

**PROFILE ON THE PRODUCTION OF SEWING
THREAD**

Table of Contents

I.	SUMMARY	2
II.	PRODUCT DESCRIPTION AND APPLICATION	2
III.	MARKET STUDY AND PLANT CAPACITY	3
iv.	raw materials and inputs	7
V.	TECHNOLOGY AND ENGINEERING	8
VI.	HUMANRESOURCE & TRAINING REQUIREMENT	14
VII.	FINANCIAL ANALYSIS	15
	FINANCIAL ANALYSES SUPPORTING TABLES	20

I. SUMMARY

This profile envisages the establishment of a plant for the production of sewing thread with a capacity of 295 tons per annum. Sewing thread is used as an input in shoe industry, knit wear factories, furniture and upholstery, blanket manufacturing for ribbon sewing and rural household for needle sewing and mending clothes.

The demand for sewing thread s is met through domestic production and imports. The present (2012) unsatisfied demand for sewing thread is estimated at 1,438 tones. The unsatisfied demand for sewing thread is projected to reach 2,534 tons and 4,370 by the year 2017 and 2022, respectively.

The principal raw materials required are yarn, dyestuffs, and chemicals. Cotton yarn can be obtained locally from textile factories while dyestuff and chemicals have to be imported.

The total investment cost of the project including working capital is estimated at Birr 16.46 million. From the total investment cost, the highest share (Birr 11.21 million or 68.07%) is accounted by fixed investment cost followed by initial working capital (Birr 3.44 million or 20.92%) and pre operation cost (Birr 1.81 million or 11.00%). From the total investment cost, Birr 4.62 million or 28.05% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 31.61% and a net present value (NPV) of Birr 18.78 million, discounted at 10%.

The project can create employment for 22 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 textile manufacturing sub sector and forward linkage with the garment, blanket, and a leather article sub sectors and also generates income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTION AND APPLICATION

Sewing cotton thread is a tightly twisted thread of two or more ply that is circular when cut in cross section. It is used for industrial sewing, hand sewing and in home sewing machines.

Ninety-five percent of all sewing thread that is manufactured is used in commercial and industrial sewing.

Industrial sewing thread is used as an input in shoe industry, knit wear factories, furniture and upholstery, blanket manufacturing for ribbon sewing and rural household for needle sewing and mending clothes.

Threads are wound on spools or large cones-that are marked on their ends with the size or fineness of the thread. Cotton sewing thread for hand work and machines (both home and commercial machines) has to be smooth and friction-free. Cotton thread is available in a wide range of weights, and is suitable for most sewing projects. 40wt and 50wt are the most common, but cotton threads range from 8wt to 100wt. It should be easy to thread through needles, and it should move easily when tension is applied to it. Strength to hold stitches when garments are being worn and during laundering is a requirement, as is elasticity during stitching and wear.

Cotton thread does not stretch a great deal, and will break if pulled too tightly. Cotton threads will fade with the sun, and shrink in the wash, so treat them as you would cotton fabrics. Most cotton threads sold now are mercerized. This is a chemical and heat process that increases the luster of the thread. During the mercerizing process, fuzzy threads are burned off, creating a smoother surface. This smooth surface reflects light, increasing the luster of the thread. It also has the effect of increasing water absorbency, making the thread easier to dye.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Present Supply and Demand

The country's requirement of cotton sewing thread is met through domestic production, and imports. Customs data reveals that there has also been export of sewing thread. Exports, on the average accounted for about 3% of domestic production, while imports accounted for about 54% total domestic supply of sewing thread during the period 2000-2011. The total domestic supply of sewing thread, i.e. import and domestic production net of exports, during 2000 - 2011 is presented in Table 3.1.

Table 3.1
TOTAL SUPPLY OF COTTON SEWING THREAD (KG)

Year	Import¹	Domestic Production²	Export¹	Total Supply
2000	307,410	24,000	23,430	307,980
2001	518,583	7,000	-----	525,583
2002	293,738	20,000	-----	313,738
2003	803,141	1,000	30	804,111
2004	478,918	37,000	100,000	415,918
2005	377,763	108,000	11,058	474,706
2006	228,861	25,000	300	253,561
2007	363,700	49,000	560	412,140
2008	792,012	2,119,000	42	2,910,970
2009	510,441	671,000	250	1,181,191
2010	866,819	1,346,000	33,758	2,179,061
2011	948,838	1,378,866*	11,445	2,316,060

**Data for domestic production of year 2011 is not published. Hence, average of year 2008--2010 is assumed to be the production of year 2011.*

Source: - 1. *Ethiopian Revenues & Customs Authority*

2. *CSA, Report on Large and Medium Scale Manufacturing Industries*

Imports, domestic production, export and total apparent domestic consumption of the product averaged at 541 tones, 482 tones 15 tones and 1,007,918 kg, respectively. Apparently, imports accounted for about 54% total domestic supply of sewing thread.

The data depicted in Table 3.1 shows a general increasing trend although it is characterized by some fluctuations. The apparent consumption of sewing thread (domestic production plus import

minus export) has been increasing from period to a period. During the period 2000--2002, the yearly average apparent consumption was about 382.4 tons. The domestic apparent consumption increased to a yearly average of 472.1 tons during the period 2003--2007. Compared to the previous three years average it is higher by about 24%. A huge increase on the apparent consumption is registered during the recent four years i.e. 2008--2011. During this period the yearly average consumption has reached to a level of 2,090 tones, which is 4.4 fold compared to the yearly average of the previous five years i.e. 2003---2007.

In order to estimate the current effective domestic demand for the product a 15% annual growth rate, which is much below the observed trend in the past, is applied by taking year 2011 as a base. Accordingly, current domestic effective demand for sewing thread is estimated at 2,663 tones. Assuming 54% of the demand was satisfied by import the current unsatisfied demand for sewing thread is 1,438 tones. It should be noted that sewing thread has also an export market potential, in addition to the domestic demand.

2. Projected Demand

The future demand for sewing thread is a function of growth of the user industries, mainly apparel and garment manufacturing industries. Given the recent 10.6% rate of growth of the industrial sector (where the share of the textile industries is quite substantial) and the due attention given by the government for the textile industry, 8% annual rate of growth is assumed to project the demand for cotton sewing thread in Ethiopia. The total projected demand, domestic production and the unsatisfied demand is shown in Table 3.2.

Table 3.2

DEMAND PROJECTION OF COTTON SEWING THREAD (TONS)

Year	Total Projected Demand	Domestic Production	Unsatisfied Demand
2013	2,876	1,379	1,497
2014	3,106	1,379	1,727
2015	3,355	1,379	1,976
2016	3,623	1,379	2,244
2017	3,913	1,379	2,534
2018	4,226	1,379	2,847
2019	4,564	1,379	3,185
2020	4,929	1,379	3,550
2021	5,323	1,379	3,944
2022	5,749	1,379	4,370

The unsatisfied increase from year 2013 to 4,370 tones by year 2022,

demand will 1,497 tones in the 2,534 tones and the year 2017 and respectively.

3. Pricing and Distribution

Based on the recent import data obtained from Customs Authority and considering import related expenses a factory gate price of Birr 82.7 per kg is recommended. The product will find its market outlet through the existing yarn and thread wholesale and retail channels.

B. PLANT CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

According to the market presented above, the unsatisfied demand for cotton sewing thread is 1497 tons in 2013 and grows to 4,370 tons by the year 2022. The envisaged plant will have a production capacity of 295 tons cotton sewing thread per year on a single shift basis. Production can be doubled or tripled either by increasing the number of shifts or by expanding the factory.

2. Production Program

The plant is expected to operate in a shift 8 hours a day for a total of 300 days a year. It is anticipated that the plant will run at 75% of its capacity during the first year, at 85% in the second year and at full capacity in the third year and then after. Production build up is made to start at reduced capacity during the initial period in order to develop substantial market outlets for the products.

Table 3.3
PRODUCTION PROGRAM

Year	1	2	3 and above
Capacity utilization (%)	75	85	100
Total Production (ton)	221	251	295

IV. RAW MATERIALS AND INPUTS

A. RAW AND AUXILIARY MATERIALS

The main raw material inputs for the production of cotton sewing threads are yarn, dyestuffs, and chemicals. Cotton yarn can be obtained locally from textile factories while dyestuff and chemicals have to be imported.

The estimated annual requirement and cost of raw material and auxiliaries inputs at a100% capacity utilization is given in Table 4.1.

Table 4.1
ANNUAL COST OF RAW & AUXILIARY MATERIAL INPUTS (TONS)

Sr. No.	Description	Qty.	Cost ('000 Birr)		
			FC	LC	TC
1	Cotton yarn	337.6	-	12455.1	12455.1
2	Dye stuff	16.2	181.0	43.6	224.7
3	Chemicals	4.0	218.6	52.7	271.3
4	Cons & bobbins	1.3	221.6	-	221.6
Total		-	621.2	12551.4	13172.6

B. UTILITIES

The major utilities required by the plant are electricity, water and fuel. The estimated annual requirement at 100% capacity utilization rate and the estimated costs are given in Table 4.2.

Table 4.2
ANNUAL UTILITY REQUIREMENT AND ESTIMATED COST

Sr. No.	Description	Qty.	Cost ('000 Birr)
1	Electric power, kWh	665,000	385.70
2	Fuel oil, liters	20,397	295.76
3	Water, m ³	10,186	101.86
Total		-	783.32

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Process Description

The basic operations involved in the manufacture of cotton sewing thread are cleaned, combed and sorted cotton is fed through a series of rollers in a process called drawing that generates a narrow band of cotton fiber. The fiber is slightly twisted to form roving and the roving is drawn

and twisted again. It is spun to form a single thread that is wound and twisted with others to form the threads. Cotton sewing threads is singed over an open flame and mercerized by immersion in caustic soda. This process is strengthens the thread and give it a lustrous finish. The treated cotton sewing thread is wound on bobbins or cones.

After manufacture, the thread is dyed. Dye is mixed in large vats; several hundred colors can be produced and dye mixing is controlled by computer. Finally the dyed thread is wound on smaller spools for industrial or home use, and the spool care packed into boxes for market.

2. Environmental Impact Assessment

The envisage operation uses different chemicals like caustic soda and different pigments for the operation. Such operation creates an adverse effect to the environment if no proper mitigation means is considered during the design stage of the operation and hence, the right treatment means will be considered and put in place. Hence, an investment cost of Birr 500,000 is allotted for environmental impact mitigation.

B. ENGINEERING

1. Machinery and Equipment

The production equipment required by the plant and their estimated costs are given in Table 5.1. All the machinery and equipment have to be imported.

Table 5.1

MACHINERY AND EQUIPMENT REQUIREMENT AND ESTIMATED COSTS

Sr. No.	Description	Qty.	Cost ('000 Birr)		
			FC	LC	TC
1	Winding Machine	2	469	-	469
2	Twisting Machine	2	665	-	665
3	Reeling Machine	1	560	-	560
4	Doubling Machine	1	525	-	525
5	Dying	1	453.6	-	453.6
6	Squeezing Machine	1	203	-	203
7	Drying Machine	1	189	-	189
8	Mercerizing	1	315	-	315
9	Sizing	1	168	-	168
10	Compressor	1	490	-	490
11	Auto-process control	1	371	-	371
12	Lab-Equipment	1	210	-	210
Total			4,618.60	-	4,618.60
Insurance, Bank, Customs				1072.18	1072.18
Grand Total			4,618.60	1072.18	5,690.78

2. Land, Building and Civil Works

The total area of land is estimated to be 2,500 m², out of which 700 m² will be a built-up area. The cost of building and civil works at the rate of Birr 5,000 per m² is estimated at Birr 3,500,000.

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

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

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

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

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

Table 5.2

NEW LAND LEASE FLOOR PRICE FOR PLOTS IN ADDIS ABABA

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

Accordingly, in order to estimate the land lease cost of the project profiles it is assumed that all new manufacturing projects will be located in industrial zones located in expansion zones.

Therefore, for the profile a land lease rate of Birr 266 per m² which is equivalent to the average floor price of plots located in expansion zone is adopted.

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

Table 5.3

INCENTIVES FOR LEASE PAYMENT OF INDUSTRIAL PROJECTS

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

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

Accordingly, the total land lease cost at a rate of Birr 266 per m² is estimated at Birr 665,000 of which 10% or Birr 66,500 will be paid in advance. The remaining Birr 598,500 will be paid in equal installments within 28 years i.e. Birr 21,375 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. HUMANRESOURCE & TRAINING REQUIREMENT

A. HUMANRESOURCE REQUIREMENT

The total human resource requirement of the plant is 22 persons. Details of human resource and estimated annual labor cost including fringe benefits are indicated in Table 6.1.

Table 6.1

HUMAN RESOURCE REQUIREMENT AND LABOR COST

Sr. No.	Description	No. Required	Salary (Birr)	
			Monthly	Annual
1	Manager	1	5,000	60,000
2	Secretary	1	1600	19,200
3	Production Head (Supervisor)	1	3,500	42,000
4	Finance and Administration Head	1	3,500	42,000
5	Salesman	1	2,500	30,000
6	Store Keeper	1	1,600	19,200
7	Purchaser	1	2,000	24,000
8	Mechanic	1	2,400	28,800
9	Electrician	1	2,400	28,800
10	Accountant/Cashier	1	1,800	21,600
11	Driver	1	1,000	12,000
12	Production	15	24,000	288,000
13	Laborer	10	8,000	96,000
11	Guard	3	2,400	28,800
Total		39	61,700	740,400
Employee's Benefit (20% Of Basic Salary)		-	-	148,080
Grand Total		-	-	888,480

B. TRAINING REQUIREMENT

The production supervisor should be given a three weeks on-the-job training by skilled technician of the equipment supplier. The cost of training is estimated at Birr 150,000.-

VII. FINANCIAL ANALYSIS

The financial analysis of the sewing thread 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 16.46 million (see Table 7.1). From the total investment cost, the highest share (Birr 11.21 million or 68.07%) is accounted by fixed investment cost followed by initial working capital (Birr 3.44 million or 20.92%) and pre operation cost (Birr 1.81 million or 11.00%). From the total investment cost, Birr 4.62 million or 28.05% 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	66.50		66.50	0.40
1.2	Building and civil work	3,500.00		3,500.00	21.26
1.3	Machinery and equipment	1,072.18	4,618.60	5,690.78	34.57
1.4	Vehicles	1,500.00		1,500.00	9.11
1.5	Office furniture and equipment	450.00		450.00	2.73
	Sub total	6,588.68	4,618.60	11,207.28	68.07
2	Pre operating cost *				
2.1	Pre operating cost	734.54		734.54	4.46
2.2	Interest during construction	1,077.03		1,077.03	6.54
	Sub total	1,811.57		1,811.57	11.00
3	Working capital **	3,444.39		3,444.39	20.92
	Grand Total	11,844.64	4,618.60	16,463.24	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 4.69 million. However, only the initial working capital of Birr 3.44 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 18.94 million (see Table 7.2). The cost of raw material account for 69.57% of the production cost. The other major components of the production cost are utility, depreciation, financial cost, Labor direct, marketing and distribution which account for 4.14, 9.35%, 3.91%, and 3.96% respectively. The remaining 9.07% is the share of, labor overhead and administration cost and repair and maintenance. For detail production cost see Appendix 7.A.2.

Table 7.2

ANNUAL PRODUCTION COST AT FULL CAPACITY (year four)

Items	Cost (000 Birr)	%
Raw Material and Inputs	13,173	69.57
Utilities	783	4.14
Maintenance and repair	285	1.51
Labor direct	740	3.91
Labor overheads	148	0.78
Administration Costs	250	1.32
Land lease cost	0	0.00
Cost of marketing and distribution	750	3.96
Total Operating Costs	16,129	85.18
Depreciation	1,770	9.35
Cost of Finance	1,037	5.47
Total Production Cost	18,936	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 2.77 million to Birr 4.48 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 41.00 million. For profit and loss statement and cash flow projection see Appendix 7.A.3 and 7.A.4, respectively.

2. Ratios

In financial analysis, financial ratios and efficiency ratios are used as an index or yardstick for evaluating the financial position of a firm. It is also an indicator for the strength and weakness of the firm or a project. Using the year-end balance sheet figures and other relevant data, the most

important ratios such as return on sales which is computed by dividing net income by revenue, return on assets (operating income divided by assets), return on equity (net profit divided by equity) and return on total investment (net profit plus interest divided by total investment) has been carried out over the period of the project life and all the results are found to be satisfactory.

3. Break-even Analysis

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

$$\text{Break Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 9,552,060$$

$$\text{Break Even Capacity utilization} = \frac{\text{Break even Sales Value}}{\text{Sales revenue}} \times 100 = 34 \%$$

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 3 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 31.61% 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 18.78 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 22 persons. The project will generate Birr 11.58 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 forward linkage with the shoe manufacturing, textile and furniture sub sectors and 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	2,469.94	2,799.26	3,293.25	3,293.25	3,293.25	3,293.25	3,293.25	3,293.25	3,293.25	3,293.25
Accounts receivable	1,023.69	1,151.85	1,344.08	1,344.08	1,345.86	1,345.86	1,345.86	1,345.86	1,345.86	1,345.86
Cash-in-hand	14.82	16.80	19.76	19.76	20.06	20.06	20.06	20.06	20.06	20.06
CURRENT ASSETS	3,508.45	3,967.91	4,657.10	4,657.10	4,659.17	4,659.17	4,659.17	4,659.17	4,659.17	4,659.17
Accounts payable	64.06	72.60	85.42	85.42	85.42	85.42	85.42	85.42	85.42	85.42
CURRENT LIABILITIES	64.06	72.60	85.42	85.42	85.42	85.42	85.42	85.42	85.42	85.42
TOTAL WORKING CAPITAL	3,444.39	3,895.30	4,571.68	4,571.68	4,573.76	4,573.76	4,573.76	4,573.76	4,573.76	4,573.76

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	9,880	11,197	13,173	13,173	13,173	13,173	13,173	13,173	13,173	13,173
Utilities	587	666	783	783	783	783	783	783	783	783
Maintenance and repair	214	242	285	285	285	285	285	285	285	285
Labour direct	555	629	740	740	740	740	740	740	740	740
Labour overheads	111	126	148	148	148	148	148	148	148	148
Administration Costs	188	213	250	250	250	250	250	250	250	250
Land lease cost	0	0	0	0	21	21	21	21	21	21
Cost of marketing and distribution	750	750	750	750	750	750	750	750	750	750
Total Operating Costs	12,284	13,822	16,129	16,129	16,150	16,150	16,150	16,150	16,150	16,150
Depreciation	1,770	1,770	1,770	1,770	1,770	185	185	185	185	185
Cost of Finance	0	1,185	1,037	889	740	592	444	296	148	0
Total Production Cost	14,054	16,777	18,936	18,788	18,661	16,928	16,780	16,632	16,483	16,335

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	17,057	19,331	22,743	22,743	22,743	22,743	22,743	22,743	22,743	22,743
Less variable costs	11,534	13,072	15,379	15,379	15,379	15,379	15,379	15,379	15,379	15,379
VARIABLE MARGIN	5,523	6,259	7,364	7,364	7,364	7,364	7,364	7,364	7,364	7,364
in % of sales revenue	32.38	32.38	32.38	32.38	32.38	32.38	32.38	32.38	32.38	32.38
Less fixed costs	2,520	2,520	2,520	2,520	2,541	956	956	956	956	956
OPERATIONAL MARGIN	3,003	3,739	4,844	4,844	4,823	6,408	6,408	6,408	6,408	6,408
in % of sales revenue	17.60	19.34	21.30	21.30	21.20	28.17	28.17	28.17	28.17	28.17
Financial costs		1,185	1,037	889	740	592	444	296	148	0
GROSS PROFIT	3,003	2,554	3,807	3,955	4,082	5,815	5,963	6,111	6,260	6,408
in % of sales revenue	17.60	13.21	16.74	17.39	17.95	25.57	26.22	26.87	27.52	28.17
Income (corporate) tax	0	0	0	1,187	1,225	1,745	1,789	1,833	1,878	1,922
NET PROFIT	3,003	2,554	3,807	2,769	2,857	4,071	4,174	4,278	4,382	4,485
in % of sales revenue	17.60	13.21	16.74	12.17	12.56	17.90	18.35	18.81	19.27	19.72

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	11,942	21,642	19,340	22,756	22,743	22,743	22,743	22,743	22,743	22,743	22,743	7,817
Inflow funds	11,942	4,585	9	13	0	0	0	0	0	0	0	0
Inflow operation	0	17,057	19,331	22,743	22,743	22,743	22,743	22,743	22,743	22,743	22,743	0
Other income	0	0	0	0	0	0	0	0	0	0	0	7,817
TOTAL CASH OUTFLOW	11,942	16,870	16,947	19,336	19,685	19,598	19,968	19,865	19,761	19,657	18,073	0
Increase in fixed assets	11,942	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	3,508	459	689	0	2	0	0	0	0	0	0
Operating costs	0	11,534	13,072	15,379	15,379	15,400	15,400	15,400	15,400	15,400	15,400	0
Marketing and Distribution cost	0	750	750	750	750	750	750	750	750	750	750	0
Income tax	0	0	0	0	1,187	1,225	1,745	1,789	1,833	1,878	1,922	0
Financial costs	0	1,077	1,185	1,037	889	740	592	444	296	148	0	0
Loan repayment	0	0	1,481	1,481	1,481	1,481	1,481	1,481	1,481	1,481	0	0
SURPLUS (DEFICIT)	0	4,773	2,392	3,420	3,058	3,145	2,775	2,878	2,982	3,086	4,670	7,817
CUMULATIVE CASH BALANCE	0	4,773	7,165	10,585	13,643	16,788	19,562	22,441	25,423	28,509	33,179	40,996

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	17,057	19,331	22,743	22,743	22,743	22,743	22,743	22,743	22,743	22,743	7,817
Inflow operation	0	17,057	19,331	22,743	22,743	22,743	22,743	22,743	22,743	22,743	22,743	0
Other income	0	0	0	0	0	0	0	0	0	0	0	7,817
TOTAL CASH OUTFLOW	15,386	12,735	14,499	16,129	17,318	17,375	17,895	17,939	17,984	18,028	18,073	0
Increase in fixed assets	11,942	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	3,444	451	676	0	2	0	0	0	0	0	0	0
Operating costs	0	11,534	13,072	15,379	15,379	15,400	15,400	15,400	15,400	15,400	15,400	0
Marketing and Distribution cost	0	750	750	750	750	750	750	750	750	750	750	0
Income (corporate) tax		0	0	0	1,187	1,225	1,745	1,789	1,833	1,878	1,922	0
NET CASH FLOW	-15,386	4,322	4,832	6,614	5,425	5,368	4,848	4,804	4,759	4,715	4,670	7,817
CUMULATIVE NET CASH FLOW	-15,386	11,064	-6,232	382	5,807	11,175	16,023	20,827	25,586	30,301	34,971	42,789
Net present value	-15,386	3,929	3,994	4,969	3,706	3,333	2,737	2,465	2,220	2,000	1,801	3,014
Cumulative net present value	-15,386	11,457	-7,463	-2,494	1,211	4,544	7,281	9,746	11,966	13,966	15,766	18,780

NET PRESENT VALUE 18,780
INTERNAL RATE OF RETURN 31.61%
NORMAL PAYBACK 3 years