

**PROFILE ON THE PRODUCTION OF TIES,
HANDKERCHIEFS, SCARVES**

Table of Contents

I. SUMMARY.....	2
II. PRODUCT DESCRIPTION AND APPLICATION.....	3
III. MARKET STUDY AND PLANT CAPACITY.....	3
IV. MATERIALS AND INPUTS.....	7
V. TECHNOLOGY AND ENGINEERING.....	8
VI. HUMANRESOURCE AND TRAINING REQUIREMENT.....	13
VII. FINANCIAL ANALYSIS.....	14
FINANCIAL ANALYSES SUPPORTING TABLES.....	19

I. SUMMARY

This profile envisages the establishment of a plant for the production of 15,000 kg (1,005,454 pieces), 25,000 kg (446,868 pieces) and 50,000 kg (993,041 pieces) of handkerchief, ties and scarves per annum, respectively. Tie is a piece of cloth worn around the neck and tied in a knot or bow shape; a handkerchief is a square of cloth carried in the pocket for the purpose of wiping the hands, face, or nose; and a scarf, also known as a muffler, warm strangler or neck-wrap is a piece of fabric worn around the neck, or near the head or around the waist for warmth, cleanliness, fashion or for religious reasons.

The demand for ties and handkerchiefs is met through imports. The demand for scarves is met both through import and domestic production. The present (2012) unsatisfied demand for ties, handkerchief and scarves is estimated at 24,765 kg, 22,939 kg, and 1,523,713 kg (12,346,314 pieces), respectively. The unsatisfied demand for ties, handkerchiefs, and scarves is projected to reach 36,258 kg, 33,584 kg, and 2,230,868 kg, respectively by the year 2017 and 58,394 kg, 54,088 kg, and 3,592,835 by the year 2022, respectively.

The principal raw materials required are high quality dyed different type of fabrics such as cotton, synthetic, silk and wool which have to be imported.

The total investment cost of the project including working capital is estimated at Birr 29.69 million. From the total investment cost the highest share (Birr 20.64 million or 69.53%) is accounted by initial working capital followed by fixed investment cost (6.68 million or 22.50%) and pre operation cost (Birr 2.37 million or 7.97%). From the total investment cost Birr 2.00 million or 6.76% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 31.78% and a net present value (NPV) of Birr 54.08 million discounted at 10%.

The project can create employment for 25 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 generate other income for the Government.

II. PRODUCT DESCRIPTION AND APPLICATION

Tie is a piece of cloth worn around the neck and tied in a knot or bow shape. The various types of ties available in the market are designer necktie, silk necktie, polyester necktie, woven necktie etc. The raw materials used in making a tie are silk, polyester, wool, and wool blends like acetate, rayon, nylon, cotton, linen and ramie. Tie accessories are items used to embellish a tie like tie bar, tie clip and tiepin. Tie accessories are made of raw materials like steel, brass, silver, plastic etc. Some semi-precious stones like opal, turquoise and pearls are also used to make these accessories more stylish and trendy.

A handkerchief is a square of cloth carried in the pocket for the purpose of wiping the hands, face, or nose. Over the centuries since its inception, the handkerchief has significantly evolved, and many people today use handkerchiefs as accessories, rather than functional items. Whether the intent is functional or decorative, handkerchiefs are available at many department stores, in a variety of styles. They can also be made by hand, using materials available from fabric stores. Classically, handkerchiefs are large squares of silk, cambric, linen, or cotton, although other materials may be used as well. The material is typically reasonably absorbent, as a reminder of the function of a handkerchief, and the cloth may be monogrammed with the initials of the owner. Decorative trim is also common on handkerchiefs, and these squares can come in a range of colors, although white is the traditional choice.

A scarf, also known as a muffler, warm strangler or neck-wrap is a piece of fabric worn around the neck, or near the head or around the waist for warmth, cleanliness, fashion or for religious reasons. They can come in a variety of different colors

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

The demand for ties, handkerchiefs and scarves in Ethiopia is essentially met through imports. In the case of scarves, there is tremendous supply from local production. Locally produced scarves are indeed quite predominant in the market. Local production of the product is undertaken mainly by numerous individual weavers throughout the country. However, due to the shortage of scarves from domestic sources, the country has been importing a substantial amount of the product. The historical supply data of the products originating from import is shown in Table 3.1.

Table 3.1 reveals that the country imports a considerable quantity of ties, handkerchief, and scarves every year. On the average, during the period 2000 – 2011 about 19,655 kg of ties, 18,205 kg of handkerchief and 1,209,296 kg (9,798,662 pieces) of scarves are annually imported in to the country.

