

## **38. PRODUCTION OF LEATHER SOLE**

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## **I. SUMMARY**

This profile envisages the establishment of a plant for the production of leather sole with a capacity of 180,000 pairs per annum.

The present demand for the proposed product is estimated at 454.23 tonnes per annum. The demand is expected to reach at 857 tonnes by the year 2020.

The plant will create employment opportunities for 18 persons.

The total investment requirement is estimated at Birr 1.58 million, out of which Birr 290,000 is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 26 % and a net present value (NPV) of Birr 1.88 million, discounted at 8.5%.

## **II. PRODUCT DESCRIPTION AND APPLICATION**

Leather sole is one of the main inputs in the manufacturing of shoes, especially leather shoes

## **III. MARKET STUDY AND PLANT CAPACITY**

### **A. MARKET STUDY**

#### **1. Past Supply and Present Demand**

Leather sole is one of the main inputs in the manufacturing of shoes, especially leather shoes. The demand for shoe soles is derived demand from the demand and production of leather shoes. This means that the demand or requirement for leather soles directly corresponds to the amount of shoes to be produced with leather sole.

The demand for leather soles is at present met from both local production and import. According to the Central Statistical Agency publication "Statistical Abstract -2006" issued in 1999 E.C, the existing shoe factories have consumed a total of 412 tonnes of leather sole. The source of which is 374.92 tonnes (91%) from local and 37.08 tonnes (9%) from import. Assuming that the leather shoe sub-sector has grown by 5% annually in the past two years, the current effective demand is estimated at 454.23 tonnes.

Comparison of the estimated current demand and local supply indicates that there is a gap of 41 tonnes.

## **2. Projected Demand**

Demand for leather soles is a derived demand and production of leather shoe. The demand for leather shoe in turn is influenced by urban population growth, income, and changes in way of life. Since the leather sector is one of the priority areas in the manufacturing sector, shoe production for the domestic and export market is expected to increase in the near future. Considering the above situations, the demand for leather soles is assumed to grow by 5% per annum. The projected demand, existing production and supply gap, is given in Table 3.1.

**Table 3.1****PROJECTED DEMAND FOR LEATHER SOLE (TONNES)**

<b>Year</b>	<b>Total Demand</b>	<b>Existing Supply</b>	<b>Unsatisfied Demand</b>
2008	477	413	64
2009	501	413	88
2010	526	413	113
2011	552	413	139
2012	580	413	167
2013	609	413	196
2014	639	413	226
2015	671	413	258
2016	705	413	292
2017	740	413	327
2018	777	413	364
2019	816	413	403
2020	857	413	444

**3. Pricing and Distribution**

According to Central Statistical Agency, Report on Large & Medium Scale Manufacturing and Electricity Industries Survey, the average producer's price per pair of sole is Birr 12. This price is adapted for sales revenue projection.

The Plant can sell its product directly to the end-users, i.e, leather shoe manufacturing enterprises and other shoe manufacturers.

## **B. PLANT CAPACITY & PRODUCTION PROGRAMME**

### **1. Plant Capacity**

The market study indicates that the unsatisfied demand of leather soles, (men's, ladies and children's) for the year 2008 in the country is in the order of 64 tonnes. This demand is projected to grow to 444 tonnes by the year 2020. The proposed plant is expected to produce leather soles for men, women and children. Based on the information obtained from the market study, the plant will have an annual production capacity of 5 tonnes of leather sole. The plant will operate in a single shift of 8 hours a day, and for 300 working days a year.

### **2. Production Programme**

As the Plant is new and is equipped with new machinery, production build-up is made to start at reduced capacity and gradually rise to full capacity. Accordingly, in the first year the plant will operate at 75% of its capacity, then will grow to 85% and 100% (full capacity) in the second and third year, respectively. The low production level at the initial stage is meant to enable the plant to develop market outlets, and give the new machinery operators the possibility of attaining the required skill and experience. Table 3.2 below indicates the detailed production programme.

