PROFILE ON THE PRODUCTION OF GRAIN MILL BELT (CONVEYOR BELT OF TEXTILE)

Table of Contents

I. SUMMARY

This profile envisages the establishment of a plant for the production of grain mill belt (conveyor belt of textile) with a capacity of 30,000 kg per annum. Grain mill belt (conveyor belt of textile) is used for power transmission purposes by connecting driving and driven pulleys of machinery. Transmission pulleys are widely used in industrial, agricultural, construction and other operations to transmit power.

The demand for grain mill belt is entirely met through import. The present (2012) demand for grain mill belt is estimated at 33,141 kg. The demand for grain mill belt is projected to reach 53,374 kg and 85,960 kg by the year 2017 and 2022, respectively.

The principal raw material required is mixed cotton- acrylic yarn which has to be imported.

The total investment cost of the project including working capital is estimated at Birr 6.74 million. From the total investment cost, the highest share (Birr 5.12 million or 75.92%) is accounted by fixed investment cost followed by pre operation cost (Birr 881.31 thousand or 13.06%) and initial working capital (Birr 743.09 thousand or 11.02%). From the total investment cost, Birr 2.60 million or 38.54% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 23.00% and a net present value (NPV) of Birr 4.58 million, discounted at 10%.

The project can create employment for 19 persons. The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports. The project will also create backward linkage with the textile manufacturing (sewing thread) subsector and forward ward linkage with the food processing subsector and also generates income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTION AND APPLICATION

Grain mill belt (conveyor belt of textile) is used for power transmission purposes by connecting driving and driven pulleys of machinery. Transmission pulleys are widely used in industrial, agricultural, construction and other operations to transmit power.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Present Demand and Supply

Grain mills constitute the major end users of grain mill belt. Though grain mill belts could possibly be made of different materials, only conveyor belt of textile are considered for this study. Currently, the demand for the product is met through imports and hence import data is used in estimating the demand for the product. The amount of imports of the product during the period 2000 - 2011 is depicted in Table 3.1.

Table 3.1

IMPORTS OF GRAIN MILL BELT /CONVEYOR BELT OF TEXTILES (KG)

Year	Quantity
2001	32,428
2002	588
2003	26,267
2004	3,088
2005	3,402
2006	32,452
2007	10,702
2008	7,472
2009	59,840
2010	59,975
2011	5,277
Average	**21,266**

Source: *Ethiopian Revenues & Customs Authority.*

The import data presented in Table 3.1 is highly erratic. During the period 2002--2011 imports of grain mill belt varied from 588 kg in 2002 to 59,975 kg in 2010. Generally, a huge fluctuation is observed in the past eleven years. For instance imported quantity in the year 2001 was 32,428 kg and suddenly fell to 588 kg in the following year of 2002 and increased again to 26,267 kg in the year 2003. The erratic nature of import has continued in the remaining years. During 2004--2005 the level of import was about 3,000 kg but sharply increased to 32,452 kg in the year 2006. Similarly imported quantity fluctuated from 5,277 kg to 59,975 kg during the period 2007 to 2011. The high fluctuations observed in the import data is believed to be due to stock carry over from periods where import was high to periods in which import is low.

Due to absence of a trend in the data set the recent four years average of import is assumed to fairly reflect the present (2012) demand. Accordingly, the present demand is estimated at 33,141 kg.

2. Demand Projection

As stated above, the demand for grain mill belt is derived from the demand for grain mill and hence from the demand for flour, which in turn is mainly influenced by population growth and income. Based on the significant annual population and economic growth and the significant average annual growth in the production of flour in the country (22.2%) observed during 2005-2010, a modest estimate of average annual growth rate of 10% is assumed in projecting the future demand for grain mill belt. The projected demand for the product is depicted in Table 3.2.

