL	0	0	0	0	0	0	0	0	0	0	0
PLANT VALUE	0	0	0	0	0	0	0	0	0	0	0
TOTAL BENEFITS	86,825	86,825	73,213	73,213	86,825	86,825	86,825	86,825	86,825	86,825	73,213
B ECONOMIC INVESTMENT COSTS											
1.LAND	0	0	0	0	0	0	0	0	0	0	0
2.BUILDINGS	0	0	0	0	0	0	0	0	0	0	0
3.MACHINERY	0	0	0	0	0	0	0	0	0	0	0
4.VEHICLES	0	0	0	0	0	0	0	0	0	0	0
5.INVENTORIES	0	0	0	0	0	0	0	0	0	0	0
6.PRE-OPERATING	0	0	0	0	0	0	0	0	0	0	0
7.OLD PLANT	0	0	0	0	0	0	0	0	0	0	0
TATAL COSTS	0	0	0	0	0	0	0	0	0	0	0
C ECONOMIC PRODUCTION & MAINTENANCE COSTS											
1.VARIABLE COST	30,555	30,555	25,672	25,672	30,555	30,555	30,555	30,555	30,555	30,555	25,672
2.FIXED COST	10,336	10,336	11,694	11,694	10,336	10,336	10,336	10,336	10,336	10,336	11,694
LABOR	(2,537)(	2,537)(	2,537)(	2,537)(	2,537)(	2,537)(	2,537)(	2,537)(	2,537)(	2,537)(	2,537)
B.F.RELINING COS	(0)(	0)(	1,358)(	1,358)(	0)(	0)(	0)(	0)(	0)(	0)(	1,358)
FIXED MATERIAL	(6,432)(	6,432)(	6,432)(	6,432)(	6,432)(	6,432)(	6,432)(	6,432)(	6,432)(	6,432)(	6,432)
OTHER FIXED EXP.	(1,367)(	1,367)(	1,367)(	1,367)(	1,367)(	1,367)(	1,367)(	1,367)(	1,367)(	1,367)(	1,367)
3.INCREMENTAL WORKING CAPITAL	0	0	-1,997	0	1,997	0	0	0	0	0	-1,997
TATAL COSTS	40,892	40,892	35,369	37,366	42,889	40,892	40,892	40,892	40,892	40,892	35,369
D NET BENEFITS	45,934	45,934	37,844	35,847	43,936	45,934	45,934	45,934	45,934	45,934	37,844

** COST & BENEFIT STREAMS - MODERNIZATION OF BURNPUR WORKS (UNIT:LAKHS)

CASE BASE (1LAKHS=100,000RUPEES)

	2009	2010	2011	2012	TOTAL
A ECONOMIC PROFITS OF PROJECT					
1.GROSS VALUE OF PROJECT	73,213	86,825	86,825	86,825	1,636,945
2.SALVAGE VALUE	0	0	0	45,798	45,798
WORKING CAPITAL	0	0	0	35,534	35,534
PLANT VALUE	0	0	0	10,264	10,264
TOTAL BENEFITS	73,213	86,825	86,825	132,623	1,682,742
B ECONOMIC INVESTMENT COSTS					
1.LAND	0	0	0	0	5,668
2.BUILDINGS	0	0	0	0	14,987
3.MACHINERY	0	0	0	0	166,820
4.VEHICLES	0	0	0	0	5,719
5.INVENTORIES	0	0	0	0	4,306
6.PRE-OPERATING	0	0	0	0	10,024
7.OLD PLANT	0	0	0	0	4,596
TATAL COSTS	0	0	0	0	212,120
C ECONOMIC PRODUCTION & MAINTENANCE COSTS					
1.VARIABLE COST	25,672	30,555	30,555	30,555	577,521
2.FIXED COST	11,694	10,336	10,336	10,336	209,566
LABOR	(2,537)(	2,537)(	2,537)(	2,537)(	51,238)
B.F.RELINING COS	(1,358)(	0)(	0)(	0)(	5,430)
FIXED MATERIAL	(6,432)(	6,432)(	6,432)(	6,432)(	125,668)
OTHER FIXED EXP.	(1,367)(	1,367)(	1,367)(	1,367)(	27,230)
3.INCREMENTAL WORKING CAPITAL	0	1,997	0	0	9,093
TATAL COSTS	37,366	42,889	40,892	40,892	796,180
D NET BENEFITS	35,847	43,936	45,934	91,731	674,442