Table 3.1
IMPORT OF TIES, HANDKERCHIEF AND SCARVES

Year	Ties (Kg)	Handkerchief (Kg)	Scarves	
			No.	Kg.
2000	6,531	16,211	1,959,173	351,320
2001	15,482	12,657	5,305,761	557,393
2002	20,050	13,654	4,374,288	405,736
2003	29,760	24,156	10,080,334	668,240
2004	17,821	26,730	22,052,575	596,685
2005	17,351	30,944	6,200,241	1,791,708
2006	21,772	41,841	9,262,681	1,356,016
2007	9,801	19,184	9,393,554	1,618,948
2008	7,403	16,587	9,198,921	1,622,658
2009	19,071	15,741	12,322,714	1,516,364
2010	21,447	622	15,446,507	2,042,950
2011	49,367	135	11,987,195	1,983,533
Average	19,655	18,205	9,798,662	1,209,296

Source: Ethiopian Revenues & Customs Authority

As could be seen form Table 3.1, there is a substantial growth in the imports of ties, handkerchief and scarves. Total imports of the products on the average grew at the rate of 26% annually during 2000 - 2011. To determine the present unsatisfied demand for the products average

import of each product during the period under reference is first assumed to reflect the demand for the particular product for the year 2011. Then, the 26% average annual growth of total imports of the products observed during the reference period is applied to arrive at the current (year 2012) unsatisfied demand. Thus, the current unsatisfied demand for ties, handkerchief and scarves is estimated at 24,765 kg, 22,939 kg, and 1,523,713 kg (12,346,314 pieces), respectively.

2. Projected Demand

Demand for ties, handkerchief and scarves is mainly influenced by population growth, urbanization, economic growth (rise in income and hence purchasing power of the population). Given the rapid population and economic growth, and the rate of urbanization in the country as well as the substantially high average rate of growth of imports of the products (26%) observed during 2000-2011, a modest estimate of 10% average annual growth rate is considered in projecting the unsatisfied demand for ties, handkerchief, and scarves. The projected unsatisfied demand for the products is shown in Table 3.2.

Table 3.2
PROJECTED UNSATISFIED DEMAND FOR TIES,
HANDKERCHIEF AND SCARVES (KG)

Years	Projected Demand		
	Ties	Handkerchief	Scarves
2013	24765	22939	1523713
2014	27241	25232	1676084
2015	29966	27756	1843693
2016	32962	30531	2028062
2017	36258	33584	2230868
2018	39884	36943	2453955
2019	43873	40637	2699350
2020	48260	44701	2969285
2021	53086	49171	3266214

2022	58394	54088	3592835
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3. Pricing Distribution

Handkerchief, scarves and ties are, on the average, sold at Birr 25, Birr 65 and Birr 85 per piece, respectively, in retail shops in Addis Ababa. Allowing 35% for wholesale and retail margins, factory gate price for the envisaged plant is estimated at Birr 18.52 per piece, Birr 48.15 per piece and Birr 62.96 per piece for handkerchief, scarves and ties respectively.

The envisaged plant can use the existing textile and ready made garments wholesale and retail channel to distribute its products.

B. PLANT CAPACITY AND PRODUCTION PROGRAMME

1. Plant Capacity

The envisaged plant would have a production capacity of 15,000 kg (1,005,454 pieces), 25,000 kg (446,868 pieces) and 50,000 kg (993,041 pieces) for handkerchief, ties and scarves per year, respectively. The plant operates single shift of 8 hours per day and 300 working days per annum the remaining days will be holidays and for maintenance.

2. Production Programme

Considering the time required for penetrating the market, the envisaged plant will start operation at 75% of capacity during the first year. Then production will grow to 85% and 100% of capacity during the second and third year, respectively. Table 3.3 shows production build-up programme.

Table 3.3

PRODUCTION PROGRAMME

Year	1	2	3 and above
Capacity utilization (%)	75	85	100

Handkerchief (kg)	11,250	12,750	15,000
Ties (kg)	18,750	21,250	25,000
Scarves (kg)	37,500	42,500	50,000
Total Production (kg)	67,500	76,500	90,000

IV. MATERIALS AND INPUTS

A. RAW AND AUXILIARY MATERIALS

The required raw material for the manufacturing of neck tie, handkerchief and scarves is high quality dyed different type of fabrics such as cotton, synthetic, silk and wool. The annual requirements of raw and auxiliary materials along with corresponding costs at full capacity operation are shown in Table 4.1.

Table 4.1

ANNUAL REQUIREMENT OF RAW AND AUXILIARY MATERIALS AND COST

Sr. No.	Description	Qty (m2)	Cost ('000 Birr)		
			FC	LC	TC
1	Dyed cotton fabrics	72,393	2,171.78	434	2,606.1
2	Dyed synthetic fabric	96,524	4,343.56	869	5,212.3
3	Dyed silk fabric	193,047	44,400.83	8,880	53,281.0
4	Dyed woolen fabric	120,654	21,717.80	4,344	26,061.4
5	Sewing thread (ton)	10	350.00	70	420.0
6	Packing and labeling material (ton)	23	450.00	90	540.0
	Total		73,433.97	14,686.79	88,120.8

B. UTILITIES

Utilities required are electricity as a source of energy and water is mainly needed for human consumption and general purpose. Annual cost of utilities is Birr 195,000. The annual quantity required and cost is shown in Table 4.2

Table 4.2

ANNUAL UTILITY REQUIREMENT AND COST

Description	Qty	Cost (Birr)
Electricity (kWh)	75,000	45,000
Water (m ³)	15,000	150,000
Total		195,000

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

The fabric in different colors/designs is spread on a table and is cut with hand scissors as per required size and shape of the article. The cut pieces are stitched by sewing machines. The Neckties and Handkerchiefs are then pressed and packed for marketing.

2. Environmental Impact Assessment

The operation of the envisage plant is mainly cutting to size and sewing and such operation by their very nature do not have any adverse effect to the environment.

B. ENGINEERING

1. Machinery and Equipment

The total cost of machinery and equipment is estimated at Birr 2.5 million out of which Birr 2 million is required in foreign currency. The required plant machinery and equipment with their corresponding quoted costs are given in table 5.1.

Table 5.1

LIST of MACHINERY AND EQUIPMENT REQUIREMENT AND COST

Sr. No.	Description	Qty.	Cost '000 Birr		
			FC	LC	TC
1	sewing machine (industrial type)	30	750	-	750
2	Flat bed, bottom top and bottom covering stitch machine	10	500	-	500
3	High speed 1- needle cylinder, bed lock stitch	5	375	-	375
4	Portable steam Iron	20	10	-	10
5	Scissors	20	3		3
6	Tables	10	18		18
7	Laundry machine	1	350	-	350
Sub-Total			2,006		2,006
	Bank, customs, Insurance & Freight costs		-	502	502
Total Cost			2,006	502	2,508

2. Land, Building and Civil Works

The total area required for plant site is estimated to be 800 m²; of this the built-up area of the factory will be 600 m². Building cost is estimated to be Birr 5,000 per m², and the total building cost will, then, be Birr 3 million.

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 5000 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 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. HUMANRESOURCE AND TRAINING REQUIREMENT

A. HUMANRESOURCE REQUIREMENT

The manpower requirement for the envisaged plant is shown in Table 6.1. The total number of employees required is 25 persons.

Table 6.1
HUMANRESOURCE REQUIREMENT AND LABOUR COST

Sr. No.	Job Title	No. of Persons	Salary (Birr)	
			Monthly	Annual
1	General Manager	1	4,000	48.00
2	Secretary	1	1,000	12.00
3	Production & Technical Head	1	2,500	30.00
4	Finance & Administration Head	1	2,500	30.00
5	Accountant	1	2,000	24.00
6	Sales person	1	1,000	12.00
7	Purchaser	1	1,500	18.00
8	Store Keeper	1	1,500	18.00
9	Quality Controller	1	1,500	18.00
10	Operator	5	1,500	90.00
11	Labourer	3	600	21.60
12	Mechanic	2	1,500	36.00
13	Electrician	1	1,500	18.00
14	Driver	2	1,000	24.00
15	Guard	3	800	28.80
	Sub – Total	25		428.40
	Employee's Benefit 20% basic salary			85.68
	Total			514.08

B. TRAINING REQUIREMENT

Training of key personnel, supervisors, skilled workers, and quality control workers, shall be conducted. The training should primarily focus on the production technology. The training will be sufficient for weeks to a month time and total cost for the training is estimated to be Birr 20,000.

VII. FINANCIAL ANALYSIS

The financial analysis of the ties, handkerchiefs, scarves project is based on the data presented in the previous chapters and the following assumptions:-

Construction period	1 year
Source of finance	30 % equity and 70% loan
Tax holidays	3 years
Bank interest	10%
Discount cash flow	10%
Accounts receivable	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 29.69 million (See Table 7.1). From the total investment cost the highest share (Birr 20.64 million or 69.53%) is accounted by initial working capital followed by fixed investment cost (6.68 million

or 22.50%) and pre operation cost (Birr 2.37 million or 7.97%). From the total investment cost Birr 2.00 million or 6.76% 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	0.07
1.2	Building and civil work	3,000.00		3,000.00	10.10
1.3	Machinery and equipment	502.00	2,006.00	2,508.00	8.45
1.4	Vehicles	900.00		900.00	3.03
1.5	Office furniture and equipment	250.00		250.00	0.84
	Sub total	4,673.28	2,006.00	6,679.28	22.50
2	Pre operating cost *				
2.1	Pre operating cost	425.24		425.24	1.43
2.2	Interest during construction	1,942.28		1,942.28	6.54
	Sub total	2,367.52		2,367.52	7.97
3	Working capital **	20,642.37		20,642.37	69.53
	Grand Total	27,683.17	2,006.00	29,689.17	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 29.52 million. However, only the initial working capital of Birr 20.64 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 92.17 million (see Table 7.2). The cost of raw material account for 95.61% of the production cost. The other major components of the production cost are depreciation, financial cost, cost of marketing and distribution, and direct labour which account for 0.99%, 1.74%, 0.54%, and 0.46% respectively.

The remaining 0.66% is the share of utility, repair and maintenance, labour 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	88,121	95.61
Utilities	195	0.21
Maintenance and repair	75	0.08
Labour direct	428	0.46
Labour overheads	86	0.09
Administration Costs	250	0.27
Land lease cost	0	0.00
Cost of marketing and distribution	500	0.54
Total Operating Costs	89,655	97.27
Depreciation	912	0.99
Cost of Finance	1,602	1.74
Total Production Cost	92,169	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 7.34 million to Birr 9.00 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 110.99 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.

$$\text{Break Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 43,116,360$$

$$\text{Break Even Capacity utilization} = \frac{\text{Break even Sales Value}}{\text{Sales revenue}} \times 100 = 27\%$$

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 2 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 31.78% 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 principal 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 54.08 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 25 persons. The project will generate Birr 24.85 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 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	15,421.18	17,624.20	19,827.23	22,030.25	22,030.25	22,030.25	22,030.25	22,030.25	22,030.25	22,030.25
Accounts receivable	5,242.38	5,985.33	6,728.29	7,471.25	7,471.82	7,471.82	7,471.82	7,471.82	7,471.82	7,471.82
Cash-in-hand	8.16	9.32	10.49	11.65	11.75	11.75	11.75	11.75	11.75	11.75
CURRENT ASSETS	20,671.71	23,618.86	26,566.00	29,513.15	29,513.82	29,513.82	29,513.82	29,513.82	29,513.82	29,513.82
Accounts payable	29.34	33.53	37.73	41.92	41.92	41.92	41.92	41.92	41.92	41.92
CURRENT LIABILITIES	29.34	33.53	37.73	41.92	41.92	41.92	41.92	41.92	41.92	41.92
TOTAL WORKING CAPITAL	20,642.37	23,585.32	26,528.28	29,471.24	29,471.90	29,471.90	29,471.90	29,471.90	29,471.90	29,471.90

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	61,685	70,497	79,309	88,121	88,121	88,121	88,121	88,121	88,121	88,121
Utilities	137	156	176	195	195	195	195	195	195	195
Maintenance and repair	53	60	68	75	75	75	75	75	75	75
Labour direct	300	342	385	428	428	428	428	428	428	428
Labour overheads	60	69	77	86	86	86	86	86	86	86
Administration Costs	175	200	225	250	250	250	250	250	250	250
Land lease cost	0	0	0	0	7	7	7	7	7	7
Cost of marketing and distribution	500	500	500	500	500	500	500	500	500	500
Total Operating Costs	62,909	71,824	80,740	89,655	89,662	89,662	89,662	89,662	89,662	89,662
Depreciation	912	912	912	912	912	145	145	145	145	145
Cost of Finance	0	2,137	1,869	1,602	1,335	1,068	801	534	267	0
Total Production Cost	63,820	74,872	83,521	92,169	91,909	90,875	90,608	90,341	90,074	89,807

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	71,861	92,392	102,658	102,658	102,658	102,658	102,658	102,658	102,658	102,658
Less variable costs	62,409	71,324	80,240	89,155	89,155	89,155	89,155	89,155	89,155	89,155
VARIABLE MARGIN	9,453	21,068	22,419	13,503	13,503	13,503	13,503	13,503	13,503	13,503
in % of sales revenue	13.15	22.80	21.84	13.15	13.15	13.15	13.15	13.15	13.15	13.15
Less fixed costs	1,412	1,412	1,412	1,412	1,418	652	652	652	652	652
OPERATIONAL MARGIN	8,041	19,656	21,007	12,091	12,085	12,851	12,851	12,851	12,851	12,851
in % of sales revenue	11.19	21.27	20.46	11.78	11.77	12.52	12.52	12.52	12.52	12.52
Financial costs		2,137	1,869	1,602	1,335	1,068	801	534	267	0
GROSS PROFIT	8,041	17,520	19,137	10,489	10,749	11,783	12,050	12,317	12,584	12,851
in % of sales revenue	11.19	18.96	18.64	10.22	10.47	11.48	11.74	12.00	12.26	12.52
Income (corporate) tax	0	0	0	3,147	3,225	3,535	3,615	3,695	3,775	3,855
NET PROFIT	8,041	17,520	19,137	7,342	7,524	8,248	8,435	8,622	8,809	8,996
in % of sales revenue	11.19	18.96	18.64	7.15	7.33	8.03	8.22	8.40	8.58	8.76

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	7,105	94,475	92,396	102,662	102,658	102,658	102,658	102,658	102,658	102,658	102,658	33,235
Inflow funds	7,105	22,614	4	4	0	0	0	0	0	0	0	0
Inflow operation	0	71,861	92,392	102,658	102,658	102,658	102,658	102,658	102,658	102,658	102,658	0
Other income	0	0	0	0	0	0	0	0	0	0	0	33,235
TOTAL CASH OUTFLOW	7,105	85,522	79,578	88,227	100,022	96,893	96,936	96,749	96,562	96,375	93,517	0
Increase in fixed assets	7,105	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	20,672	2,947	2,947	2,947	1	0	0	0	0	0	0
Operating costs	0	62,409	71,324	80,240	89,155	89,162	89,162	89,162	89,162	89,162	89,162	0
Marketing and Distribution cost	0	500	500	500	500	500	500	500	500	500	500	0
Income tax	0	0	0	0	3,147	3,225	3,535	3,615	3,695	3,775	3,855	0
Financial costs	0	1,942	2,137	1,869	1,602	1,335	1,068	801	534	267	0	0
Loan repayment	0	0	2,671	2,671	2,671	2,671	2,671	2,671	2,671	2,671	0	0
SURPLUS (DEFICIT)	0	8,953	12,818	14,435	2,636	5,765	5,722	5,909	6,096	6,283	9,141	33,235
CUMULATIVE CASH BALANCE	0	8,953	21,770	36,206	38,842	44,607	50,329	56,239	62,335	68,618	77,759	110,994

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	71,861	92,392	102,658	102,658	102,658	102,658	102,658	102,658	102,658	102,658	33,235
Inflow operation	0	71,861	92,392	102,658	102,658	102,658	102,658	102,658	102,658	102,658	102,658	0
Other income	0	0	0	0	0	0	0	0	0	0	0	33,235
TOTAL CASH OUTFLOW	27,747	65,851	74,767	83,682	92,802	92,887	93,197	93,277	93,357	93,437	93,517	0
Increase in fixed assets	7,105	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	20,642	2,943	2,943	2,943	1	0	0	0	0	0	0	0
Operating costs	0	62,409	71,324	80,240	89,155	89,162	89,162	89,162	89,162	89,162	89,162	0
Marketing and Distribution cost	0	500	500	500	500	500	500	500	500	500	500	0
Income (corporate) tax		0	0	0	3,147	3,225	3,535	3,615	3,695	3,775	3,855	0
NET CASH FLOW	-27,747	6,010	17,625	18,976	9,856	9,771	9,461	9,381	9,301	9,221	9,141	33,235
CUMULATIVE NET CASH FLOW	-27,747	21,737	-4,112	14,863	24,719	34,490	43,952	53,333	62,634	71,855	80,996	114,231
Net present value	-27,747	5,463	14,566	14,257	6,732	6,067	5,341	4,814	4,339	3,911	3,524	12,814
Cumulative net present value	-27,747	22,284	-7,718	6,539	13,271	19,338	24,679	29,493	33,832	37,742	41,266	54,080

NET PRESENT VALUE 54,080
INTERNAL RATE OF RETURN 31.78%
NORMAL PAYBACK 2 years