

**96. PROFILE ON THE PRODUCTION OF
LEATHER SHOE**

TABLE OF CONTENTS

		<u>PAGE</u>
I.	SUMMARY	96-2
II.	PRODUCT DESCRIPTION & APPLICATION	96-2
III.	MARKET STUDY AND PLANT CAPACITY	96-3
	A. MARKET STUDY	96-3
	B. PLANT CAPACITY & PRODUCTION PROGRAM	96-6
IV.	MATERIALS AND INPUTS	86-7
	A. RAW & AUXILIARY MATERIALS	96-7
	B. UTILITIES	96-8
V.	TECHNOLOGY & ENGINEERING	96-8
	A. TECHNOLOGY	96-8
	B. ENGINEERING	96-9
VI.	HUMAN RESOURCE & TRAINING REQUIREMENT	96-14
	A. HUMAN RESOURCE REQUIREMENT	96-14
	B. TRAINING REQUIREMENT	96-15
VII.	FINANCIAL ANALYSIS	96-16
	A. TOTAL INITIAL INVESTMENT COST	96-16
	B. PRODUCTION COST	96-17
	C. FINANCIAL EVALUATION	96-18
	D. ECONOMIC AND SOCIAL BENEFITS	96-20

I. SUMMARY

This profile envisages the establishment of a plant for the production of leather shoes with a capacity of 150,000 pairs per annum. Leather shoe is an outer covering for the foot with a stiff sole and usually not reaching above the ankle.

The country's requirement of leather shoes is met through local production and import. The present (2012) local and export demand for leather shoe is estimated at 1.74 million pairs. The local and export demand for the product is projected to reach 2.61 million pairs and 4.11 million pairs by the years 2017 and 2022, respectively.

The principal raw materials required are upper leather, lining leather, insoles, sewing thread, eyelets, tacks, adhesive and PVC soles which are available locally.

The total investment cost of the project including working capital is estimated at Birr 22.10 million. From the total investment cost, the highest share (Birr 12.49 million or 56.53%) is accounted by initial working capital followed by fixed investment cost (Birr 7.76 million or 35.12%) and pre operation cost (Birr 1.84 million or 8.36%). From the total investment cost, Birr 1.61 million or 7.31% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 27.33% and a net present value (NPV) of Birr 25.76 million, discounted at 10%.

The project can create employment for 72 persons. The establishment of such factory will have a foreign exchange saving and earning effect to the country by substituting the current imports and exporting its products to the international market. The project will also create backward linkage with the livestock sector also income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTION AND APPLICATIONS:

Leather shoe is an outer covering for the foot with a stiff sole and usually not reaching above the ankle. Leather shoes can be man made synthetic type or natural leather shoes. The natural leather shoes have a superior aesthetic quality due to its softness and light weight. The project is resource based and aimed at delivering better aesthetic quality leather shoes and ultimately such shoes substitute imports.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

The country`s demand for leather shoe is satisfied both from local production and imports. Ethiopia also exports a substantial amount of leather shoes to the international market. Domestic production, import and export data covering the period 2001--2011 is presented in Table 3.1.

Table 3.1

**DOMESTIC PRODUCTION, IMPORT AND EXPORT OF LEATHER SHOE (’000
PAIRS)**

Years	Locally¹ Manufactured	Imports²	Exports²
2001	1326	1265	7
2002	1099	652	7
2003	867	440	59
2004	1081	228	15
2005	846	1236	70
2006	1287	1545	277
2007	1749	603	659
2008	1719	364	273
2009	1607	219	412
2010	957	330	572
2011	1428*	302	397

* Local production for year 2011 is estimated by taking average of recent three years (2008—2010).

Source: - 1. CSA, *Report on Medium and Large Scale Manufacturing and Electricity Industries Survey.*

-2. *Ethiopian Revenues and Customs Authority.*

As could be observed from Table 3.1, domestic production of leather shoe in the past eleven years has been fluctuating from year to year with a slight growth starting from year 2007. The lowest production was 846 thousand pairs in the year 2003 and the highest about 1.75 million pairs in the year 2007--2008. In the remaining years it was fluctuating between the two extremes. However, it should be noted that the actual domestic production of leather shoe is expected to be

slightly higher than the data presented in Table 3.1 as the data does not consider the amount produced by the small scale and cottage industries sub sector.

Import of leather shoe during 2007--2011 has generally shown a declining trend. The yearly average level of import which was about 1.9 million pairs during the period 2001--2006 has sharply declined to a yearly average level of 363 thousand during the recent four years of 2007--2011. Compared to the previous yearly averages it has decreased by about 80%.

Unlike imports, export of leather shoe has generally shown an increasing trend. During the initial years of the data set, i.e. year 2001/02, the exported quantity was only 7 thousand pairs. During the period 2003--2005 the yearly average exported quantity increased to 48 thousand pairs. This is almost seven fold higher compared to the previous two years average. A substantial growth of import is registered during the recent five years of 2007--2011, although there were some fluctuations from year to year. During this period the yearly average quantity exported has reached to about 463 thousand pairs. Compared to the preceding three years average it is higher by more than 865% or about nine fold. This tremendous increase is believed to be due to the existence of a wide global market and the special attention given by the government for the export sector.

To arrive at the present demand for the domestic and export market the following assumptions are used.

- Recent three years` average of domestic production plus import and minus export is assumed to reflect the effective demand for the year 2011. Hence, the effective domestic demand for the year 2011 is estimated at 1.154 million (domestic production of 1.33 million pairs plus import of 284 thousand pairs minus export of 460 thousand pairs).
- To arrive at the present (year 2012) effective demand a 5% growth rate is applied by taking year 2011 estimated demand as a base.

Accordingly, current (year 2012) domestic effective demand for leather shoe is estimated at 1.212 million pairs.

For the export market, the recent three years average performance, which is 460 thousand pairs, is taken as the export level for the year 2011 and then a 15% annual average growth rate, which is much below the observed trend in the past, is then applied to arrive at the year 2012 export demand. Accordingly, current (year 2012) export effective demand for leather shoe is estimated at 529 thousand pairs.

2. Demand Projection

The demand for leather shoes depends on the level of incomes and population growth rates. Moreover, the product's superior aesthetics quality feature will have a positive effect on the level of demand. Because such a product is high valued type, major consumers are expected to be urban dwellers and some among the rural society. Considering the above factors demand for local consumption is assumed to increase by 5% and that of export by 15%. The domestic and export demand projection for leather shoes, the existing local production and the unsatisfied demand are depicted in Table 3.2.

Table 3.2
DEMAND PROJECTION FOR LEATHER SHOES ('000 pairs)

Year	Local Demand	Export Demand	Total Demand	Local Production	Unsatisfied Demand
2013	1,273	608	1,881	1,428	453
2014	1,336	700	2,036	1,428	608
2015	1,403	804	2,207	1,428	779
2016	1,473	925	2,398	1,428	970
2017	1,547	1,064	2,611	1,428	1,183
2018	1,624	1,224	2,848	1,428	1,420
2019	1,705	1,407	3,112	1,428	1,684
2020	1,790	1,618	3,408	1,428	1,980
2021	1,880	1,861	3,741	1,428	2,313
2022	1,974	2,140	4,114	1,428	2,686

The unsatisfied demand for leather shoe, both in the domestic and export market is projected to increase from 453 thousand pairs in the year 2013 to 1.420 million pairs and 2.686 million pairs in the year 2018 and 2022, respectively.

3. Pricing and Distribution

There are different manufacturing industries which produce leather shoe for the domestic and export market. The price for leather shoes; among others, depends on the aesthetics quality, comfort and durability of the product.

The prices for locally consumed types are not as high as compared to the export quality and in the retail markets it ranges from Birr 250 to Birr 450 and averaged to Birr 350. The market prices for export quality in some shops also range from Birr 400 to Birr 800 and the average is Birr 600. Assuming the envisaged project to produce both for the domestic and export market and allowing 40 % profit margin for distributors and retailers the recommended factory gate price is as follows.

- Leather Shoe for the domestic market.....Birr 300; and
- Leather Shoe for the export market.....Birr 428.

B. PLANTS CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

Based on the demand projection shown in the market study and considering the high capital costs associated with high volume of production, the capacity of the plant at full production is proposed to be 150,000 pairs of leather shoes per annum. This capacity is proposed on a basis of a single shift of 8 hours each per day and 300 working days per annum.