87/02/05 (1LAKHS=100,000RUPEES)
CASE BASE

I.R.R. (520) = 15.397 %

	CASH-FLOW	DIS CASH-FLOW
0	0.000	0.000
1	-942.925	-817.113
2	-3609.779	-2710.757
3	-15830.905	-10301.981
4	-34900.862	-19681.407
5	-69521.981	-33974.035
6	-68718.004	-29100.505
7	-5900.848	-2165.456
8	41612.436	13233.147
9	45933.551	12658.289
10	45933.551	10969.328
11	45933.551	9505.720
12	45933.551	8237.397
13	45933.551	7138.303
14	37844.378	5096.492
15	35847.023	4183.387
16	43936.196	4443.267
17	45933.551	4025.455
18	45933.551	3488.350
19	45933.551	3022.908
20	45933.551	2619.570
21	45933.551	2270.048
22	37844.378	1620.732
23	35847.023	1330.357
24	43936.196	1413.001
25	45933.551	1280.133
26	91731.089	2215.371
TOTAL	674442.481	0.000

Chapter 10

Conclusion and recommendations

10. Conclusion and recommendations

10-1. As reported in the above, the JICA F/S team made detailed studies from various aspects on the modernization project of BURNPUR Works. In making those studies, many data and informations gathered by field survey and others were fully used, but some premises and assumptions had to be made in the study work.

The result of the study by JICA team is as follows:

(1) It is possible technically to modernize BURNPUR Works as a modern steel plant having production capacity of 2.15 million T/Y in terms of crude steel.

(2) The results of financial and economic analyses are as given in Chapters 8 and 9, and the conclusion of the team is like this: This project can not necessarily be said to have adequate economic viability and profitability, but if IISCO themselves make maximum efforts and the Indian Government provides a strong support for the project, it cannot be said that the project is not feasible.

(3) Therefore, the team considers that whether this project is implemented or not should be determined after judgement from policy measure of the Indian Government is made.

10-2. In the following are enumerated the matters that are prerequisite for implementing this project and the main matters that are considered to have a significant effect on the economic feasibility of the project.

(1) In order to operate the steel plant modernized with new facilities and technology as planned, it is essential to give thorough training by various measures designed for employees (engineers and workers) in advance. This has an effect on not only its smooth start-up but the economic viability of the project. Therefore, concurrently with construbtion plan, training plan should be made and impremented as early as possible.

(2) In order to achieve high yield and efficient and stable operation by utilizing new facilities and technology, it is necessary to have a simple, integrated control organization which can ensure transmission of correct orders and instructions throughout the line of organization. It is also necessary to establish a long-range facilities maintenance plan and a system to implement such plan. Without such system, the facilities, however new and modern, will be deteriorated in a few years.

(3) The Indian Government should take necessary measures to promote supporting industries for manufacture and repair of machinery and parts used in steel plants.

(4) Considering the huge accumulated financial deficit of IISCO and continued operation of some old existing facilities during the construction period, it is highly desirable that the construction be commenced as early as possible. Therefore, a decision of the project should be made at an earliest date.

(5) As any cost overrun during the construction results in deterioration of payability of the project, care should be taken in awarding construction orders so as to prevent any delay in the construction and ensure scheduled implementation of the project.

(6) Customs duties imposed on imported machinery and equipment is a factor to increase burden of equipment cost and deteriorate profitability of the project. It is desired therefore that the Indian Government take some measures of tax incentive.

(7) Before drawing up actual implementation plan, soil exploration (by boring) and topographical survey must be made at the proposed construction site.

