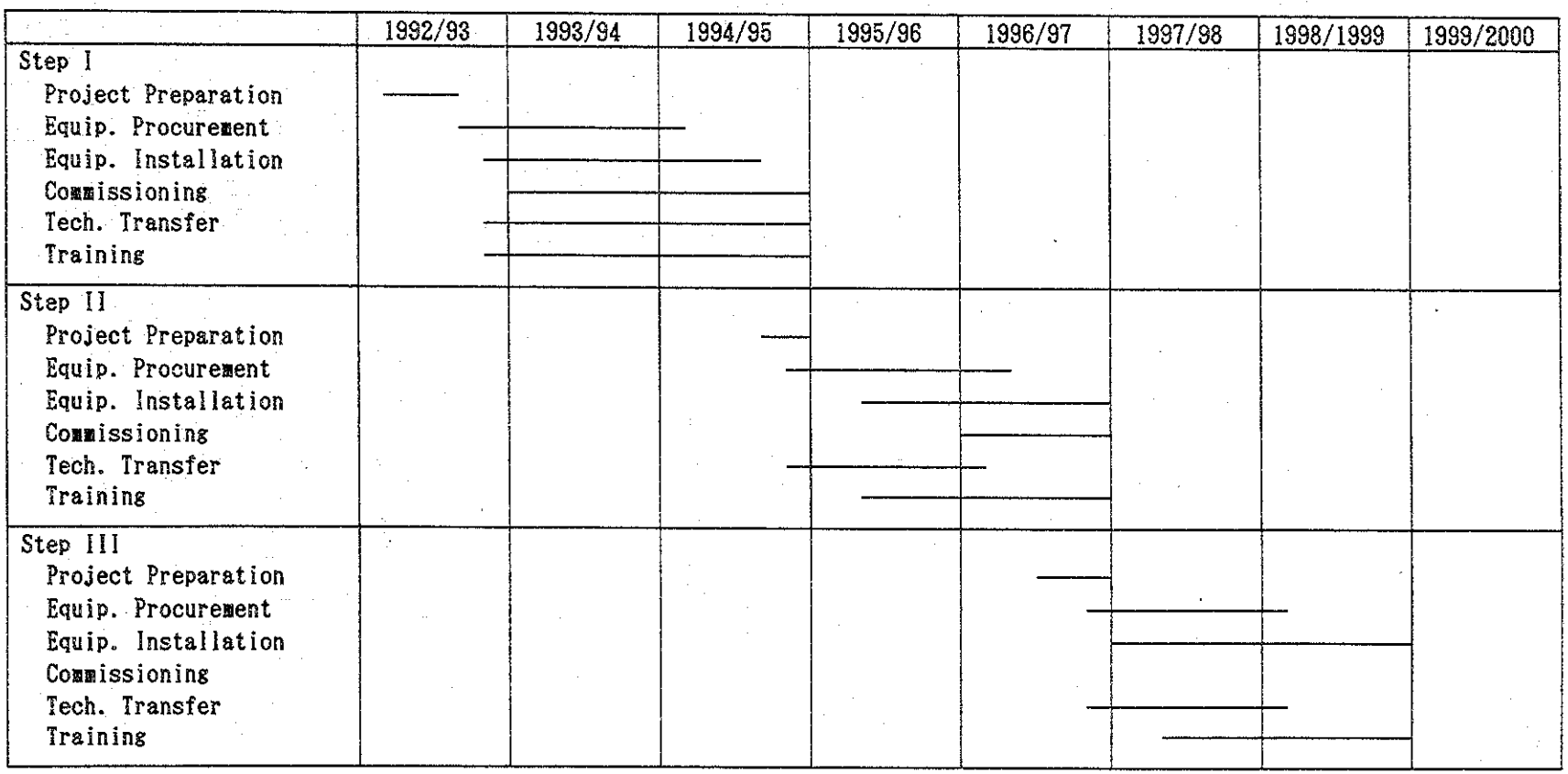
Fig. II-1-1 Implementation Schedule of the Investment Plan of MTB



and equipment to be procured from Japan, the Study Team has made a cost estimate.

The investment schedule of machinery and equipment by year is shown in Table II-1-1 and the investment schedule by type of source is shown in Table II-1-2.

2. Training Cost

Detailed engineering concerning the specifications of machinery requirements and plant layout changes will be carried out by MTB. However, upon the introduction of the new production system, training for the operators of the new equipment and design and management personnel will be conducted. The training program will cover production technology, productivity improvement, production control, etc.

Foreign experts are to visit HMT and conduct the seminars and some of the workers are to be trained abroad.

3. Technology Transfer

The cost of licensing and other technology fees associated with the transfer of new technology is estimated as shown in Table II-1-3.

A candidate source of technology by each type of technology is shown in Table II-1-4.

4. Working Capital

The estimate of incremental working capital requirements has been based on the current experience. For stock in domestic materials, allowance for some modest reduction due to improved inventory control is considered. For the imported materials, the improvement of the inventory level will not be permitted considering the present situation of material imports.

The projection of working capital is shown in Table II-1-5.

Tabel II-1-1 Investment Implementation Schedule for Machinery and Equipment

Year	No. Of Machines (Systems)		Value Rs. Lakh (FOB)	
	Total	Cumulative Total	Total	Cumulative Total
1992/93	17	17	913	913
1993/94	9	26	962	1,875
1994/95	3	29	640	2,515
1995/96	FMC 1 set	29 + 1 system	300	2,815
1996/97	FMC 3 sets	29 + 4 systems	475	3,290
1997/98	FMC 2 sets	29 + 6 systems	350	3,640
1998/99	FMS 1 set	29 + 6 + 1 systems	1,832	5,472
1999/00	FMS 2 sets	29 + 6 + 3 systems	2,663	8,135

Table II-1-2 Cost Estimate of Machinery and Equipment

Year	Value (Rs.Lakh) (FOB)	
	Imports	Indigenous
1992/93 - 1994/95 (STEP I)	1,806	709
1995/96 - 1997/98 (STEP II)	660	465
1998/99 - 1999/00 (STEP III)	2,962	1,533
TOTAL	5,428	2,707
GRAND TOTAL	8,135	

Table II-1-3 Cost Estimate for Technical Collaboration

Unit: Rs. Lakh

Technology	Initial Payment	Living Expense for Trainees from Licensee	Living Expense for Engineers Dispatched from Licensor	Air Fare
FMS, FMC	800	Rs.4,000 x 1,000 40 Man-Day	Rs.10,000 x 240 24 Man-Days	Actual Expense
Post-MSA	400	Rs.4,000 x 500 20 Man-Day	Rs.10,000 x 180 18 Man-Days	Actual Expense
Large-size Machining Center	500	Rs.4,000 x 600 24 Man-Day	Rs.10,000 x 200 20 Man-Days	Actual Expense
Total	1,700	84	62	

Table II-1-4 Candidates of Licensor for Technical Collaboration

Discription of Technology	Licensor
FMS, FMC and Related Equipment	- KTM - Fritz Warner - MAHO
Post-MSA	- Gildemeister
Large-size Machining Center	- KTM

Table II-1-5 Working Capital Projection of MTB -Strategic Investment Project (At Current Prices)

Unit: Rs. Lakh

(Unit : Rs Lakhs.)

Items	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Materials	1,178	1,386	1,641	2,113	2,430	2,636	2,862	3,303
Matl-in-Transit	400	400	400	400	400	400	400	400
Work-in-Progress	945	945	945	945	945	945	945	945
Stock-in-Trade	708	708	708	708	708	708	708	708
Total Inventories	3,231	3,439	3,694	4,166	4,483	4,689	4,915	5,356
Debtors	707	832	985	1,268	1,458	1,581	1,717	1,982
Loans & Advances	1,021	1,202	1,422	1,831	2,106	2,284	2,481	2,863
Other Current Assets	314	370	438	563	648	703	763	881
Cash & Bank Balance	75	75	75	75	75	75	75	75
Inter-Unit Accounts	1,021	1,202	1,422	1,831	2,106	2,284	2,481	2,863
Total Current Assets	6,370	7,119	8,035	9,733	10,878	11,617	12,432	14,019
Creditors	393	462	547	704	810	879	954	1,101
Advances Received	471	555	656	845	972	1,054	1,145	1,321
Other Current Liab.	393	462	547	704	810	879	954	1,101
Provisions	236	277	328	423	486	527	572	661
Inter-Unit Accounts	628	739	875	1,127	1,296	1,406	1,526	1,762
Total Current Liabilities	2,121	2,496	2,954	3,803	4,375	4,744	5,152	5,945
Working Capital	4,249	4,624	5,082	5,931	6,503	6,872	7,280	8,073

Table II-1-8 Cost Estimate of Investment Project Step 1 to Step 3

Unit: Rs. Lakh

	Total Investment Plan up to 2000		
	Total	Domestic Currency	Foreign Currency
Basic Cost	12,241.58	5,830.72	6,410.86
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	10,471.58	5,830.72	4,640.86
Engineering and Management	0.00	0.00	0.00
Training	70.00	0.00	70.00
Technology Transfer	1,700.00	0.00	1,700.00
Physical Contingency 10.00%	1,224.16	583.07	641.09
Price Escalation	3,003.52	1,285.58	1,717.98
Total Installed Cost	16,469.28	7,699.35	8,769.90
Incremental Working Capital	4,870.42	4,870.42	0.00
Interest during Project (Long-term)	8,523.01	2,546.17	3,976.84
Interest during Project (Short-term)	2,884.76	2,884.76	0.00
Total Project Cost (Financing Required	30,347.45	17,800.71	12,746.74

Unit: US$ Millions

	Total Investment Plan up to 2000		
	Total	Domestic Currency	Foreign Currency
Basic Cost	47.32	22.54	24.78
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	40.47	22.54	17.94
Engineering and Management	0.00	0.00	0.00
Training	0.27	0.00	0.27
Technology Transfer	6.57	0.00	6.57
Physical Contingency 0.10	4.73	2.25	2.48
Price Escalation	11.61	4.97	6.64
Total Installed Cost	63.66	29.76	33.90
Incremental Working Capital	18.05	18.05	0.00
Interest during Project (Long-term)	25.21	9.84	15.37
Interest during Project (Short-term)	10.38	10.38	0.00
Total Project Cost (Financing Required)	117.30	68.03	49.27

Unit: Rs. Lakh

	Step 1 & 2 Investment (1982/83-1987/1988)		
	Total	Domestic Currency	Foreign Currency
Basic Cost	5,797.80	2,510.39	3,287.41
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	4,442.80	2,510.39	1,932.41
Engineering and Management	0.00	0.00	0.00
Training	55.00	0.00	55.00
Technology Transfer	1,300.00	0.00	1,300.00
Physical Contingency 10.00%	579.78	251.04	328.74
Price Escalation	541.20	225.33	315.87
Total Installed Cost	6,918.78	2,986.77	3,932.01
Incremental Working Capital	2,752.55	2,752.55	0.00
Interest during Project (Long-term)	3,543.77	1,415.24	2,128.54
Interest during Project (Short-term)	2,584.54	2,584.54	0.00
Total Project Cost (Financing Required	15,799.65	9,739.10	6,060.55

Unit: US$ Millions

	Step 1 & 2 Investment (1982/83-1987/1988)		
	Total	Domestic Currency	Foreign Currency
Basic Cost	22.41	9.70	12.71
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	17.17	9.70	7.47
Engineering and Management	0.00	0.00	0.00
Training	0.21	0.00	0.21
Technology Transfer	5.02	0.00	5.02
Physical Contingency 0.10	2.24	0.97	1.27
Price Escalation	2.09	0.87	1.22
Total Installed Cost	26.74	11.54	15.20
Incremental Working Capital	10.64	10.64	0.00
Interest during Project (Long-term)	13.70	5.47	8.23
Interest during Project (Short-term)	9.99	9.99	0.00
Total Project Cost (Financing Required)	61.07	37.84	23.43

Unit: Rs. Lakh

	Step 3 Investment (1988/89-1999/2000)		
	Total	Domestic Currency	Foreign Currency
Basic Cost	6,443.78	3,320.33	3,123.45
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	5,028.78	3,320.33	2,708.45
Engineering and Management	0.00	0.00	0.00
Training	15.00	0.00	15.00
Technology Transfer	400.00	0.00	400.00
Physical Contingency 10.00%	844.38	332.03	312.35
Price Escalation	2,462.32	1,080.22	1,402.09
Total Installed Cost	9,550.48	4,712.59	4,837.89
Incremental Working Capital	1,917.87	1,917.87	0.00
Interest during Project (Long-term)	2,979.23	1,130.93	1,848.30
Interest during Project (Short-term)	100.22	100.22	0.00
Total Project Cost (Financing Required	14,547.80	7,861.61	6,686.19

Unit: US$ Millions

	Step 3 Investment (1988/89-1999/200		
	Total	Domestic Currency	Foreign Currency
Basic Cost	24.91	12.83	12.07
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	23.30	12.83	10.47
Engineering and Management	0.00	0.00	0.00
Training	0.06	0.00	0.06
Technology Transfer	1.55	0.00	1.55
Physical Contingency 0.10	2.49	1.28	1.21
Price Escalation	9.52	4.10	5.42
Total Installed Cost	36.91	18.22	18.70
Incremental Working Capital	7.41	7.41	0.00
Interest during Project (Long-term)	11.52	4.37	7.14
Interest during Project (Short-term)	0.39	0.39	0.00
Total Project Cost (Financing Required)	56.23	30.39	25.84

Table II-1-7 Cost Estimate of Strategic Investment Project(Step 1 to Step 2)

Unit: Rs. Lakh

	Investment Up to 1996/97		
	Total	Domestic Currency	Foreign Currency
Basic Cost	5,216.80	2,268.23	2,948.57
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	4,071.80	2,268.23	1,803.57
Engineering and Management	0.00	0.00	0.00
Training	45.00	0.00	45.00
Technology Transfer	1,100.00	0.00	1,100.00
Physical Contingency 10.00%	521.68	226.82	294.86
Price Escalation	380.73	155.92	224.81
Total Installed Cost	6,119.21	2,650.97	3,468.24
Incremental Working Capital	2,383.11	2,383.11	0.00
Interest during Project (Long-term)	2,658.66	1,074.83	1,583.83
Interest during Project (Short-term)	2,363.81	2,363.81	0.00
Total Project Cost (Financing Required	13,524.79	8,472.72	5,052.07

Unit: US$ Millions

	Investment Up to 1996/97		
	Total	Domestic Currency	Foreign Currency
Basic Cost	20.18	8.77	11.40
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	15.74	8.77	6.97
Engineering and Management	0.00	0.00	0.00
Training	0.17	0.00	0.17
Technology Transfer	4.25	0.00	4.25
Physical Contingency 0.10	2.02	0.88	1.14
Price Escalation	1.47	0.60	0.87
Total Installed Cost	23.65	10.25	13.41
Incremental Working Capital	9.21	9.21	0.00
Interest during Project (Long-term)	10.28	4.15	6.12
Interest during Project (Short-term)	9.14	9.14	0.00
Total Project Cost (Financing Required)	52.28	32.75	19.53

Unit: Rs. Lakh

	Additonal Investment (1997/98)		
	Total	Domestic Currency	Foreign Currency
Basic Cost	581.00	242.17	338.83
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	371.00	242.17	128.83
Engineering and Management	0.00	0.00	0.00
Training	10.00	0.00	10.00
Technology Transfer	200.00	0.00	200.00
Physical Contingency 10.00%	58.10	24.22	33.86
Price Escalation	160.47	69.41	91.06
Total Installed Cost	799.57	335.79	463.78
Incremental Working Capital	369.44	369.44	0.00
Interest during Project (Long-term)	885.12	340.41	544.71
Interest during Project (Short-term)	220.73	220.73	0.00
Total Project Cost (Financing Required	2,274.88	1,268.38	1,008.48

Unit: US$ Millions

	Additonal Investment (1997/98)		
	Total	Domestic Currency	Foreign Currency
Basic Cost	2.25	0.94	1.31
Civil Works - Building Cost	0.00	0.00	0.00
Machinery & Equipment	1.43	0.94	0.50
Engineering and Management	0.00	0.00	0.00
Training	0.04	0.00	0.04
Technology Transfer	0.77	0.00	0.77
Physical Contingency 0.10	0.22	0.09	0.13
Price Escalation	0.62	0.27	0.35
Total Installed Cost	3.09	1.30	1.79
Incremental Working Capital	1.43	1.43	0.00
Interest during Project (Long-term)	3.42	1.32	2.11
Interest during Project (Short-term)	0.85	0.85	0.00
Total Project Cost (Financing Required)	8.79	4.89	3.90

Table II-1-8 Investment Schedule - MTB

Unit: Rs. Lakh

	1992/93			1993/94			1994/95			1995/96		
	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign
Basic Cost	973	625	348	1,722	676	1,046	1,489	432	1,057	319	207	112
Civil Works - Building Cost	0	0	0	0	0	0	0	0	0	0	0	0
Machinery & Equipment	968	625	343	1,312	676	636	979	432	547	309	207	102
Engineering and Management	0	0	0	0	0	0	0	0	0	0	0	0
Training	5	0	5	10	0	10	10	0	10	10	0	10
Technology Transfer	0	0	0	400	0	400	500	0	500	0	0	0
Physical Contingency 10.00%	97	62	35	172	68	105	149	43	106	32	21	11
Price Escalation	0	0	0	57	27	30	107	18	89	57	36	21
Total Installed Cost	1,070	687	383	1,951	770	1,181	1,745	493	1,252	408	264	145
Incremental Working Capital	129	129		375	375		458	458		849	849	
Interests During Construction (Long-term Loans)	99	55	44	387	170	217	611	242	369	737	288	449
Interests (Short-term Loans)	567	567		559	559		505	505		429	429	
Total Financing Required	1,865	1,439	426	3,272	1,874	1,397	3,319	1,698	1,621	2,424	1,830	594

1996/97			1997/98			1998/99			1999/2000			Total (Step 1 - 3)		
Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign
714	329	385	581	242	339	3,411	1,191	2,220	3,033	2,130	903	12,242	5,831	6,411
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
504	329	175	371	242	129	3,206	1,191	2,015	2,823	2,130	693	10,472	5,831	4,641
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	10	10	0	10	5	0	5	10	0	10	70	0	70
200	0	200	200	0	200	200	0	200	200	0	200	1,700	0	1,700
71	33	38	58	24	34	341	119	222	303	213	90	1,224	583	641
159	75	85	160	69	91	953	0	953	1,509	1,060	449	3,004	1,286	1,718
944	436	508	800	336	464	4,705	1,310	3,396	4,845	3,403	1,442	16,469	7,699	8,770
572	572		369	369		745	745		1,173	1,173		4,670	4,670	0
825	320	505	885	340	545	1,181	422	759	1,799	709	1,090	8,523	2,546	3,977
303	303		221	221		100	100		-0	-0		2,685	2,685	0
2,645	1,632	1,013	2,275	1,266	1,008	6,731	2,577	4,154	7,817	5,285	2,532	30,347	17,601	12,747

5. Total Project Cost and Finance Required

The total installed cost including Step 3 is estimated to be Rs. 16,469 lakh. The summary of project cost including the breakdown of costs and finance required are summarized in Table II-1-6.

Interest payment during the project will be paid as a current expenditure every year.

The total installed cost of the strategic investment project (Step 1 and Step 2) is to be Rs. 6,919 lakh. The summary of project cost is presented in Table II-1-7.

Physical contingencies have been allowed for at 10% of the base cost estimate. Price escalation has been calculated from the base cost estimate at 1992/93 and inflation rates thereafter.

The year-wise investment schedule is shown in Table II-1-8.

D. Financing Plan

A financing plan has been developed on the basis of the proposed capital cost.

1. Financing Method

It is assumed that the installed cost will be financed by long-term loans from domestic and international institutions.

Interest payments during the project period, incremental working capital and all other costs which are not included in the project cost will be financed by the company's own resources and domestic short-term borrowing.

It is assumed that long-term loans for foreign currency requirements during the Step 1 and 2 periods will be

financed through the World Bank. For Step 3, the foreign currency will be financed by Euro-currency through domestic financial institutions. It is assumed that long-term loans for domestic currency are to be provided by domestic financial institutions.