2. Production Program

Taking the time required for market penetration and development of technical and managerial skill into consideration, it is planned that the plant will start production at 70% of its rated capacity, which will grow to 85% in the second year. Full capacity production will be attained in the third year and onwards. Details of the production program are shown in Table 3.3.

Table 3.3
ANNUAL PRODUCTION PROGRAM

Sr. No.	Description	Unit of Measure	Production Year		
			1 st	2 nd	3 rd & Onwards
1	Leather shoes	pair	105,000	127,500	150,000
2	Capacity utilization rate	%	70	85	100

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

The raw materials required for manufacturing of leather shoes are upper leather, lining leather, insoles, sewing thread, eyelets, tacks, adhesive, PVC soles, etc. The raw materials and related inputs required for the envisaged plant are locally available. The annual raw materials requirement at full capacity operation of the plant and related costs are depicted in Table 4.1.

Table 4.1
ANNUAL RAW MATERIALS REQUIREMENT AT FULL CAPACITY AND COST

Sr. No.	Raw Materials	Unit of Measure	Required Qty	Unit Price/ Birr	Total
1	Upper leather	square ft	300,000	48.00	14,400.00
2	Lining leather	square ft	150,000	20.00	3,000.00
3	PVC sole	square ft	225,000	120.00	27,000.00
4	Insole	kg	22,500	119.82	2,695.95
5	Sewing thread	kg	300	400.00	120.00
6	Adhesive	kg	7,500	39.47	296.03
7	Eyelets	pc	1,000,000	0.80	800.00
8	Tacks	kg	2,340	717.95	1,680.00
9	Counters and	pc	24,000	32.00	768.00
10	Others (late heel and top lifts etc)		lump sum		640.00
Total					51,399.97

The auxiliary material required for the envisaged plant is carton box for shoes. The total annual quantity required at full capacity production of the plant is 150,000 pieces, and the total annual cost is estimated at Birr 1.8 million.

B. UTILITIES

Electric power and water are the major utilities required by the plant which are available from the national grid of EEPCo and municipality. The annual requirement for utilities at full capacity production of the plant and the estimated total cost is shown in Table 4.2.

Table 4.2

ANNUAL UTILITIES REQUIREMENT AT FULL CAPACITY AND COST

Sr. No.	Description	Unit of Measure	Required Qty	Unit Price, Birr/Unit	Cost, ('000 Birr)		
					F.C.	L.C.	Total
1	Electric power	kWh	20,000	0.5778		11.55	11.55
2	Water	m3	375	10.00		3.75	3.75
Total						15.30	15.30

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

Manufacturing process of leather shoes starts by cutting out the upper components from skin and the linings and insoles from leather or man-made sheets. Next, the edges of the upper components are tapered, or skived, to reduce the bulk of seams. The eyelets are then inserted in lacing styles and the various upper components are stitched and cemented together.

The insoles are then attached temporarily to the bottom of the last by tacks, and the heel stiffeners and the toe puffs (which respectively help to shape the backs and toes) are located. Cement lasting, involves stretching the edge of the upper round the last bottom and attaching it

to the insole bottom with cement. After removing the tacks holding the insole to the last, the shoes are conditioned, the shanks which stiffen up the waist of the shoe are attached to the insoles, and the sole units are stuck on to the bottom. The final manufacturing stage involves cleaning, inspecting and packing.

2. Environmental Impact

The envisaged project does not have any emission of pollutants and is environment friendly.

B. ENGINEERING

1. Machinery and Equipment

The major plant machinery and equipment required for the leather shoes manufacturing plant include mechanical swing clicking, splitting, stamping, perforating, skiving, edge folding, sewing, trimming, insole and back part molding, mopping and polishing machines, hydraulic sole presses, etc. The total cost of plant machinery and equipment is estimated at Birr 2.021 million, out of which Birr 1.617 million will be required in foreign currency. List of plant machinery and equipment and the estimated costs are given in Table 5.1.

Table 5.1**MACHINERY & EQUIPMENT AND ESTIMATED COST**

Sr. No.	Description	Unit of Measure	Required Qty	Cost, ('000 Birr)		
				F.C.	L.C.	Total
1	Mechanical swing clicking press	set	5	191.46	47.86	239.32
2	Band knife splitting machine	set	1	37.51	9.38	46.89
3	Lining stamping machine	set	1	37.51	9.38	46.89
4	Manually operated stitch marking machine	set	1	37.51	9.38	46.89
5	Perforating machine	set	1	37.51	9.38	46.89
6	Semi-auto sock embosser	set	1	37.51	9.38	46.89
7	Manually controlled skiving machine	set	2	75.03	18.76	93.79
8	Mechanical edge folder and cementer	set	1	37.51	9.38	46.89
9	Sewing machines	set	10	375.14	93.79	468.93
10	Seam reducing machine	set	1	37.51	9.38	46.89
11	Tape dispensing machine	set	1	37.51	9.38	46.89
12	Hole punching machine	set	1	37.51	9.38	46.89
13	Auto feed eyeleter	set	1	37.51	9.38	46.89
14	Loose upper roughing machine	set	1	37.51	9.38	46.89
15	Powered trimming machine	set	2	75.03	18.76	93.79
16	Insole molding machine	set	1	37.51	9.38	46.89
17	Insole beveling machine	set	1	37.51	9.38	46.89
18	Lasting heater	set	1	37.51	9.38	46.89
19	Manually operated drafting machine	set	1	37.51	9.38	46.89
20	Pull toe lasting machine	set	1	37.51	9.38	46.89
21	Back part molding machine	set	1	37.51	9.38	46.89
22	Wrinkle chasing machine	set	1	37.51	9.38	46.89
23	Bottom roughing machine	set	1	37.51	9.38	46.89
24	Twin station hydraulic sole presses	set	1	37.51	9.38	46.89
25	Hot blast treeing machine	set	1	37.51	9.38	46.89
26	Spray booth and guns	set	1	37.51	9.38	46.89
27	Mopping and polishing machine	set	1	37.51	9.38	46.89
28	Manually operated cementing machine	set	1	37.51	9.38	46.89
Grand Total				1,617.00	404.25	2,021.25

2. Land, Buildings and Civil Works

The envisaged plant requires a total area of 1,500 square meters, of which 1,000 square meters will be a built up area. The total cost of buildings and civil works at an assumed average construction rate of Birr 4,500 per square meter is estimates at Birr 4.5 million.

According to the Federal Legislation on the Lease Holding of Urban Land (Proclamation No. 721/2004) in principle, urban land permit by lease is on auction or negotiation basis, however, the time and condition of applying the proclamation shall be determined by the concerned regional or city government depending on the level of development.

The legislation has also set the maximum on lease period and the payment of lease prices. The lease period ranges from 99 years for education, cultural research health, sport, NGO , religious and residential area to 80 years for industry and 70 years for trade while the lease payment period ranges from 10 years to 60 years based on the towns grade and type of investment.

Moreover, advance payment of lease based on the type of investment ranges from 5% to 10%.The lease price is payable after the grace period annually. For those that pay the entire amount of the lease will receive 0.5% discount from the total lease value and those that pay in installments will be charged interest based on the prevailing interest rate of banks. Moreover, based on the type of investment, two to seven years grace period shall also be provided.

However, the Federal Legislation on the Lease Holding of Urban Land apart from setting the maximum has conferred on regional and city governments the power to issue regulations on the exact terms based on the development level of each region.

In Addis Ababa, the City's Land Administration and Development Authority is directly responsible in dealing with matters concerning land. However, regarding the manufacturing sector, industrial zone preparation is one of the strategic intervention measures adopted by the City Administration for the promotion of the sector and all manufacturing projects are assumed to be located in the developed industrial zones.

Regarding land allocation of industrial zones if the land requirement of the project is below 5,000 m², the land lease request is evaluated and decided upon by the Industrial Zone Development and Coordination Committee of the City's Investment Authority. However, if the land request is above 5,000 m², the request is evaluated by the City's Investment Authority and passed with recommendation to the Land Development and Administration Authority for decision, while the lease price is the same for both cases.

Moreover, the Addis Ababa City Administration has recently adopted a new land lease floor price for plots in the city. The new prices will be used as a benchmark for plots that are going to be auctioned by the city government or transferred under the new "Urban Lands Lease Holding Proclamation."

