

(c) Expected Financial Results

Table VI-31. Dairy Machinery Unit - Summary of Financial Results
(Unit:Rs. million)

	1990/91	1996/97	1999/2000
1. Sales Value of Production	35	111	249
2. Materials	17	54	122
3. Value-Added	18	56	127
4. Personnel Expenses	7	17	20
5. Depreciation	3	12	14
6. Other Expenses	8	22	50
7. Operating Profit/Loss	-	6	44
8. Interest	4	41	56
9. Non-Operating Expenses/Revenue	-3	-3	-3
10. Profit before Tax	-	-30	-7
Number of Employees	151	197	180
Production/Employee (Rs. thousand)	232	563	1,383
Profit/Sales (%)	-0.3	-27.0	-2.8

7. Modernization and Expansion of the Bearing Factory

(a) Objectives

The major objectives of the investment project are as follows:

- 1) To modernize the equipment of the existing factory with the aim of expanding the production capacity, and reducing cycle times, inventory costs and the number of workers;
- 2) To establish new modernized production lines in order to penetrate into the field of small-size ball bearings; and
- 3) To diversify into the production of a variety of small-batch production items, such as higher-size cylindrical roller bearings; single, two and four row tapered roller bearings; tractor motor bearings; spherical roller bearings; slowing rims, etc.

(b) Investment Costs

Table VI-32. Bearings - Summary of Investment Costs
(Unit:Rs.million)

	Domestic	Foreign	Total
1. Land & Building	64.9		64.9
2. Plant & Equipment	567.0	1,400.0	1,967.0
3. Technology Acquisition		90.0	90.0
4. Initial Training		10.0	10.0
Base Cost Estimate	631.9	1,500.0	2,131.9
5. Physical Contingency	63.2	150.0	213.2
6. Price Escalation	202.8	242.3	445.1
Total Investment Costs	897.9	1,892.3	2,790.2

(c) Expected Financial Results

Table VI-33. Bearings - Summary of Financial Results

(Unit:Rs. million)

	1990/91	1996/97	1999/2000
1. Sales Value of Production	305	1,539	3,320
2. Materials	140	708	1,527
3. Value-Added	164	831	1,793
4. Personnel Expenses	57	107	143
5. Depreciation	7	104	175
6. Other Expenses	73	369	796
7. Operating Profit/Loss	27	251	679
8. Interest	21	386	629
9. Non-Operating Expenses/Revenue	-10	-10	-10
10. Profit before Tax	16	-125	60
Number of Employees	917	970	970
Production/Employee (Rs. thousand)	333	1,587	3,423
Profit/Sales (%)	5.2	-8.1	1.8

8. Expansion of the Ball Screw Section

(a) Objective

In order to meet the growing demand, the production capacity of the Ball Screw Section in MTB would be increased from the current about 500 pieces to 5,500 pieces per annum.

(b) Investment Costs

Table VI-34. Ball Screws - Summary of Investment Costs
(Unit:Rs.million)

	Domestic	Foreign	Total
1. Land & Building	6.0		6.0
2. Plant & Equipment	32.6	67.5	100.1
Base Cost Estimate	38.6	67.5	106.1
3. Physical Contingency	3.9	6.8	10.6
4. Price Escalation	5.0	5.0	9.9
Total Investment Costs	47.5	79.1	126.6

(c) Expected Financial Results

Table VI-34 Ball Screws - Summary of Financial Results

(Unit:Rs. million)

	1991/92	1996/97	1999/2000
1. Sales Value of Production	15	80	109
2. Materials	1	7	9
3. Value-Added	14	73	100
4. Personnel Expenses	2	8	11
5. Depreciation	4	14	11
6. Other Expenses	5	9	12
7. Operating Profit/Loss	3	42	66
8. Interest	18	48	31
9. Non-Operating Expenses/Revenue	0	0	0
10. Profit before Tax	-15	-5	35
Number of Employees	24	84	84
Production/Employee (Rs. thousand)	604	949	1,299
Profit/Sales (%)	-101.4	-6.3	32.1

9. Diversification Projects for New Areas

(a) Background and Objectives

In order for HMT to keep growing, very aggressive policies should be taken for the diversification into new areas. From its existing internal resources, HMT has a vast potential to penetrate into a vast range of new areas, especially in the field of industrial machinery. Some examples of these areas are listed as follows.

- Food processing machines
drying, freezing, pulverizing, mixing, packing, sterilizing equipment, etc.
- Factory Automation (FA) related machinery
unattended vehicles, CNC storage, material handling equipment, etc.
- Office Automation (OA) related equipment
copying machines, facsimiles, printers, etc.
- Specialized printing machines
web offset printing machines, form printing machines, desk top publishing equipment, etc.
- Construction machinery and equipment
- Textile and apparel machinery
CNC cutting or sewing machines

For the purpose of financial projections, an assumptive project was posited and its investment costs and financial results were projected.