2. Financing Schedule

The financing schedule has been calculated based on the total financing required (Table II-1-6 and Table II-1-7) and the financing method mentioned above.

Table II-1-9 Financing Schedule of MTB

(1) Total Investment Plan (Step 1 - Step 3)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96
Long-term Loan Disbursement	1,070	1,951	1,745	409
Long-term Loan (Foreign Currency)	383	1,181	1,252	145
Long-term Loan (Domestic Currency)	687	770	493	264
Long-term Loan Balance	1,070	3,021	4,766	5,056
Short-term Loan Balance (Domestic Currency)	1,603	1,647	1,600	734

	1996/97	1997/98	1998/99	1999/00
Long-term Loan Disbursement	944	800	4,706	4.845
Long-term Loan (Foreign Currency)	508	464	3,396	1,442
Long-term Loan (Domestic Currency)	436	336	1,310	3,403
Long-term Loan Balance	5,665	5,935	10,065	14,231
Short-term Loan Balance (Domestic Currency)	2,259	1,831	1,488	1,216

(2) The Strategic Investment Project (Step 1 and Step 2)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96
Long-term Loan Disbursement	1,070	1,951	1,745	409
Long-term Loan (Foreign Currency)	383	1,181	1,252	145
Long-term Loan (Domestic Currency)	687	770	493	264
Long-term Loan Balance	1,070	3,021	4,766	5,056
Short-term Loan Balance (Domestic Currency)	1,603	1,647	1,600	734

	1996/97	1997/98	1998/99	1999/00
Long-term Loan Disbursement	944	800	-	-
Long-term Loan (Foreign Currency)	508	464	-	-
Long-term Loan (Domestic Currency)	436	336	-	-
Long-term Loan Balance	5,665	5,935	5,360	4,680
Short-term Loan Balance (Domestic Currency)	0	0	0	0

E. Operating Cost Projection

1. Sales Forecast

Projected sales volumes and sales revenues for the strategic investment project (Step 1 and Step 2) are shown in Table II-1-10 and Table II-1-11.

The sales projection was developed on the basis of the future product-mix and sales plan demonstrated in the Action Program. They have, however, been modified by removing sales of FMS because the strategic investment project will not cover the investment in Step 3 for the production of FMS.

Table II-1-10 Projected Sales Volume by Product of MTB -Strategic Investment Project

Unit: Set

Product		1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
HL	Total	15	20	20	20	15	15	0	0
	Domestic	10	20	20	20	15	15		
	Export	5							
Post HL	Total	0	0	2	5	5	7	7	7
	Domestic			2	5	5	5	5	5
	Export						2	2	2
C20/MC2	Total	20	30	30	20	0	0	0	0
	Domestic	20	25	25	20				
	Export		5	5					
MSA	Total	25	25	20	20	10	10	5	5
	Domestic	21	19	12	12	10	10	5	5
	Export	4	6	8	8				
Post MSA	Total	0	0	2	5	10	10	13	13
	Domestic			2	5	7	7	10	10
	Export					3	3	3	3
GOM	Total	8	20	20	25	25	25	30	30
	Domestic	8	20	20	25	25	25	30	30
	Export								
L200	Total	10	2	5	5	5	10	10	10
	Domestic	10	2	5	5	5	10	10	10
	Export								
H400	Total	25	30	30	30	20	20	20	20
	Domestic	23	25	25	30	20	20	20	20
	Export	2	5	5					
CNC H400	Total	0	0	0	1	2	6	6	6
	Domestic				1	2	4	4	4
	Export						2	2	2
GS2M	Total	20	20	20	20	20	20	20	20
	Domestic	20	20	20	20	20	20	20	20
	Export								
MS1	Total	20	20	20	20	20	20	20	20
	Domestic	20	16	16	16	20	20	20	20
	Export		4	4	4				
SM	Total	300	350	450	550	500	500	400	400
	Domestic	250	285	350	430	390	390	310	310
	Export	50	65	100	120	110	110	90	90
SPM	Total	5	8	4	4	0	0	0	0
	Domestic	5	6	4	4				
	Export								
Lage-size MC	Total	0	0	0	1	3	5	6	6
	Domestic				1	3	5	5	5
	Export							1	1
Turning	Total	0	0	0	0	1	3	4	4
Centre	Domestic					1	3	3	3
	Export							1	1
WEDM	Total	3	5	5	10	10	15	20	20
	Domestic	3	5	5	10	10	15	20	20
	Export								
MC18	Total	10	5	10	10	0	0	0	0
	Domestic	10	5	10	10				
	Export								
SFM	Total	20	25	25	25	25	20	0	0
	Domestic	8	8	8	8	10	8		
	Export	12	17	17	17	15	12		
GNC18	Total	4	5	10	10	15	10	0	0
	Domestic	4	5	10	10	15	10		
	Export								
FNC-Turning	Total	0	0	0	1	2	1	2	3
Centre	Domestic				1	2	1	2	3
	Export								
FNC-Machining	Total	0	0	0	0	1	1	1	2
Centre	Domestic					1	1	1	2
	Export								
FMS	Total	0	0	0	0	0	0	0	0
	Domestic								
	Export								

Table II-1-11 Sales Revenue Projection of MTB
-Strategic Investment Project

Unit: Rs. Lakh (At 1992/93 Constant Prices)

Product		1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
HL	Total	244	325	325	325	244	244	0	0
	Domestic	163	325	325	325	244	244	0	0
	Export	81	0	0	0	0	0	0	0
Post HL	Total	0	0	174	434	434	608	608	608
	Domestic	0	0	174	434	434	434	434	434
	Export	0	0	0	0	0	174	174	174
C20/MC2	Total	117	176	176	117	0	0	0	0
	Domestic	117	147	147	117	0	0	0	0
	Export	0	29	29	0	0	0	0	0
MSA	Total	1,143	1,143	814	1,005	503	503	251	251
	Domestic	980	868	548	603	503	503	251	251
	Export	163	274	366	402	0	0	0	0
Post MSA	Total	0	0	141	353	705	705	917	917
	Domestic	0	0	141	353	494	494	705	705
	Export	0	0	0	0	212	212	212	212
GDM	Total	347	868	868	1,085	1,085	1,085	1,302	1,302
	Domestic	347	868	868	1,085	1,085	1,085	1,302	1,302
	Export	0	0	0	0	0	0	0	0
L200	Total	586	117	293	322	322	645	645	645
	Domestic	586	117	293	322	322	645	645	645
	Export	0	0	0	0	0	0	0	0
H400	Total	460	552	552	807	404	404	404	404
	Domestic	423	460	460	807	404	404	404	404
	Export	37	92	92	0	0	0	0	0
CNC H400	Total	0	0	0	49	98	293	293	293
	Domestic	0	0	0	49	98	195	195	195
	Export	0	0	0	0	0	98	98	98
GS2M	Total	148	148	148	148	148	148	148	148
	Domestic	148	148	148	148	148	148	148	148
	Export	0	0	0	0	0	0	0	0
MS1	Total	900	900	900	990	990	990	990	990
	Domestic	900	720	720	792	990	990	990	990
	Export	0	180	180	198	0	0	0	0
RM	Total	1,188	1,386	1,782	2,447	2,224	2,224	1,779	1,779
	Domestic	990	1,049	1,386	1,913	1,735	1,735	1,378	1,379
	Export	198	337	396	534	489	489	400	400
SPM	Total	281	317	163	163	0	0	0	0
	Domestic	281	317	163	163	0	0	0	0
	Export	0	0	0	0	0	0	0	0
Lage-size MC	Total	0	0	0	108	319	532	638	638
	Domestic	0	0	0	108	319	532	532	532
	Export	0	0	0	0	0	0	108	108
Turning Centre	Total	0	0	0	0	89	267	358	358
	Domestic	0	0	0	0	89	267	267	267
	Export	0	0	0	0	0	0	89	89
WEDM	Total	49	81	81	163	163	244	328	328
	Domestic	49	81	81	163	163	244	328	328
	Export	0	0	0	0	0	0	0	0
MG18	Total	75	38	75	75	0	0	0	0
	Domestic	75	38	75	75	0	0	0	0
	Export	0	0	0	0	0	0	0	0
SFM	Total	151	188	188	188	188	151	0	0
	Domestic	60	60	60	60	75	60	0	0
	Export	90	128	128	128	113	90	0	0
CNC18	Total	309	387	773	773	1,160	773	0	0
	Domestic	309	387	773	773	1,160	773	0	0
	Export	0	0	0	0	0	0	0	0
FMC-Turning	Total	0	0	0	239	477	239	477	716
Center	Domestic	0	0	0	239	477	239	477	716
	Export	0	0	0	0	0	0	0	0
FMC-Machining	Total	0	0	0	0	326	326	326	651
Center	Domestic	0	0	0	0	326	326	326	651
	Export	0	0	0	0	0	0	0	0
FMS	Total	0	0	0	0	0	0	0	0
	Domestic	0	0	0	0	0	0	0	0
	Export	0	0	0	0	0	0	0	0
Sub-Total	Total	5,998	6,825	7,553	9,589	9,879	10,379	9,459	10,023
	Domestic	5,408	5,585	6,362	8,327	9,065	9,316	8,380	8,945
	Export	589	1,040	1,191	1,262	814	1,063	1,078	1,078
Others	Total	1,858	1,910	1,923	1,866	2,496	2,257	2,864	3,149
	Domestic	1,858	1,910	1,923	1,866	2,496	2,257	2,864	3,149
	Export	0	0	0	0	0	0	0	0
Manufacturing of	Total	0	0	0	0	0	0	597	868
Gears, etc.	Domestic	0	0	0	0	0	0	597	868
	Export	0	0	0	0	0	0	0	0
GRAND TOTAL	Total	7,855	8,535	9,476	11,455	12,374	12,636	12,920	14,040
	Domestic	7,266	7,494	8,285	10,193	11,560	11,573	11,842	12,881
	Export	589	1,040	1,191	1,262	814	1,063	1,078	1,078

Price projections have been prepared on the basis that existing machines which would not be changed as a result of the project would continue to be sold at current prices. The machines to be improved and new machines are priced considering the expected performance of these machines and the price level of overseas markets.

2. Operating Cost Estimate

(a) Material Costs

Unit material costs for each machine have been estimated based on actual costs, modified as appropriate for the changes in product type which are envisaged.

Raw material requirements have been assessed year by year on the basis of the number and model of machines to be produced.

(b) Personnel Expenses

The project would substantially reduce the number of workers engaged in machining. The average age of workers is very high at MTB and a large number of workers are expected to retire over the next 10 years.

However, it would still be necessary to transfer workers from the machining shop to the assembly shop and sales and service divisions for the reinforcement of these divisions. It would also be necessary to recruit highly-educated workers who are required for the production of high technology machines.

As a result, the reduction in workers would be moderate and the personnel cost per capita would increase in the later periods of the project.

Manpower projection up to 2000 is shown in Table II-1-12.

Table II-1-12 Manpower Projection of MTB
(excluding Foundry)

Unit: Persons

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Existing	2890	2807	2654	2537	2400	2300	2100	2090
Retirement	175	209	187	206	240	220	184	165
Recruitment	92	56	70	69	140	20	174	165
Total	2807	2654	2537	2400	2300	2100	2090	2090

(c) Other Expenses

Overhead costs have been estimated from current experience, and modified in the projections to reflect increases in sales revenues and capital investments. Energy prices have been taken at existing levels.

(d) Operating Cost Projections

Table II-1-13 summarizes total operating cost by year.

Table II-1-13 Year-wise Projected Operating Cost of MTB (Strategic Investment Case) (at Current Prices)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Sales	7,855	9,243	10,940	14,084	16,203	17,572	19,081	22,020
Domestic Sales	7,266	8,116	9,565	12,533	15,138	16,094	17,488	20,329
Exports	589	1,126	1,375	1,552	1,066	1,478	1,593	1,692
Shop Manufacturing	20	20	20	20	20	20	20	20
Sales Value of Production	7,875	9,263	10,960	14,104	16,223	17,592	19,101	22,040
Materials	3,742	4,542	5,707	7,239	8,891	9,624	10,178	11,731
Value Added	4,133	4,721	5,252	6,865	7,332	7,967	8,923	10,309
Expenses	3,508	3,750	4,124	4,552	5,026	5,426	6,154	6,457
Personnel	2,284	2,339	2,383	2,401	2,680	2,852	3,349	3,734
Other Expenses	1,278	1,394	1,533	1,747	1,913	2,043	2,184	2,401
Fixed Cost	758	821	876	932	993	1,055	1,120	1,190
Variable Cost	520	572	657	814	920	989	1,064	1,211
Micellaneous	25	25	25	25	25	25	25	25
Depreciation & Amortization	220	292	483	679	708	806	896	597
(Less) Other Income	300	300	300	300	300	300	300	300
Operating Profit	625	971	1,128	2,313	2,307	2,541	2,770	3,852

II-2. Press Factory

A. Outline of Investment Plan

(a) The current steel fabrication shop integrated with the machine shop will be separated, and an independent high productive steel fabrication shop will be established, and new high tech-machines will be introduced in the machine shop.

(b) The current aged machine tools will be converted to NC-machines.

(c) A new large machine shop will be constructed for manufacturing larger presses and large industrial machinery.

The above restructuring will be achieved in the following five steps.

i) Step 1 (Phase 1)
A steel fabrication shop (2-bays) will be constructed and the current equipment will be re-located, and modern high-tech facilities will be introduced. The current welding shop will be re-arranged to become an assembly shop.

ii) Step 2 (Phase 1)
Large high-tech machine tools will be introduced in the machine shop. Group technology will be introduced in the gear manufacturing shop. The current small machine tools will be relocated to ancillary companies. The current aged machine tools will be converted to NC-machines.

iii) Step 3 (Phase 2)
A Bending Roller and Press Brake, etc., will be introduced into the steel fabrication shop to provide the facilities to make cylindrical shaped products.
A vertical boring machine will be introduced in the machine shop to enable high efficiency machining of medium size inner surfaces.

iv) Step 4 (Phase 2)
An additional building bay will be added on to the steel fabrication shop exclusively for material storage, marking and cutting so that rational highly productive material flow will be achieved.
One 100 ton overhead crane will be installed in addition to enable the handling of large pieces.

A new large machine shop will be constructed to enable the manufacturing of presses larger than 1,600 ton capacity and large industrial machinery. However, equipment will be limited at this stage.

v) Step 5 (Phase 3 - After the year 2000)
Further in the new machine shop, large high-tech. machine tools will be introduced to expand machining capacity, and the factory will have sufficient capacity to manufacture first class presses to compete in the international market.

Phase 1 is considered to be the period for PRH to improve its production capability through renovation of the factory and introduction of new technology to the level where high quality press machines can be manufactured. Also phase 1 should be the basis to lead to phases 2 and 3, where diversification and export of products are achieved. Considering the importance and the urgency of the period, investment to be made in phase 1 is regarded as strategic investment, and is hereafter discussed in comparison with the whole action program.

The net amount of investment in each phase is as follows excluding contingency and price escalation costs.

	Period	Investment Amount (Rs.Lakh)
i) Phase 1 : (Strategic Investment)	1992/93 to 1995/96	4,399
ii) Phase 2 :	1996/97 to 1998/99	5,854
iii) Phase 3 :	after 1999/2000	3,942

As a result of the investment,

Phase 1 (Strategic Investment):
The configuration of the factory will make possible the manufacture of high function and high quality presses and industrial machinery in a highly productive manner.

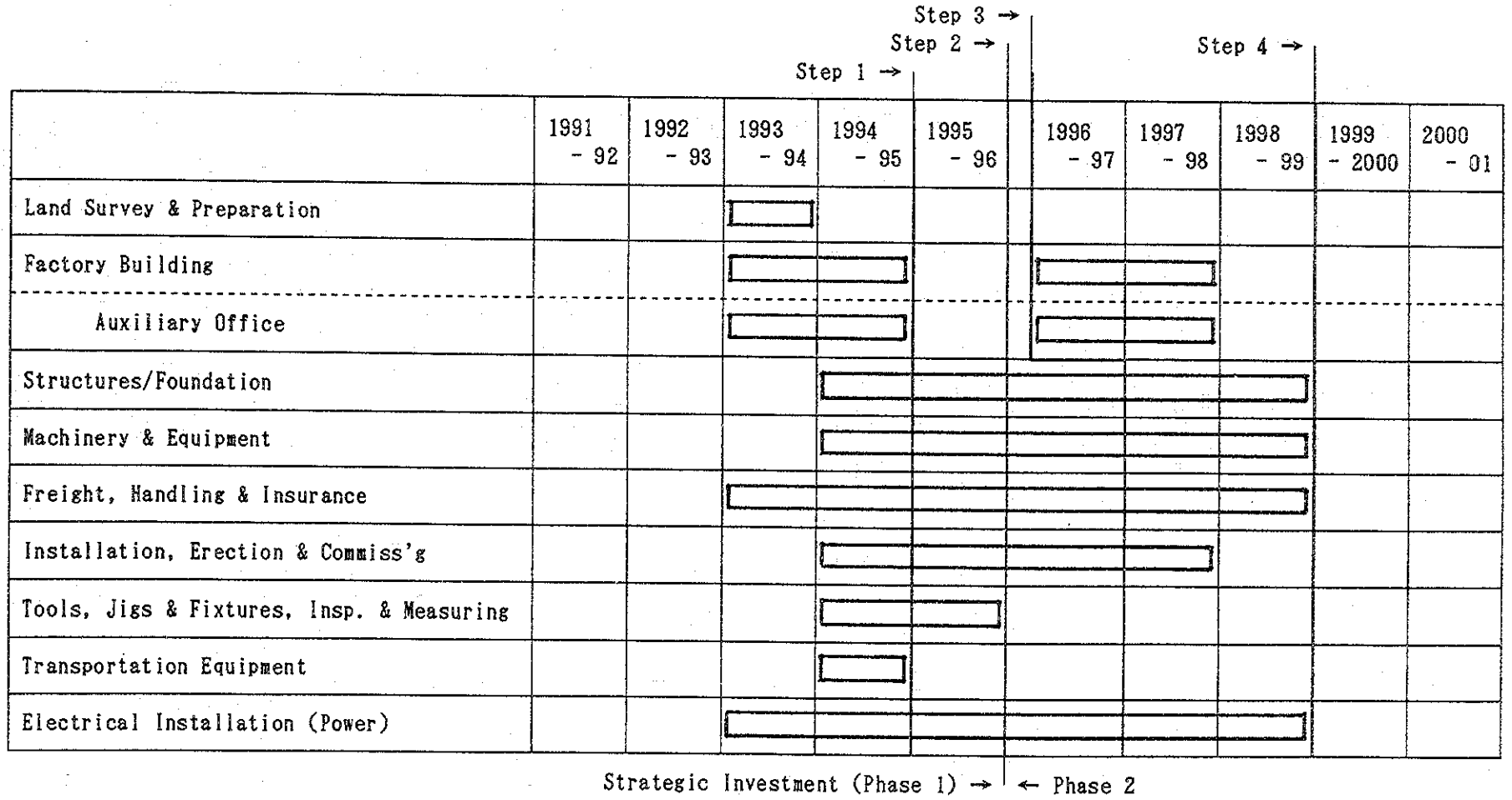
Phase 2:
In the steel fabrication shop, up to 100ton large pieces and cylindrical shaped products will be able to be manufactured.
Large mechanical presses larger than 1,500ton capacity and large industrial machinery will be able to be manufactured.

Phase 3:
The establishment of a factory which can do business in the international market of presses and industrial machinery will have been accomplished.

B. Investment Implementation Plan

Table II-2-1 summarizes the investment implementation plan by year and investment categories.

Table II-2-1 Investment Implementation Plan



C. Required Funds Estimate

The following funds are necessary for the implementation of the whole action program without contingency or price escalation costs. Among them the strategic investment amounts to Rs.439.9 million which would be completed by 1995/96.