Reference Data

for

Financial Analysis

Contents

1. Details of Total Investment

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	Grand total			1st Step			2nd Step		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	5,400	0	5,450	5,450	0	5,450	0	0	0
② Civil	10,300	0	10,300	5,531	0	5,531	4,769	0	4,769
③ Building	13,225	0	13,225	7,476	0	7,476	5,749	0	5,749
④ Machinery & equipment	48,674	58,374	107,048	22,685	32,273	54,958	25,989	26,101	52,090
⑤ Erection	12,959	3,936	16,895	6,117	2,473	8,590	6,842	1,463	8,305
⑥ Vehicle	5,469	21	5,490	381	13	394	5,088	8	5,096
⑦ Transport & insurance (Total ① – ⑦)	3,026 (99,103)	6,051 (68,382)	9,077 (167,485)	1,678 (49,318)	3,356 (38,115)	5,034 (87,433)	1,348 (49,785)	2,695 (30,267)	4,043 (80,052)
⑧ Duties & taxes	36,222 9,650	0	45,872	20,301 4,522	0	24,823	15,921 5,128	0	21,049
(Total ① – ⑧)	(144,975)	(68,382)	(213,357)	(74,141)	(38,115)	(112,256)	(70,834)	(30,267)	(101,101)
⑨ Engineering fee	2,219	5,177	7,396	1,154	2,692	3,846	1,065	2,485	3,550
⑩ Training	0	300	300	0	254	254	0	46	46
⑪ Technical assistance	0	471	471	0	391	391	0	80	80
⑫ Pre-operating expenses	370	0	370	192	0	192	178	0	178
⑬ Spares	1,338	2,087	3,425	733	1,261	1,994	605	826	1,431
⑭ Contingencies	4,955	3,418	8,373	2,466	1,905	4,371	2,489	1,513	4,002
(Total ① – ⑭)	(153,857)	(79,835)	(233,692)	(78,686)	(44,618)	(123,304)	(75,171)	(35,217)	(110,388)
⑮ Interest during construction									
Grand total									