The new regulation classified the city into three zones. The first Zone is Central Market District Zone, which is classified in five levels and the floor land lease price ranges from Birr 1,686 to Birr 894 per m². The rate for Central Market District Zone will be applicable in most areas of the city that are considered to be main business areas that entertain high level of business activities.

The second zone, Transitional Zone, will also have five levels and the floor land lease price ranges from Birr 1,035 to Birr 555 per m². This zone includes places that are surrounding the city and are occupied by mainly residential units and industries.

The last and the third zone, Expansion Zone, is classified into four levels and covers areas that are considered to be in the outskirts of the city, where the city is expected to expand in the future. The floor land lease price in the Expansion Zone ranges from Birr 355 to Birr 191 per m² (see Table 5.2).

Table 5.2**NEW LAND LEASE FLOOR PRICE FOR PLOTS IN ADDIS ABABA**

Zone	Level	Floor Price/m²
Central Market District	1 st	1686
	2 nd	1535
	3 rd	1323
	4 th	1085
	5 th	894
Transitional zone	1 st	1035
	2 nd	935
	3 rd	809
	4 th	685
	5 th	555
Expansion zone	1 st	355
	2 nd	299
	3 rd	217
	4 th	191

Accordingly, in order to estimate the land lease cost of the project profiles it is assumed that all new manufacturing projects will be located in industrial zones located in expansion zones. Therefore, for the profile a land lease rate of Birr 266 per m² which is equivalent to the average floor price of plots located in expansion zone is adopted.

On the other hand, some of the investment incentives arranged by the Addis Ababa City Administration on lease payment for industrial projects are granting longer grace period and extending the lease payment period. The criteria are creation of job opportunity, foreign exchange saving, investment capital and land utilization tendency etc. Accordingly, Table 5.3 shows incentives for lease payment.

Table 5.3**INCENTIVES FOR LEASE PAYMENT OF INDUSTRIAL PROJECTS**

Scored Point	Grace Period	Payment Completion Period	Down Payment
Above 75%	5 Years	30 Years	10%
From 50 - 75%	5 Years	28 Years	10%
From 25 - 49%	4 Years	25 Years	10%

For the purpose of this project profile, the average i.e. five years grace period, 28 years payment completion period and 10% down payment is used. The land lease period for industry is 60 years.

Accordingly, the total land lease cost at a rate of Birr 266 per m² is estimated at Birr 399,000 of which 10% or Birr 39,900 will be paid in advance. The remaining Birr 359,100 will be paid in equal installments with in 28 years i.e. Birr 12,825 annually.

VI. HUMAN RESOURCE AND TRAINING REQUIREMENT

A. HUMAN RESOURCE REQUIREMENT

The total human resource requirement of the plant is estimated at 72 persons. Details of human resource requirement and the estimated annual labor cost including the fringe benefits are shown in Table 6.1.

Table 6.1**HUMAN RESOURCE REQUIREMENT AND ESTIMATED LABOR COST**

Sr. No.	Job Title	Required No. of Persons	Salary, Birr	
			Monthly	Annual
1	General manager	1	5,000	60,000
2	Secretary	1	900	10,800
3	Technical & production manager	1	4,200	50,400
4	Finance and administration manager	1	4,000	48,000
5	Commercial manager	1	4,000	48,000
6	Purchaser	1	900	10,800
7	Accountant	1	1,500	18,000
8	Personnel	1	1,500	18,000
9	Salesperson	1	1,000	12,000
10	Store keeper	1	1,000	12,000
11	Cashier	1	1,000	12,000
12	Mechanic	1	1,200	14,400
13	Electrician	1	1,200	14,400
14	Skilled Operator	40	34,000	408,000
14	Semi - skilled Operator	8	4,400	52,800
15	Production worker	6	2,100	25,200
16	Driver	1	800	9,600
17	Guard	4	1,400	16,800
Sub - total		72	70,100	841,200
Employees benefit, 20% of basic salary			14020	168,240
Total			84,120	1,009,440

B. TRAINING REQUIREMENT

One mechanic and one electrician should be given one month training on operation and maintenance of machinery and equipment by the expatriate technician of the machinery supplier during erection and commissioning. In addition, 40 operators should be given a two weeks on – the – job training by the technician of the equipment supplier on the manufacturing technique. The total cost of training is estimated at Birr 150,000.