Table II-2-2 Required Funds for the Action Program
(100 thousand Rupees at constant prices)

	Phase 1				Phase 2			Phase 3
	92/93	93/94	94/95	95/96	96/97	97/98	98/99	After 99/00
Fixed Investment	-	321	1,584	1,649	1,009	3,261	704	3,539
Pre-Operational Exp.	205	105	295	240	315	270	295	403
Total Investment	205	426	1,879	1,889	1,324	3,531	999	3,942
Accumulated Investment	205	631	2,510	4,399	5,723	9,254	10,253	14,195

1. Initial Fixed Investment

Initial fixed investment, which is comprised of phase 1 and phase 2 investments, is shown in Table II-2-3 by investment item.

2. Pre-Production Capital Expenditure

The breakdown of pre-production capital expenditure and the costs of each expenditure item are summarized in Table II-2-4.

Table II-2-3 Initial Fixed Investment Schedule

Step 1 → Step 2 → Step 3 → Step 4 →

(Rs. Lakhs)

	1991 - 92	1992 - 93	1993 - 94	1994 - 95	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 2000	2000 - 01	TOTAL
Land Survey & Preparation Rs.			90	-	-	-	-				90
Factory Building			200	118	-	260	110	-			688
Auxiliary Office			16	16	-	30	20	-			82
Structures/Foundation			-	76	10	3	21	17			127
Machinery & Equipment			-	1,173	1,430	678	2,940	583			6,804
Freight, Handling & Insurance			15	33	100	33	123	82			386
Installation, Erection & Commiss'g			-	56	9	5	22	22			114
Tools, Jigs & Fixtures, Insp. & Measuring			-	17	75	-	-	-			92
Transportation Equipment			-	20	-	-	-	-			20
Electrical Installation (Power)			-	75	25	-	25	-			125
Total			321	1,584	1,649	1,009	3,261	704			8,528
Phase-I Step 1				1,905						3,554	1,905
Phase-I Step 2					1,649						1,649
Phase-II Step 3						719				4,974	719
Phase-II Step 4						290	3,261	704			4,255

Strategic Investment (Phase 1) → ← Phase 2

Note: The above investment costs do not include contingency or price escalation costs.

Table II-2-4 Pre-Production Capital Expenditure

(Rs. Lakh)

		1992 - 93	1993 - 94	1994 - 95	1995 - 96	1996 - 97	1997 - 98	1998 - 99	1999 - 2000	TOTAL
Pre-Investment Studies & Preparatory Investigation	Domest.	2	2	2	2	2	2	2	-	14
	Foreign	-	-	-	-	-	-	-	-	-
Management of Project Implementation Detail Planning & Tendering	Domest.	6	6	6	6	6	6	6	6	48
Supervision, Coordination, Test-run and Taking-over of Installation	Foreign	30	60	60	60	60	60	60	60	450
Training of Staff and Laborers	Domest.	10	15	15	15	15	15	15	15	115
	Foreign	-	-	-	60	60	-	-	60	180
Arrangement for Supplies	Domest.	2	2	2	2	2	2	2	2	16
Arrangement for Marketing	Domest.	5	5	10	10	10	10	10	10	70
Technology Cost (Collaboration) Lump-sum Payment	Foreign	150	15	200	85	160	175	200	250	1,235
G R A N D T O T A L	Domest.	25	30	35	35	35	35	35	33	263
	Foreign	180	75	260	205	280	235	260	370	1,865
	TOTAL	205	105	295	240	315	270	295	403	2,128

Strategic Investment (Phase 1) Sub total: Rs. 845 Lakh

Phase 2 Sub total: Rs. 880 Lakh

Phase 3 Sub total: Rs. 403 Lakh

Note: The above investment costs do not include contingency or price escalation costs.

3. Working Capital

In 1990/91, average inventory value at PRH was 47 million Rupees for material and 24 million Rupees for work-in-process products, which jointly amounted to 71 million Rupees or 40.6 percent of the net total sales revenue of the year. In addition, the total amount of cash, accounts payable and accounts receivable was estimated to be 4 to 5 percent of the net total sales revenue. The total amount of working capital was, therefore, estimated at approximately 45 percent of the net total revenue in 1990/91, which made a turnover of 2.2 times a year. PRH is requested to make a quicker turnover to 3.0 times a year by the year 2000. In this case, the flow of working capital will be as shown in Table II-2-5.

Table II-2-5 Flow of Working Capital
(100 thousand Rupees at current prices)

	1990/91	1995/96	1999/2000
Net Sales Revenue	1,751	4,616	8,578
Turnover Ratio	2.2	2.6	3.0
Working Capital	796	1,766	2,859

D. Fund Raising Plan

1. Sources and Conditions of Borrowing

Principally the project may be financed by borrowing. For foreign currency long term loans, borrowing from the World Bank is assumed for the strategic investment, while in phase 2, usual loans such as Eurodollars from domestic financial institutions are assumed. For domestic currency long term loans, borrowing from domestic financial institutions is assumed. However, retained earnings would be used before the term loans so that the cost of capital may be minimized.

Other assumptions for the estimation are as follows:

i) Interest charge during the project period
The interest charges of the foreign currency long term loans during the project period would be financed by long term borrowing according to requirements.

ii) Contingency costs
As contingency costs, 10% of the invested amounts are added.

iii) Price escalation costs
Incremental costs brought by inflation of the investment costs during the investment period are added as price escalation costs.

2. Estimated Funds Requirement and Sources of Financing

Taking price escalation into consideration, estimated funds requirement and sources of financing are determined.

Total funds required for the strategic investment are summarized in Table II-2-6. Table II-2-7 gives required funds for the phase 2 investment.

Table II-2-6 Required Funds Estimate (Strategic Investment)

(100 thousand Rupees)

	Total Amount	Indigenous	Foreign
Land Develop. & Building	626	626	0
Machinery & Equipment	2,928	2,024	904
Project Management	280	70	210
Training	115	55	60
Technology Acquisition	450	0	450
Basic Costs	4,399	2,775	1,624
Contingencies	440	278	162
Price Escalations	665	529	136
Total Fixed Investment	5,504	3,582	1,922
Incre. Working Capital	1,764	1,764	0
Interest Charges	731	79	652
Total Required Funds	7,999	5,425	2,574

Note : Incremental Working Capital in the above table includes those between 1992/93 and 1996/97.

Table II-2-7 Required Funds Estimate (Phase 2 Investment)

(100 thousand Rupees)

	Total Amount	Indigenous	Foreign
Land Develop. & Building	486	486	0
Machinery & Equipment	4,488	2,668	1,820
Project Management	318	78	240
Training	180	60	120
Technology Acquisition	785	0	785
Basic Costs	6,257	3,292	2,965
Contingencies	625	329	297
Price Escalations	1,610	1,397	699
Total Fixed Investment	8,492	5,018	3,961

Annual fund requirement for the strategic investment is given in Table II-2-8.

Table II-2-8 Annual Fund Requirement
(100 thousand Rupees at current prices)

	92/93	93/94	94/95	95/96
Capital Inv.	226	502	2,326	2,450
Indigenous	(28)	(418)	(1,669)	(1,466)
Foreign	(198)	(84)	(657)	(984)
Increase in Working Capital	562	287	188	282
Interest	29	69	187	446
Indigenous	(0)	(0)	(24)	(55)
Foreign	(29)	(69)	(163)	(391)
Total Funds	817	858	2,701	3,178
Indigenous	(590)	(705)	(1,881)	(1,803)
Foreign	(227)	(153)	(820)	(1,375)

E. Sales Revenue and Production Costs Estimate

1. Sales Revenues

Table I-2-2 shows the forecast of production volume and sales revenue of PRH products.

Although the strategic investment would be completed by 1995/96, the full effect of the investment would come out in 1997/98 since it would take no less than 2 years for the installed machinery to be fully operative. Therefore, with the strategic investment, PRH could achieve the sales amount of 760.5 million Rupees in 1997/98 at current prices. With further investment in phase 2, the sales of PRH would reach 1,106.3 million Rupees in 1999/2000.

2. Production Costs

The flow of production costs between 1988/89 and 1990/91 is shown in Table II-2-9.

As seen in the table, the largest cost items are materials, production personnel, and excise duties. In particular, materials and production personnel jointly account for 87% of the average total production costs. Table II-2-10 shows the forecast of these two cost items.

As for the other cost items, it is assumed that the percentage ratios relative to total production costs would remain in the future as they were in the past.

Table II-2-10 Forecast of Material and Personnel Costs
(100 thousand Rupees at constant prices)

(Rs.Lakh)

	1990/01	1995/96	1999/2000
Materials	695	1,862	3,420
Personnel	326	420	454

Table II-2-9 Flow of Production Costs

(Rs.Lakh)

	1988/89	1989/90	1990/91	Average	(%)
Sales Revenue	1,359	1,717	1,751	1,609	100.0
Production Costs	966	1,292	1,149	1,136	70.6
Materials	639	874	695	736	45.7
- Import	(197)	(347)	(245)	(263)	(16.3)
- Domestic	(442)	(527)	(450)	(473)	(29.4)
Personnel	175	267	326	256	15.9
- Wages	(172)	(264)	(322)	(253)	(15.7)
- Incentives etc.	(3)	(3)	(4)	(3)	(0.2)
Depereciation	15	23	21	20	1.2
Other Prod. Costs	137	128	107	124	7.7
- Utilities	(14)	(16)	(17)	(16)	(1.0)
- Excise Duties	(123)	(112)	(89)	(108)	(6.7)
- Maintenance	(0)	(0)	(1)	(0)	(0)
Sales and Admin.	176	136	163	158	9.8
Personnel	77	50	37	55	3.4
- Sales	(4)	(2)	(3)	(3)	(0.2)
- Admin.	(73)	(48)	(34)	(52)	(3.2)
Sales	27	0	1	9	0.6
Admin.	6	3	2	4	0.2
- Technical Fees	(0)	(0)	(0)	(0)	(0)
- Others	(6)	(3)	(2)	(4)	(0.2)
Miscellaneous	66	83	123	91	5.7

II-3. Tractor Factory

A. Outline of Investment Plan

The prime purpose of the action program is for TRP to rebound from its reduced market share through renovation of outdated machinery and installation of new production facilities. The targeted market share is 20 percent in the year 2000.

In line with that purpose, the action program, which is scheduled to be completed by 1999/2000, has been formulated. The action program is comprised of two steps; the 1st step between 1992/93 and 1996/97, and the 2nd step between 1997/98 and 1999/2000.

The first step is the main part of the total investment plan, and most of the important investments will be made during the period, while the 2nd step will be supplementary investment which will complete the action program to achieve the target production of 44,4000 units.

The amount of net investment in each step excluding contingency and escalation costs is as follows:

	Period	Investment Amount (Rs.mil.)
i) Step 1:	1992/93 to 1996/97	1,479.2
ii) Step 2:	1997/98 to 1999/2000	602.0
Total investment amount		2,081.2

Major technology approaches adopted in the investment include the following.

i) CNC line for crankcases
ii) FMS lines for cylinder heads, gear boxes, and main transmission housings
iii) Conveyorized engine and tractor assembly line

B. Investment Implementation Schedule

Table II-3-1 summarizes the investment implementation schedule by year and investment categories. As shown in the table, HMT has an existing capital investment program for which disbursement is scheduled to be done by 1992/93. This existing investment program is mainly renovation of the existing plant, and will not be a part of the action program.

Table II-3-1 Investment Implementation Schedule

		EXISTING PLAN		STEP 1				STEP 2		
		1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	99/2000
1.	LAND DEVELOPMENT & building									
2.	PLANT & MACHINERY 2-1. Capacity Augmentation									
	2-2. Facility Renovation									
3.	PLANT FACILITIES & equipment									
4.	EXT. TRANSPORT									
5.	OFFICE/COMMUNICATION									
6.	COMPUTER/D.P. EQUIPMENT									
7.	MARKET. & SP. PARTS									
8.	POWER DISTRIB. & GENERATION									
9.	TECHNOLOGY ACQUISITION/R&D									

C. Required Funds Estimate

The following funds are necessary for the implementation of the action program.

i) Initial fixed investment costs
ii) Technology acquisition costs for R&D over new products
iii) Incremental working capital during the project period
iv) Interest charge during the project period
v) Contingency

Total investment amounts of each investment category at each step are shown in Table II-3-2.

1. Initial Fixed Investment

(a) Land Development & Building

Construction of a new building is proposed. The new building is to be one story high, and approximately 40,000 square meters in area. The cost of land development and the building is 176 million Rupees without contingency, and 164 million Rupees of that amount would be disbursed in Step 1. The investment schedule by year in land development and building is shown in Table II-3-3.

(b) Plant Machinery, Equipment and Facilities

Plant machinery, equipment and facilities amount to 1,815.2 million Rupees. Out of them, plant machinery for capacity augmentation and facility renovation are the two largest categories, which jointly occupy 94 percent of the total amount. Tables II-3-4 and II-3-5 provide investment schedules of these two investment categories by year.

2. Technology Acquisition

Technology acquisition through technical license agreements with overseas tractor manufacturers aiming to strengthen in-house R&D capabilities is proposed. In

particular, the technology necessary for the production of rice planters, rice combines, small tractors, and small backhoes would be introduced. Candidate licensors may be leading Japanese tractor manufacturers who are very competent to produce these products. Total costs for the acquisition is estimated to be 90 million Rupees.

Table II-3-2 Investment Schedule by Year (Summary)

(Value in Rs. Million)

	PARTICULARS	Existing Plan		STEP 1				STEP 2			TOTAL
		1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	99-2000	
1.	LAND DEVELOPMENT & Building	—	—	102	45	17	—	2	8	2	176
2.	PLANT & MACHINERY										
	2-1. Capacity Augmentation	93	67	59	352	205.5	146.7	185	104	1	1,053.2
	2-2. Facility Renovation	22	28	73	73	73	73	73	73	73	511
	Sub Total	115	95	132	425	278.5	219.7	258	177	74	1.564.2
3.	PLANT FACILITIES & EQUIPMENT	34	10	5	31	39	25	25	19	2	146
4.	EXT. TRANSPORT	—	—	—	2	2	—	—	—	—	4
5.	OFFICE/ COMMUNICATION	—	—	—	1	2	—	—	—	—	3
6.	COMPUTER/D.P. EQUIPMENT				2	2	2	2			8
7.	MARKET. & SP.PARTS	1	2	5	3	3	3	3			17
8.	POWER DISTRIB. & GENERATION		10	8	15	20	20	10	—	—	73
9.	TECHNOLOGY ACQUISITION/R&D	6	14	15	15	30	10	20	—	—	90
	GRAND TOTAL	(156)	(131)	267	539	393.5	279.7	320	204	78	2,081.2

Note: 1) Total amount of investment does not include existing plan.
2) The above investment costs do not include contingency or price escalation costs.

Table II-3-3 Investment Schedule by Year (Land Development & Building)

(Value in Rs. Million)

	PARTICULARS	Existing Plan		STEP 1				STEP 2			TOTAL
		1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	99-2000	
1	Land Development	—	—	50	—	—	—	—	—	—	50
2	Fensing	—	—	2	—	—	—	—	—	—	2
3	-1.Building	—	—	40	30	10	—	—	—	—	80
	-2.Township	—	—	—	—	—	—	2	8	2	12
	-3.Electrification	—	—	10	10	5	—	—	—	—	25
	-4.Air Conditioning	—	—	—	5	2	—	—	—	—	7
	Sub TOTAL	—	—	102	45	17	—	2	8	2	176

Note: The above investment costs do not include contingency or price escalation costs.

Table II-3-4 Investment Schedule by Year (Capacity Augmentation)

(Value in Rs. Million)

	PARTICULARS	Existing Plan		STEP 1				STEP 2			TOTAL
		1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	99-2000	
1	CNC CRANK CASE			18	108.5	62	21.2	18	—	—	227.7
2	FMS CLY. HEAD			18	18	18	18	27	24	—	123
3	CNC GEAR BOX			14	83	19	19	30	18	—	183
4	CNC M.T.H.			9	27.5	28	31.5	41	32	—	169
5	TURNING MACHINES			—	3	2	2	20	10	—	37
6	DRILLING MACHINES			—	3	—	—	3	—	—	6
7	MILLING MACHINES			—	3	3	—	3	3	—	12
8	GRIIDING MACHINES			—	5	6.5	6	6	3	—	26.5
9	GEAR CUTTING MACHINES			—	25	19	16	10	—	—	70
10	OTHER MACHINES			—	10	7	7	3	—	—	27
11	PRESS SHOP			—	4	—	—	9	9	—	22
12	TRACTOR ASSEMBLY			—	28	18	15	5	—	—	66
13	ENG. ASSEMBLY			—	25	10	—		—	—	35
14	HEAT TREATMENT EQUIPMENT			—	4	11	10	9	4	—	38
15	COMP., HOUSE			—	4	1	—		—	—	5
16	MISC.FACTORY EQUIPMENT			—	1	1	1	1	1	1	6
	SUB TOTAL	(93)	(67)	59	352	205.5	146.7	185	104	1	1,053.2

Note: 1) Total amount of investment does not include existing plan.
2) The above investment costs do not include contingency or price escalation costs.

Table Ⅱ-3-5 Investment Schedule by Year (Plant Facilities Equipment)

(Value in Rs. Million)

	PARTICULARS	Existing Plan		STEP1				STEP2			TOTAL
		1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	99-2000	
1	Factory Equipment			5	7	20	10	10			52
2	Inspection Equip.			—	4	4	2	2			12
3	JIGS & Fixtures			—	9	9	9	9	9		45
4	Material Handing			—	8	4	4	4	10	2	32
5	Safety/Pollution Control			—	3	2	—				5
	Sub TOTAL	(34)	(10)	5	31	39	25	25	19	2	146

Note: 1) Total amount of investment does not include existing plan.

2) The above investment costs do not include contingency or price escalation costs.

3. Working Capital

In 1990/91, working capital of TRP was 217 million Rupees, which accounted for 11.5 percent of the net total sales revenue of the year. In terms of turnover, it was 8.7 times a year. TRP is requested to achieve a quicker turnover to 11.5 times a year by the year 2000. In this case, the flow of working capital will be as shown in Table II-3-6.

Incremental working capital during the project period would be financed with short term loans as necessary.

Table II-3-6 Flow of Working Capital
(million Rupees at current prices)

	1990/91	1995/96	1999/2000
Net Sales Revenue	1,886	4,546	9,412
Turnover Ratio	8.7	10.0	11.5
Working Capital	217	455	818

D. Fund Raising Plan

1. Sources and Conditions of Borrowing

Principally the project may be financed by borrowing. For foreign currency long term loans, borrowing from the World Bank is assumed in step 1, while in step 2, usual loans such as Eurodollars from domestic financial institutions are assumed. For domestic currency long term loans, borrowing from domestic financial institutions is assumed. However, retained earnings would be used before the term loans so that the cost of capital may be minimized. Other assumptions for the estimation are as follows:

i) Interest charge during the project period

The interest charges of the foreign currency long term loans during the project period would be financed by long term borrowing according to requirements.

ii) Contingency costs

As contingency costs, 10 percent of the invested amounts are added.

iii) Price escalation costs

Incremental costs brought by inflation of the investment costs during the investment period are added as price escalation costs.

2. Estimated Funds Requirement and Sources of Financing

Taking contingency and price escalation into consideration, estimated funds requirement and sources of financing are determined. Total funds required for the project are summarized in Tables II-3-7 and II-3-8.

Table II-3-7 Required Funds Estimate (Step 1)
(100 thousand Rupees)

	Total Amount	Indigenous	Foreign
Land Develop. & Bldg	1,640	1,640	0
Machinery & Equipment	12,452	8,392	4,060
Technology Acquisition	700	0	700
Basic Costs	14,792	10,032	4,760
Contingencies	1,479	1,003	476
Price Escalations	2,559	2,143	416
Total Fixed Investment	18,830	13,178	5,652
Incre. Working Capital	2,591	2,591	0
Interest Charges	2,358	0	2,358
Total Required Funds	23,779	15,769	8,010

Note: Incremental working capital in the above table includes those between 1992/93 and 1996/97.

Table II-3-8 Required Funds Estimate (Step 2)
(100 thousand Rupees)

	Total Amount	Indigenous	Foreign
Land Develop. & Bldg	120	120	0
Machinery & Equipment	5,700	5,160	540
Technology Acquisition	200	0	200
Basic Costs	6,020	5,280	740
Contingencies	602	528	74
Price Escalations	2,719	2,268	451
Total Fixed Investment	9,341	8,076	1,265
Incre. Working Capital	2,700	2,700	0
Interest Charges	3,273	0	3,273
Total Required Funds	15,314	10,776	4,538

Table II-3-9 gives annual requirement of the funds in step 1.