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(1) Raw materials yard <1S>			(2) Raw materials yard <2S>			(A) Raw materials yard, total <◎>			(3) Sinter plant <1S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	538	0	538	67	0	67	605	0	605	498	0	498
③ Building	538	0	538	148	0	148	686	0	686	1,686	0	1,686
④ Machinery & equipment	1,541	1,470	3,011	262	82	344	1,803	1,552	3,355	2,277	2,153	4,430
⑤ Erection	326	110	436	41	9	50	367	119	486	449	138	587
⑥ Vehicle	24	0	24	0	0	0	24	0	24	12	0	12
⑦ Transport & insurance (Total ① – ⑦)	79 (3,046)	159 (1,739)	238 (4,785)	4 (522)	9 (100)	13 (622)	83 (3,568)	168 (1,839)	251 (5,407)	115 (5,037)	230 (2,521)	345 (7,558)
⑧ Duties & taxes	959 314	0	1,273	52 52	0	104	1,011 366	0	1,377	1,394 465	0	1,859
(Total ① – ⑧)	(4,319)	(1,739)	(6,058)	(626)	(100)	(726)	(4,945)	(1,839)	(6,784)	(6,896)	(2,521)	(9,417)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	18	18	0	0	0	0	18	18	0	18	18
⑪ Technical assistance	0	66	66	0	0	0	0	66	66	0	93	93
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	89	115	204	11	4	15	100	119	219	159	151	310
⑭ Contingencies	152	87	239	26	5	31	178	92	270	252	126	378
(Total ① – ⑭)	(4,560)	(2,025)	(6,585)	(663)	(109)	(772)	(5,223)	(2,134)	(7,357)	(7,307)	(2,909)	(10,216)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(4) Sinter plant <2S>			(B) Sinter plant, total <◎>			(5) Coke plant <1S>			(6) Coke plant <2S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	485	0	485	983	0	983	110	0	110	1,673	0	1,673
③ Building	1,510	0	1,510	3,196	0	3,196	47	0	47	1,115	0	1,115
④ Machinery & equipment	2,072	2,180	4,252	4,349	4,333	8,682	943	38	981	11,435	2,857	14,292
⑤ Erection	425	138	563	874	276	1,150	141	0	141	3,099	0	3,099
⑥ Vehicle	0	0	0	12	0	12	0	0	0	234	0	234
⑦ Transport & insurance	114	229	343	229	459	688	2	4	6	146	291	437
(Total ① − ⑦)	(4,606)	(2,547)	(7,153)	(9,643)	(5,068)	(14,711)	(1,243)	(42)	(1,285)	(17,702)	(3,148)	(20,850)
⑧ Duties & taxes	1,385	0	1,798	2,779	0	3,657	24	0	207	1,763	0	4,018
	413			878			183			2,255		
(Total ① − ⑧)	(6,404)	(2,547)	(8,951)	(13,300)	(5,068)	(18,368)	(1,450)	(42)	(1,492)	(21,720)	(3,148)	(24,868)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	18	18	0	0	0	0	0	0
⑪ Technical assistance	0	26	26	0	119	119	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	104	109	213	263	260	523	19	1	20	197	57	254
⑭ Contingencies	230	127	357	482	253	735	62	2	64	885	157	1,042
(Total ① − ⑭)	(6,738)	(2,809)	(9,547)	(14,045)	(5,718)	(19,763)	(1,531)	(45)	(1,576)	(22,802)	(3,362)	(26,164)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(C) Coke plant, total <⑥>			(7) No.5 Blast furnace <1S>			(8) No.6 Blast furnace <2S>			(D) Blast furnace, total <⑨>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	1,783	0	1,783	1,083	0	1,083	1,025	0	1,025	2,108	0	2,108
③ Building	1,162	0	1,162	857	0	857	686	0	686	1,543	0	1,543
④ Machinery & equipment	12,378	2,895	15,273	5,001	6,725	11,726	4,841	6,547	11,388	9,842	13,272	23,114
⑤ Erection	3,240	0	3,240	734	271	1,005	724	230	954	1,458	501	1,959
⑥ Vehicle	234	0	234	0	13	13	0	8	8	0	21	21
⑦ Transport & insurance (Total ① – ⑦)	148 (18,945)	295 (3,190)	443 (22,135)	353 (8,028)	706 (7,715)	1,059 (15,743)	342 (7,618)	684 (7,469)	1,026 (15,087)	695 (15,646)	1,390 (15,184)	2,085 (30,830)
⑧ Duties & taxes	1,787 2,438	0	4,225	4,269 962	0	5,231	3,762 929	0	4,691	8,031 1,891	0	9,922
(Total ① – ⑧)	(23,170)	(3,190)	(26,360)	(13,259)	(7,715)	(20,974)	(12,309)	(7,469)	(19,778)	(25,568)	(15,184)	(40,752)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	38	38	0	38	38	0	76	76
⑪ Technical assistance	0	0	0	0	54	54	0	54	54	0	108	108
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	216	58	274	61	317	378	46	285	331	107	602	709
⑭ Contingencies	947	159	1,106	401	386	787	381	373	754	782	759	1,541
(Total ① – ⑭)	(24,333)	(3,407)	(27,740)	(13,721)	(8,510)	(22,231)	(12,736)	(8,219)	(20,955)	(26,457)	(16,729)	(43,186)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(9) No.1 Lime calcining plant <1S>			(10) No.2 Lime calcining plant <2S>			(E) Lime calcining plant, total <◎>			(11) No.1 & 2 BOF plant <1S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	281	0	281	61	0	61	342	0	342	560	0	560
③ Building	103	0	103	3	0	3	106	0	106	1,871	0	1,871