The objectives of the assumed project are as follows.

- 1) To construct a new factory to assemble 120,000 sets of copying machines per annum, mainly for export to the overseas market; and
- 2) To construct a new factory to assemble 120,000 sets of facsimiles per annum, also mainly for export to the overseas market.

(b) Investment Costs

Table VI-36. New Areas - Summary of Investment Costs

(Unit:Rs.million)

	Copying Machines	Facsimiles	Total
1. Land & Building	41.1	41.2	82.3
2. Plant & Equipment	593.6	215.1	808.7
3. Technology Acquisition	75.0	45.0	120.0
4. Initial Training	8.0	6.4	14.4
Base Cost Estimate	717.7	307.7	1,025.4
5. Physical Contingency	71.8	30.8	102.5
6. Price Escalation	106.5	53.3	159.8
Total Investment Costs	896.0	391.8	1,287.7
of which			
Local Currency	363.3	226.8	590.0
Foreign Exchange	532.7	165.0	697.7

(c) Expected Financial Results

Table VI-37. New Areas - Summary of Financial Results

(Unit:Rs. million)

	1991/92	1996/97	1999/2000
1. Sales Value of Production	0	2,013	4,823
2. Materials	0	1,651	3,955
3. Value-Added	0	362	868
4. Personnel Expenses	0	44	59
5. Depreciation	0	95	103
6. Other Expenses	0	60	145
7. Operating Profit/Loss	0	163	561
8. Interest	0	356	320
9. Non-Operating Expenses/Revenue	0	0	0
10. Profit before Tax	0	-194	242
Number of Employees	0	420	420
Production/Employee (Rs. thousand)	0	4,793	11,483
Profit/Sales (%)	0	-9.6	5.0

VII. FINANCIAL AND ECONOMIC EVALUATION OF THE PROPOSED STRATEGIC INVESTMENT PROJECTS

A. MAJOR ASSUMPTIONS FOR EVALUATION

1. Assumptions for Financial Evaluation

The basic assumptions posed for both the financial projections and economic evaluation are as follows:

- a) The investment costs were estimated setting the prices of FY1991 as the base year prices.
- b) A 10% margin for physical contingencies was added to the base cost estimation taking into consideration the expected increases in the base cost estimates due to changes in quantities and methods of implementation.
- c) The following price escalation rates were used for both the cost and income streams:

	<u>Domestic Prices</u>	<u>International Prices</u>
1992/93	(8.5%)	(1.8%)
1993/94	8.3%	1.9%
1994/95	6.6%	3.9%
1995/96	6.5%	4.9%
1996/97	6.5%	4.2%
1997/98	6.2%	3.6%
1998/99	6.2%	4.6%
1999/200	6.2%	4.4%

- d) The project life is estimated to be 15 years after the completion of the investment which is forecast to be finalized by 1996/97.
- e) The depreciation is usually 25 years for buildings, 15 years for machinery and 5 years for capitalized deferred expenditures, and depreciated by the straight line method. The residual values are taken into consideration only for those assets having a longer depreciation period than the project life.

f) The lending terms applied for external borrowing are as follows:

Repayment terms;

Term Loans (Foreign currency)

- Repayment in 9 years after a grace period of 3 years

Term Loans (Domestic currency)

- Repayment in 9 years after a grace period of 3 years

Short-Term Loans for working capital

- Repayment within one year

Interest rates;

(Unit : percent/year)

	Term-loans Domestic	Short-term Domestic	Term-loans Foreign
1992/93	16.07	17.75	22.77
1993/94	15.87	17.55	22.27
1994/95	14.17	15.85	16.87
1995/96	14.07	15.75	15.67
1996/97	14.07	15.75	16.37
1997/98	13.77	15.45	16.37
1998/99	13.77	15.45	15.37
99/2000-	13.77	15.45	15.57

2. Assumptions for Economic Evaluation

In addition to the assumptions posed for the financial evaluation, the following major assumptions were applied for the economic evaluation.

a) Selling prices of all products have been adjusted to international prices of equivalent products for both domestic and export sales.

b) The financial costs were converted into economic costs by the following adjustments:

- Netting out duties and other domestic transfers;
- Expressing the import contents at CIF prices; and
- For all domestic costs except for materials and components and personnel expenses, a standard shadow pricing factor of 0.8 was applied.

B. RESULTS OF ECONOMIC AND FINANCIAL EVALUATION

The results of the economic and financial evaluation for the factory modernization projects are summarized and shown in Table VII-1.