Table II-3-9 Annual Fund Requirement
(100 thousand Rupees at current prices)

	93/94	94/95	95/96	96/97
Capital Inv.	3,132	6,624	5,129	3,945
Indigenous	(2,359)	(4,189)	(3,308)	(3,321)
Foreign	(773)	(2,435)	(1,821)	(624)
Increase in Working Capital	530	540	663	598
Interest	111	415	784	1,048
Indigenous	(0)	(0)	(0)	(0)
Foreign	(111)	(415)	(784)	(1,048)
Total Funds	3,773	7,579	6,576	5,591
Indigenous	(2,889)	(4,729)	(3,971)	(3,919)
Foreign	(884)	(2,850)	(2,605)	(1,672)

E. Sales Revenue and Production Costs Estimate

1. Sales Revenues

Table I-3-2 shows the production forecast of HMT tractors through the year 2000, and Table I-3-1 shows the prices of the tractors in 1992/93. By multiplying the former by the latter, the flow of sales revenues is obtained as shown in Table II-3-10.

2. Production Costs

The largest cost items for the production of tractors are materials and personnel. In particular, material costs alone occupy approximately 80 percent of the total production costs. Tables II-3-11, II-3-12, and II-3-13 give the breakdown of material costs of HMT-25HP, HMT-35HP, and HMT-59HP, sales of which jointly occupied 99 percent of the total revenue of TRP in 1990/91. Material costs for each product at 1992/93 constant prices are summarized in Table II-3-14. The flow of material costs is shown in Table II-3-15.

The manpower schedule and flow of personnel costs are shown in Table II-3-16 and II-3-17.

As for the other cost items, it is assumed that the percentage ratios relative to total production costs would remain roughly the same in the future as they were in the past. Table II-3-18 gives the percentage breakdown of average production costs between 1988/89 and 1990/91.

Table II-3-10 Projected Sales Revenue

HMT-TRP PROJECT
PROJECTED NET SALES REVENUES
(millions of Rupees at constant prices)

	(prelim) 91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
DOMESTIC									
Tractors									
HMT-18HP	0	0	0	0	0	34	68	102	136
HMT-25HP	777	855	930	1,012	1,089	1,209	1,338	1,474	1,615
HMT-35HP	970	1,055	1,142	1,224	1,310	1,428	1,616	1,820	2,037
HMT-45HP	103	142	193	276	330	345	353	351	333
HMT-59HP	281	341	402	473	558	561	574	569	538
HMT-75HP	0	2	3	5	8	9	14	20	30
Sub Total	2,131	2,394	2,671	2,990	3,293	3,586	3,962	4,337	4,687
Engines									
ENGINE-25HP	2	9	11	12	28	42	65	78	87
ENGINE-35HP	2	10	13	18	33	53	81	96	109
ENGINE-45HP	0	0	3	8	12	18	24	47	78
ENGINE-59HP	0	0	3	5	9	15	20	44	59
ENGINE-75HP	0	0	0	0	1	4	5	11	18
Sub Total	5	19	29	43	82	131	195	273	351
Spare Parts	120	150	175	200	220	240	275	300	320
Others	1	1	27	30	34	42	56	78	102
Total Domestic Sales	2,256	2,564	2,902	3,263	3,629	3,999	4,488	4,988	5,460
EXPORT									
Tractors									
HMT-18HP	0	0	0	0	0	0	0	0	0
HMT-25HP	0	0	0	0	13	21	35	59	97
HMT-35HP	0	0	0	0	15	25	43	73	123
HMT-45HP	0	0	0	0	15	26	44	74	123
HMT-59HP	0	0	0	0	25	42	71	119	199
HMT-75HP	0	0	0	0	0	0	0	0	0
Sub Total	0	0	0	0	88	114	192	325	542
Total Export Sales	0	0	0	0	88	114	192	325	542
Total Net Sales Revenue	2,256	2,564	2,902	3,263	3,698	4,113	4,680	5,311	6,002

Table II-3-11 Breakdown of Material Costs (HMT-25HP)

DIRECT MATERIAL COST (1991/1992)

HMT-25HP		WEIGHT (Kgs)	COST/UNIT (Rs.)	INDIGENOUS (Rs.)	FOREIGN (Rs.)	IMPORT		
						CIF PRICE	DIST. COST	DUTY etc.
CAST STEEL		68	1,398	1,398	0	0	0	0
B	CASTING	445	9,212	9,212	0	0	0	0
.	FORGING	190	6,148	6,148	0	0	0	0
O	TIRES	-	8,389	8,389	0	0	0	0
U	ELEC. ITEMS	-	3,595	3,595	0	0	0	0
T	MECH. ITEMS	-	40,348	40,348	0	0	0	0
OTHERS		-	1,731	1,731	0	0	0	0
T O T A L		-	70,821	70,821	0	0	0	0

Table II-3-12 Breakdown of Material Costs (HMT-35HP)

DIRECT MATERIAL COST (1991/1992)

HMT-35HP		WEIGHT (Kgs)	COST/UNIT (Rs.)	INDIGENOUS (Rs.)	FOREIGN (Rs.)	IMPORT		
						CIF PRICE	DIST. COST	DUTY etc.
CAST STEEL		70	1,630	1,630	0	0	0	0
B	CASTING	475	10,320	10,320	0	0	0	0
.	FORGING	194	6,998	6,998	0	0	0	0
O	TIRES	-	8,389	8,389	0	0	0	0
U	ELEC. ITEMS	-	3,811	3,811	0	0	0	0
T	MECH. ITEMS	-	44,095	44,095	0	0	0	0
OTHERS		-	1,889	1,889	0	0	0	0
T O T A L		-	77,132	77,132	0	0	0	0

Table II-3-13 Breakdown of Material Costs (HMT-59HP)

DIRECT MATERIAL COST (1991/1992)

HMT-59HP		WEIGHT (Kgs)	COST/UNIT (Rs.)	INDIGENOUS (Rs.)	FOREIGN (Rs.)	IMPORT		
						CIF PRICE	DIST. COST	DUTY etc.
CAST STEEL		82	1,935	1,935	0	0	0	0
B	CASTING	756	18,610	18,610	0	0	0	0
.	FORGING	228	10,672	10,672	0	0	0	0
O	TIRES	-	14,102	14,102	0	0	0	0
U	ELEC. ITEMS	-	5,525	5,525	0	0	0	0
T	MECH. ITEMS	-	73,712	33,492	40,220	17,411	1,916	20,893
OTHERS		-	2,654	2,654	0	0	0	0
T O T A L		-	127,210	86,990	40,220	17,411	1,916	20,893

Table II-3-14 Breakdown of Material Costs (1992/93)

HMT-TRP PROJECT
Breakdown of Direct Material Costs
(Rupees per unit at constant prices)

	Indigenous	Import	Cost/unit
Tractors			
HMT-18HP	61,600	0	61,600
HMT-25HP	77,903	0	77,903
HMT-35HP	84,845	0	84,845
HMT-45HP	109,768	0	109,768
HMT-59HP	95,689	44,242	139,931
HMT-75HP	120,354	55,646	176,000
Engines			
ENGINE-25HP	20,274	0	20,274
ENGINE-35HP	25,395	0	25,395
ENGINE-45HP	30,146	0	30,146
ENGINE-59HP	39,578	0	39,578
ENGINE-75HP	54,670	0	54,670

Table II-3-15 Flow of Material Costs

HMT-TRP PROJECT
PROJECTED COSTS OF DIRECT MATERIALS
(100 thousand Rupees at constant prices)

	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
Tractors								
HMT-18HP	0	0	0	0	262	524	785	1,047
HMT-25HP	6,379	6,941	7,553	8,219	9,177	10,247	11,442	12,778
HMT-35HP	7,790	8,430	9,039	9,783	10,729	12,246	13,978	15,951
HMT-45HP	1,128	1,537	2,195	2,744	2,942	3,153	3,380	3,622
HMT-59HP	2,659	3,140	3,890	4,548	4,709	5,029	5,372	5,737
HMT-75HP	9	18	26	35	53	79	118	178
Sub Total	17,963	20,066	22,503	25,329	27,871	31,278	35,072	39,310
Engines								
ENGINE-25HP	71	81	91	203	324	499	588	869
ENGINE-35HP	78	102	140	254	406	625	736	838
ENGINE-45HP	0	23	60	90	139	187	362	603
ENGINE-59HP	2	20	40	71	115	154	336	455
ENGINE-75HP	0	0	0	11	27	38	82	137
Sub Total	149	225	331	629	1,011	1,503	2,105	2,702
Spare Parts	1,155	1,348	1,540	1,894	1,848	2,118	2,310	2,464
Others	0	197	221	256	312	413	568	761
Total Material Costs	19,267	21,835	24,595	27,908	31,042	35,311	40,055	45,237

Table II-3-16 Manpower Schedule

HMT-TRP PROJECT
PROJECTED MANPOWER SCHEDULE
(number or people)

(unit manpower cost in rupee)	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
Workers										
Low Skill	209	213	218	235	254	266	280	283	285	287
Medium Skill	1,530	1,561	1,593	1,718	1,856	1,951	2,052	2,069	2,085	2,102
High Skill	795	811	828	893	964	1,014	1,066	1,075	1,084	1,092
S'visor/Foreman	396	404	412	445	480	505	531	535	540	544
Managers	191	195	199	214	232	244	256	258	260	262
	3,121	3,184	3,249	3,504	3,786	3,980	4,186	4,220	4,254	4,288

Table II-3-17 Projected Manpower Costs

HMT-TRP PROJECT
PROJECTED MANPOWER COSTS
(100 thousand Rupees at constant prices)

	(unit manpower cost in rupee)	(actual) 90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
Workers											
Low Skill	26,892	56	63	64	69	75	79	83	84	84	85
Medium Skill	31,728	485	545	556	600	648	681	716	722	728	734
High Skill	37,560	299	335	342	369	398	419	441	444	448	451
S'visor/Foreman	48,168	191	214	218	236	255	268	281	284	286	288
Managers	77,736	148	167	170	183	198	208	219	221	223	224
Total		1,179	1,324	1,351	1,457	1,574	1,654	1,740	1,754	1,768	1,783
Incentives etc.		438	463	473	510	551	579	609	614	619	624
Gross Total Wages		1,617	1,787	1,823	1,967	2,125	2,233	2,349	2,368	2,387	2,406

Table II-3-18 Flow of Production Costs

	1988/89	1989/90	1990/91	Average	(%)
Sales Revenue	15,352	18,212	20,610	18,058	100.0
Production Costs	12,928	15,548	16,944	15,140	83.8
Materials	11,553	12,537	13,648	12,579	69.6
- Import (59HP)	(533)	(510)	(457)	(500)	(2.8)
- Domestic	(11,020)	(12,027)	(13,191)	(12,079)	(66.9)
Personnel	675	1,133	1,188	999	5.5
- Wages	(635)	(1,072)	(1,134)	(947)	(5.2)
- Incentives etc.	(40)	(61)	(54)	(52)	(0.3)
Depereciation	118	121	152	130	0.7
Other Prod. Costs	582	1,757	1,956	1,432	7.9
- Utilities	(151)	(168)	(205)	(175)	(1.0)
- Excise Duties	(431)	(1,586)	(1,745)	(1,254)	(6.9)
- Maintenance	(0)	(3)	(6)	(3)	(0)
Gross Profit	2,424	2,664	3,666	2,918	16.2
Sales and Admin.	1,159	953	1,218	1,110	6.1
Personnel	545	255	429	410	2.3
- Sales	(24)	(113)	(176)	(104)	(0.6)
- Admin.	(521)	(142)	(253)	(305)	(1.7)
Sales	120	105	111	112	0.6
Admin.	52	96	95	81	0.4
- Technical Fees	(17)	(45)	(23)	(28)	(0.2)
- Others	(35)	(51)	(72)	(53)	(0.3)
Miscellaneous	442	497	583	507	2.8
Operational Profit	1,265	1,711	2,448	1,808	10.0
Non-Op. Profit/Loss	-324	-237	-199	-253	-1.4
Non-Op. Profit	169	282	329	260	1.4
Internal Prof.	6	81	211	99	0.5
Internal Exp.	-404	-482	-611	-499	-2.8
- Interest	(-2)	(-10)	(-4)	(-5)	(0)
- Marketing Comm.	(-170)	(-200)	(-205)	(-192)	(-1.1)
- Others	(-232)	(-272)	(-402)	(-302)	(-1.7)
Interest Payment	-95	-118	-128	-114	-0.6
Profit before Tax	940	1,475	2,249	1,555	8.6

II-4. Kalamassery Printing Machinery Factory (PMK)

A. Outline of the Investment Plan

The investment plan of PMK (the Printing Machinery, Kalamassery) consists of the following objectives.

(1) Expansion of the factory building

The expansion of the factory building consists of four steps responding to the expected production increase. The building is to be constructed at the site adjoining the existing factory. The assembly and testing processes would be transferred to the new building.

The schedule of plant construction by step is illustrated in Table I-4-12.

(2) Installment of new machinery and equipment

New machinery and equipment are to be installed with the following objectives.

- To modernize the machining and assembly facilities
- To expand the production capacity to meet the increasing market demand.

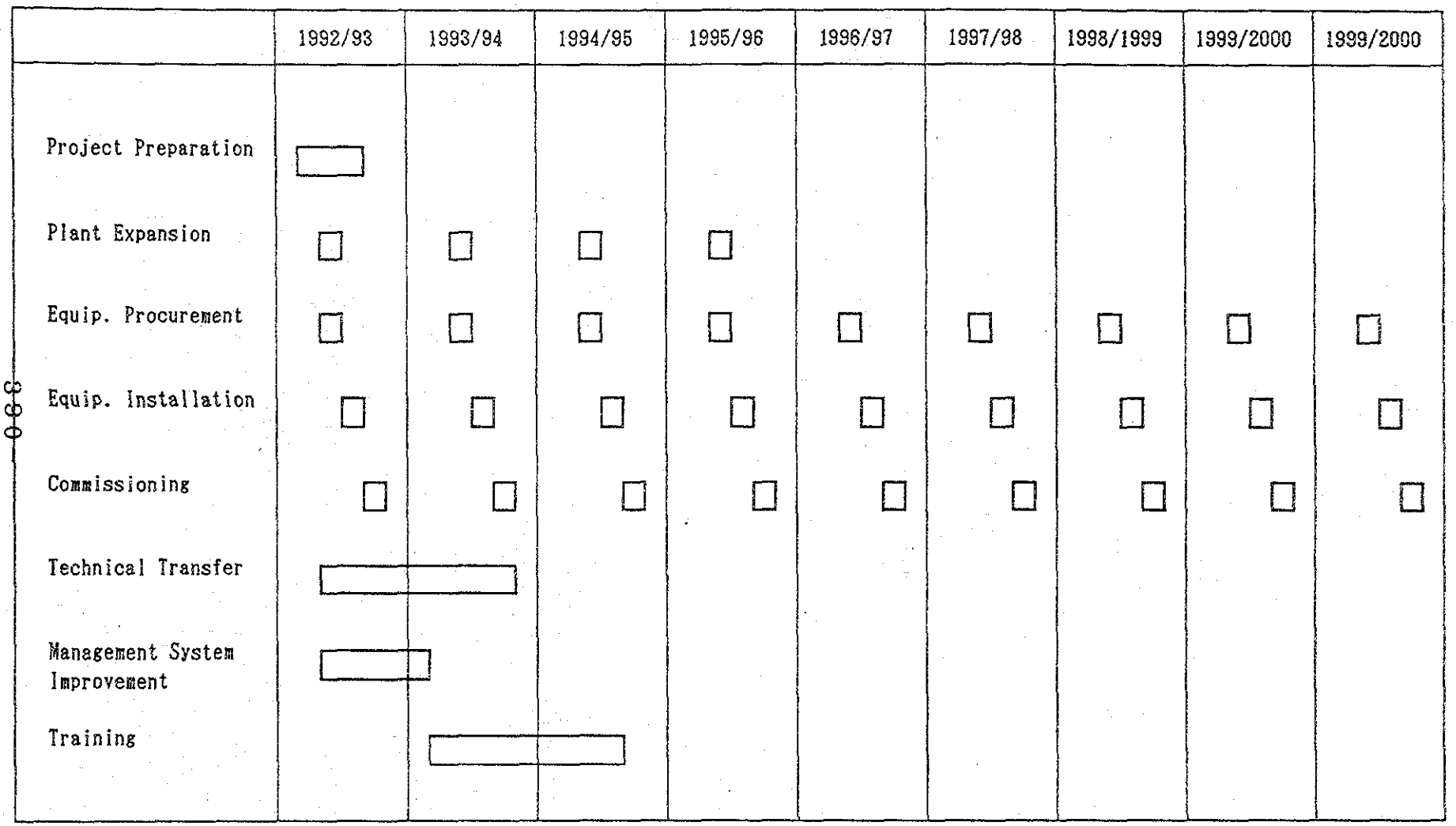
(3) Acquisition of new technologies for product technology improvement

The development of four-color printing machines will be carried out.

(4) Modernization of production engineering

To improve the productivity of PMK, the production control system will be modernized through the implementation of the project.

Fig. II-4-1 Project Implementation Schedule



B. Implementation Schedule

The initial investment plan is expected to be implemented over a period of five years, from 1992/93 to 1996/97. After the initial investment, the additional investment will be done up to 2000/01 in order to augment the production capacity to meet the increasing market demand.

The investment implementation schedule is shown in Fig. II-4-1.

In order to minimize interruptions in production, the investment will be carried out by expanding the factory and replacing existing machines with new machines step by step.

C. Project Cost Estimate

1. Plant Cost

The summary of year-wise investments by section is presented in Table II-4-1.

(a) Factory Building Construction Cost

The expansion of the factory building are to be done in four steps. The factory will be expanded according to the increase in production volume.

The detail investment schedule is shown in Table I-4-13 (Page 186). The construction cost is estimated as follows.

Step	Year	Amount	Area
Step 1:	1992/93	Rs. 117 Lakh	1,900m^2
Step 2:	1993/94	Rs. 308 Lakh	5,232m^2
Step 3:	1994/95	Rs. 362 Lakh	3,672m^2
Step 4:	1995/96	Rs. 175 Lakh	1,368m^2
Total		962 Rs. Lakh	12,172m^2

Table II-4-1 Year-wise Investment Plan by Section of PMK

Unit: Rs. Lakh

	Items	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000	Total
1	PLANT	117	308	362	175					970
2	ASSEMBLY	86	228	3	100					417
3	MACHINERY	850	1,445	488	480	220	610	135	110	4,413
4	STORES					142				160
5	INSPECTION			80						80
6	ENERGY									0
7	CIVIL WORK	7	16	6	5	8	6	1	1	51
8	COMPUTER NET WORK	25								25
9	TRAINING		138	100						238
10	TECHNICAL ASSISTANCE	144								144
11	TECHNOLOGY ACQUISITION	100	200							300
12	PROD. DEV. COST									0
	T O T A L	1,329	2,335	1,039	760	370	616	136	111	6,798

(b) Machinery and Equipment Cost

In the cost estimation the machinery and equipment to be newly installed have been divided into three categories, i.e., (1) machinery and equipment to be procured within HMT, (2) machinery and equipment to be procured from domestic suppliers, and (3) machinery and equipment to be imported.

For item (1) and (2), HMT has estimated the cost and for item (3), HMT and the Study Team has made a cost estimate.

Details of investments in machinery and equipment are presented in Table I-4-14 to Table I-4-17 (Page 187 - 189).

It is considered that the additional investment in machinery and equipment would directly follow the initial investment (1992/93 - 1996/97) for the increase in production to meet the market demand.

2. Technical Consultancy and Training Cost

Detailed engineering concerning the specifications of machinery requirements and plant layout changes will be carried out by PMK.

Upon the introduction of the new production system, training for the operators of the new equipment and design and management personnel will be conducted. The training program will cover production technology, productivity improvement, production control, etc.