**Table 3.2**  
**PRODUCTION PROGRAMME**

Year Description	1	2	3 and above
Capacity Utilization (%)	75	85	100
Production (tonnes)	3.75	4.25	5 (equivalent to 180,000 pairs)

#### IV. MATERIALS AND INPUTS

##### A. RAW AND AUXILIARY MATERIALS

The major raw material required is finished leather. Rejects of hide leather producing plants can also be used as raw material for making sole. The auxiliary materials consist of rubber sheets, cementing adhesive and other components. Table 4.1 indicates the list of raw and auxiliary materials required for sole production and corresponding cost.

**Table 4.1**

**RAW AND AUXILIARY MATERIALS REQUIREMENT & COST**  
**(AT FULL CAPACITY)**

Sr. No.	Description	Qty. (tonnes)	Cost in Birr ('000)
1	Finished leather	5.1	1,300
2	Rubber sheets		50
3	Cementing Adhesive		30
	<b>Total</b>		<b>1,380</b>

##### B. UTILITIES

Electricity and water are utilities required for the envisaged plant. It is estimated that annual utilities cost will be Birr 20,000.

## **V. TECHNOLOGY AND ENGINEERING**

### **A. TECHNOLOGY**

#### **1. Production Process**

The major operations involved in the production process are leather cutting, leather sole splitting, roughing, trimming, edge making, stamping and cementing.

Required sizes of leather are cut by hydraulic clicking machine. Roughing operation helps to make the surface ready for cementing with the rubber sheet. After cutting the required size the edges of the leather sole are trimmed off by trimming machine. The next operation is edging. Edging operation is the task of improving the edges until smooth and satisfactory finishes are obtained.

Stamping and cementing are the major operations carried out successively. Hence, leather sole pieces that are previously prepared are now fixed together and cemented by using adhesive.

#### **2. Source of Technology**

The Technology of leather sole production is simple, easy to operate and maintain. European countries like Sweden, Germany, Italy, etc. are known as suppliers of the technology. In the Far East countries like India, Korea and Japan are also suppliers of production equipment.

### **B. ENGINEERING**

#### **1. Machinery and Equipment**

The list of machinery and equipment required for leather sole making plant and corresponding cost is presented in Table 5.1. The total cost of machinery and equipment is estimated at Birr 290, 000.



**Table 5.1**  
**THE LIST OF MACHINERY AND EQUIPMENT REQUIRED**

Sr. No.	Machine/Equipment Description	Qty. (No.)
1.	Roughing Machine	1
2.	Sole Stamping marking machine	1
3.	Sole Edge Cementing machine	1
4.	Sole driver	1
5.	Double side Laminating	1
6.	Automatic splitting	1
7.	Automatic sole producing	1
8.	Hydraulic press	1
9.	Band pressing	1
10.	Decorating machine	1

## **2. Land, Building and Civil Works**

The area of land required for the plant including open space is estimated at 500m<sup>2</sup>. The floor size of plant building (office and production hall) is estimated at 200m<sup>2</sup>. Considering the unit cost (per m<sup>2</sup>) of the building at Birr 2,300, the total cost estimate of building is Birr 460,000. The land lease cost for 80 years of holding at a rate of Birr 0.35 per m<sup>2</sup> will be Birr 14,000. The over all cost of land, building and civil works will be Birr 474,000.

## **3. Proposed Location**

Location of a new plant is based on its nearness to raw and auxiliary materials, proximity to market, availability of skilled labour and utilities. Accordingly, it is preferred to locate the proposed plant in Lemo woreda, Hossaena town.

## VI. MANPOWER AND TRAINING REQUIREMENT

### A. MANPOWER REQUIREMENT

The proposed plant requires both production and administration workers. The plant requires a total manpower of 18 persons. Table 6.1 below indicates the manpower requirement with monthly and annual salaries.