Table 3.2

PROJECTED DEMAND OF GRAI MILL BELT (KG)

Year	Quantity
2013	36,455
2014	40,100
2015	44,111
2016	48,522
2017	53,374

2018	58,712
2019	64,583
2020	71,041
2021	78,145
2022	85,960

3. Pricing and Distribution

Based on the customs data for 2011 (the latest data available), the CIF price of grain mill belt was Birr 59.50 per kg. Allowing 20% for import duty and other clearing expensed, the factory gate price for the envisaged plant is estimated at Birr 71.40 per kg.

The envisaged plant can use the existing grain mill and spare parts wholesale and retail channels to distribute its product.

B. PLANT CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

Based on the indications of the market study and the technology recommended the production capacity of the envisaged plant is 30,000 kg of belts per annum. The production is on the basis of two shifts per day and 300 working days per year.

2. Production Program

The production is scheduled to start with 80% of the installed capacity during the first. Full production capacity will be attained in the second year. The production program takes into account the fact that the technology would be easy if due attention is given for the skill and know-how development. The production program is shown in Table 3.3 below.

Table 3.3

PRODUCTION PROGRAM (KG)

Sr. No.	Production	Year 1	Year 2-10
1	Capacity utilization rate (%)	80	100
2	Conveyer belt (kg)	24,000	30,000

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

The major raw materials required for the production of textile conveyor and transition belt is mixed cotton- acrylic yarn. Mixed cotton-acrylic yarn has to be imported. Table 4.1 shows the annual raw material requirement and the corresponding cost at full capacity operation.

Table 4.1

RAW MATERIAL REQUIREMENT AND COST

Sr. No.	Material	Qty (kg)	Cost, 000 Birr		
			Foreign	Local	Total
1	Mixed cotton-acrylic yarn	33,000	1,815	454.00	2,269.00
2	Sewing thread	4,950		188.10	188.10
3	Chemicals	1,650	58	11.55	69.55
	Miscellaneous	990	74	14.85	88.85
Total			**1,947**	**668.50**	**2,615.50**

B. UTILITIES

The major utilities of the proposed plant are electricity, furnace oil and water. The total annual cost of utility is estimated at Birr 26,050. The annual utility requirement and cost are indicated in Table 4.2.

Table 4.2

ANNUAL UTILITIES REQUIREMENT & COST

Sr.	Description	UOM	Annual	Unit Cost	Total Cost

No.			Consumption	(Birr)	("000) Birr
1	Electricity	kWh	25,000	0.65	16.25
2	Water	m^3	5,000	10.00	50.00
Total Annual Cost					**66.25**

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

The production process starts by knitting the cotton – acrylic mixed yarn to form the fabric. The knitted fabrics are further used to make different sizes of belts. The knitting process is carried out by knitting machine, which have a number of evenly spaced needles whose spacing is proportional to the size stitch being knitted.

The knitted fabrics are further used for machining different sizes of belts which are produced by conventional procedures, i.e., cutting to the required shape and size, stitching and sewing.

2. Environmental Impact Assessment

The technology of production of conveyor belt does not have an adverse environmental impact.

B. ENGINEERING

1. Machinery and Equipment

The total cost of machinery and equipment is estimated at Birr 3 million out of which Birr 2.6 million is required in foreign currency. The list of machinery & equipment is indicated in Table 5.1.

Table 5.1

MACHINERY AND EQUIPMENT REQUIREMENT

Sr.No.	Description	Qty (No)
1	Rapier machine	2
2	Interlock knitting m/c (with steel cylinder and dial with 3-stage stop motion, 696 dials	2
3	Rib full interlocked knitting m/c (with steel cylinder and dials with 3 stage motion, 612 dial)	2
4	Sinker body knitting m/c (with full metal cylinder with steel walls inserted 3 stage motion)	2
6	10 spindle bobbin winding gm/c	1
7	3 thread over lock sewing m/c	5
8	Folding m/c	2
9	Rib cutting m/c	1
10	Simple chain stitching m/c	1
11	Single chain stitching m/c	1
12	Double chain stitching m/c	1
13	Flat stitching m/c	1
14	Sewing m/cs	6
15	Ball press with steel palter	2
16	Kiers bating equipment	1
17	Over lock m/c	1
18	Electric iron	6
19	Tables for fixing m/c, ironing, cutting, wooden stocks for works storage stocks	5
20	Scissors	8
21	Concrete s.s tanks for cleaning	8
22	Drying chambers (electric)	8
23	Lab. testing equipment	set
24	Electric fitting and accessories	set
25	Water suppliers and fittings	set

2. Land, Building and Civil Works

The total land required by the project is about 800 m^2, of which 300 m^2 is built-up area. The cost of building and civil works is estimated at Birr 1,500,000.

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 212,800 of which 10% or Birr 21,280 will be paid in advance. The remaining Birr 191,520 will be paid in equal installments with in 28 years i.e. Birr 6,840 annually

NB: The land issue in the above statement narrates or shows only Addis Ababa's city administration land lease price, policy and regulations.

Accordingly the project profile prepared based on the land lease price of Addis Ababa region.

To know land lease price, police and regulation of other regional state of the country updated information is available at Ethiopian Investment Agency's website www.eia.gov.et on the factor cost.

VI. HUMAN RESOURCE AND TRAINING REQUIREMENT

A. HUMAN RESOURCE REQUIREMENT

The total human resource requirement of the plant is estimated to be 19. The total annual cost of labor is estimated at Birr 586,500. The human resource list and salary costs are shown in Table 6.1.

Table 6.1

HUMAN RESOURCE REQUIREMENT AND LABOR COST

Sr. No.	Description	No.	Monthly salary	Annual salary
1	General manager	1	6,000	72,000
2	Executive secretary	1	1,500	18,000
3	Accountant	1	2,500	30,000
4	Casher	1	900	10,800
5	Purchasing and sales officer	1	2,000	24,000
6	Supervisor	1	2,000	24,000
7	Operator technician	4	4,800	57,600
8	Assistant operator technician	2	1,600	19,200
9	Messenger and cleaner	2	800	9,600
10	Guard	4	1,600	19,200
11	Driver	1	800	9,600
	Sub- total	**19**	**24,500**	**294,000**
	Employees benefit (25% of basic salary)		6,125	73,500
	Grand Total		**30,625**	**367,500**

B. TRAINING REQUIREMENT

The supervisor and operators would require training for about two weeks during commissioning of the plant on the technology and operation of machinery. Cost of training would be about Birr 50,000.

VII. FINANCIAL ANALYSIS

The financial analysis of the grain mill belt (conveyor belt of Textile) 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	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 6.74 million (see Table 7.1). From the total investment cost, the highest share (Birr 5.12 million or

75.92%) is accounted by fixed investment cost followed by pre operation cost (Birr 881.31 thousand or 13.06%) and initial working capital (Birr 743.09 thousand or 11.02%). From the total investment cost, Birr 2.60 million or 38.54% 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	21.28		21.28	0.32
1.2	Building and civil work	1,500.00		1,500.00	22.24
1.3	Machinery and equipment	400.00	2,600.00	3,000.00	44.47
1.4	Vehicles	450.00		450.00	6.67
1.5	Office furniture and equipment	150.00		150.00	2.22
	Sub total	**2,521.28**	**2,600.00**	**5,121.28**	**75.92**
2	**Pre operating cost ***				
2.1	Pre operating cost	440.00		440.00	6.52
2.2	Interest during construction	441.31		441.31	6.54
	Sub total	**881.31**		**881.31**	**13.06**
3	**Working capital ****	**743.09**		**743.09**	**11.02**
	Grand Total	**4,145.67**	**2,600.00**	**6,745.67**	**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 790.18 thousand. However, only the initial working capital of Birr 650.46 thousand 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 4.91 million (see Table 7.2). The cost of raw material account for 53.24% of the production cost. The other major components of the production cost are depreciation, financial cost, direct labour, and cost of marketing and distribution which account for 17.36%, 9.88%, 5.98%, and 5.09% respectively. The remaining 8.45% 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 TWO)

Items	Cost (000 Birr)	%
Raw Material and Inputs	2,616	53.24
Utilities	66	1.35
Maintenance and repair	150	3.05
Labor direct	294	5.98
Labor overheads	74	1.50
Administration Costs	125	2.54
Land lease cost	0	0.00
Cost of marketing and distribution	250	5.09
Total Operating Costs	**3,574**	**72.76**
Depreciation	853	17.36
Cost of Finance	485	9.88
Total Production Cost	**4,913**	**100.00**

C. FINANCIAL EVALUATION

1. Profitability

Based on the projected profit and loss statement, the project will generate a profit throughout its operation life. Annual net profit after tax will grow from Birr 675 thousand to Birr 1.47 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 11.64 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.

$$\text{Break-Even Sales Value} = \frac{\text{Fixed Cost + Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 2{,}417{,}520$$

$$\text{Break -Even Capacity utilization} = \frac{\text{Break -even Sales Value}}{\text{Sales revenue}} \times 100 = 45.36\%$$

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 23.00% 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 4.58 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 19 persons. The project will generate Birr 3.56 million 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. The project will also create backward linkage with the textile manufacturing (sewing thread) subsector and forward ward linkage with the food processing subsector also generates 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	523.10	653.88	653.88	653.88	653.88	653.88	653.88	653.88	653.88	653.88
Accounts receivable	242.45	297.85	297.85	297.85	298.42	298.42	298.42	298.42	298.42	298.42
Cash-in-hand	7.14	8.92	8.92	8.92	9.02	9.02	9.02	9.02	9.02	9.02
CURRENT ASSETS	**772.69**	**960.65**	**960.65**	**960.65**	**961.32**	**961.32**	**961.32**	**961.32**	**961.32**	**961.32**
Accounts payable	29.60	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00
CURRENT LIABILITIES	**29.60**	**37.00**	**37.00**	**37.00**	**37.00**	**37.00**	**37.00**	**37.00**	**37.00**	**37.00**
TOTAL WORKING CAPITAL	**743.09**	**923.65**	**923.65**	**923.65**	**924.32**	**924.32**	**924.32**	**924.32**	**924.32**	**924.32**

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	2,092	2,616	2,616	2,616	2,616	2,616	2,616	2,616	2,616	2,616
Utilities	53	66	66	66	66	66	66	66	66	66
Maintenance and repair	120	150	150	150	150	150	150	150	150	150
Labour direct	235	294	294	294	294	294	294	294	294	294
Labour overheads	59	74	74	74	74	74	74	74	74	74
Administration Costs	100	125	125	125	125	125	125	125	125	125
Land lease cost	0	0	0	0	7	7	7	7	7	7
Cost of marketing and distribution	250	250	250	250	250	250	250	250	250	250
Total Operating Costs	**2,909**	**3,574**	**3,574**	**3,574**	**3,581**	**3,581**	**3,581**	**3,581**	**3,581**	**3,581**
Depreciation	853	853	853	853	853	75	75	75	75	75
Cost of Finance	0	485	425	364	303	243	182	121	61	0
Total Production Cost	**3,762**	**4,913**	**4,852**	**4,791**	**4,737**	**3,899**	**3,838**	**3,777**	**3,717**	**3,656**

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	4,029	5,180	5,756	5,756	5,756	5,756	5,756	5,756	5,756	5,756
Less variable costs	2,659	3,324	3,324	3,324	3,324	3,324	3,324	3,324	3,324	3,324
VARIABLE MARGIN	**1,370**	**1,856**	**2,432**	**2,432**	**2,432**	**2,432**	**2,432**	**2,432**	**2,432**	**2,432**
in % of sales revenue	33.99	35.83	42.25	42.25	42.25	42.25	42.25	42.25	42.25	42.25
Less fixed costs	1,103	1,103	1,103	1,103	1,110	332	332	332	332	332
OPERATIONAL MARGIN	**267**	**753**	**1,329**	**1,329**	**1,322**	**2,100**	**2,100**	**2,100**	**2,100**	**2,100**
in % of sales revenue	6.62	14.53	23.08	23.08	22.97	36.48	36.48	36.48	36.48	36.48
Financial costs		485	425	364	303	243	182	121	61	0
GROSS PROFIT	**267**	**267**	**904**	**965**	**1,019**	**1,857**	**1,918**	**1,979**	**2,039**	**2,100**
in % of sales revenue	6.62	5.16	15.71	16.76	17.69	32.27	33.32	34.37	35.43	36.48
Income (corporate) tax	0	0	0	289	306	557	575	594	612	630
NET PROFIT	**267**	**267**	**904**	**675**	**713**	**1,300**	**1,343**	**1,385**	**1,427**	**1,470**
in % of sales revenue	6.62	5.16	15.71	11.73	12.39	22.59	23.32	24.06	24.80	25.54

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	**5,561**	**5,243**	**5,187**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**2,287**
Inflow funds	5,561	1,214	7	0	0	0	0	0	0	0	0	0
Inflow operation	0	4,029	5,180	5,756	5,756	5,756	5,756	5,756	5,756	5,756	5,756	0
Other income	0	0	0	0	0	0	0	0	0	0	0	2,287
TOTAL CASH OUTFLOW	**5,561**	**4,123**	**4,854**	**4,606**	**4,835**	**4,798**	**4,988**	**4,945**	**4,903**	**4,860**	**4,211**	**0**
Increase in fixed assets	5,561	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	773	188	0	0	1	0	0	0	0	0	0
Operating costs	0	2,659	3,324	3,324	3,324	3,331	3,331	3,331	3,331	3,331	3,331	0
Marketing and Distribution cost	0	250	250	250	250	250	250	250	250	250	250	0
Income tax	0	0	0	0	289	306	557	575	594	612	630	0
Financial costs	0	441	485	425	364	303	243	182	121	61	0	0
Loan repayment	0	0	607	607	607	607	607	607	607	607	0	0
SURPLUS (DEFICIT)	**0**	**1,120**	**333**	**1,150**	**921**	**958**	**768**	**811**	**853**	**896**	**1,545**	**2,287**
CUMULATIVE CASH BALANCE	**0**	**1,120**	**1,453**	**2,603**	**3,524**	**4,483**	**5,251**	**6,062**	**6,915**	**7,811**	**9,355**	**11,642**

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**	**4,029**	**5,180**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**5,756**	**2,287**
Inflow operation	0	4,029	5,180	5,756	5,756	5,756	5,756	5,756	5,756	5,756	5,756	0
Other income	0	0	0	0	0	0	0	0	0	0	0	2,287
TOTAL CASH OUTFLOW	**6,304**	**3,090**	**3,574**	**3,574**	**3,864**	**3,887**	**4,138**	**4,156**	**4,175**	**4,193**	**4,211**	**0**
Increase in fixed assets	5,561	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	743	181	0	0	1	0	0	0	0	0	0	0
Operating costs	0	2,659	3,324	3,324	3,324	3,331	3,331	3,331	3,331	3,331	3,331	0
Marketing and Distribution cost	0	250	250	250	250	250	250	250	250	250	250	0
Income (corporate) tax		0	0	0	289	306	557	575	594	612	630	0
NET CASH FLOW	**-6,304**	**939**	**1,606**	**2,182**	**1,892**	**1,869**	**1,618**	**1,600**	**1,581**	**1,563**	**1,545**	**2,287**
CUMULATIVE NET CASH FLOW	**-6,304**	**-5,365**	**-3,760**	**-1,578**	**314**	**2,183**	**3,801**	**5,401**	**6,982**	**8,545**	**10,090**	**12,377**
Net present value	-6,304	854	1,327	1,639	1,292	1,161	913	821	738	663	596	882
Cumulative net present value	-6,304	-5,451	-4,124	-2,484	-1,192	-32	881	1,702	2,440	3,103	3,699	4,580

NET PRESENT VALUE	4,580
INTERNAL RATE OF RETURN	23.00%
NORMAL PAYBACK	5 years