These costs have been roughly estimated at Rs.382 Lakh.

3. Technology Transfer

The cost of licensing and other technology fees associated with the product development have been estimated at Rs. 300 lakh considering the experience in Japan.

A candidate source of technology by each type of technology is as shown in Table I-4-21 of the previous chapter.

4. Working Capital

The estimate of incremental working capital requirements has been based on the current situation.

The inventory control is expected to be improved through the implementation of the project. However, taking the dependence on imported materials, the present distribution system in India and the rapid expansion of production volume into consideration, the inventory level is assumed to remain stable.

The projection of working capital is shown in Table II-4-2 with the basis for assumption.

5. Project Cost and Financing Required

The total installed cost is estimated to be Rs. 6,952 lakh, of which Rs. 8,275 lakh is for the initial investment and the rest Rs. 1,323 Lakh is for the additional investment.

The summary of project cost including the breakdown of costs is presented in Table II-4-3.

Interest payment during the project will be paid as a current expenditure every year.

Physical contingencies have been allowed for at 10% of the base cost estimate. Price escalation has been calculated from the base cost estimate at 1992/93 and inflation rates thereafter.

The year-wise investment schedule is shown in Table II-4-4.

Table II-4-2 Working Capital Projection of PMK (At Current Prices)

Unit: Rs. Lakh (Unit : Rs Lakhs.)

Items	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Material	231	293	391	511	639	820	1,055	1,380
Material in Transit	23	28	37	48	60	76	99	130
Work in Progress	119	151	202	264	328	415	531	685
Stock in Trade	179	227	303	396	492	623	797	1,028
Debtors	179	227	303	396	492	623	797	1,028
Advances Paid	69	88	117	153	192	246	316	414
Other Current Assets	20	20	20	20	20	20	20	20
Inter Unit Account	50	50	50	50	50	50	50	50
Total Current Assets	869	1,085	1,425	1,838	2,272	2,874	3,665	4,736
Sundry Creditors	231	293	391	511	639	820	1,055	1,380
Advances Received	107	136	182	238	295	374	478	617
Other Current Liabilities	50	50	50	50	50	50	50	50
Total Current Liabilities	388	480	623	798	984	1,244	1,583	2,047
Working Capital	481	606	802	1,040	1,288	1,630	2,082	2,688

Table II-4-3 Cost Estimate of Investment Plan - PMK

Initial Investment (1992/93-1996/97)

Unit: Rs. Lakh

	Total	Dometic Currency	Foreign Currency
Basic Cost	5,833.00	3,331.00	2,502.00
Civil Works	962.00	962.00	0.00
Machinery & Equipment	4,189.00	2,369.00	1,820.00
Technical Assistance	238.00	0.00	238.00
Training	144.00	0.00	144.00
Technology Acquisition	300.00	0.00	300.00
Physical Contingency 10.00%	583.30	333.10	250.20
Price Escalation	535.16	444.21	90.94
Total Installed Cost	6,951.46	4,108.31	2,843.14
Incremental Working Capital	886.91	886.91	0.00
Interest during Project (Long-term)	3,214.94	1,641.61	1,573.33
Interest during Project (Short-term)	13.14	13.14	
Total Project Cost (Financing Required)	11,066.44	6,649.97	4,416.47

Initial Investment

Unit: US$ Millions

	Total	Dometic Currency	Foreign Currency
Basic Cost	22.55	12.87	9.67
Civil Works	3.72	3.72	0.00
Machinery & Equipment	16.19	9.16	7.03
Technical Assistance	0.92	0.00	0.92
Training	0.56	0.00	0.56
Technology Acquisition	1.16	0.00	1.16
Physical Contingency 0.10	2.25	1.29	0.97
Price Escalation	2.07	1.72	0.35
Total Installed Cost	26.87	15.88	10.99
Incremental Working Capital	3.43	3.43	0.00
Interest during Project (Long-term)	12.43	6.35	6.08
Interest during Project (Short-term)	0.05	0.05	0.00
Total Project Cost (Financing Requir	42.77	25.70	17.07

US$ 1 = Rs. 25.87

Additional Investment (1997/98-1999/2000)

Unit: Rs. Lakh

	Total	Domestic Currency	Foreign Currency
Basic Cost	863.00	713.00	150.00
Civil Works	0.00	0.00	0.00
Machinery & Equipment	863.00	713.00	150.00
Technical Assistance	0.00	0.00	0.00
Training	0.00	0.00	0.00
Technology Acquisition	0.00	0.00	0.00
Physical Contingency 10.00%	86.30	71.30	15.00
Price Escalation	373.79	340.97	32.82
Total Installed Cost	1,323.09	1,125.27	197.82
Incremental Working Capital	1,400.48	1,400.48	0.00
Interest during Project (Long-term)	2,712.00	1,629.28	1,082.71
Interest during Project (Short-term)	0.00	0.00	0.00
Total Project Cost (Financing Required)	5,435.57	4,155.03	1,280.54

Additional Investment

Unit: US$ Million

	Total	Domestic Currency	Foreign Currency
Basic Cost	3.34	2.76	0.58
Civil Works	0.00	0.00	0.00
Machinery & Equipment	3.34	2.76	0.58
Technical Assistance	0.00	0.00	0.00
Training	0.00	0.00	0.00
Technology Acquisition	0.00	0.00	0.00
Physical Contingency 0.10	0.33	0.28	0.06
Price Escalation	1.44	1.32	0.13
Total Installed Cost	5.11	4.35	0.76
Incremental Working Capital	5.41	5.41	0.00
Interest during Project (Long-term)	10.48	6.30	4.18
Interest during Project (Short-term)	0.00	0.00	0.00
Total Project Cost (Financing Requir	21.01	16.08	4.95

US$ 1 = Rs. 25.87

Table II-4-4 Investment Schedule - PMK
(At Current Prices)

Unit: Rs. Lakh

	1992/93			1993/94			1994/95			1995/96			1996/97		
	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign
Basic Cost	1,329	810	519	2,335	1,047	1,288	1,039	679	360	760	425	335	370	370	0
Plant Construction -Civil Work	117	117	0	308	308	0	362	362	0	175	175	0	0	0	0
Machinery & Equipment	988	693	275	1,689	739	950	577	317	260	585	250	335	370	370	0
Technical Assistance	0	0	0	138	0	138	100	0	100	0	0	0	0	0	0
Training	144	0	144	0	0	0	0	0	0	0	0	0	0	0	0
Technology Acqisition	100	0	100	200	0	200	0	0	0	0	0	0	0	0	0
Physical Contingen 10.00%	133	81	52	234	105	129	104	68	36	76	43	34	37	37	0
Price Escalation	0	0	0	123	96	27	139	115	23	148	107	41	126	126	0
Total Installed Cost	1,462	891	571	2,691	1,247	1,444	1,282	862	419	984	575	409	533	533	0
Incremental Working Capital	80	80		125	125		196	196		238	238		248	248	
Interest during Project (Long-term)	137	72	65	528	240	288	739	364	375	864	456	408	947	510	437
Interest during Project (Short-term)	13	13		0	0		0	0		0	0		0	0	
Total Financing Required	1,892	1,056	636	3,344	1,612	1,732	2,217	1,422	794	2,088	1,268	818	1,728	1,291	437

1997/98			1998/99			1999/2000			Total		
Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign
616	466	150	138	138	0	111	111	0	6,698	4,044	2,652
0	0	0	0	0	0	0	0	0	982	982	0
616	466	150	138	138	0	111	111	0	5,052	3,082	1,970
0	0	0	0	0	0	0	0	0	238	0	238
0	0	0	0	0	0	0	0	0	144	0	144
0	0	0	0	0	0	0	0	0	300	0	300
62	47	15	14	14	0	11	11	0	670	404	265
233	200	33	71	71	0	69	69	0	909	785	124
911	713	198	221	221	0	192	192	0	8,275	5,234	3,041
342	342		452	452		607	607		2,287	2,287	0
958	545	412	915	558	357	839	526	313	5,927	3,271	2,656
0	0		0	0		0	0		13	13	0
2,211	1,601	810	1,588	1,230	357	1,637	1,324	313	16,502	10,805	5,697

D. Financing Plan

A financing plan has been developed on the basis of the proposed project cost.

1. Financing Method

It is assumed that the capital cost will be financed by long-term loans from domestic and international institutions.

Interest payments during construction, incremental working capital and all other costs which are not included in the capital cost will be financed by the company's own resources and domestic short-term borrowing.

It is assumed that long-term loans for foreign currency requirements during the initial investment will be financed through the World Bank. For the additional investment, the foreign currency will be financed by Euro-currency through domestic financial institutions. It is assumed that long-term loans for domestic currency are to be provided by domestic financial institutions.

2. Financing Schedule

The financing schedule has been calculated based on the total financing required (Table II-4-3 and 4) and the financing method mentioned above.

The financial schedule is as shown in Table II-4-5.

Table II-4-5 Financing Schedule of the Initial Investment and Additional Investment

Unit: Rs. Lakh

	1992/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00
Long-term Loan Disbursement	1,462	2,691	1,281	984	503	911	198	192
Long-term Loan (Foreign Currency)	571	1,444	419	409	0	198	0	0
Long-term Loan (Domestic Currency)	891	1,247	862	575	533	713	198	192
Long-term Loan Balance	1,462	3,294	5,435	6,256	6,328	6,634	6,119	5,538
Short-term Loan Balance (Domestic Currency)	0	0	0	0	0	0	0	0

E. Operating Cost Projection

1. Sales Forecast

Projected sales volumes and sales revenues of PMK are shown in Table II-4-6 and 7.

The sales projection was developed on the basis of the future product-mix and sales plan demonstrated in the Action Program.

Price projections have been prepared on the basis that existing machines which would not be changed as a result of the project would continue to be sold at current prices. The machines to be improved and new machines would be priced considering the expected performance of machines and the price level of overseas markets.

2. Operating Cost Estimate

(a) Material Costs

Table II-4-8 shows the material cost projection.

Unit material costs for each machine have been estimated based on actual costs, modified as appropriate for the changes in product type which are envisaged.

Table II-4-6 Sales Projection by Model

Unit: Set

Products	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
*SOM 125	30	40	50	54	60	80	90	94
*SOM 225	0	5	10	20	25	30	40	45
*SOM 425	0	3	5	8	10	10	15	20
*SOM 225P	0	0	0	5	7	10	19	24
*SOM 425P	0	0	0	0	2	2	2	5
*SOM 131	30	30	30	30	35	40	40	40
*SOM 231	0	0	4	7	5	8	12	15
*SOM 431	0	0	0	0	0	1	2	4
*SOM 231P	0	0	0	0	2	5	10	10
*SOM 431P	0	0	0	0	0	0	0	0
*SOM 136	48	50	50	50	50	50	50	50
*SOM 236	26	25	25	25	25	25	25	25
*SOM 436	0	0	4	6	5	5	5	10
*SOM 236P	0	2	3	5	10	10	10	10
*SOM 436P	0	0	0	0	0	2	2	4
*SOM 240					2	5	8	10
*SOM 440								2
*SOM 240P								
*SOM 440P								
Total	134	155	181	210	238	283	330	368

Table II-4-7 Sales Revenue Projection - PMK

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
At Constatn Prices 1992/93								
Sales Revenue	1977	2320	2907	3562	4154	4956	5968	7249
Domestic Sales	1977	2320	2907	3355	3823	4446	5198	6294
Exports	0	0	0	207	332	510	769	955
At Current Prices								
Sales Revenue	2145	2727	3641	4751	5902	7478	9562	12336
Domestic Sales	2145	2727	3641	4475	5431	6708	8330	10711
Exports	0	0	0	276	471	770	1232	1625

Table II-4-8 Material Cost Estimate

(1) Direct Material Cost

Unit: Rs. Lakh

		1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
At Constant Prices 1992/93 21.42	Total	765.70	898.05	1,129.30	1,381.71	1,615.89	1,931.89	2,346.18	2,876.77
	Indigenous	534.52	621.90	780.66	944.46	1,099.21	1,314.08	1,585.71	1,939.48
	Imported	231.19	276.14	348.64	437.25	516.68	617.81	760.47	937.30
At Current Prices	Total	830.79	1,055.26	1,414.57	1,843.24	2,295.77	2,914.88	3,759.45	4,895.47
	Indigenous	579.95	730.77	977.86	1,259.93	1,561.69	1,982.71	2,540.90	3,300.45
	Imported	250.84	324.49	436.71	583.31	734.07	932.17	1,218.55	1,595.02

(2) Sub-Contracting

Unit: Rs. Lakh

		1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
At Constant	Total	0.00	0.00	0.00	0.00	13.01	42.64	66.86	127.74
At Current	Total	0.00	0.00	0.00	0.00	18.48	64.34	107.13	217.38

(3) Indirect Materials

		1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
At Constant Prices 1992/93	Total	85.00	100.00	120.00	150.00	170.00	200.00	220.00	240.00
	Indigenous	85.00	100.00	120.00	150.00	170.00	200.00	220.00	240.00
	Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
At Current Prices	Total	92.23	117.51	150.31	200.10	241.53	301.77	352.52	408.41
	Indigenous	92.23	117.51	150.31	200.10	241.53	301.77	352.52	408.41
	Imported	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Raw material requirements have been assessed year by year on the basis of the number and model of machines to be produced.

(b) Personnel Expenses

The projected manpower plan is shown in Table II-4-9.

The manpower requirement has been calculated according to the following method.

- The present production capacity is assessed from the number of workers, the productivity indicator, and available hours.
- The present work load per unit is calculated by type of machining job and by type of parts.
- The increase in total work load in the future is estimated on the basis of the production schedule considering the allowance of possible productivity improvement.
- The required manpower is assessed from the assumed total work load and the possible attendance ratio.

Although the project substantially improves the productivity per worker, the number of workers will increase due to the expansion of production volume.

(c) Other Expenses

Overhead costs have been estimated from current experience, and modified in the projections to reflect increases in sales revenues and capital investments.

(d) Operating Cost Projections

Table II-4-10 summarizes the operating cost by year.

Table II-4-9 Manpower Plan

Department	Grade	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Manufacturing	Total	220	236	255	284	251	239	231	235	238
	WG Grade	186	201	217	242	211	199	191	195	198
	PS Grade	34	35	38	42	40	40	40	40	40
Assembly	Total	94	90	100	115	125	144	160	174	202
	WG Grade	84	80	90	104	114	133	148	160	184
	PS Grade	10	10	10	11	11	11	12	14	18
Engineering	Total	93	93	97	103	108	113	115	117	122
	WG Grade	56	56	59	62	64	67	68	69	73
	PS Grade	37	37	38	41	42	46	47	48	49
Tool Design	Total	8	8	9	10	12	13	15	16	17
	WG Grade	4	4	5	5	6	6	7	7	8
	PS Grade	4	4	4	5	6	7	8	9	9
Purchase	Total	11	11	11	11	11	11	11	11	11
	WG Grade	5	5	5	5	5	5	5	5	5
	PS Grade	6	6	6	6	6	6	6	6	6
Planning	Total	18	18	18	18	18	20	20	20	21
	WG Grade	6	6	6	6	6	6	6	6	7
	PS Grade	12	12	12	12	12	14	14	14	14
Tool Room	Total	20	20	20	22	22	25	25	26	29
	WG Grade	16	16	16	17	17	19	19	20	22
	PS Grade	4	4	4	5	5	6	6	6	7
Store	Total	13	13	16	16	19	20	20	20	20
	WG Grade	10	10	12	13	14	15	15	15	15
	PS Grade	3	3	4	5	5	5	5	5	5
PPM	Total	5	5	5	5	5	5	5	5	5
	WG Grade	1	1	1	1	1	1	1	1	1
	PS Grade	4	4	4	4	4	4	4	4	4
PPT	Total	18	18	18	19	19	19	19	19	19
	WG Grade	14	14	14	15	15	15	15	15	15
	PS Grade	4	4	4	4	4	4	4	4	4
Maintenance	Total	30	32	33	37	42	39	37	37	37
	WG Grade	23	24	25	27	30	28	27	27	27
	PS Grade	7	8	8	10	12	11	10	10	10
Inspection	Total	48	50	54	54	56	59	62	69	72
	WG Grade	25	26	28	28	29	30	31	34	35
	PS Grade	23	24	26	26	27	29	31	35	37
Manufacturing	Total	39	39	41	41	41	41	41	43	43
	WG Grade	22	22	23	23	23	23	23	24	24
	PS Grade	17	17	18	18	18	18	18	19	19
Assembly	Total	9	11	13	13	15	18	21	26	29
	WG Grade	3	4	5	5	6	7	8	10	11
	PS Grade	6	7	8	8	9	11	13	16	18
Process Control	Total	29	31	31	33	33	33	35	35	35
	WG Grade	13	14	14	15	15	15	16	16	16
	PS Grade	16	17	17	18	18	18	19	19	19
Design	Total	19	23	26	30	34	38	41	44	45
	WG Grade	9	11	13	15	16	18	19	20	20
	PS Grade	10	12	13	15	18	20	22	24	25
Accounts	Total	13	13	16	16	16	16	16	17	17
	WG Grade	8	8	10	10	10	10	10	10	10
	PS Grade	5	5	6	6	6	6	6	7	7
Sales & Service	Total	17	21	24	29	34	40	47	56	66
	WG Grade									
	PS Grade	17	21	24	29	34	40	47	56	66
Computer	Total	7	7	7	7	7	9	9	9	9
	WG Grade	3	3	3	3	3	4	4	4	4
	PS Grade	4	4	4	4	4	5	5	5	5
Personnel	Total	6	6	7	7	7	8	8	8	8
	WG Grade	3	3	3	3	3	4	4	4	4
	PS Grade	3	3	4	4	4	4	4	4	4
Total	Total	576	602	650	715	711	738	781	801	851
	WG Grade	410	426	462	509	495	508	518	539	571
	PS Grade	166	176	188	206	216	230	243	262	280

Table II-4-10 Year-wise Projected Operating Cost of PMK (at Current Prices)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Sales	2,145	2,727	3,641	4,751	5,902	7,478	9,562	12,336
-Domestic Sales	2,145	2,727	3,641	4,475	5,431	6,708	8,330	10,711
-Export	0	0	0	276	471	770	1,232	1,625
Materials	923	1,173	1,565	2,043	2,537	3,217	4,112	5,304
Sub Contract	0	0	0	0	18	64	107	217
Value Added	1,221	1,554	2,076	2,708	3,346	4,197	5,343	6,815
Expenses	765	1,056	1,489	1,794	2,114	2,434	2,783	3,134
Personnel	392	478	581	654	757	872	1,016	1,190
Power	18	28	43	64	95	112	130	151
Marketing Commission	88	112	149	195	242	307	392	506
Charges Paid	112	135	172	212	250	300	365	431
Depreciation	46	176	398	500	575	620	625	564
Other Expenses	109	127	147	169	195	223	255	293
Operating Profit	457	498	587	914	1,232	1,763	2,560	3,680

II-5. Foundries

II-5-1. Bangalore Foundry Factory

A. Outline of the Investment Plan

A new foundry is to be constructed, as a model foundry in HMT, with the latest technology and with highly efficient facilities with the following objectives.

- To supply castings of high quality to MTB
- To increase significantly casting sales to outside
- To promote casting exports
- To diffuse modern foundry technologies to other foundries in HMT

The concept of new foundry is as described in detail in the Action Plan.