Table VII-1. Summary of Evaluation Results

Project	FIRR	EIRR
Machine Tool Factory, Bangalore	25.1%	45.8%
(including future expansion)	(21.1%)	(43.0%)
Press Factory, Hyderabad	10.2%	25.0%
(including future expansion)	(13.3%)	(24.0%)
Tractor Factory, Pinjore	21.6%	45.3%
Printing Machinery Factory, Kalamassery	18.7%	33.7%
Foundry Plant		
- Bangalore	22.1%	40.2%
- Pinjore	9.4%	28.7%

The evaluation results have been tested based on the following different assumptions for both financial and economic cost and benefit flows.

- 1) Unit sales price of products : 5% up
- 2) Unit sales price of products : 5% down
- 3) Initial investment costs : 10% up
- 4) Initial investment costs : 10% down
- 5) Production costs of products : 5% up
- 6) Production costs of products : 5% down

The results of the sensitivity tests are summarized and shown in Table VII-2 through Table VII-7.

Table VII-2. Results of Sensitivity Tests - MTB

Conditions	FIRR	EIRR
Base Case	25.1%	45.8%
Unit sales price of products : 5% up	28.8%	49.9%
Unit sales price of products : 5% down	21.3%	41.5%
Initial investment costs : 10% up	23.0%	42.1%
Initial investment costs : 10% down	27.6%	50.2%
Production costs of products : 5% up	22.5%	43.6%
Production costs of products : 5% down	27.7%	47.9%

Table VII-3. Results of Sensitivity Tests - PRH

Conditions	FIRR	EIRR
Base Case	10.2%	25.0%
Unit sales price of products : 5% up	12.5%	27.1%
Unit sales price of products : 5% down	7.6%	22.8%
Initial investment costs : 10% up	8.9%	23.0%
Initial investment costs : 10% down	11.6%	27.3%
Production costs of products : 5% up	8.3%	23.9%
Production costs of products : 5% down	11.9%	26.0%

Table VII-4. Results of Sensitivity Tests - TRP

Conditions	FIRR	EIRR
Base Case	21.6%	45.3%
Unit sales price of products : 5% up	28.9%	54.7%
Unit sales price of products : 5% down	14.2%	36.6%
Initial investment costs : 10% up	19.6%	41.0%
Initial investment costs : 10% down	24.0%	50.6%
Production costs of products : 5% up	16.0%	39.7%
Production costs of products : 5% down	27.2%	51.2%

Table VII-5. Results of Sensitivity Tests - PMK

Conditions	FIRR	EIRR
Base Case	18.7%	33.7%
Unit sales price of products : 5% up	21.0%	38.5%
Unit sales price of products : 5% down	16.3%	28.9%
Initial investment costs : 10% up	17.2%	31.4%
Initial investment costs : 10% down	20.4%	36.3%
Production costs of products : 5% up	17.2%	31.4%
Production costs of products : 5% down	20.2%	36.3%

Table VII-6. Results of Sensitivity Tests - Bangalore Foundry

Conditions	FIRR	EIRR
Base Case	22.1%	40.2%
Unit sales price of products : 5% up	24.2%	42.7%
Unit sales price of products : 5% down	19.9%	37.8%
Initial investment costs : 10% up	20.3%	37.6%
Initial investment costs : 10% down	24.3%	43.5%
Production costs of products : 5% up	21.0%	39.3%
Production costs of products : 5% down	23.3%	41.2%

Table VII-7. Results of Sensitivity Tests - Pinjore Foundry

Conditions	FIRR	EIRR
Base Case	9.4%	28.7%
Unit sales price of products : 5% up	11.7%	31.1%
Unit sales price of products : 5% down	7.0%	26.3%
Initial investment costs : 10% up	8.2%	26.5%
Initial investment costs : 10% down	10.9%	31.2%
Production costs of products : 5% up	7.8%	27.5%
Production costs of products : 5% down	11.0%	29.9%

VIII. RECOMMENDATION

For the attainment of the long-term corporate mission and objectives of HMT, the implementation of the proposed physical and organizational restructuring is essential.

Specifically, the early implementation of the proposed strategic investment programs is highly desired, for which the support of domestic and international financing organizations is indispensable. The financial and economic evaluation results show that all of the proposed projects are viable both independently and collectively.

The modernization of production facilities of HMT should proceed not only with the purpose of increasing production capacities or efficiencies, but also with the clear purposes of both (1) making HMT factories "showrooms" of modern production technologies and (2) accumulating production technologies by developing major machinery and equipment needed for modernization within the company.

Together with the implementation of the modernization investments, the proposed organizational restructuring of HMT with the purpose of productivity improvements has to be conducted, for which the political support of the Indian government by giving higher autonomy to HMT management is required. The privatization of HMT would be one of the most practical solutions for this purpose.

For the attainment of the long-term growth targets, the total funds requirement of the HMT Group during the long-term plan period is much higher than that of the total of strategic investment projects. In order to enable smooth fund raising to cover these costs, the increase of paid-up capital of HMT by a considerable amount is needed. The gradual privatization of HMT through the sale of increased equity to the public through the capital stock exchange market would also achieve this goal.

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