④ Machinery & equipment	770	290	1,060	405	152	557	1,175	442	1,617	4,729	2,306	7,035
⑤ Erection	121	121	242	73	90	163	194	211	405	399	258	657
⑥ Vehicle	0	0	0	0	0	0	0	0	0	199	0	199
⑦ Transport & insurance (Total ① – ⑦)	16 (1,291)	32 (443)	48 (1,734)	8 (550)	17 (259)	25 (809)	24 (1,841)	49 (702)	73 (2,543)	125 (7,883)	249 (2,813)	374 (10,696)
⑧ Duties & taxes	194 152	0	346	101 80	0	181	295 232	0	527	1,507 964	0	2,471
(Total ① – ⑧)	(1,637)	(443)	(2,080)	(731)	(259)	(990)	(2,368)	(702)	(3,070)	(10,354)	(2,813)	(13,167)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	8	8	0	0	0	0	8	8	0	57	57
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	116	116
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	31	31	62	15	15	30	46	46	92	147	185	332
⑭ Contingencies	65	22	87	28	13	41	93	35	128	394	141	535
(Total ① – ⑭)	(1,733)	(504)	(2,237)	(774)	(287)	(1,061)	(2,507)	(791)	(3,298)	(10,895)	(3,312)	(14,207)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(12) No.3 BOF plant <2S>			(F) BOF plant, total <◎>			(13) Ingot casting <1S>			(14) Bloom-1 CC plant <1S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	144	0	144	704	0	704	49	0	49	138	0	138
③ Building	356	0	356	2,227	0	2,227	258	0	258	401	0	401
④ Machinery & equipment	1,523	908	2,431	6,252	3,214	9,466	737	0	737	805	756	1,561
⑤ Erection	137	125	262	536	383	919	125	0	125	222	0	222
⑥ Vehicle	92	0	92	291	0	291	146	0	146	0	0	0
⑦ Transport & insurance	48	95	143	173	344	517	0	0	0	38	76	114
(Total ① ~ ⑦)	(2,300)	(1,128)	(3,428)	(10,183)	(3,941)	(14,124)	(1,315)	(0)	(1,315)	(1,604)	(832)	(2,436)
⑧ Duties & taxes	576	0	891	2,083	0	3,362	0	0	169	458	0	616
	315			1,279			169			158		
(Total ① ~ ⑧)	(3,191)	(1,128)	(4,319)	(13,545)	(3,941)	(17,486)	(1,484)	(0)	(1,484)	(2,220)	(832)	(3,052)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	57	57	0	0	0	0	15	15
⑪ Technical assistance	0	0	0	0	116	116	0	0	0	0	12	12
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	44	44	88	191	229	420	7	0	7	26	0	26
⑭ Contingencies	115	56	171	509	197	706	66	0	66	80	42	122
(Total ① ~ ⑭)	(3,350)	(1,228)	(4,578)	(14,245)	(4,540)	(18,785)	(1,557)	(0)	(1,557)	(2,326)	(901)	(3,227)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(15) Billet-1 CC plant <1S>			(16) Billet-2 CC plant <2S>			(17) Billet-3 CC plant <2S>			(G) Ingot casting-CC, total <◎>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	138	0	138	137	0	137	137	0	137	599	0	599
③ Building	401	0	401	347	0	347	347	0	347	1,754	0	1,754
④ Machinery & equipment	879	674	1,553	693	613	1,306	693	613	1,306	3,807	2,656	6,463
⑤ Erection	226	0	226	187	0	187	187	0	187	947	0	947
⑥ Vehicle	0	0	0	30	0	30	30	0	30	206	0	206
⑦ Transport & insurance	34	67	101	31	61	92	31	61	92	134	265	399
(Total ① – ⑦)	(1,678)	(741)	(2,419)	(1,425)	(674)	(2,099)	(1,425)	(674)	(2,099)	(7,447)	(2,921)	(10,368)
⑧ Duties & taxes	408 172	0	580	371 142	0	513	371 142	0	513	1,608 783	0	2,391
(Total ① – ⑧)	(2,258)	(741)	(2,999)	(1,938)	(674)	(2,612)	(1,938)	(674)	(2,612)	(9,838)	(2,921)	(12,759)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	15	15	0	0	0	0	0	0	0	30	30
⑪ Technical assistance	0	12	12	0	0	0	0	0	0	0	24	24
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	27	0	27	22	0	22	22	0	22	104	0	104
⑭ Contingencies	84	37	121	71	34	105	71	34	105	372	147	519
(Total ① – ⑭)	(2,369)	(805)	(3,174)	(2,031)	(708)	(2,739)	(2,031)	(708)	(2,739)	(10,314)	(3,122)	(13,436)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(18) No.1 New bar & sect. mill <1S>			(19) No.2 New bar & sect. mill <2S>			(20) Blooming mill <1S>			(21) Heavy structural mill <1S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	779	0	779	793	0	793	31	0	31	34	0	34
③ Building	734	0	734	812	0	812	23	0	23	23	0	23
④ Machinery & equipment	2,979	5,051	8,030	3,603	6,091	9,694	754	1,802	2,556	200	481	681
⑤ Erection	821	124	945	1,003	151	1,154	365	55	420	112	17	129
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance (Total ① – ⑦)	263 (5,576)	525 (5,700)	788 (11,276)	317 (6,528)	634 (6,876)	951 (13,404)	94 (1,267)	187 (2,044)	281 (3,311)	25 (394)	50 (548)	75 (942)
⑧ Duties & taxes	3,178 589	0	3,767	3,833 712	0	4,545	1,134 149	0	1,283	303 40	0	343
(Total ① – ⑧)	(9,343)	(5,700)	(15,043)	(11,073)	(6,876)	(17,949)	(2,550)	(2,044)	(4,594)	(737)	(548)	(1,285)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	75	75	0	0	0	0	0	0	0	0	0
⑪ Technical assistance	0	38	38	0	0	0	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	119	202	321	144	244	388	30	72	102	8	19	27
⑭ Contingencies	279	285	564	326	344	670	63	102	165	20	27	47
(Total ① – ⑭)	(9,741)	(6,300)	(16,041)	(11,543)	(7,464)	(19,007)	(2,643)	(2,218)	(4,861)	(765)	(594)	(1,359)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(22) Billet mill <1s>			(23) Merchant mill <1S>			(24) Sheet mill <1S>			(H) Rolling dept., total (18-24) <◎>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	36	0	36	36	0	36	0	0	0	1,709	0	1,709
③ Building	27	0	27	42	0	42	0	0	0	1,661	0	1,661
④ Machinery & equipment	94	201	295	143	430	573	0	239	239	7,773	14,295	22,068
⑤ Erection	23	4	27	43	7	50	16	2	18	2,383	360	2,743
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance (Total ① – ⑦)	10 (190)	21 (226)	31 (416)	22 (286)	45 (482)	67 (768)	12 (28)	25 (266)	37 (294)	743 (14,269)	1,487 (16,142)	2,230 (30,411)
⑧ Duties & taxes	127 19	0	146	271 28	0	299	151 0	0	151	8,997 1,537	0	10,534
(Total ① – ⑧)	(336)	(226)	(562)	(585)	(482)	(1,067)	(179)	(266)	(445)	(24,803)	(16,142)	(40,945)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	0	0	0	0	0	0	75	75
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	38	38
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	4	8	12	6	17	23	0	10	10	311	572	883
⑭ Contingencies	10	11	21	14	24	38	1	13	14	713	806	1,519
(Total ① – ⑭)	(350)	(245)	(595)	(605)	(523)	(1,128)	(180)	(289)	(469)	(25,827)	(17,633)	(43,460)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(25) Power receiving & distributing facil. <1 S>			(26) Power receiving & distributing facil. <2 S>			(27) No.1 Power plant <1 S>			(28) No.2 Power plant <2 S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	15	0	15	0	0	0	231	0	231	99	0	99
③ Building	41	0	41	0	0	0	99	0	99	43	0	43
④ Machinery & equipment	0	579	579	0	128	128	0	3,402	3,402	0	3,402	3,402
⑤ Erection	443	23	466	224	19	243	528	340	868	528	340	868
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance	30	60	90	6	13	19	174	347	521	174	347	521
(Total ① – ⑦)	(529)	(662)	(1,191)	(230)	(160)	(390)	(1,032)	(4,089)	(5,121)	(844)	(4,089)	(4,933)
⑧ Duties & taxes	361	0	361	78	0	78	2,099	0	2,099	2,099	0	2,099
	0			0			0			0		
(Total ① – ⑧)	(890)	(662)	(1,552)	(308)	(160)	(468)	(3,131)	(4,089)	(7,220)	(2,943)	(4,089)	(7,032)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	0	0	0	0	0	0	0	0
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	0	17	17	0	0	0	0	68	68	0	68	68
⑭ Contingencies	26	33	59	12	8	20	52	204	256	42	204	246
(Total ① – ⑭)	(916)	(712)	(1,628)	(320)	(168)	(488)	(3,183)	(4,361)	(7,544)	(2,985)	(4,361)	(7,346)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(Ia) Power, Plant & facil. total <◎>			(29) No.1 Oxygen plant <1S>			(30) No.2 Oxygen plant <2S>			(Ib) Oxygen plant, total <◎>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	345	0	345	107	0	107	53	0	53	160	0	160
③ Building	183	0	183	133	0	133	66	0	66	199	0	199
④ Machinery & equipment	0	7,511	7,511	218	2,952	3,170	109	1,476	1,585	327	4,428	4,755
⑤ Erection	1,723	722	2,445	96	338	434	48	169	217	144	507	651
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance (Total ① – ⑦)	384 (2,635)	767 (9,000)	1,151 (11,635)	148 (703)	295 (3,585)	443 (4,287)	74 (350)	148 (1,793)	222 (2,143)	222 (1,052)	443 (5,378)	665 (6,430)
⑧ Duties & taxes	4,637 0	0	4,637	1,786 41	0	1,827	893 21	0	914	2,679 62	0	2,741
(Total ① – ⑧)	(7,272)	(9,000)	(16,272)	(2,529)	(3,585)	(6,114)	(1,264)	(1,793)	(3,057)	(3,793)	(5,378)	(9,171)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	0	0	0	0	0	0	0	0
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	0	153	153	0	0	0	0	0	0	0	0	0
⑭ Contingencies	132	449	581	35	179	214	18	90	108	53	269	322
(Total ① – ⑭)	(7,404)	(9,602)	(17,006)	(2,564)	(3,764)	(6,328)	(1,282)	(1,883)	(3,165)	(3,846)	(5,647)	(9,493)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(31) No.1 BF blower <1S>			(32) No.2 BF blower <2S>			(Ic) BF blower, total <◎>			(33) Water treatment (Id) <1S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	32	0	32	16	0	16	48	0	48	110	0	110
③ Building	105	0	105	53	0	53	158	0	158	33	0	33
④ Machinery & equipment	115	1,552	1,667	57	776	833	172	2,328	2,500	76	115	191