The production capacity to be 12,000 tons a year. The main features to be newly introduced are as follows:

Furan Sand Mold System
Sand Reclamation/Recycling System
Enclosed Sand Transfer
Environmental Control

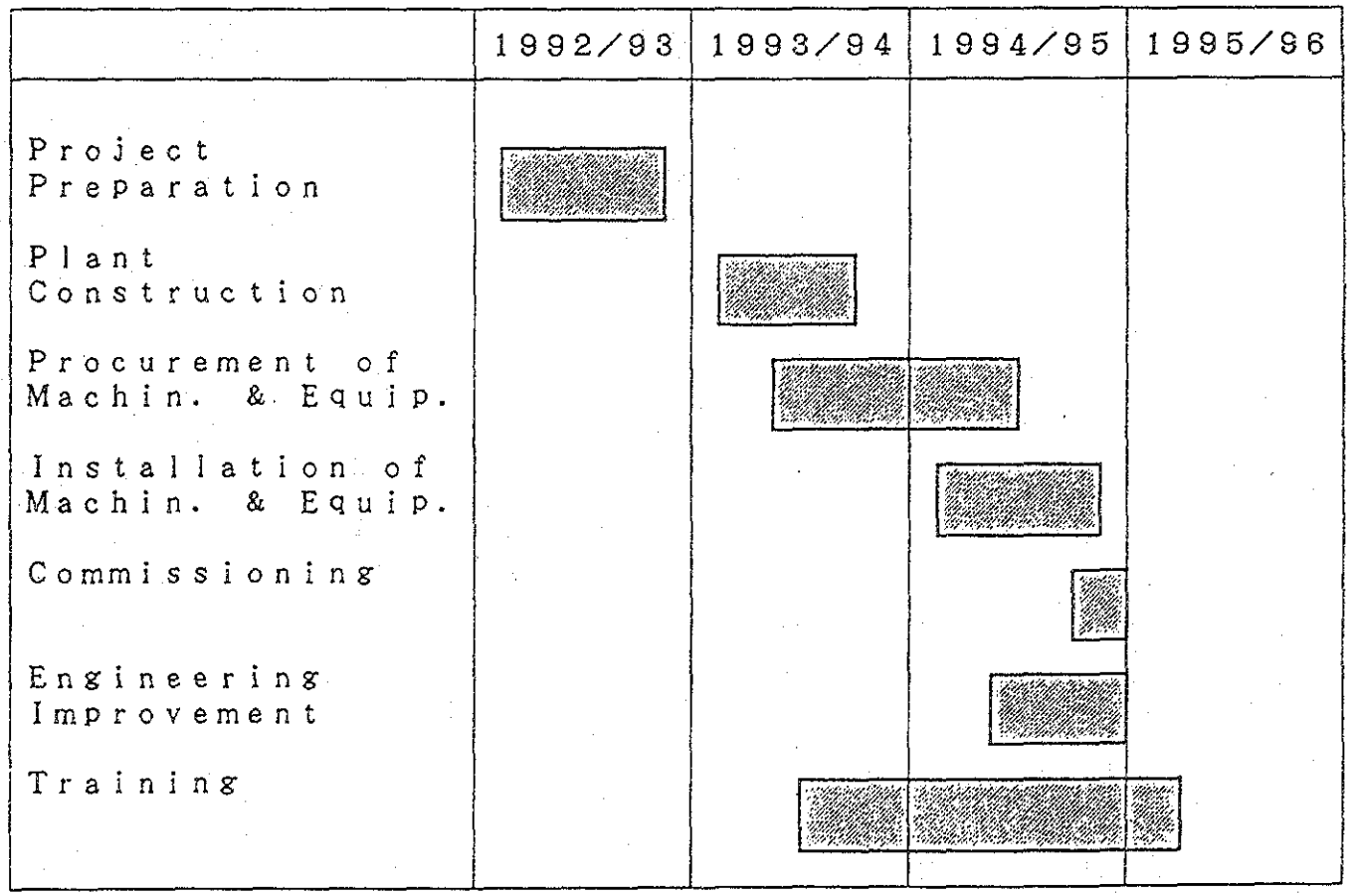
B. Implementation Schedule

The investment plan is expected to be implemented over a period of three years, from 1992/93 to 1994/95. The investment implementation schedule is shown in Fig. II-5-1-1.

The following schedule has been considered for the project implementation.

Year	Content
1992	Planning: building & equipment
1993	Building construction with overhead crane installation
1994	Machines and equipment installation
1995 Apr.	Start of operation

Fig. Ⅱ-5-1-1 Project Implementation Schedule



C. Project Cost Estimate

1. Plant Cost

(a) Factory Building Construction Cost

A new foundry factory will be constructed at the site adjoining the existing Bangalore foundry.

Total area is 12,954m^2. The area by section is as described in Table I-5-5.

Construction cost is estimated at Rs. 1,200 Lakh without contingency cost.

(b) Machinery and Equipment Cost

The list of machinery and equipment to be installed is presented in Table I-5-7 and Table II-5-1-10.

The machinery and equipment to be newly installed have been divided into three categories, i.e., (1) machinery and equipment to be procured from domestic suppliers, and (2) machinery and equipment to be imported.

For item (1), HMT has estimated the cost and for item (2), HMT has obtained the cost estimate from overseas suppliers and the Study Team also has made a cost estimate to supplement them.

The machinery and equipment cost is shown in Table II-5-1-1.

2. Pre-investment Study and Preparation Cost

Pre-investment study cost is estimated at Rs. 6 Lakh.

Pre-investment study will includes the market survey for sales projection. In this project which is aiming at selling castings of a large amount outside, the estimation of the future market has a considerable importance.

In the pre-investment survey, several foundries shall be

Table II-5-1-1 Cost of Machinery and Equipment (Bangalore Foundry)

at 1992/93 Prices Unit=Rs Lakh

No.	Item, Spec.	Domestic	Foreign	Tariff	Total
A	Pattern Section	65.00	44.46	35.54	145.00
B	Sand Plant	236.11	144.00	115.20	495.31
C	Moulding Line				
	1.Mechanised Line	165.20	95.01	76.01	336.22
	2.Hand Moulding	21.20	58.50	46.80	126.50
	3.Small Casting	5.20	36.00	28.80	70.00
	4.Care Making Line	46.40	33.60	26.88	106.88
D	Melting Section	164.48	174.60	139.68	478.76
E	Fettling Section	30,00	411.48	329.18	770.66
F	Q·C & inspection Equipment(laboratory)	12.72	53.60	42.89	109.21
G	Proof Cutting Machine Tools	50.00			50.00
H	Compressors & other	190.00			190.00
	total	986.31	1,051.25	840.98	2,878.54

visited to see the proposed technology and equipment in operating conditions.

In addition, management cost for the preparation of investment is estimated at Rs. 6 Lakh.

3. Engineering Consultancy Fee

This cost is included in the machinery and equipment cost.

4. Training cost

Training cost is estimated at Rs. 28 Lakh, of which Rs. 20 Lakh is for training abroad.

At least 20 engineers are to be trained in foundries in advanced countries for absorption of technologies, quality parameters, etc.

5. Working Capital

The estimate of incremental working capital requirements has been based on the present situation. Inventory control is expected to be improved through the implementation of the project. However, the inventory level would continue to be dependent on the availability of materials. The inventory level is assumed to remain stable.

The projection of working capital is shown in Table II-5-1-2. The incremental working capital up to 1997/98 has been included in the project cost.

Table II-5-1-2 Working Capital Projection of the Bangalore Foundry (At Current Prices)

Unit: Rs. Lakh

Items	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Material	99	107	116	220	274	325	396	510
Material in Transit	0	0	0	0	0	0	0	0
Work in Progress	33	36	39	73	92	109	132	169
Stock in Trade	33	36	39	79	98	118	141	182
Debtors	0	0	0	0	0	0	0	0
Advances Paid	0	0	0	0	0	0	0	0
Other Current Assets	30	35	70	57	61	64	70	90
Inter Unit Account	0	0	0	0	0	0	0	0
Total Current Assets	194	214	264	428	525	615	739	951
Sundry Creditors	0	0	1	1	0	0	0	0
Advances Received	0	0	0	0	0	0	0	0
Other Current Liabilities	28	33	67	61	65	70	77	99
Total Current Liabilities	28	33	68	62	65	70	77	99
Working Capital	166	181	197	366	461	545	662	852

6. Project cost and Financing Required

The total installed cost is estimated to be Rs. 5,014 Lakh. The summary of project cost including the breakdown of costs is presented in Table II-5-1-3.

Physical contingencies have been allowed for at 10% of the base cost estimate. Price escalation has been calculated from the base cost estimate at 1992/93 and inflation rates thereafter.

Interest payment for long-term loans during the construction period and incremental working capital up to 1997/98 are assumed to be financed by long-term loans.

Costs concerning project preparation and training would be considered deferred expenditures and be amortized in five years following the start of production.

The investment schedule by year is shown in Table II-5-1-4.

Table II-5-1-3 Cost Estimate of Investment Plan
-Bangalore Foundry

Unit: Rs. Lakh

	Total		
	Total	Domestic Currency	Foreign Currency
Basic Cost	4,118.54	3,047.29	1,071.25
Plant Construction -Civil Work	1,200.00	1,200.00	0.00
Machinery & Equipment	2,878.54	1,827.29	1,051.25
Preparation and Management	12.00	12.00	0.00
Training	28.00	8.00	20.00
Technology Transfer	0.00	0.00	0.00
Physical Contingency 10.00%	411.85	304.73	107.13
Price Escalation	483.20	414.42	68.78
Total Installed Cost	5,013.60	3,766.44	1,247.16
Incremental Working Capital	726.09	726.09	0.00
Interest during Construction (Long-term)	5,032.26	3,934.58	1,097.68
Interest during Construction (Short-term)	32.31	32.31	0.00
Total Project Cost (Financing Required)	10,804.26	8,459.42	2,344.84

Unit: US$ Million

	Total		
	Total	Domestic Currency	Foreign Currency
Basic Cost	15.92	11.78	4.14
Plant Construction -Civil Work	4.64	4.64	0.00
Machinery & Equipment	11.13	7.06	4.06
Preparation and Management	0.05	0.05	0.00
Training	0.11	0.03	0.08
Technology Transfer	0.00	0.00	0.00
Physical Contingency 10.00%	1.59	1.18	0.41
Price Escalation	1.87	1.60	0.27
Total Installed Cost	19.38	14.56	4.82
Incremental Working Capital	2.81	2.81	0.00
Interest during Construction (Long-term)	19.45	15.21	4.24
Interest during Construction (Short-term)	0.12	0.12	0.00
Total Project Cost (Financing Required)	41.76	32.70	9.06

Note: US$ 1 = Rs. 25.872

Table II-5-1-4 Investment Schedule - Bangalore Foundry

Unit: Rs. Lakh

	1992/93			1993/94			1994/95			1995/96			1996/97		
	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign
Basic Cost	8	8	0	1,312	1,302	10	2,801	1,739	1,061	0	0	0	0	0	0
Plant Construction -Civil Work	0	0	0	1,200	1,200	0	0	0	0	0	0	0	0	0	0
Machinery & Equipment	0	0	0	95	95	0	2,784	1,732	1,051	0	0	0	0	0	0
Preparation and Management	8	8	0	3	3	0	3	3	0	0	0	0	0	0	0
Training	0	0	0	14	4	10	14	4	10	0	0	0	0	0	0
Technology Transfer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Physical Contingency 10.00%	1	1	0	131	130	1	280	174	108	0	0	0	0	0	0
Price Escalation	0	0	0	119	119	0	384	296	89	0	0	0	0	0	0
Total Installed Cost	7	7	0	1,562	1,551	11	3,445	2,209	1,238	0	0	0	0	0	0
Incremental Working Capital	-12	-12		14	14		18	18		170	170		94	94	
Interest during Construction (Long-term)	1	1	0	140	139	1	570	448	122	881	657	224	896	662	234
Interest during Construction (Short-term)	9	9		18	18		7	7		0	0		0	0	
Total Financing Required	4	4	0	1,733	1,721	13	4,038	2,680	1,358	1,050	826	224	990	756	234

1997/98			1998/99			1999/2000			Total		
Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign
0	0	0	0	0	0	0	0	0	4,119	3,047	1,071
0	0	0	0	0	0	0	0	0	1,200	1,200	0
0	0	0	0	0	0	0	0	0	2,878	1,827	1,051
0	0	0	0	0	0	0	0	0	12	12	0
0	0	0	0	0	0	0	0	0	28	8	20
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	412	305	107
0	0	0	0	0	0	0	0	0	483	414	69
0	0	0	0	0	0	0	0	0	5,014	3,788	1,247
84	84		118	118		189	189		726	726	0
832	812	221	548	548	0	833	473	160	5,032	3,935	1,098
0	0		0	0		0	0		32	32	0
917	896	221	664	664	0	822	662	160	10,804	8,459	2,345

D. Financing Plan

A financing plan has been developed on the basis of the proposed investment cost.

1. Financing Method

It is assumed that the capital cost will be financed by long-term loans from domestic and international institutions.

As mentioned above, interest payments for long-term loans during construction and incremental working capital up to 1997/98 would be financed by long-term loans. Incremental working capital after 1998/99 are to be financed by short-term borrowings.

It is assumed that long-term loans for foreign currency requirements will be financed through the World Bank. It is assumed that long-term loans for domestic currency are to be provided by domestic financial institutions.

2. Financing Schedule

The financing schedule has been calculated based on the total financing required (Table II-5-1-3 and 4) and the financing method mentioned above.

The financial schedule is as shown in Table II-5-1-5.

Table II-5-1-5 Financing Schedule of the Bangalore Foundry

Unit: Rs. Lakh

	1992/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
Long-term Loan Disbursement	7	1,749	4,258	170	94	84	0	0
Long-term Loan (Foreign Currency)	0	13	1,416	0	0	0	0	0
Long-term Loan (Domestic Currency)	7	1,736	2,842	170	94	84	0	0
Long-term Loan Balance	9	1,756	6,014	6,183	6,082	5,498	4,811	4,113
Short-term Loan Balance (Domestic Currency)	97	91	0	0	0	0	0	0

E. Operating Cost Projection

1. Sales Forecast

Projected sales volumes and sales revenues of the Bangalore foundry shown in Table II-5-1-6.

The sales projection was developed on the basis of the sales program proposed in the Action Program. out of 12,000 tons of production in 1999/2000, 7,200 would be sold to outside, while the remaining would be sold to MTB.

It is assumed that prices would be remain at the present level (Rs. 26.0 - 28.0/kg) up to 1995/96. After 1995/96, a price per kilogram would be Rs. 31.0 for castings without proof-cutting and Rs. 35.6 for castings with proof-cutting.

In 1999/2000, the sales of castings without proof-cutting would account for a third of total sales.

2. Operating Cost Estimate

(a) Material

The material procurement schedule and material cost projection are as shown in Table II-5-1-7.

After the start of operating of new foundry , the cost structure of materials would be changed due to the change of production system.

Furan resin is to be used instead of alkyd. The purchase of sand is to be reduced due to the introduction of sand recycling system.

It is expected that patterns would be supplied by customers for castings to be sold outside or manufactured by outside pattern makers at customers' expense.

Table II-5-1-6 Sales Projection - Bangalore Foundry

Production Plan Unit: Tons

	1991/92	1991/92	1991/92	1995/96	1996/97	1997/98	1998/99	1999/2000
Total	3,050	3,050	3,050	7,000	8,000	9,000	10,000	12,000
-Proof-cutting				4,000	4,000	4,000	4,000	4,000
-Non-proof-cutting				3,000	4,000	5,000	6,000	8,000

Unit: Tons

	1991/92	1991/92	1991/92	1995/96	1996/97	1997/98	1998/99	1999/2000
Total	3,050	3,050	3,050	7,000	8,000	9,000	10,000	12,000
-Inhouse	2,650	2,650	2,650	2,800	3,200	3,600	4,000	4,800
-Outside	400	400	400	4,200	4,800	5,400	6,000	7,200

Sales Price (At constant prices)

Unit: Rs. Lakh per Ton

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
-Proof-cutting				0.310	0.310	0.310	0.310	0.310
-Non-proof-cutting				0.356	0.356	0.356	0.356	0.356

Sales Revenue (At constant prices)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Total	846	846	846	2,308	2,664	3,020	3,376	4,088
-Proof-cutting				1,240	1,240	1,240	1,240	1,240
-Non-proof-cutting				1,068	1,424	1,780	2,136	2,848

Table II-5-1-7 Material Cost Plan - Bangalore Foundry

(1) Material Procurement Plan

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Steel & Alloys									
Pig Iron (MT)	1,980	1,830	1,830	1,830	4,200	4,800	5,400	6,000	7,200
Scrap (MT)	1,386	1,281	1,281	1,281	2,940	3,360	3,780	4,200	5,040
Alloys (MT)									
-Fe Si (MT)	38	34	34	34	77	88	99	110	120
-Fe Mn (MT)	8	5	5	5	13	14	16	18	22
-Ca Si (MT)	14	13	13	13	23	34	38	42	46
-Others									
Sub-Total									
Sand (MT)	9,900	9,150	9,150	9,150	3,000	3,000	3,000	3,000	3,000
Alkyd-A (Kg)	140	130	130	130					
Alkyd-B (Kg)	14	13	13	13					
Alkyd-C (Kg)	28	26	26	26					
Furan-A (Kg)					231	264	297	330	396
Furan-B (Kg)					58	66	74	83	99
Dextrine (Kg)	35	32	32	32					
Bentonite (Kg)	90	84	84	84					
Sub-Total									
Pattern Wood (M3)	65	65	65	65	70	70	70	70	70
Mould Box Flask Construction	10	10	10	10	10	10	10	10	10
Jigs & Tools									
QC & Inspection Materials									
Grand Total									

(2) Material Cost Projection

Unit: Rs. Lakh

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Steel & Alloys									
Pig Iron	108.90	109.21	118.27	128.08	308.16	375.08	446.12	528.76	673.68
Scrap	110.88	111.19	120.42	128.37	313.78	381.89	458.27	538.40	686.13
Alloys	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-Fe Si	8.71	8.74	9.46	10.09	24.85	30.01	35.85	42.30	49.01
-Fe Mn	1.20	1.20	1.30	1.39	3.40	4.14	4.94	5.83	7.43
-Ca Si	11.37	11.40	12.34	13.16	31.72	39.81	47.02	55.19	64.19
-Others	14.05	14.09	15.28	16.26	39.75	48.38	57.81	68.21	88.93
Sub-Total	255.11	255.82	277.05	295.34	721.45	879.11	1,050.01	1,238.71	1,567.58
Sand	27.72	27.80	30.10	32.09	11.21	11.93	12.87	13.48	14.29
Alkyd-A	44.88	45.01	48.74	51.98	0.00	0.00	0.00	0.00	0.00
Alkyd-B	7.99	8.02	8.68	9.28	0.00	0.00	0.00	0.00	0.00
Alkyd-C	47.89	47.82	51.79	55.21	0.00	0.00	0.00	0.00	0.00
Furan-A	0.00	0.00	0.00	0.00	277.34	337.57	403.31	475.90	606.49
Furan-B	0.00	0.00	0.00	0.00	16.95	20.63	24.65	29.08	37.06
Dextrine	2.80	2.81	3.04	3.24	0.00	0.00	0.00	0.00	0.00
Bentonite	2.26	2.27	2.45	2.62	0.00	0.00	0.00	0.00	0.00
Sub-Total	133.34	133.71	144.81	154.37	305.50	370.13	440.83	518.45	657.85
Pattern Wood	26.00	26.21	30.55	32.57	37.35	39.78	42.25	44.87	47.65
Mould Box Flask Construction	3.00	3.26	3.53	3.76	4.00	4.26	4.53	4.81	5.11
Jigs & Tools	5.00	5.43	5.88	6.26	13.34	17.76	22.63	28.04	34.03
QC & Inspection Materials	1.00	1.09	1.18	.25	2.87	3.55	4.53	5.81	6.81
Grand Total	423.44	427.51	462.99	55	1,084.31	1,314.59	1,564.57	1,840.49	2,319.02

(b) Personnel

The projected manpower plan is shown in Table II-5-1-8.

The number of workers required for the production would be reduced because of the introduction of high productive production system. After the completion of the new foundry, the number of workers is set constant. The increase in basic wages and salaries due to annual promotion is considered for the personnel cost.

In the new foundry, the sales personnel should be reinforced to realize the outside sales target set in the Action Program.

(c) Other Expenses

Overhead costs have been estimated from current experience, and modified in the projections to reflect increases in sales revenues and capital investments.

(d) Operating Cost Projections

Table II-5-1-9 summarizes the operating cost by year.