### B. TRAINING REQUIREMENT

Training is required for skilled operators and production supervisor. It can be conducted in the leather and leather products institute. A total of Birr 30,000 is allotted for conducting the training programme. The training programme would take three weeks.

**Table 6.1**

#### **MANPOWER REQUIREMENT AND ANNUAL LABOUR COST (IN BIRR)**

Sr. No	Description	Req. No.	Salary Monthly	Salary Annual
	<b><u>A. Administration</u></b>			
1	Plant Manager	1	1,600	19,200
2	Secretary	1	600	7,200
3	Accountant	1	700	8,400
4	Sales Man	1	700	8,400
5	Store man	1	500	6,000
7	General Services	4	250	12,000
8	Production Supervisor	1	900	10,800
9	Skilled workers	4	600	28,800
10	Un skilled labor	4	300	14,400
	<b>Sub-total</b>	<b>18</b>		<b>115,200</b>
8	Benefit 25% of basic Salary			28,800
	<b>Total Cost</b>	<b>18</b>		<b>144,000</b>

## VII. FINANCIAL ANALYSIS

The financial analysis of the leather sole 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	3 years
Bank interest	8%
Discount cash flow	8.5%
Accounts receivable	30 days
Raw material local	30 days
Raw material, import	90 days
Work in progress	5 days
Finished products	30 days
Cash in hand	5 days
Accounts payable	30 days

### A. TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated at Birr 1.58 million. The major breakdown of the total initial investment cost is shown in Table 7.1.

**Table 7.1**  
**INITIAL INVESTMENT COST**

Sr. No.	Cost Items	Total Cost (‘000 Birr)
1	Land lease value	14.0
2	Building and Civil Work	460.0
3	Plant Machinery and Equipment	290.0
4	Office Furniture and Equipment	75.0
5	Vehicle	225.0
6	Pre-production Expenditure*	226.2
7	Working Capital	297.1
	<b>Total Investment cost</b>	<b>1,587.4</b>

\* *N.B Pre-production expenditure includes interest during construction ( Birr 66.24 thousand ) training (Birr 30 thousand ) and Birr 130 thousand costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.*

## **B. PRODUCTION COST**

The annual production cost at full operation capacity is estimated at Birr 1.84 million (see Table 7.2). The material and utility cost accounts for 76.18 per cent, while repair and maintenance take 4.08 per cent of the production cost.

**Table 7.2****ANNUAL PRODUCTION COST AT FULL CAPACITY ('000 BIRR)**

<b>Items</b>	<b>Cost</b>	<b>%</b>
Raw Material and Inputs	1,380.00	75.09
Utilities	20	1.09
Maintenance and repair	75	4.08
Labour direct	57.6	3.13
Factory overheads	28.80	1.57
Administration Costs	86.4	4.70
Total Operating Costs	1,647.80	89.67
Depreciation	137.2	7.47
Cost of Finance	52.72	2.87
<b>Total Production Cost</b>	<b>1,837.72</b>	<b>100</b>

**C. FINANCIAL EVALUATION****1. Profitability**

According to the projected income statement, the project will start generating profit in the first year of operation. Important ratios such as profit to total sales, net profit to equity (Return on equity) and net profit plus interest on total investment (return on total investment) show an increasing trend during the life-time of the project.

The income statement and the other indicators of profitability show that the project is viable.

**2. Break-even Analysis**

The break-even point of the project including cost of finance when it starts to operate at full capacity ( year 3) is estimated by using income statement projection.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 16 \%$$

### **3. Pay Back Period**

The investment cost and income statement projection are used to project the pay-back period. The project's initial investment will be fully recovered within 4 years.

### **4. Internal Rate of Return and Net Present Value**

Based on the cash flow statement, the calculated IRR of the project is 26.45 % and the net present value at 8.5% discount rate is Birr 1.88 million.

## **D. ECONOMIC BENEFITS**

The project can create employment for 18 persons. In addition to supply of the domestic needs, the project will generate Birr 946,960 in terms of tax revenue. The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports.