98. PROFILE ON THE PRODUCTION OF LEATHER UPHOLSTERY

TABLE OF CONTENTS

I. SUMMARY

This profile envisages the establishment of a plant for the production of leather upholstery with a capacity of 100 tons per annum. Leather upholstery is made from hides/skins of bovine species origin and is used as a part for the preparation of high quality sofa, chairs and vehicles' seats.

The demand for leather upholstery is met through local production and import. The present (2012) unsatisfied demand for leather upholstery is estimated at 54,152 kg. The unsatisfied demand for leather upholstery is projected to reach 106,799 kg and 211,396 kg by the year 2017 and 2022, respectively.

The principal raw materials required by the envisaged plant are tanned leather, coloring dye, and treatment chemicals such as varnish, blend of polyurethane and acrylic which are locally available.

The total investment cost of the project including working capital is estimated at Birr 18.96 million. From the total investment cost the highest share (Birr 14.77 million or 77.91%) is accounted by fixed investment cost followed by initial working capital (Birr 2.28 million or 12.05%) and pre operation cost (Birr 1.90 million or 10.04%). From the total investment cost, Birr 7.62 million or 40.17% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 20.22% and a net present value (NPV) of Birr 9.01 million, discounted at 10%.

The project can create employment for 31 persons. The establishment of such factory will have a foreign exchange earning effect through export and a foreign exchange saving effect to the country by substituting the current imports. The project will also create backward linkage with tanneries and forward linkage with the furniture manufacturing and automotive sub sectors and also generates income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTION AND APPLICATION

Leather upholstery is made from hides/skins of bovine species origin. It is used as a part for the preparation of high quality sofa, chairs and vehicles' seats. The product is a high quality input for making the above mentioned types of furniture and car seats.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

The demand for leather upholstery is closely related to the demand for high quality furniture making such as sofas and chairs for Offices and residential houses. It is also highly required for car seats making.

The local demand for leather upholstery is met through local production and import. However, even though local tanneries interviewed for this study have revealed that they produce leather upholstery based on order a complete data on local production of leather upholstery is not available. Therefore, for estimating the local demand for the product the unsatisfied demand i.e. the demand which is met through import is considered.

The data source for imported commodities "Ethiopian Revenue and Customs Authority" classifies imported leather upholstery under the name patent and laminated leather and composition leather. Accordingly, the quantity and value of leather upholstery imported during the period 2002-2011 is given in Table 3.1.

Table 3.1
IMPORT OF LEATHER UPHOLSTERY

Year	Volume (KG)	Value (Birr)
2002	6,451.0	124,344
2003	4,298.0	85,120
2004	3,880.0	71,863
2005	4,069.0	113,384
2006	3,585.0	88,778
2007	6,160.0	116,988
2008	65.0	47,277
2009	-	-
2010	4,759.0	630,392
2011	5,821.5	484,570

Source:- Ethiopian Revenue and Customs Authority.

As can be seen from Table 3.1, import of leather upholstery fluctuates from year to year during the period 2002--2011. Import has registered the highest figure during the year 2002 (6,451 kg). During the next four years (2003 – 2006) the average annual import has decreased to 3,958 kg which has jumped again to 6,160 kg in 2007. However, import has again significantly decreased in 2008 and was nil in 2009. Nevertheless, import has then increased to 4,759 kg and 5,821.5 kg in 2010 and 2011, respectively.

Therefore, due to the fluctuating nature of the import data it is assumed that the recent two years (2010-2011) average can reasonably approximate the present unsatisfied demand. Accordingly. the present (2012) unsatisfied demand for leather upholstery is estimated at 5,290 kg.

Moreover, leather upholstery has a substantial export potential. Therefore, it can be concluded that the existing finished leather export from Ethiopia can be further value added and exported as leather upholstery. Accordingly, export of finished leather for the period 2003-2011 is shown in Table 3.2.

Table 3.2

EXPORT OF FINISHED LEATHER (KG)

Year	Export
2003	460,775.0
2004	191,460.0
2005	334,971.0
2006	142,615.0
2007	34,458.0
2008	89,593.0
2009	56,022.4
2010	115,934.5
2011	351,525.3

Source: - *Ethiopian Revenue and Customs Authority.*

As can be seen from Table 3.2, export of finished leather, during the period 2003-2007, ranges from 460,775 kg to 34,458 kg with a general decreasing trend at an average annual rate of 29%. However, during the period 2009-2011 export has exhibited a consistent year to year growth except for 2009 increasing from 89,593 kg to 351,523 kg. This is believed to be due to the various measures undertaken by the government for promoting the export of value added leather products such as finished leather.

In estimating the present export demand, a growth rate of 39 % which is equivalent to average annual growth rate of the product's export during the period 2003-2011 is considered. Accordingly, taking the 2011 level of export as a base and applying a growth rate of 39%, the present (2012) export demand for finished leather is estimated at 488,620 kg. Accordingly assuming that 10% of the finished leather export can be substituted by leather upholstery, the present export demand for leather upholstery is estimated at 48,862 kg.

Accordingly, the present local unsatisfied demand and export demand for leather upholstery is estimated at 54,152 kg.

2. Demand Projection

The demand for leather upholstery depends on the need for luxury furniture making like sofas and chairs. The product is also required for car seats making and replacement. Therefore, the demand for the product depends mainly on the growth of income of the population. Hence, in order to be conservative a growth rate of 10% which is slightly lower than the expected growth rate of the national income during the GTP period is used to project the local demand for the product.

Regarding export even though the product has a substantial global demand, in order to be conservative a growth rate of 15% which is equivalent to the growth rate of the value of Ethiopia's total export during the period 2005-2010 is used.

Accordingly, based on above assumption the projected local and export demand for leather upholstery is shown in Table 3.3.

Table 3.3

LEATHER UPHOLSTERY DEMAND PROJECTION (KG)

Year	Unsatisfied Local Demand	Export Demand	Total Demand
2013	5,819	56,191	62,011
2014	6,401	64,620	71,021
2015	7,041	74,313	81,354
2016	7,745	85,460	93,205
2017	8,520	98,279	106,799
2018	9,372	113,021	122,393
2019	10,309	129,974	140,283
2020	11,340	149,470	160,810
2021	12,474	171,891	184,365
2022	13,722	197,674	211,396

3. Pricing and Distribution

As per the import statistics, the average CIF price in 2011 was Birr 97.23 per kg. Allowing for duty and other import related expenses, the recommended factory-gate price is Birr 131 per kg.

Distribution of the product in the local market will be direct delivery to furniture and car seat making shops. The export will be through agents or direct to end -users.

B. PLANT CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

The envisaged plant will have a production capacity of 100 tons of leather upholstery per annum.

2. Production Program

The proposed plant is planned to function for about 240 days a year in a single shift of 8 hours a day production system. The plant will start production at 80%, 90% and 100% capacity in the first, second and third year and then after, respectively.

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

The raw materials required for the preparation of leather upholstery are tanned leather, coloring dye, usually black, and treatment chemicals such as varnish, blend of polyurethane and acrylic. These two materials have different characteristics. Polyurethane gives hard finish, shiny and durable, but acrylic results in a more flexible final product. So leather chemists combine the two for optimum qualities. The actual finish used thus will be different from tannery to tannery, and perhaps from batch to batch. The annual raw material requirement at full capacity operation for the envisaged plant is tabulated in Table 4.1.

Table 4.1

ANNUAL RAW MATERIAL REQUIREMENT AND COST

Sr. No.	Description	Quantity	Cost (000 Birr)
1	Tanned/crust leather(ton) ~161539sqft	115.0	6,050
2	treatment chemical/cross linker(ton)	5.5	660
3	Colorings(ton)	8.0	560
2	Packing material(LS)		150
	Total		**7,420**

B. UTILITIES

Major utilities for patent leather production are electrical energy for running machines, mainly the drying and spraying operation, and light for the factory and office application. Water is also one input for wetting of leather, cleaning and consumption. The annual consumption of these utilities is shown in Table 4.1.

Table 4.1

ANNUAL CONSUMPTION OF UTILITIES AND COST

Sr. No.	Description	Qty.	Cost ('000 Birr)
1	Electric power (kWh)	6,500	3.77
2	Water (m^3)	1,500	15.00
3	**Total**	**-**	**18.77**

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Process Description

The envisaged plant starts the operation using crust leather as a starter material. A variety of ingredients, generally consisting of polyurethane and/or lacquer among other ingredients, and are applied to the leather hide. Generally, several coats are applied to the hide, with a vacuum drying process performed between each coat. The first coat is designed to penetrate the leather; the second coat contains the dye, while the third coat becomes the glossy, waterproof finish.

2. Environmental Impact Assessment

There are several potential sources of air emissions from the envisaged plant. Emissions of VOC may occur during finishing processes, if organic solvents are used, and during other processes, such as fat liquoring and drying. The envisaged plant uses and implements water-based coatings to reduce VOC emissions. Control devices, such as thermal oxidizers, are used less frequently to reduce VOC emissions. Having the necessary waste management facilities, the envisaged plant ensures that the wastes generated from the process are within the standard of the country as well as international regulation norms.

B. ENGINEERING

1. Machinery and Equipment

The total cost of the machinery and equipment is estimated at Birr 10.43 million. The machinery and equipment required along with estimated cost are listed in Table 5.1.

Table 5.1

MACHINERY AND EQUIPMENT REQUIREMENT AND COST

Sr. No.	Items	Qty. No.	Cost '000 Birr		
			FC	LC	Total
1	Buffing and de dusting m/c	1	1320		1320.00
2	Vacuum Dryer m/c	1	2100	-	2100.00
3	Roller coater m/c	1	2400		2400.00
4	Embossing m/c	1	1400		1400.00
5	Slickers and hangers	LS		280.00	280.00
6	Trimming table	2		0.40	0.40
7	Spraying machine	1	400	-	400.00
8	Plates	LS		250.00	250.00
	F.O.B		**7620**	**-**	**7620**.00
	C & F		-	2286.00	2286.00
	Grand Total		**7620**	**2816.40**	**10,436.40**

2. Land, Building and Civil Works

The plant requires a total area of 1,500 m^2 for raw material store, chemicals store, production area, packing room, mechanical workshop, administration offices, open space for future expansion and site for the treatment plant for effluent. The built-up area is estimated to be 900 m^2. Assuming unit construction cost rate of Birr 3,500 per m^2, the total construction cost is estimated to be Birr 3,150,000.

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 m^2, 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 m^2 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 m^2. 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 m^2 .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 m^2 (see Table 5.2).

Table 5.2

NEW LAND LEASE FLOOR PRICE FOR PLOTS IN ADDIS ABABA

Zone	Level	Floor Price/m^2
Central Market District	1st	1686
	2nd	1535
	3rd	1323
	4th	1085
	5th	894
Transitional zone	1st	1035
	2nd	935
	3rd	809
	4th	685
	5th	555
Expansion zone	1st	355
	2nd	299
	3rd	217
	4th	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 m^2 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 criterions 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 m^2 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. HUMANRESOURCE AND TRAINING REQUIREMENT

A. HUMANRESOURCE REQUIREMENT

The envisaged plant requires a total of 31 work forces. The list of manpower required and corresponding labor cost is shown in Table 6.1.

Table 6.1

HUMANRESOURCE REQUIREMENT AND ANNUAL LABOR COST

Description	Required Number	Salary in Birr	
		Monthly	Annually
A. Administrative staff			
1. Manager	1	8,000	9,6000
2. Secretary	1	2,500	3,0000
3. Accounting clerk	1	2,500	3,0000
4. Store man	1	3,000	3,6000
5. Guards	6	800	5,7600
Sub-Total	**10**		**24,9600**
B. **Production staff**			
1. Production head	1	6,000	72,000
2. Supervisor	1	3,500	42,000
3. Machine operators	7	1,800	151,200
4. Mechanic /Electrician	2	2,500	60,000
5. Unskilled /workers	10	600	72,000
Sub-Total	**21**		**397,200**
Total (A+B)			**646,800**
Benefits (20%)			129,360
Total	**31**		**776,160**

B. TRAINING REQUIREMENT

Training of supervisor and production workers is required to upgrade the skill of patent leather production. For this local leather institute can provide the training in their premises and as well the machinery supplier can provide adequate training regarding to the operation and maintenance of machines. A total of Birr 80,000 is sufficient to undertake the training for a period of one month.

VII. FINANCIAL ANALYSIS

The financial analysis of the leather upholstery 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	10%
Discount cash flow	10%
Accounts receivable	30 days
Raw material local	30 days
Raw material imported	120 days
Work in progress	5 days
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 18.96 million (see Table 7.1). From the total investment cost the highest share (Birr 14.77 million or 77.91%) is accounted by fixed investment cost followed by initial working capital (Birr 2.28 million or 12.05%) and pre operation cost (Birr 1.90 million or 10.04%). From the total investment cost, Birr 7.62 million or 40.17% 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	0.21
1.2	Building and civil work	3,150.00		3,150.00	16.61
1.3	Machinery and equipment	2,816.40	7,620.00	10,436.40	55.03
1.4	Vehicles	900.00		900.00	4.75
1.5	Office furniture and equipment	250.00		250.00	1.32
	Sub -total	**7,156.30**	**7,620.00**	**14,776.30**	**77.91**
2	**Pre operating cost ***				
2.1	Pre operating cost	663.09		663.09	3.50
2.2	Interest during construction	1,240.68		1,240.68	6.54
	Sub -total	**1,903.77**		**1,903.77**	**10.04**
3	**Working capital**	**2,284.67**		**2,284.67**	**12.05**
	Grand Total	**11,344.75**	**7,620.00**	**18,964.75**	**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 2.53 million. However, only the initial working capital of Birr 2.28 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 12.84 million (see Table 7.2). The cost of raw material account for 57.77% of the production cost. The other major components of the production cost are depreciation, financial cost and labor which account for 19.86%, 10.63% and 5.04%, respectively. The remaining 6.70% is the share of utility, repair and maintenance, marketing and distribution, 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	7,420.00	57.77
Utilities	19.00	0.15
Maintenance and repair	313.00	2.44
Labor direct	647.00	5.04
Labor overheads	129.00	1.00
Administration Costs	150.00	1.17
Land lease cost	-	-
Cost of marketing and distribution	250.00	1.95
Total Operating Costs	**8,928.00**	**69.51**
Depreciation	2,550.90	19.86
Cost of Finance	1,364.75	10.63
Total Production Cost	**12,843.65**	**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 656 thousand to Birr 3.08 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 24.72 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.

$$\text{Break -Even Sales Value} = \frac{\text{Fixed Cost + Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 7{,}841{,}585$$

$$\text{Break -Even Capacity utilization} = \frac{\text{Break- even Sales Value}}{\text{Sales revenue}} \times 100 = 58\ \%$$

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 5 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 20.22% 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 9.01 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 31 persons. The project will generate Birr 6.10 million in terms of tax revenue. The establishment of such factory will have a foreign exchange earning effect through export and a foreign exchange saving effect to the country by substituting the current imports. The project will also create backward linkage with tanneries and forward linkage with the furniture manufacturing and automotive sub sectors and also generate other income for the Government.

Appendix 7.A

FINANCIAL ANALYSES SUPPORTING TABLES

Appendix 7.A.1
NET WORKING CAPITAL (in 000 Birr)

Items	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Total inventory	1,669.50	1,855.00	1,855.00	1,855.00	1,855.00	1,855.00	1,855.00	1,855.00	1,855.00	1,855.00
Accounts receivable	671.68	744.00	744.00	744.00	745.07	745.07	745.07	745.07	745.07	745.07
Cash-in-hand	15.49	17.21	17.21	17.21	17.39	17.39	17.39	17.39	17.39	17.39
CURRENT ASSETS	**2,356.67**	**2,616.21**	**2,616.21**	**2,616.21**	**2,617.46**	**2,617.46**	**2,617.46**	**2,617.46**	**2,617.46**	**2,617.46**
Accounts payable	72.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
CURRENT LIABILITIES	**72.00**	**80.00**	**80.00**	**80.00**	**80.00**	**80.00**	**80.00**	**80.00**	**80.00**	**80.00**
TOTAL WORKING CAPITAL	**2,284.67**	**2,536.21**	**2,536.21**	**2,536.21**	**2,537.46**	**2,537.46**	**2,537.46**	**2,537.46**	**2,537.46**	**2,537.46**

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	6,678	7,420	7,420	7,420	7,420	7,420	7,420	7,420	7,420	7,420
Utilities	17	19	19	19	19	19	19	19	19	19
Maintenance and repair	282	313	313	313	313	313	313	313	313	313
Labour direct	582	647	647	647	647	647	647	647	647	647
Labour overheads	116	129	129	129	129	129	129	129	129	129
Administration Costs	135	150	150	150	150	150	150	150	150	150
Land lease cost	0	0	0	0	13	13	13	13	13	13
Cost of marketing and distribution	250	250	250	250	250	250	250	250	250	250
Total Operating Costs	**8,060**	**8,928**	**8,928**	**8,928**	**8,941**	**8,941**	**8,941**	**8,941**	**8,941**	**8,941**
Depreciation	2,551	2,551	2,551	2,551	2,551	151	151	151	151	151
Cost of Finance	0	1,365	1,194	1,024	853	682	512	341	171	0
Total Production Cost	**10,611**	**12,844**	**12,673**	**12,502**	**12,345**	**9,774**	**9,604**	**9,433**	**9,262**	**9,092**

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	12,150	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500
Less variable costs	7,810	8,678	8,678	8,678	8,678	8,678	8,678	8,678	8,678	8,678
VARIABLE MARGIN	**4,340**	**4,822**	**4,822**	**4,822**	**4,822**	**4,822**	**4,822**	**4,822**	**4,822**	**4,822**
in % of sales revenue	35.72	35.72	35.72	35.72	35.72	35.72	35.72	35.72	35.72	35.72
Less fixed costs	2,801	2,801	2,801	2,801	2,814	414	414	414	414	414
OPERATIONAL MARGIN	**1,539**	**2,021**	**2,021**	**2,021**	**2,008**	**4,408**	**4,408**	**4,408**	**4,408**	**4,408**
in % of sales revenue	12.67	14.97	14.97	14.97	14.88	32.65	32.65	32.65	32.65	32.65
Financial costs		1,365	1,194	1,024	853	682	512	341	171	0
GROSS PROFIT	**1,539**	**656**	**827**	**998**	**1,155**	**3,726**	**3,896**	**4,067**	**4,238**	**4,408**
in % of sales revenue	12.67	4.86	6.13	7.39	8.56	27.60	28.86	30.13	31.39	32.65
Income (corporate) tax	0	0	0	0	0	1,118	1,169	1,220	1,271	1,322
NET PROFIT	**1,539**	**656**	**827**	**998**	**1,155**	**2,608**	**2,727**	**2,847**	**2,966**	**3,086**
in % of sales revenue	12.67	4.86	6.13	7.39	8.56	19.32	20.20	21.09	21.97	22.86

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	**15,439**	**15,747**	**13,508**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**5,708**
Inflow funds	15,439	3,597	8	0	0	0	0	0	0	0	0	0
Inflow operation	0	12,150	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	0
Other income	0	0	0	0	0	0	0	0	0	0	0	5,708
TOTAL CASH OUTFLOW	**15,439**	**11,658**	**12,258**	**11,828**	**11,658**	**11,501**	**12,447**	**12,327**	**12,208**	**12,089**	**10,263**	**0**
Increase in fixed assets	15,439	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	2,357	260	0	0	1	0	0	0	0	0	0
Operating costs	0	7,810	8,678	8,678	8,678	8,691	8,691	8,691	8,691	8,691	8,691	0
Marketing and Distribution cost	0	250	250	250	250	250	250	250	250	250	250	0
Income tax	0	0	0	0	0	0	1,118	1,169	1,220	1,271	1,322	0
Financial costs	0	1,241	1,365	1,194	1,024	853	682	512	341	171	0	0
Loan repayment	0	0	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	0	0
SURPLUS (DEFICIT)	**0**	**4,090**	**1,250**	**1,672**	**1,842**	**1,999**	**1,053**	**1,173**	**1,292**	**1,411**	**3,237**	**5,708**
CUMULATIVE CASH BALANCE	**0**	**4,090**	**5,340**	**7,011**	**8,854**	**10,853**	**11,906**	**13,079**	**14,371**	**15,782**	**19,019**	**24,727**

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**	**12,150**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**13,500**	**5,708**
Inflow operation	0	12,150	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	0
Other income	0	0	0	0	0	0	0	0	0	0	0	5,708
TOTAL CASH OUTFLOW	**17,724**	**8,312**	**8,928**	**8,928**	**8,929**	**8,941**	**10,059**	**10,110**	**10,161**	**10,212**	**10,263**	**0**
Increase in fixed assets	15,439	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	2,285	252	0	0	1	0	0	0	0	0	0	0
Operating costs	0	7,810	8,678	8,678	8,678	8,691	8,691	8,691	8,691	8,691	8,691	0
Marketing and Distribution cost	0	250	250	250	250	250	250	250	250	250	250	0
Income (corporate) tax		0	0	0	0	0	1,118	1,169	1,220	1,271	1,322	0
NET CASH FLOW	**-17,724**	**3,838**	**4,572**	**4,572**	**4,571**	**4,559**	**3,441**	**3,390**	**3,339**	**3,288**	**3,237**	**5,708**
CUMULATIVE NET CASH FLOW	**-17,724**	**-13,886**	**-9,314**	**-4,742**	**-171**	**4,388**	**7,830**	**11,220**	**14,559**	**17,847**	**21,084**	**26,792**
Net present value	-17,724	3,489	3,779	3,435	3,122	2,831	1,943	1,740	1,558	1,394	1,248	2,201
Cumulative net present value	-17,724	-14,235	-10,456	-7,021	-3,899	-1,068	874	2,614	4,172	5,566	6,814	9,015

NET PRESENT VALUE	9,015
INTERNAL RATE OF RETURN	20.22%
NORMAL PAYBACK	5 years