Table II-5-1-8 Manpower Plan

Unit: Number of Persons

Department	1991/92	1992/93	1993/94	1994/95	1995/96	1999/2000
Pattern Shop	39	41	43	45	47	47
Sand Plant	13	10	8	6	4	4
Molding (Main Mold & Core Mold)	189	171	154	137	120	120
Melting	22	22	22	22	22	22
Fettling (Including Shake-out, De-c	72	58	44	30	16	16
Proof Cutting	0	2	4	6	8	8
QC & Inspection	7	7	8	9	10	10
Painting	0	1	2	3	4	4
Maintenance, Cranes, Transportation	72	59	46	33	20	20
Cleaning & House-keeping	0	1	2	3	4	4
Miscellaneous Workers	0	0	0	0	0	0
Sales and Administrative	7	9	11	13	15	15
	0	0	0	0		
Total	421	381	344	307	270	270

Table II-5-1-9 Year-wise Projected Operating Cost of the Bangalore Foundry (At Current Prices)

Unit: Rs. Lakh

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Sales	916	846	916	977	2,838	3,488	4,200	4,986	6,412
Direct Materials	255	256	277	295	721	879	1,050	1,239	1,568
Indirect Materials	168	172	186	198	363	435	515	602	751
Offload Labour Cost	6	7	7	8	35	43	51	61	78
Value Added	487	412	446	476	1,719	2,131	2,584	3,084	4,014
Expenses	468	438	457	540	1,139	1,282	1,438	1,604	1,870
Personnel	253	229	230	226	218	239	261	286	312
Electricity & Water	99	99	108	115	238	290	347	409	521
Fuel	12	12	13	13	1	1	1	1	2
Repair & Maintenance	30	30	33	35	13	21	30	37	43
Machine Shop Rejection	5	0	0	0	0	0	0	0	0
Other Production Cost	3	3	3	4	9	11	13	15	20
Depreciation	0	0	1	70	302	302	302	301	297
Administration Expenses	66	65	69	77	152	178	206	236	287
Selling Expenses	0	0	0	0	205	240	278	319	388
Operating Profit	18	-26	-11	-64	580	849	1,146	1,480	2,144

Table II-5-1-10 List of Machinery and Equipment (Bangalore Foundry)

at 1992/93 Prices Unit=Rs Lakh

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
A. Pattern Section					
1	Latest Milling M/C	1		33.34	26.66
2	3-D Milling M/C	1	10.00		
3	Araldite Facilities (mixer&c)	1		5.56	4.44
4	Pattern Storage		20.00		
5	Inspection Gauges	1set		5.56	4.44
6	Spark Erosion M/C (for metallic pattern)	1	15.00		
7	E·O·T Crane 3^{T}	1	20.00		
	Total		65.00	44.46	35.54
	Grand total			145.00	
B. Sand Plant					
1	New sand plant				
1.1	Grid+Hopper(10^{T})	1	0.96		
1.2	Pressure Vessel with audio-visual alarm system 6^{T}/Hr	1	12.69		
1.3	Contral panel level Indicator	1	4.32		
1.4	Piping 100mm	100M	2.88		
1.5	a)Janction Boxes b)Terminal Boxes c)Bends d)Air Clearner Box	4 1 4 1	2.43		
1.6	Siles 150^{T} each with supports,access ladders,arrestems	3	14.40		

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
1.7	Sand Drier-Cum-Cooler, 6T/Hr. with Storage	1	23.20		
2	Knockout/Reclamation Plant				
2.1	Knockout(20T)	1	12.80		
2.2	Shaking Trough(with Belt Conveyor)	1	8.00		
2.3	Magnet	1			
2.4	Jaw Crushers/Lump Boeaker with Belts Conveyor	1	0.80		
2.5	Elevator	1			
2.6	Screen				
2.7	Mechanical Reclaimer 12T/Hr. Comprising of Scrubber(multicell) Cooler/Classifier	2	19.04	144.00	115.20
2.8	Pn. Pressure Vessal 9T/Hr	1			
3	Auxiliary Equipment				
3.1	Dast Exhaust System	1	16.00		
3.2	Mech.Structures/Plot-forms,Walkways etc.		8.00		
3.3	Surge Hopper(10T)	1	0.50		
3.4	Waste Hopper(20T)	1	1.50		
3.5	Pressure Vessel 6T/Hr.	1	12.69		
4	Distribution System				
4.1	Pipe Feeders+Air Lock Gates	6+6	8.32		

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
4.2	Pn.Pressure Vessels -for Reclaimed Sand 9T/Hr -for New Sand 6T/Hr	1 1	31.59		
4.3	Pipes+Bends+Dump Valves+Terminal Box etc.	400M	11.52		
4.4	Boosters	3	25.27		
4.5	Silos 150T each (Semilar to point 1.6)	4	19.20		
	Total		236.11	144.00	115.20
	Grand total			495.31	
C. Molding Line C-1. Mechanised Line					
1	Continuos Mixer program with 2sets of pumps(4NOS.) 20T/Hr	2		51.480	41.184
2	Computerised,control system	1		9.360	7.488
3	Vibrating Table 5T Cap. 2MX2.5M	1		9.360	7.488
4	Transfer Car(motorised battery operated) 5T/Mt.Cap.	5.	24.00		
5	Stripper 5T cap.	1		24.810	19.848
6	Heating Oven	2	8.64		
7	3T.Capacity Double Girder EOT Crame with hoist mounted crab	3	12.00		
8	Supply of Columms				
9	Gantry Girder for 12Mtr. Bay		0.88		
10	40mm. Sq. Bar for 12Mtr. Bay. length				

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
11	Trolleys (Electrica-ly Operated)	112	71.68		
12	Bottom Plate of Size 2MX3M	150	48.00		
	Total		165.20	95.010	76.008
	Grand total			336.22	
C-2. Hand Molding					
1	Mobile Continuous Mixer. 20^{T}/Hr. with 10^{T} cap.car.(2sets of pumps) electrical ly operated cab,drum, sand hoppers 6.8 C&M 2NOS. 2manual gate and 2pneumatic track with 2.3M			58.50	46.80
2	20^{T} EOT Crane	1	19.20		
3	10^{T} EOT Crane	1			
4	Sand Hopper Storage cap. 45^{T}	1	2,00		
	Total		21.20	58.50	46.80
	Grand total			126.50	
C-3. Small Casting					
1	Continuos Mixer 4^{T}/Hr	1		13.50	10.80
2	Vibratory Talle	1	1.00		
3	Sand Reclamation plant with Dust Exhaust system cap. 2^{T}/Hr	1		22.50	18.00
4	Shake out & Pneumatic conveying system, Sand cooler & Hoppers	1set	3.20		
5	Over for Drying painted cores & Moles		1.00		
	Total		5.20	36.00	28.80
	Grand total			70.00	

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
C-4. Core Making Line					
1	Continuous Turbo Mixer, 6^{T}/Hr, +2pomps for acid cured system +2sand S crews	2		15.60	12.48
2	Compaction Talle 100k	2	3.20		
3	Resin Storage Tanks				
4	Roller conveyor + Bends		16.00		
5	Stripper				
6	Roller Congeyor Gravity				
7	Over with dech type conveyor 500mm width speed 0.1M/min. or 0.05M/min.	7M	7.20		
8	Storage Facility with CNC System			18.00	14.40
9	3^{T} Double Girder EOT Crane with Hoist mounted crab	3	12.00		
10	Columms for 80M lengh hay				
11	Gantry Girder for 80M		8.00		
12	40mn.Sg.Bar for a Bay length of 80M				
	Total		46.40	33.60	26.88
	Grand total			106.88	

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
D. Melting Section					
1	Hoppers(10T.cap.)	8	14.40		
2	Vibrators	8	8.00		
3	Weighing Scale		4.00		
4	Metal Conveyor	10M	4.80		
5	Mobile Transfer car (Motorised)		1.92		
6	Charge Buckets	3	0.96		
7	Motorized Turn Toble	2	1.60		
8	Control Console		4.80		
9	Charge Preheater (Gas fired)			19.50	15.60
10	Monorail pouring system for Small casting	1	20.00		
11	5T. Cap. Mains Frequsency Coreless type Induction Furnace with two Electrical System & 3Crucible with switchover System	1set		83.10	66.48
12	10Tcap. MainFreguency Coreless type Induc-tion Furnace with two Crucible & Switchover System	1set		72.00	57.60
13	1.5Tcap. main Frequency Coreless Type Induction Furnace with Switchover crucible & System	1set	40.00		
14	Fume Extraction system	1set	30.00		

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
15	Ladles of defferent Cap	6	18.00		
16	15^{T} EOT Crane for Melting Bay	1	16.00		
17	5^{T} EOT Crane for Charge Bay	1	available		
	Tatal		164.48	174.60	139.68
	Grand total			478.76	
E. Fettling Section					
1	Continuous Shot Blast Machine with Dust Collector, 5^{T}	1		51.480	41.184
2	Cranetype Shot Blast Machine with Dust Collector 20^{T}	1		360.00	288.00
3	High Speed Cutting M/C		5.00		
4	Pedestal Grinders	4	2.00		
5	Tumblast	1	10.00		
6	Annealing Furnace	1	10.00		
7	Muffle Furnace	1	3.00		
8	10^{T} EOT Crane	2	Available		
	Total		30,00	411.48	329.184
	Grand total			770.66	
F. Laboratories F-1. Metal Laboratory					
1	Disc Grinder for sample preparation	1	2.00		
2	Electron Thermometer	2		0.975	0.78

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
3	Microscope - photo attachment - heating attachment	1 1 1		12.68	10.14
4	Stereo Microscope	1		2.43	1.95
5	Sample Cutting, Grinding & (Disc) Polishers		6.00		
6	C.E. Meter		3.00		
7	Imersion Thermoneter		1.00		
	Total		12.00	16.085	12.87
	Grand total			40.955	
F-2. Sand Laboratory					
1	Thermolab Dilatometer	1		25.35	20.28
2	Hot Gas Pressure Test ACCY	1		1.64	1.32
3	Hot Gas Vol. Determinator ACCY	1		0.91	0.73
4	Split Specimen Tube	1		0.28	0.22
5	Expansion Micrometer	1		0.73	0.58
6	Controlled Atmosphere ACCy	1		0.27	0.22
7	Hot Strength Deformation Recorder	1		5.90	4.72
8	Laboratory Oven	1	0.32		
9	Sinter Meter with Transformer	1		1.52	1.22
10	Sand Specific Surface Tester	1		0.91	0.73
11	Miscellaneous Items		0.40		
	Total		0.72	37.51	30.02
	Grand total			68.25	

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
G. Proof Cutting Machine Tllos					
	Proof Machining Facilities		50.0		
H. Compressors & Others					
1	Compressors	6	50.00		
2	Forklifts	2	25.00		
3	Miscellaneous includes Molding Boxes, Jigs & Fixtur -es		115.00		
	Total		190,00		

II-5-2. Foundry Factory Pinjore

A. Outline of Investment Plan

The prime purpose of the action program is to expand the production of casting products through the introduction of modern production machinery and equipment. The program is also considered to secure higher in-house procurement of casting components for tractors along with the expansion program of the Tractor Division. With the completion of this action program, Pinjore Foundry is expected to achieve 7,000 tons of output in 1995/96 and 12,000 tons in 1999/2000.

In line with that purpose, the action program, which is scheduled to be completed by 1996/1997, has been formulated. Major investment items include an automatic green sand molding line. This production line is to be introduced for the continuous rapid production of tractor components. A furan sand molding line is another major investment item, which will be introduced with a sand reclamation/recycling system. In addition,. environmental control equipment will be added such as the enclosed sand transfer and the enclosed fettling mechanism with dust control systems. net total investment amount is 493.58 million Rupees excluding contingency and price escalation costs.

B. Investment Implementation Schedule

Investment implementation schedule is summarized by year as follows:

Year	Investment Schedule
1992	Planning of furan sand system and impact mold system.
1993	Relocation of existing facilities. Installation of furan sand system and reclamation system.
1994	Operation start for the furan sand system. Installation of impact mold system and sand recycling system.
1995	Operation start for the impact molding system.
1996	Installation of 2 ton induction furnace. Relocation of non-ferrous casting facility.

C. Required Funds Estimate

The following funds are necessary for the implementation of the action program.

i) Initial fixed investment costs
ii) Incremental working capital during the project period
iii) Interest charge during the project period
iv) Contingency

Total investment amounts of each investment category are summarized in Table II-5-2-1.

1. Initial Fixed Investment

Investment in plant machinery and equipment is included in the initial fixed investment. Since these facilities would be installed in the existing building, erection of a new building is not proposed. Proposed facilities amount to 493.58 million Rupees without contingency or price escalation. Out of them, impact molding line which would be installed in 1994/95 is the largest investment item costing 193.2 million Rupees or a little less than

40 percent of the total investment amount. Table II-5-2-2 provides the details of the investment.

2. Working Capital

In 1990/91, average inventory values at Pinjore foundry were 0.35 month for materials and boughtouts, and 0.14 month for work in progress. Accounts payable in the year was 2.74 percent of the sales. The total amount of working capital, including cash and accounts receivable, is estimated at approximately 8 percent of the net total revenue in the year. This figure is considered to be relatively stable for a long period from the nature of the products. Table II-5-2-3 shows the projected flow of working capital of Pinjore Foundry through the year 2000.

Incremental working capital during the project period would be financed with short term loans as necessary.

Table II-5-2-3 Flow of Working Capital
(100 thousand Rupees at current prices)

	1990/91	1995/96	1999/2000
Net Sales Revenue	910	3,023	6,431
Turnover Ratio	12.7	12.5	12.5
Working Capital	73	242	514

Table II-5-2-1 Investment Schedule by Year

(Rs. Lakh)

Facilities	1992 ~1993	1993 ~1994	1994 ~1995	1995 ~1996	1996 ~1997	1997 ~1998	1998 ~1999	1999 ~2000	SUB-TOTAL
FURAN MOLD, SAND RECLAMAT/RE-CONDIT.		798.00							798.00
PATTERN STORAGE		7.00							7.00
FOUNDRY SUB-STORE		14.00							14.00
CRANE, SHOT BLASTER, MONORAIL TYPE SHOT BLASTER		331.20	100.00						431.20
CRANE, COMPRESSOR, OTHERS		494.60							494.60
IMPACT MOLD LINE			1,932.00						1,932.00
GREEN SAND SYSTEM			840.00						840.00
OTHER MACHINERY			200.00						200.00
2-TON FURNACE (2 SETS)			60.00		60.00				120.00
5-TON CRANE					26.00				26.00
RE-LOCATE THE EXIST. FACILITY					12.00				12.00
RAW MATERIAL STORAGE, ETC.					61.00				61.00
TOTAL		1,644.80	3,132.00		159.00				4,935.80

Table II-5-2-2 List of Equipment

(Rs.-Lakh)

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
1	Molding Line G·F System as per the CAD-590-104-827 with automatic impact molding machine incluting Box pize (1200X800X350/350)	1set		1060.00	848.00
2	Main eguipment for 80^{T}/H sand plant			300.00	240.00
3	Other parts for sand plant		300.00		
4	Civil work for molding line		24.00		
5	Pouring monorail		5.00		
6	Extra set molding Boxer		20.00		
7	Furan Equipment as per Drawing No. TCS-0101 Z			410.00	328.00
8	Shell core making machine	1	100.00		
9	Civil works etc for above		20.00		
10	Pattern modification for furan and green sand		20.00		
11	Moulding Boxes for Furen		20.00		
12	Compressor for the above	4	24.00		
13	5^{T} EOT Crane	1	15.00		
14	10^{T} EOT Crane	1	18.00		
15	Jib Crane	1	5.00		
16	Dust Colectors	1	10.00		

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
17	Pattern storage with stacking system 15X15㎡		7.00		
18	Storage Bukiding for foundry Raw material 30X15㎡		14.00		
19	Fettling Shop Shot blasting machine Hanger Type with dust collector 5T			184.00	147.20
20	Monorail type chamber shot blasting machine, 1T	1	100.00		
21	Laboratory Equipment for sand checking, grain size, compressive, strength, Loss on Igintion, etc	1set		25.00	20.00
22	D·G set 1500KVA	1		108.00	86.40
23	Pollution Control Equipment		100.00		
24	Melting Raw moterial storage		5.00		
25	Spectrometer	1		74.00	59.20
26	Melting charging mechanism	1set	20.00		
27	2T Medium frequency induction furnace to replace main frequency 1.5T furnoce	1	60.00		
28	2T Medium frequency induction furnace	1	60.00		
29	5T EOT crane in melting bay & moulding bay	2	26.00		
30	Relocation of Non ferrows foundry		12.00		

No.	Item, Spec.	No.	Domestic	Foreign	Tariff
31	Additional Raw material storage area for melting		5.00		
32	Mechanization of charging		20.00		
33	Pin lift molding machines for light molding	2	15.00		
34	Raw material storogs Building 225 sq·m		6.00		
35	Other Contingencies		15.00		
	total		1,046.00	2,161.00	1,728.80
	grand total			4,935.80	

D. Fund Raising Plan

1. Sources and Conditions of Borrowing

Principally the project may be financed by borrowing. For foreign currency long term loans, borrowing from the World Bank is assumed. For domestic currency long term loans, borrowing from domestic financial institutions is assumed. However, retained earnings would be used before the term loans so that the cost of capital may be minimized. Other assumptions for the estimation are as follows:

i) Interest charge during the project period
The interest charges of the foreign currency long term loans during the project period would be financed by long term borrowing according to requirements.

ii) Contingency costs
As contingency costs, 10 percent of the invested amounts are added.

iii) Price escalation costs
Incremental costs brought by inflation of the investment costs during the investment period are added as price escalation costs.

2. Estimated Funds Requirement and Sources of Financing

Taking contingency and price escalation into consideration, estimated funds requirement and sources of financing are determined. Total funds required for the project are summarized in Table II-5-2-4.

Table II-5-2-4 Required Funds Estimate
(100 thousand Rupee)

	Total Amount	Indigenous	Foreign
Machinery & Equipment	4,936	2,775	2,161
Contingencies	494	278	216
Price Escalations	536	431	105
Total Fixed Investment	5,966	3,484	2,482
Incre. Working Capital	293	293	0
Interest Charges	2,531	1,075	1,456
Total Required Funds	8,790	4,852	3,938

Note: Incremental working capital in the above table includes those between 1992/93 and 1996/97.

Table II-5-2-5 gives annual requirement of the funds in step 1.

Table II-5-2-5 Annual Fund Requirement
(100 thousand Rupee at current prices)

	93/94	94/95	95/96	96/97
Capital Inv.	1,903	3,834	0	229
Indigenous	(1,005)	(2,250)	(0)	(229)
Foreign	(898)	(1,584)	(0)	(0)
Increase in Working Capital	9	20	103	84
Interest	173	593	871	894
Indigenous	(44)	(237)	(391)	(403)
Foreign	(129)	(356)	(480)	(491)
Total Funds	2,085	4,447	974	1,207
Indigenous	(1,058)	(2,507)	(494)	(716)
Foreign	(1,027)	(1,940)	(480)	(491)

E. Sales Revenue and Production Costs Estimate

1. Sales Revenues

Table II-5-2-6 shows the production forecast of Pinjore Foundry through the year 2000. The flow of the unit prices are provided in Table II-5-2-7. The resulting sales revenues are shown in Table II-5-2-8. The approximate average price of casting products internally sold to the Tractor Division is 27 to 28 Rupees per kilogram in 1990/91. The projected unit selling price for automotive castings is 32.55 Rupees per kilogram. The difference between the two prices stems from the quality of the products. With the new facilities proposed in the investment program, the accuracy of casting products can be improved considerably that customers may use the products without rough shaping, which could brought them substantial cost saving.

2. Production Costs

Table II-5-2-9 shows the flow of production costs of Pinjore foundry excluding interests. Three largest cost items for production of castings are materials, utilities such as electricity and fuel, and personnel expenses besides depreciation. Among them material costs are largest, and the percentage share over the total production costs would gradually increase from 54 percent in 1991/92 to 62 percent in 1999/2000. On the other hand, personnel expenses would decline to 5.1 percent in 1999/2000 after reaches the peak in 1994/95. The costs of utilities would be relatively stable through 2000. The average production costs per ton is estimated at 28,602 Rupees in 1991/92. It would go up to 33,300 Rupees in 1995/96 because of a large amount of depreciation. Thereafter, as the production volume increases the unit production costs decline gradually, and would reach 28,250 Rupees in 1999/2000.

The manpower schedule and flow of personnel costs are shown in Table II-5-2-10. As for the other cost items, it is assumed that the percentage ratios relative to total production costs would remain roughly the same in the future as they were in the past.

Table II-5-2-6 Projected Production Schedule

HMT-MTP FOUNDRY PROJECT
PROJECTED PRODUCTION SCHEDULE
(Weight in MTs)

	(actual) 90/91	(prelim) 91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
MACHINE TOOL CASTINGS										
-Hand Mouldings	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,400
-Mechanized Mouldings	1,000	1,100	1,100	1,100	1,450	1,450	1,450	1,450	1,550	1,800
AUTOMOBILE CASTINGS	1,100	1,320	1,320	1,320	1,320	4,250	6,250	7,250	8,150	9,000
GENERAL ENGINEERING										
T O T A L	3,400	3,720	3,720	3,720	4,070	7,000	9,000	10,000	11,000	12,000

Table II-5-2-7 Projected Selling Prices

HMT-MTP FOUNDRY PROJECT
PROJECTED SELLING PRICES
(Rupees/kg at constant prices)

	(prelim) 92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
MACHINE TOOL CASTINGS								
-Hand Mouldings	39.06	39.06	39.06	39.06	39.06	39.06	39.06	39.06
-Mechanized Mouldings	39.06	39.06	39.06	39.06	39.06	39.06	39.06	39.06
AUTOMOBILE CASTINGS	32.55	32.55	32.55	32.55	32.55	32.55	32.55	32.55
GENERAL ENGINEERING								

Table II-5-2-8 Projected Sales Revenues

HMT-MTP FOUNDRY PROJECT
PROJECTED SALES REVENUES
(Rs. in 100 thousand at constant prices)

	(actual) 90/91	(prelim) 91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
MACHINE TOOL CASTINGS										
-Hand Mouldings	351	391	508	508	508	508	508	508	508	547
-Mechanized Mouldings	273	333	430	430	566	566	566	566	605	625
AUTOMOBILE CASTINGS	286	396	430	430	430	1,383	2,034	2,360	2,653	2,930
GENERAL ENGINEERING	0	0	0	0	0	0	0	0	0	0
T O T A L	910	1,120	1,367	1,367	1,504	2,458	3,109	3,434	3,766	4,101

Table II-5-2-9 Flow of Production Costs
(100 thousand Rupees at constant prices)

Cost Items	1991/92	1995/96	1999/2000
Direct Materials	570	1,250	2,086
Indirect Materials	52	67	53
Power, Fuel, etc.	181	370	634
Repairs	3	3	3
Depreciation	32	371	376
Other Expenses	14	27	44
Sub-Total	852	2,088	3,196
Personnel Expenses	202	231	173
Selling Expenses	10	12	21
Grand Total	1,064	2,331	3,390
Annual Prod. (tons)	3,720	7,000	12,000
Cost per ton (Rs./ton)	28,602	33,300	28,250

Table II-5-2-10 Manpower Schedule

HMT-MTP FOUNDRY PROJECT
MANPOWER SCHEDULE
(number of workers)

	(actual) 90/91	(prelim) 91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
Direct	121	138	140	158	208	198	183	161	141	121
Indirect	190	188	191	195	154	145	136	130	121	108
Administration	43	43	45	45	45	45	44	42	41	40
Pattern Shop	45	45	43	42	40	39	38	37	36	35
Repaire & Maint.	35	35	40	45	47	47	48	49	50	50
Total Manpower	434	449	459	485	494	474	449	419	389	354
Total Cost (Rs. Lakh)	172	202	225	237	240	231	219	204	189	173

III. FINANCIAL AND ECONOMIC ANALYSIS

The rate of return analysis has been prepared by comparing "with project" and "without project" cost and revenue streams for each project. The rates of return have been calculated at constant 1992/93 prices.

The "without project" case is essentially a projection of the current operations in 1992/93.

The following assumptions are made for economic evaluation.

(1) Selling prices of all products have been adjusted to international prices of equivalent products for both domestic sales and exports.

(2) The financial costs have been converted to economic costs by the following adjustments:
- Netting out duties and other domestic transfers;
- Expressing the import contents at CIF prices;
- For all domestic costs except for materials and personnel expenses, a standard conversion factor of 0.8 has been applied.

III-1. Bangalore Machine Tool Factory (MTB)

Financial and economic analysis has been made for the strategic investment project (Step 1 and 2) while the financial data of the total investment plan (Step 1 to 3) are also indicated for reference. The reason the strategic investment project has been selected for the evaluation is indicated in Chapter II:Investment Plan.

A. Financial Analysis

1. Financial Projections

Tables III-1-2 to 8 show projected income statement, cash budget, and balance sheet for MTB at current

Table Ⅲ-1-1 Projected Income Statement of MTB
-Strategic Investment Project
(At Constant Prices 1992/93)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Sales	7,855	8,535	9,476	11,455	12,374	12,636	12,920	14,040
Domestic Sales	7,266	7,494	8,285	10,193	11,560	11,573	11,842	12,961
Exports	589	1,040	1,191	1,262	814	1,063	1,078	1,078
Shop Manufacturing	20	20	20	20	20	20	20	20
Sales Value of Production	7,875	8,555	9,496	11,475	12,394	12,656	12,940	14,060
Materials	3,742	4,194	4,944	5,888	6,790	6,921	6,891	7,480
Value Added	4,133	4,360	4,552	5,587	5,604	5,735	6,049	6,580
Expenses	3,508	3,472	3,610	3,782	3,946	4,046	4,350	4,222
Personnel	2,284	2,160	2,064	1,953	2,046	2,051	2,268	2,381
Other Expenses	1,278	1,295	1,342	1,441	1,487	1,500	1,514	1,570
Fixed Cost	758	758	758	758	758	758	758	758
Variable Cost	520	537	584	683	729	742	756	812
Micellaneous	25	25	25	25	25	25	25	25
Depreciation & Amortization	220	292	479	663	687	770	843	546
(Less) Other Income	300	300	300	300	300	300	300	300
Operating Profit	625	889	942	1,806	1,659	1,688	1,699	2,358
Non-Operating Expenses	258	370	526	610	616	615	587	519
Non-Operating Revenu	16	12	13	76	134	192	339	521
Before-Tax Profit/Loss	383	531	429	1,271	1,177	1,266	1,451	2,360

Table Ⅲ-1-2 Projected Income Statement of MTB
-Strategic Investment Project
(at Current Prices)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Sales	7,855	9,243	10,940	14,084	16,203	17,572	19,081	22,020
Domestic Sales	7,266	8,116	9,565	12,533	15,138	16,094	17,488	20,329
Exports	589	1,126	1,375	1,552	1,066	1,478	1,593	1,692
Shop Manufacturing	20	20	20	20	20	20	20	20
Sales Value of Production	7,875	9,263	10,960	14,104	16,223	17,592	19,101	22,040
Materials	3,742	4,542	5,707	7,239	8,891	9,624	10,178	11,731
Value Added	4,133	4,721	5,252	6,865	7,332	7,967	8,923	10,309
Expenses	3,508	3,750	4,124	4,552	5,026	5,426	6,154	6,457
Personnel	2,284	2,339	2,383	2,401	2,680	2,852	3,349	3,734
Other Expenses	1,278	1,394	1,533	1,747	1,913	2,043	2,184	2,401
Fixed Cost	758	821	876	932	993	1,055	1,120	1,190
Variable Cost	520	572	657	814	920	989	1,064	1,211
Micellaneous	25	25	25	25	25	25	25	25
Depreciation & Amortization	220	292	483	679	708	806	896	597
(Less) Other Income	300	300	300	300	300	300	300	300
Operating Profit	625	971	1,128	2,313	2,307	2,541	2,770	3,852
Non-operating Expenses	666	946	1,116	1,166	1,129	1,106	930	743
Non-operating Revenue	16	13	9	9	18	64	131	250
Before-Tax Profit/Loss	-25	38	22	1,156	1,196	1,499	1,971	3,359

Table Ⅲ-1-3 Projected Income Statement of MTB
-Total Investment
(at Constant Prices 1992/93)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Sales	7,855	8,535	9,476	11,455	12,374	12,636	13,766	15,732
Domestic Sales	7,266	7,494	8,285	10,193	11,560	11,573	12,688	14,654
Exports	589	1,040	1,191	1,262	814	1,063	1,078	1,078
Shop Manufacturing	20	20	20	20	20	20	20	20
Sales Value of Production	7,875	8,555	9,496	11,475	12,394	12,656	13,786	15,752
Materials	3,742	4,194	4,944	5,888	6,790	6,921	7,449	8,594
Value Added	4,133	4,360	4,552	5,587	5,604	5,735	6,338	7,158
Expenses	3,508	3,472	3,610	3,782	3,946	4,046	4,392	4,587
Personnel	2,284	2,160	2,064	1,953	2,046	2,051	2,268	2,381
Other Expenses	1,278	1,295	1,342	1,441	1,487	1,500	1,557	1,655
Fixed Cost	758	758	758	758	758	758	758	758
Variable Cost	520	537	584	683	729	742	798	897
Micellaneous	25	25	25	25	25	25	25	25
Depreciation & Amortization	220	292	479	663	687	770	843	826
(Less) Other Income	300	300	300	300	300	300	300	300
Operating Profit	625	889	942	1,806	1,659	1,688	1,945	2,571
Non-operating Expenses	334	453	613	692	675	636	811	1,126
Non-operating Revenue	16	12	8	43	84	113	188	285
Before-Tax Profit/Loss	308	448	338	1,157	1,067	1,165	1,323	1,729

Table Ⅲ-1-4 Projected Income Statement of MTB
-Total Investment
(at Current Prices)

Unit: Rs. Lakh

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Sales	7,855	9,243	10,940	14,084	16,203	17,572	20,331	24,675
Domestic Sales	7,266	8,116	9,565	12,533	15,138	16,094	18,738	22,983
Exports	589	1,126	1,375	1,552	1,066	1,478	1,593	1,692
Shop Manufacturing	20	20	20	20	20	20	20	20
Sales Value of Production	7,875	9,263	10,960	14,104	16,223	17,592	20,351	24,695
Materials	3,742	4,542	5,707	7,239	8,891	9,624	11,001	13,479
Value Added	4,133	4,721	5,252	6,865	7,332	7,967	9,350	11,215
Expenses	3,508	3,750	4,124	4,552	5,026	5,426	6,216	6,941
Personnel	2,284	2,339	2,383	2,401	2,680	2,852	3,349	3,734
Other Expenses	1,278	1,394	1,533	1,747	1,913	2,043	2,247	2,533
Fixed Cost	758	821	876	932	993	1,055	1,120	1,190
Variable Cost	520	572	657	814	920	989	1,127	1,344
Micellaneous	25	25	25	25	25	25	25	25
Depreciation & Amortization	220	292	483	679	708	806	896	948
(Less) Other Income	300	300	300	300	300	300	300	300
Operating Profit	625	971	1,128	2,313	2,307	2,541	3,134	4,275
Non-operating Expenses	666	946	1,116	1,166	1,129	1,106	1,281	1,799
Non-operating Revenue	16	13	9	9	18	64	118	196
Before-Tax Profit/Loss	-25	38	22	1,156	1,196	1,499	1,972	2,672
Corporate Tax	0	0	0	0	0	0	0	0
After-Tax Profit/Loss	-25	38	22	1,156	1,196	1,499	1,972	2,672

Table Ⅲ-1-5 Projected Funds Flow Statement -MTB
-Strategic Investment Project (At Current Prices)

Unit: Rs. Lahk

		1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Cash Balance at the Beginning		75	75	75	75	75	75	75	75
Revenue		7,875	9,263	10,960	14,104	16,223	17,592	19,101	22,040
Expenses		7,250	8,292	9,832	11,791	13,917	15,051	16,331	18,188
Operating Profit		625	971	1,128	2,313	2,307	2,541	2,770	3,852
Corporate Tax Payment		0	0	0	0	0	0	0	0
Working Capital at the Beginning		4,120	4,249	4,624	5,082	5,931	6,503	6,872	7,280
Working Captial at the End		4,249	4,624	5,082	5,931	6,503	6,872	7,280	8,073
Net Change in Working Capital		129	375	458	849	572	369	408	794
Capital Investment		1,054	1,938	1,736	400	936	800	0	0
Depreciation Expense		220	292	483	679	708	806	896	597
Net Fixed Investment		834	1,646	1,253	-279	229	-7	-896	-597
Cash Surplus (Deficit)		-263	-975	-508	1,819	1,581	2,253	3,333	3,730
Foreign Currency Borrowing	Borrowing	383	1,181	1,252	145	508	464	0	0
	Repayment				43	174	313	329	385
25.00%	Interest Payment	44	217	369	449	505	545	498	449
	Balance at the End	383	1,563	2,815	2,918	3,252	3,403	3,074	2,689
	Net Receipt	339	964	883	-347	-171	-394	-827	-834
Domestic Currency Borrowing	Borrowing	687	770	493	264	436	336	0	0
(Long-term)	Repayment				76	162	217	246	295
19.50%	Interest Payment	55	170	242	288	320	340	332	294
	Balance at the End	687	1,458	1,951	2,138	2,413	2,532	2,286	1,991
(Short-term)	Borrowing	1,603	1,647	1,600	734				
	Repayment	1,669	1,603	1,647	1,600	734	0	0	0
21.25%	Interest Payment	290	285	257	184	58	-0	-0	-0
	Balance at the End	1,603	1,647	1,600	734	-0	-0	-0	-0
HQ Account (Loan)	Borrowing								
	Repayment						263	1,297	
20.00%	Interest Payment	277	274	247	246	246	221	100	0
	Balance at the End	1,560	1,560	1,560	1,560	1,560	1,297	0	0
	Net Receipt	-1	86	-300	-1,397	-1,083	-705	-1,975	-589
Borrowing Cashflow		338	1,050	583	-1,744	-1,254	-1,099	-2,802	-1,423
Deposit	Deposit	0				263	1,407	1,885	2,482
(Interest Rate)	Drawing	0	0	0	0	0	263	1,297	
10.00%	Interest Receipt	0	0	0	0	10	64	131	250
	Balance at the End	0	0	0	0	263	1,407	1,994	4,476
Deposit Cashflow		0	0	0	0	-252	-1,080	-456	-2,232
Cashflow from Financing		338	1,050	583	-1,744	-1,506	-2,178	-3,258	-3,655
Cash Balance at the End		75	75	75	75	75	75	75	75

Table Ⅲ-1-6 Projected Funds Flow Statement -MTB
-Total Investment (At Current Prices)

Unit: Rs. Lahk

		1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Cash Balance at the Beginning		75	75	75	75	75	75	75	75
Revenue		7,875	9,263	10,960	14,104	16,223	17,592	20,351	24,695
Expenses		7,250	8,292	9,832	11,791	13,917	15,051	17,217	20,420
Operating Profit		625	971	1,128	2,313	2,307	2,541	3,134	4,275
Corporate Tax Payment		0	0	0	0	0	0	0	0
Working Capital at the Beginning		4,120	4,249	4,624	5,082	5,931	6,503	6,872	7,617
Working Captial at the End		4,249	4,624	5,082	5,931	6,503	6,872	7,617	8,790
Net Change in Working Capital		129	375	458	849	572	369	745	1,173
Capital Investment		1,054	1,938	1,736	400	936	800	4,705	4,845
Depreciation Expense		220	292	483	679	708	806	896	948
Net Fixed Investment		834	1,646	1,253	-279	229	-7	3,810	3,897
Cash Surplus (Deficit)		-263	-975	-508	1,819	1,581	2,253	-1,346	-720
Foreign Currency Borrowing	Borrowing	383	1,181	1,252	145	508	464	3,396	1,442
	Repayment				43	174	313	329	385
	Interest Payment	44	217	369	449	505	545	759	1,090
	Balance at the End	383	1,563	2,815	2,918	3,252	3,403	6,470	7,527
	Net Receipt	339	964	883	-347	-171	-394	2,308	-33
Domestic Currency Borrowing	Borrowing	687	770	493	264	436	336	1,310	3,403
(Long-term)	Repayment				76	162	217	246	295
	Interest Payment	55	170	242	288	320	340	422	709
	Balance at the End	687	1,458	1,951	2,138	2,413	2,532	3,595	6,704
(Short-term)	Borrowing	1,603	1,647	1,600	734				
	Repayment	1,669	1,603	1,647	1,600	734	0	0	0
	Interest Payment	290	285	257	184	58	-0	-0	-0
	Balance at the End	1,603	1,647	1,600	734	-0	-0	-0	-0
HQ Account (Loan)	Borrowing								
	Repayment						263	1,297	
	Interest Payment	277	274	247	246	246	221	100	0
	Balance at the End	1,560	1,560	1,560	1,560	1,560	1,297	0	0
	Net Receipt	-1	86	-300	-1,397	-1,083	-705	-756	2,399
Borrowing Cashflow		338	1,050	583	-1,744	-1,254	-1,099	1,552	2,366
Deposit	Deposit	0				263	1,407	1,547	1,767
	Drawing	0	0	0	0	0	263	1,297	
	Interest Receipt	0	0	0	0	10	64	118	196
	Balance at the End	0	0	0	0	263	1,407	1,657	3,424
Deposit Cashflow		0	0	0	0	-252	-1,080	-132	-1,571
Cashflow from Financing		338	1,050	583	-1,744	-1,506	-2,178	1,421	795
Cash Balance at the End		75	75	75	75	75	75	75	75

Table Ⅲ－1－7 Projected Balance Sheet of MTB
－Strategic Investment Project
(At Current Prices)

Unit: Rs. Lakh

(Unit : Rs Lakhs.)

Items	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Materials	1,178	1,386	1,641	2,113	2,430	2,636	2,862	3,303
Matl-in-Transit	400	400	400	400	400	400	400	400
Work-in-Progress	945	945	945	945	945	945	945	945
Stock-in-Trade	708	708	708	708	708	708	708	708
Total Inventories	3,231	3,439	3,694	4,166	4,483	4,689	4,915	5,356
Debtors	707	832	985	1,268	1,458	1,581	1,717	1,982
Loans & Advances	1,021	1,202	1,422	1,831	2,106	2,284	2,481	2,863
Other Current Assets	314	370	438	563	648	703	763	881
Cash & Bank Balance	75	75	75	75	75	75	75	75
Inter-Unit Accounts	1,021	1,202	1,422	1,831	2,106	2,284	2,481	2,863
Total Current Assets	6,370	7,119	8,035	9,733	10,878	11,617	12,432	14,019
Creditors	393	462	547	704	810	879	954	1,101
Advances Received	471	555	656	845	972	1,054	1,145	1,321
Other Current Liab.	393	462	547	704	810	879	954	1,101
Provisions	236	277	328	423	486	527	572	661
Inter-Unit Accounts	628	739	875	1,127	1,296	1,406	1,526	1,762
Total Current Liabilities	2,121	2,496	2,954	3,803	4,375	4,744	5,152	5,945
Working Capital	4,249	4,624	5,082	5,931	6,503	6,872	7,280	8,073
Fixed Asset (Net)	2,398	3,598	4,359	4,288	4,472	4,455	3,882	3,515
Deferred Expenditures	6	464	965	765	818	828	506	276
Deposit	0	0	0	0	263	1,407	1,994	4,476
Total Capital Employed	6,652	8,686	10,406	10,984	12,055	13,562	13,661	16,341
Sources								
H.O. Account	4,394	4,394	4,394	4,394	4,394	4,131	2,834	2,834
Profit	-1,108	-1,069	-1,048	108	1,304	2,804	4,775	8,134
Sub./Cap. Res.	61	61	61	61	61	61	61	61
Def./Buyers Cr.								
Cash Credit	1,603	1,647	1,600	734	-0	-0	-0	-0
Term Loan (Foreign)	383	1,563	2,815	2,918	3,252	3,403	3,074	2,689
Term Loan (Domestic)	687	1,458	1,951	2,138	2,413	2,532	2,286	1,991
Others-Pkg. Cr.	589	589	589	589	589	589	589	589
Veh. Loan Adv.	43	43	43	43	43	43	43	43
Total	6,652	8,686	10,406	10,985	12,056	13,563	13,662	16,341