47. FINISHED LEATHER

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I. SUMMARY

This profile envisages the establishment of a plant for the production of Finished Leather with a capacity of 114,988 pieces per annum.

The present demand for the proposed product is estimated at 114,988 pieces per annum. The demand is expected to reach at 154,000 pieces by the year 2010.

The plant will create employment opportunities for 59 persons.

The total investment requirement is estimated at Birr 0.3, out of which Birr 2.2 million is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 14% and a net present value (NPV) of Birr 4.38 million, discounted at 8.5 %.

II. PRODUCT DESCRIPTION AND APPLICATION

Crust leather undergo mechanical and chemical treatments to obtain proper thickness, moisture, lubrication and aesthetic appeal. Finished leather is the final stage of tannery. By proper formulation and combination of material and methods, desired effects can be obtained in finishing of leather to meet the specific end-use.

Finished leather is used for footwear (upper and sole), luggage, hand bags, leather goods and apparel, gloves, industrial belting, leather upholstery, etc.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

This project envisages the establishment of a plant that processes leather upto finished level by utilizing crust leather as a raw material. At present, the process upto finished leather for the domestic market is mainly carried out by the few government-owned tanneries. However, according to the information gathered with regards to the sector, the capacity of the finishing department of these factories is very low. On the other hand the local market, which demands finished leather only, would absorb much larger quantities than supplied at present. This is evidenced by the fact that the shoe industry suffers from shortage of finished leather.

Finished leather has a wide market both in the domestic as well as in the international market while the major market for semi-processed leather is export only. The production and export of semi-processed and finished leather for the past 10 years is shown in Table 3.1.

Table 3.1
INDUSTRIALLY PROCESSED DOMESTIC PRODUCTION AND EXPORT OF HIDES AND SKINS.

Year	Domestic Production		Export of Hides & Skins	
	Hides ('000sq.ft.)	Skins ('000 Pcs)	Quantity (tonnes)	Value '000 Birr
4792/93	2927	8870	5574	134515
4793/94	3871	10849	7807	203610
4794/95	10008	12884	8387	373549
4795/96	4347	16308	7546	309701
4796/97	5472	11112	8638	372253
4797/98	5551	17913	7892	347699
4798/99	4566	13031	8824	243052
4799/00	6483	10845	8604	286489
2000/01	9245	29028	12409	633752
2001/02	4569	10489	10334	674426

Source: *- For Domestic production, statistical Abstract of CSA.*
- For Export, Annual Report of National Bank of Ethiopia.

Table 3.1 reveals that there is a general increase in the processing of hides and skins by local tanneries although there is some fluctuation from year to year. When the data set is analyzed by grouping into two periods, that is, between 4792/93-4796/97 and between 4797/98-2001/02 the following facts are observed.

- Domestic production/processing of hides and skins, mainly crust and wet-blue hides which was about 5.3 million sq.ft. on the average between 4792/93-4796/97 has increased to an average of about 6.1 million sq.ft. Between the two periods, there is an increase of about 15.5% on the average.
- Average domestic production/processing of skins between the above two cited periods have increased by about 35%. The average production which was 12 million Pcs of skins between 4792/93-4797 has reached to a level of about 16.3 million Pcs.
- The export volume of semi-processed hides and skins have shown a significant change during the past 10 years. During the period 4792/93-4796/97, the annual average volume of export was about 7,590 tonnes. This level has increased to an average of 9,612 tonnes between the years 4797/98-2001/02. The growth rate between the two periods was almost 27%.
- Export earning from hides and skins between the two periods have shown a significant increase. During the period 4792/93-4796/97, the annual average earning was about Birr 278.7 million. This has increased to a level of Birr 397.1 million during the period 4797/98-2001/02. In terms of value, the increase is by about 42% during the two periods.

Although the processing of raw hides and skins as well as export volume has increased in the past 10 years due to the banning of exporting raw hides and skins, a substantial quantity of raw hides and skins are not collected mainly for the following reasons.

- Private collectors are only operating in places where easy collection is possible and areas where collection is more difficult are neglected.
- Large quantities of hides and skins are lost on account of smuggling.

The tanneries in Ethiopia are mainly located in Addis Ababa and its surroundings and few in the Northern part of the country. As a result, the country is loosing a considerable amount of the raw material which is exported illegally or not collected and utilized at all. This is particularly true for the southern, eastern and western part of Ethiopia. In view of the existing wide export market opportunity and availability of raw material in the BGRS, it is necessary to support the establishment of a small scale tannery. At country level, the export potential as depicted in Table 3.1 is more than 10 thousand tonnes of hides and skins.

The tannery to be established in BGRS is going to process upto finished leather level has a very wide market. Thus, for plant capacity determination, the main factors to be considered is the amount of raw hides and skins to be collected in the region and the capacity of the project which processes upto crust leather.

According to the data obtained from the three year plan of the region, the livestock population is 253,702 cattle, 102,289 sheep and 240,848 goats. Taking the average off-take rate of 89%, 30% and 35% for cattle, sheep and goat, respectively, the raw hides and skins in the region would be as follows:

- Hides……..20,296
- Sheep skin 30,687
- Goat skin.....84,296

Since the total hides & and skins produced in the region is not expected to be collected, about 85% is assumed to be supplied to the market and processed upto crust level. Thus, the present amount of hides and skins to be processed upto crust level is estimated as follows:-

- Hides…….....…..17,252
- Sheep skins……...26,084
- Goat skins…….....71,652

2. Proected Demand

As indicated earlier, there is a very wide market for semi-processed hides & and skins. The limiting factor, thus would be the amount of crust leather to be supplied. On the other hand, it is believed that the collection system of hides and skins will be improved as a result of the development of infrastructure in remote areas. Moreover, contra band/illegal trade will be minimized due to the various measures which are being implemented by the government. Considering these positive trends, an annual average growth rate of 5% is applied for the future demand, taking the present demand/supply as a base. The demand projection based on the supply of the raw material is given in Table 3.2.

Table 3.2
PROJECTED DEMAND FOR FINISHED LEATHER FOR A PROJECT TO BE ESTABLISHED IN BGRS (IN PIECES)

Year	Hides	Sheep & Goat Skins	Total
2004	17252	97736	114988
2005	18115	102623	120738
2006	47020	107754	126774
2007	47971	113142	133113
2008	20970	118798	139768
2009	22018	124739	146757
2010	23147	130976	154095
2011	24275	137524	161799
2012	25489	144400	169889
2013	26763	151621	178384
2014	28102	159202	187304
2015	29500	167162	476668

3. Pricing and Distribution

Considering the past 2-3 years average prices for finished leather, the following prices are adopted for sales projections.

- Finished hides leather = Birr 130
- Finished sheep leather = Birr 110
- Finished goat leather = Birr 95

Finished leather would be supplied to the domestic and export market. In the case of the domestic market, two channels can be employed. For bulk buyers such as shoe factories, it can be supplied directly without any intermediaries. For those who require in small amount, enterprises that are engaged in the sale of leather and leather products can be employed. In the case of export, it can be supplied directly to interested buyers.

B. PLANT CAPACITY AND PRODUCTION PROGRAMME

1. Plant Capacity

The market study reveals that there is high demand for finished leather both in local and international market. So, the factor for determining capacity are availability of raw material and minimum economies of scale for the finished leather plant. The proposed capacity for the envisaged plant by considering the above factors is to process 17,252

hides, 26,084 sheep skins and 71,652 goat skins from the crust leather stage to finished leather.

2. Production Programme

The plant will start its operation at 70% of its full capacity in the first year with a 10% build-up of capacity every year reaching full capacity in the fourth year and thenafter; taking the skill development and market penetration problems into consideration. The plant will operate for 300 days in a year, working under three shirt system of 8 hours day each.

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

The main raw materials required for the plant are crust leather, various water based combinations of resins, binders, dyes, pigments and luckur emulsion. The amount of raw material and their respective cost is depicted in Table 4.1 below. The total cost of raw materials is estimated at Birr 8.7 million, out of this Birr 6.96 million is required in foreign currency.

Table 4.1

ANNUAL RAW MATERIALS REQUIREMENT AND COST

Sr. No.	Types of Raw Materials	Unit of Measures	Qty.	Cost ('000)		
				FC	LC	TC
1	Crust hides	Pcs	17,252	-	1431.916	1431.916
2	Crust sheep skin	Pcs	26,084	-	1878.048	1878.048
3	Crust goat skin	Pcs	71,652	-	4299.120	4299.120
4	Resins and binders	tonnes	27	810	-	810
5	Pigment paste	tonnes	10	140	-	140
6	Lacquer emulsions	tonnes	3.5	140	-	140
7	Formaldehyde (30%)	kg	650	1.95	-	1.95
	Grand Total			**1091.95**	**7608.084**	**8700.034**

B. UTILITIES

The utilities required by the finished leather manufacturing plant are fuel oil, water and electricity. 50,000 liters of fuel oil, 60,000 kWh of electricity and 5000 m^3 of water is estimated to be utilized annually by the project. The total cost of utilities is estimated at Birr 188,440.

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

The processes involved for the production of finished leather from the crust leather stage are presented as follows.

Conditioning by uniformly increasing the water content in the dried leather is necessary before staking. A grain damaged leather can be improved considerably by butting the grain surface, the resulting products is called corrected leather. After butting the leather dust has to be removed because it would interfere with a proper finishing.

Planting will close and smooth any coat of binders and resins. Several coatings of various kinds are normally necessary to supply colour and wear resistance to grain side.

Embossing is a way of pressing a specific pattern, e.g, a reptile grain, into the cattle hide grain. The new pattern will cover many grain damages and is consequently used primarily on the lowest leather qualities. Before dispatch, the product will be sorted and measured.

2. Source of Technology

The machinery and equipment for the production of finished leather can be obtained from the following American Company.

Hohenforest Machinery Co.
300 forest AV Amsterdam
New York 12010, USA
Tel. 1-518-842-0011
Fax 1-518-842- 3771
Email HOHEN MACH@aol.com.

B. ENGINEERING

1. Machinery & Equipment

The machinery and equipment required for the finished leather production plant from crust leather as a raw material are listed in Table 5.1 below. The total cost of machinery and equipment is estimated at Birr 7,830,000, out of which Birr 6,264,000 is required in foreign currency. The plant needs three pick-ups for transportation of finished product and for office activities. The total cost of vehicles is estimated at Birr 450,000.

Table 5.1
LIST OF MACHINERY AND EQUIPMENT

Sr. No.	Description	Qty.
1.	Vibrating staking machine	1
2.	Jaw stoking machine	1
3.	Buffing machine	2
4.	Air blast, dust removing machine	1
5.	Curtain coater with drier	1
6.	Brushing machine with drier	1
7.	Spraying machine with drier	1
8.	Rotary plating machine	1
9.	Hydraulic press	1
10.	Measuring machine	1
11.	Balance heavy duty	1
12.	Air compressor	1
13.	Embossing plates, scales, hand tools, transport coates, pallets, work tables and piping	

2. Land Building and Civil Works

The plant requires a total area of 5000m^2 for raw material store, chemicals store, production area, finish mixing room, grading / packing room, mechanical workshop, boiler room, administration offices, open space for future expansion and site for the treatment plant for effluent. The built-up area is estimated to be 1800 m^2.

Assuming unit construction cost rate of Birr 1200 per m^2, the total construction cost is estimated to be Birr 260,000. The land lease value assuming a lease rate of Birr 1.5 per m^2 and for 70 years of holding period, is estimated at Birr 525,000. Therefore, the total cost of land, building and civil works assuming that the total land lease cost will be paid in advance is estimated to be Birr 2,685,000.

3. Proposed Location

The plant is best located near major raw material source to avoid bulk transportation of raw material, and also near the source of process water. Since the crust leather plant is proposed to be located at Assosa or Bullen by their high density of live stock, the finished leather plant is proposed to be located at same place.

VI. MANPOWER AND TRAINING REQUIREMENT

A. MANPOWER REQUIREMENT

Table 6.1 shows the detailed manpower requirement of the plant and the monthly and annual salary. A total of 59 employees are required for the smooth operation of the plant. The annual cost of manpower including fringe benefits is estimated at Birr 568,500.

Table 6.1

MANPOWER REQUIREMENT AND ANNUAL LABOUR COST (BIRR)

Sr. No.	Description	Req. No.	Monthly Salary	Annual Salary
1	General manager	1	2500	30,000
2	Executive secretary	1	900	10,800
3	Production and technic manager	1	2000	24,000
4	Commercial manager	1	1800	21,600
5	Finance and admin. manager	1	1800	21,600
6	Typist	3	600	21,600
7	Purchaser	1	900	10,800
8	Sales person	1	900	10,800
9	Personnel	1	800	9,600
10	General service head	1	800	9,600
11	Time keeper	3	450	16,200
12	Store keeper	2	450	10,800
13	Mechanics	2	600	14,400
14	Electricians	2	600	14,400
15	Chemist	2	900	21,600
16	Supervisors	3	900	32,400
17	Skilled operators	12	600	86,400
18	Laborers	10	300	36,000
47	Cashier	1	450	5,400
20	Accountant	2	900	21,600
21	Guard	6	200	14,400
22	Driver	2	450	10,800
	Sub-total	**59**		**454,800**
	Employees benefit 25% monthly salary			113,700
	Grand total			**568,500**

B. TRAINING REQUIREMENT

Production personnel, chemists and technical personnel need a training on the production process, product quality and operation and maintenance of machinery and equipment (on-job-training) during the commissioning period for about one month by the expert of machinery supplier. The cost of training is estimated at Birr 50,000.

VII. FINANCIAL ANALYSIS

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

Construction period	1 years
Source of finance	30 % equity
	70 % loan
Tax holidays	6years
Bank interest	7.5 %
Discounted cashflow	8.5 %
Repair and maintenance	3 % of the total plant and machinery
Accounts receivable	30 days
Raw material, local	30 days
Raw materials, import	90 days
Work in progress	5 days
Finished products	15 days
Cash in hand	5 days
Accounts payable	30 days

A. TOTAL INITIAL INVESTMENT COST

The total initial investment cost of the project including working capital is estimated at 12.6 million, of which 64 per cent will be required in foreign currency.

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 ('000 BIRR)
1	Land lease value	525.00
2.	Building and Civil Work	2,160.00
3.	Plant Machinery and Equipment	7,830
4.	Office Furniture and Equipment	50
5.	Vehicle	450
6.	Pre-production Expenditure*	11,015
7	Working Capital	897
	Total Investment cost	**12,637.2**
	Foreign share	**64%**

* *N.B Pre-production expenditure includes interest during construction (Birr670.2 thousand), training (Birr 55 thousand), and (Birr 5 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 of the plant is estimated at Birr 11.2 million (see Table 7.2). The material and utility cost accounts for 79.5 per cent while depreciation and financial cost take 14.4 per cent of the production cost.

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

Items	Cost	%
Raw Material and Inputs	8,699	43.6
Utilities	188.4	1.7
Maintenance and repair	55.1	0.5
Labour direct	454	4.1
Factory overheads *	113.7	1.0
Administration Cost **	50.0	0.4
Total Operating Costs	**9561.0**	**85.6**
Depreciation	1023.3	9.2
Cost of Finance	588.1	5.3
Total Production Cost	**11,172.3**	**100**

C. FINANCIAL EVALUATION

1. Profitability

According to the projected income statement, the project will start generating profit in the 2nd 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 lifetime of the project.

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

* *Factory overhead cost includes salaries and wages of supervisors, insurance of factory workers, social costs on salaries of direct labour, etc.*

** *Administrative cost includes salaries and wages, insurance, social costs, materials and services used by administrative staff etc.*

2. Break-even Analysis

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

$$BE = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable cost}} = 71\ \%$$

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 7 years.

4. Internal Rate of Return and Net Present Value

Based on the cash flow statement, the calculated IRR of the project is 14 % and the net present value at 8.5% discount rate is Birr 4.38 million.

D. ECONOMIC BENEFITS

The project can create employment for 59 persons. In addition to supply of the domestic needs, the project will generate Birr 0.3 million per annum in terms of tax revenue when it starts to operate at full capacity. Moreover, the Regional Government can collect employment, income tax and sales tax revenue. The establishment of such factory will have a foreign currency earning effect to the country by exporting the product to the international market.