⑤ Erection	43	366	409	25	183	208	68	549	617	118	109	227
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance	78	157	235	39	78	117	117	235	352	6	12	18
(Total ① – ⑦)	(373)	(2,075)	(2,448)	(190)	(1,037)	(1,227)	(563)	(3,112)	(3,675)	(343)	(236)	(579)
⑧ Duties & taxes	949	0	971	470	0	481	1,419	0	1,452	70	0	84
	22			11			33			14		
(Total ① – ⑧)	(1,344)	(2,075)	(3,419)	(671)	(1,037)	(1,708)	(2,015)	(3,112)	(5,127)	(427)	(236)	(663)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	0	0	0	0	0	0	0	0
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	0	16	16	0	0	0	0	16	16	0	0	0
⑭ Contingencies	19	104	123	10	52	62	29	156	185	17	12	29
(Total ① – ⑭)	(1,363)	(2,195)	(3,558)	(681)	(1,089)	(1,770)	(2,044)	(3,284)	(5,328)	(444)	(248)	(692)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(34) Gas facilities <1S>			(35) Gas facilities <2S>			(Ie) Gas facilities, total <◎>			(I) Utility, total <◎>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	255	0	255	3	0	3	258	0	258	921	0	921
③ Building	54	0	54	0	0	0	54	0	54	627	0	627
④ Machinery & equipment	424	1,057	1,481	0	60	60	424	1,117	1,541	999	15,499	16,498
⑤ Erection	766	190	956	60	8	68	826	198	1,024	2,879	2,085	4,964
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance	54	109	163	3	6	9	57	115	172	786	1,572	2,358
(Total ① – ⑦)	(1,553)	(1,356)	(2,909)	(66)	(74)	(140)	(1,619)	(1,430)	(3,049)	(6,212)	(19,156)	(25,368)
⑧ Duties & taxes	659	0	740	36	0	36	695	0	776	9,500	0	9,690
	81			0			81			190		
(Total ① – ⑧)	(2,293)	(1,356)	(3,649)	(102)	(74)	(176)	(2,395)	(1,430)	(3,825)	(15,902)	(19,156)	(35,058)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	0	0	0	0	0	0	0	0	0	0	0
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	0	32	32	0	0	0	0	32	32	0	201	201
⑭ Contingencies	78	68	146	3	4	7	81	72	153	312	958	1,270
(Total ① – ⑭)	(2,371)	(1,456)	(3,827)	(105)	(78)	(183)	(2,476)	(1,534)	(4,010)	(16,214)	(20,315)	(36,529)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(36) Machine assembly shop <2 S>			(37) Electric repair shop <2 S>			(38) Forging shop <2 S>			(39) Structure shop <2 S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	0	0	0	0	0	0	0	0	0
② Civil	29	0	29	18	0	18	26	0	26	3	0	3
③ Building	53	0	53	126	0	126	44	0	44	40	0	40
④ Machinery & equipment	176	11	187	58	0	58	30	205	235	32	0	32
⑤ Erection	23	1	24	17	0	17	36	0	36	5	0	5
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance	1	1	2	0	0	0	10	21	31	0	0	0
(Total ① – ⑦)	(282)	(13)	(295)	(219)	(0)	(219)	(146)	(226)	(372)	(80)	(0)	(80)
⑧ Duties & taxes	7 33	0	40	0 11	0	11	124 6	0	130	0 6	0	6
(Total ① – ⑧)	(322)	(13)	(335)	(230)	(0)	(230)	(276)	(226)	(502)	(86)	(0)	(86)
⑨ Engineering fee	0	0	0	0	0	0	0	0	0	0	0	0
⑩ Training	0	8	8	0	0	0	0	0	0	0	0	0
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	0	0	0	0	0	0	0	0	0
⑬ Spares	0	0	0	0	0	0	0	0	0	0	0	0
⑭ Contingencies	14	1	15	11	0	11	7	11	18	4	0	4
(Total ① – ⑭)	(336)	(22)	(358)	(241)	(0)	(241)	(283)	(237)	(520)	(90)	(0)	(90)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(J) Maintenance facil., total <◎>			(40) Admin. & common dept. <1 S>			(41) Admin. & common dept. <2 S>			(42) Transport dept. <1 S>		
Item \ Portion	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total	Domestic	Import	Total
① Land reclamation	0	0	0	5,450	0	5,450	0	0	0	0	0	0
② Civil	76	0	76	296	0	296	0	0	0	174	0	174
③ Building	263	0	263	0	0	0	0	0	0	0	0	0
④ Machinery & equipment	296	216	512	0	0	0	0	0	0	0	0	0
⑤ Erection	81	1	82	0	0	0	0	0	0	0	0	0
⑥ Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
⑦ Transport & insurance	11	22	33	0	0	0	0	0	0	0	0	0
(Total ① – ⑦)	(727)	(239)	(966)	(5,746)	(0)	(5,746)	(0)	(0)	(0)	(174)	(0)	(174)
⑧ Duties & taxes	131	0	187	0	0	0	0	0	0	0	0	0
	56			0			0			0		
(Total ① – ⑧)	(914)	(239)	(1,153)	(5,746)	(0)	(5,746)	(0)	(0)	(0)	(174)	(0)	(174)
⑨ Engineering fee	0	0	0	1,154	2,692	3,846	1,065	2,485	3,550			
⑩ Training	0	8	8	0	10	10	0	0	0	0	0	0
⑪ Technical assistance	0	0	0	0	0	0	0	0	0	0	0	0
⑫ Pre-operating expenses	0	0	0	192	0	192	178	0	178	0	0	0
⑬ Spares	0	0	0	0	0	0	0	0	0	0	0	0
⑭ Contingencies	36	12	48	287	0	287	0	0	0	9	0	9
(Total ① – ⑭)	(950)	(259)	(1,209)	(7,379)	(2,702)	(10,081)	(1,243)	(2,485)	(3,728)	(183)	(0)	(183)
⑮ Interest during construction												
Grand total												

Details of Total Investment

(Unit: Rupees in Lakhs)

Facilities	(43) Transport dept. <2 S>			(K) Admin. & transport, total <◎>								
Item \ Porsion	Domestic	Import	Total	Domestic	Import	Total						
① Land reclamation	0	0	0	5,450	0	5,450						
② Civil	0	0	0	470	0	470						
③ Building	0	0	0	0	0	0						
④ Machinery & equipment	0	0	0	0	0	0						
⑤ Erection	0	0	0	0	0	0						
⑥ Vehicle	4,702	0	4,702	4,702	0	4,702						
⑦ Transport & insurance (Total ① − ⑦)	0 (4,702)	0 (0)	0 (4,702)	0 (10,622)	0 (0)	0 (10,622)						
⑧ Duties & taxes	0 0	0	0	0 0	0	0						
(Total ① − ⑧)	(4,702)	(0)	(4,702)	(10,622)	(0)	(10,622)						
⑨ Engineering fee	0	0	0	2,219	5,177	7,396						
⑩ Training	0	0	0	0	10	10						
⑪ Technical assistance	0	0	0	0	0	0						
⑫ Pre-operating expenses	0	0	0	370	0	370						
⑬ Spares	0	0	0	0	0	0						
⑭ Contingencies	235	0	235	531	0	531						
(Total ① − ⑭)	(4,937)	(0)	(4,937)	(13,742)	(5,187)	(18,929)						
⑮ Interest during construction												
Grand total												