VII. FINANCIAL ANALYSIS

The financial analysis of the leather shoe project is based on the data presented in the previous chapters and the following assumptions:-

Construction period	1 year
Source of finance	30 % equity & 70% loan
Tax holidays	5 years
Bank interest	10%
Discount cash flow	10%
Accounts receivable	30 days
Raw material local	30 days
Work in progress	1 day
Finished products	30 days
Cash in hand	5 days
Accounts payable	30 days
Repair and maintenance	5% of machinery cost

A. TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated at Birr 22.10 million (see Table 7.1). From the total investment cost ,the highest share (Birr 12.49 million or 56.53%) is accounted by initial working capital followed by fixed investment cost (Birr 7.76 million or 35.12%) and pre operation cost (Birr 1.84 million or 8.36%). From the total investment cost, Birr 1.61 million or 7.31% is required in foreign currency.

Table 7.1**INITIAL INVESTMENT COST ('000 Birr)**

Sr. No.	Cost Items	Local Cost	Foreign Cost	Total Cost	% Share
1	Fixed investment				
1.1	Land Lease	39.90		39.90	0.18
1.2	Building and civil work	4,500.00		4,500.00	20.36
1.3	Machinery and equipment	404.25	1,617.00	2,021.25	9.15
1.4	Vehicles	900.00		900.00	4.07
1.5	Office furniture and equipment	300.00		300.00	1.36
	Sub -total	6,144.15	1,617.00	7,761.15	35.12
2	Pre operating cost *				
2.1	Pre operating cost	401.06		401.06	1.81
2.2	Interest during construction	1,445.90		1,445.90	6.54
	Sub -total	1,846.96		1,846.96	8.36
3	Working capital	12,493.51		12,493.51	56.53
	Grand Total	20,484.62	1,617.00	22,101.62	100

* *N.B Pre operating cost include project implementation cost such as installation, startup, commissioning, project engineering, project management etc and capitalized interest during construction.*

** *The total working capital required at full capacity operation is Birr 17.83 million. However, only the initial working capital of Birr 12.49 million during the first year of production is assumed to be funded through external sources. During the remaining years the working capital requirement will be financed by funds to be generated internally (for detail working capital requirement see Appendix 7.A.1).*

B. PRODUCTION COST

The annual production cost at full operation capacity is estimated at Birr 57.34 million (see Table 7.2). The cost of raw material account for 92.78% of the production cost. The other major components of the production cost are financial cost, depreciation and labor, which account for 2.43%, 1.52% and 1.47%, respectively. The remaining 1.80% is the share of utility, repair and maintenance, labor overhead and administration cost. For detail production cost see Appendix 7.A.2.

Table 7.2**ANNUAL PRODUCTION COST AT FULL CAPACITY (YEAR THREE)**

Items	Cost (000 Birr)	%
Raw Material and Inputs	53,199.97	92.78
Utilities	15.30	0.03
Maintenance and repair	101.06	0.18
Labor direct	841.20	1.47
Labor overheads	168.24	0.29
Administration Costs	250.00	0.44
Land lease cost	-	-
Cost of marketing and distribution	500.00	0.87
Total Operating Costs	55,075.77	96.05
Depreciation	874.46	1.52
Cost of Finance	1,391.68	2.43
Total Production Cost	57,341.91	100

C. FINANCIAL EVALUATION**1. Profitability**

Based on the projected profit and loss statement, the project will generate a profit through out its operation life. Annual net profit after tax will grow from Birr 4.97 million to Birr 6.44 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 63.16 million. For profit and loss statement and cash flow projection see Appendix 7.A.3 and 7.A.4, respectively.

2. Ratios

In financial analysis, financial ratios and efficiency ratios are used as an index or yardstick for evaluating the financial position of a firm. It is also an indicator for the strength and weakness of the firm or a project. Using the year-end balance sheet figures and other relevant data, the most important ratios such as return on sales which is computed by dividing net income by revenue,

return on assets (operating income divided by assets), return on equity (net profit divided by equity) and return on total investment (net profit plus interest divided by total investment) has been carried out over the period of the project life and all the results are found to be satisfactory.

3. Break-even Analysis

The break-even analysis establishes a relationship between operation costs and revenues. It indicates the level at which costs and revenue are in equilibrium. To this end, the break-even point for capacity utilization and sales value estimated by using income statement projection are computed as followed.

$$\text{Break -Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 8,932,965$$

$$\text{Break- Even Capacity utilization} = \frac{\text{Break- even Sales Value}}{\text{Sales revenue}} \times 100 = 26\%$$

4. Pay-back Period

The pay- back period, also called pay – off period is defined as the period required for recovering the original investment outlay through the accumulated net cash flows earned by the project. Accordingly, based on the projected cash flow it is estimated that the project’s initial investment will be fully recovered within 4 years.

5. Internal Rate of Return

The internal rate of return (IRR) is the annualized effective compounded return rate that can be earned on the invested capital, i.e., the yield on the investment. Put another way, the internal rate of return for an investment is the discount rate that makes the net present value of the investment's income stream total to zero. It is an indicator of the efficiency or quality of an investment. A project is a good investment proposition if its IRR is greater than the rate of return that could be earned by alternate investments or putting the money in a bank account. Accordingly, the IRR of this project is computed to be 27.33% indicating the viability of the project.

6. Net Present Value

Net present value (NPV) is defined as the total present (discounted) value of a time series of cash flows. NPV aggregates cash flows that occur during different periods of time during the life of a project in to a common measuring unit i.e. present value. It is a standard method for using the time value of money to appraise long-term projects. NPV is an indicator of how much value an investment or project adds to the capital invested. In principle, a project is accepted if the NPV is non-negative.

Accordingly, the net present value of the project at 10% discount rate is found to be Birr 25.76 million which is acceptable. For detail discounted cash flow see Appendix 7.A.5.

D. ECONOMIC AND SOCIAL BENEFITS

The project can create employment for 72 persons. The project will generate Birr 13.20 million in terms of tax revenue. The establishment of such factory will have a foreign exchange saving and earning effect to the country by substituting the current imports and exporting its products to the international market. The project will also create backward linkage with the livestock sector and also generates income for the Government in terms of payroll tax.

Appendix 7.A

FINANCIAL ANALYSES SUPPORTING TABLES

Appendix 7.A.2
PRODUCTION COST (in 000 Birr)

Item	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Raw Material and Inputs	37,240	42,560	53,200	53,200	53,200	53,200	53,200	53,200	53,200	53,200
Utilities	11	12	15	15	15	15	15	15	15	15
Maintenance and repair	71	81	101	101	101	101	101	101	101	101
Labour direct	589	673	841	841	841	841	841	841	841	841
Labour overheads	118	135	168	168	168	168	168	168	168	168
Administration Costs	175	200	250	250	250	250	250	250	250	250
Land lease cost	0	0	0	0	13	13	13	13	13	13
Cost of marketing and distribution	500	500	500	500	500	500	500	500	500	500
Total Operating Costs	38,703	44,161	55,076	55,076	55,089	55,089	55,089	55,089	55,089	55,089
Depreciation	874	874	874	874	874	210	210	210	210	210
Cost of Finance	0	1,590	1,392	1,193	994	795	596	398	199	0
Total Production Cost	39,578	46,626	57,342	57,143	56,957	56,094	55,895	55,696	55,497	55,299

Appendix 7.A.3
INCOME STATEMENT (in 000 Birr)

Item	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Sales revenue	45,150	51,600	58,050	64,500	64,500	64,500	64,500	64,500	64,500	64,500
Less variable costs	38,203	43,661	54,576	54,576	54,576	54,576	54,576	54,576	54,576	54,576
VARIABLE MARGIN	6,947	7,939	3,474	9,924	9,924	9,924	9,924	9,924	9,924	9,924
in % of sales revenue	15.39	15.39	5.98	15.39	15.39	15.39	15.39	15.39	15.39	15.39
Less fixed costs	1,374	1,374	1,374	1,374	1,387	723	723	723	723	723
OPERATIONAL MARGIN	5,572	6,565	2,100	8,550	8,537	9,201	9,201	9,201	9,201	9,201
in % of sales revenue	12.34	12.72	3.62	13.26	13.24	14.27	14.27	14.27	14.27	14.27
Financial costs		1,590	1,392	1,193	994	795	596	398	199	0
GROSS PROFIT	5,572	4,974	708	7,357	7,543	8,406	8,605	8,804	9,003	9,201
in % of sales revenue	12.34	9.64	1.22	11.41	11.69	13.03	13.34	13.65	13.96	14.27
Income (corporate) tax	0	0	0	0	0	2,522	2,581	2,641	2,701	2,760
NET PROFIT	5,572	4,974	708	7,357	7,543	5,884	6,023	6,163	6,302	6,441
in % of sales revenue	12.34	9.64	1.22	11.41	11.69	9.12	9.34	9.55	9.77	9.99

Appendix 7.A.4**CASH FLOW FOR FINANCIAL MANAGEMENT (in 000 Birr)**

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Scrap
TOTAL CASH INFLOW	8,162	59,144	51,608	58,066	64,500	64,500	64,500	64,500	64,500	64,500	64,500	22,017
Inflow funds	8,162	13,994	8	16	0	0	0	0	0	0	0	0
Inflow operation	0	45,150	51,600	58,050	64,500	64,500	64,500	64,500	64,500	64,500	64,500	0
Other income	0	0	0	0	0	0	0	0	0	0	0	22,017
TOTAL CASH OUTFLOW	8,162	52,697	49,526	62,029	58,257	58,072	60,394	60,255	60,115	59,976	57,849	0
Increase in fixed assets	8,162	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	12,548	1,787	3,573	0	1	0	0	0	0	0	0
Operating costs	0	38,203	43,661	54,576	54,576	54,589	54,589	54,589	54,589	54,589	54,589	0
Marketing and Distribution cost	0	500	500	500	500	500	500	500	500	500	500	0
Income tax	0	0	0	0	0	0	2,522	2,581	2,641	2,701	2,760	0
Financial costs	0	1,446	1,590	1,392	1,193	994	795	596	398	199	0	0
Loan repayment	0	0	1,988	1,988	1,988	1,988	1,988	1,988	1,988	1,988	0	0
SURPLUS (DEFICIT)	0	6,447	2,082	-3,963	6,243	6,428	4,106	4,245	4,385	4,524	6,651	22,017
CUMULATIVE CASH BALANCE	0	6,447	8,529	4,566	10,809	17,237	21,343	25,588	29,973	34,497	41,148	63,165

Appendix 7.A.5
DISCOUNTED CASH FLOW (in 000 Birr)

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Scrap
TOTAL CASH INFLOW	0	45,150	51,600	58,050	64,500	64,500	64,500	64,500	64,500	64,500	64,500	22,017
Inflow operation	0	45,150	51,600	58,050	64,500	64,500	64,500	64,500	64,500	64,500	64,500	0
Other income	0	0	0	0	0	0	0	0	0	0	0	22,017
TOTAL CASH OUTFLOW	20,656	40,482	47,718	55,076	55,077	55,089	57,610	57,670	57,730	57,789	57,849	0
Increase in fixed assets	8,162	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	12,494	1,779	3,558	0	1	0	0	0	0	0	0	0
Operating costs	0	38,203	43,661	54,576	54,576	54,589	54,589	54,589	54,589	54,589	54,589	0
Marketing and Distribution cost	0	500	500	500	500	500	500	500	500	500	500	0
Income (corporate) tax		0	0	0	0	0	2,522	2,581	2,641	2,701	2,760	0
NET CASH FLOW	-20,656	4,668	3,882	2,974	9,423	9,411	6,890	6,830	6,770	6,711	6,651	22,017
CUMULATIVE NET CASH FLOW	-20,656	15,988	12,106	-9,132	291	9,703	16,592	23,422	30,192	36,903	43,554	65,571
Net present value	-20,656	4,244	3,208	2,235	6,436	5,844	3,889	3,505	3,158	2,846	2,564	8,489
Cumulative net present value	-20,656	16,412	13,204	10,969	-4,533	1,310	5,199	8,704	11,863	14,709	17,273	25,761

NET PRESENT VALUE 25,761
INTERNAL RATE OF RETURN 27.33%
NORMAL PAYBACK 4 years

