

**PROFILE ON THE PRODUCTION OF SPORTS
WEARS**

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I. SUMMARY

This profile envisages the establishment of a plant for the production of sportswear with a capacity of 750 tons (1,839,589 pieces) per annum. Sportswear is clothing, worn for sport or physical exercise. Sport-specific clothing is worn for most sports and physical exercise, for practical, comfort or safety reasons.

The demand for sportswear is met through import and domestic production. The present (2012) demand for sportswear is estimated at 1,635,983 pieces or 667 tons. The demand for sportswear is projected to reach 2,634,767 pieces or 1,074.2 tons and 4,243,318 pieces or 1,730.0 tons by the year 2017 and 2022, respectively.

The principal raw materials required are cotton yarn and mixed cotton-acrylic yarn. Cotton yarn is available locally whereas mixed cotton-acrylic yarn has to be imported.

The total investment cost of the project including working capital is estimated at Birr 43.77 million. From the total investment cost, the highest share (Birr 27.14 million or 62.01%) is accounted by initial working capital followed by fixed investment cost (13.21 million or 30.17%) and pre operation cost (Birr 3.42 million or 7.82%). From the total investment cost, Birr 5.61 million or 12.82% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 31.09% and a net present value (NPV) of Birr 52.61 million, discounted at 10%.

The project can create employment for 60 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 yarn factories and also generates income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTION AND APPLICATION

Sportswear is clothing, worn for sport or physical exercise. Sport-specific clothing is worn for most sports and physical exercise, for practical, comfort or safety reasons.

Typical sport-specific garments include shorts, tracksuits, T-shirts, tennis shirts and polo shirts. Specialized garments include wet suits (for swimming, diving or surfing) and salopettes (for skiing) and leotards (for gymnastics).

Sportswear is typically designed to be light weight so as not to encumber the wearer. The best athletic wear for some forms of exercise, for example cycling, should not create drag or be too bulky.

On the other hand, sportswear should be loose enough so as not to restrict movement. Some sports have specific style requirements, for example the keikogi used in karate. Various physically dangerous sports require protective gear, e.g. for fencing, American football, or ice hockey.

Standardized sportswear may also function as a uniform. In team sports the opposing sides are usually identified by the colors of their clothing, while individual team members can be recognized by a back number on a shirt.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

The demand for sportswear is essentially met through import although there are few small scale industries which produce locally in small quantities. To get an overview on the extent of the unsatisfied demand on sportswear, data on the import of track suits, swimwear, and ski suits obtained from Ethiopian Revenues & Customs Authority is presented in Table 3.1.

As could be seen from Table 3.1, imports of track suit, swimwear, and ski suit fluctuated over time and on the average stood at 587.4 tons (1,449,275 pieces), 16 tons (31,282 pieces), and 3 tons (6,700 pieces), respectively, during the period. Total import of sportswear was in the order of 606.1 tons (1,487,275 pieces) during the reference period. On the average, imports of track suit constituted the overwhelming proportion (about 96.9%) of total imports. Imports of

swimwear and ski suit on the average accounted for 2.6% and 0.5% of total imports, respectively. Apparently, the share of ski suit in total imports is negligible.

Table 3.1

IMPORT OF TRACK SUITS, SWIMWEAR AND SKI-SUITS

Year	Track Suit		Swimwear		Ski Suit		Total	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
2002	437,625	277.0	23,361	10.0	172	0.07	461,159	287.1
2003	1,066,654	227.0	12,886	9.0	3,188	1.30	1,082,747	237.3
2004	1,043,038	515.0	27,571	6.0	147	0.06	1,070,757	521.1
2005	4,617,500	1,823.0	20,965	4.0	39,242	16.00	4,677,937	1,843.0
2006	2,768,460	848.0	2,557	1.0	10,302	4.20	2,781,378	853.2
2007	2,207,059	746.0	652	0.6	9,075	3.70	2,216,839	750.3
2008	1,333,786	615.0	25,960	12.0	3,189	1.30	1,362,953	628.3
2009	3,465	283.0	1,528	11.0	74	0.03	5,067	294.0
2010	427,946	239.0	79,180	49.0	1,226	0.50	508,360	288.5
2011	587,217	301.0	118,158	57.0	-		705,375	358.0
Average	1,449,275	587	31,282	16.0	6,700	3	1,487,257	606

The demand for sportswear is influenced mainly by the number of sports clubs or teams, number of sports persons, number of referees, number of coaches, and number of sports for all participants (health, recreation & competition) and the like. Due to increase awareness of the population in the importance of sports for physical fitness, health, recreation and competition the number of participants in various types of sports activities is increasing from year to year. Data obtained from the Statistical Abstract of CSA with regard to the sport activity in the country during the period 2004/05 – 2009/10 is summarized in Table 3.2.

Table 3.2
SPORT ACTIVITY IN THE COUNTRY, 2004/05 – 2009/10

Year	1	2	3	4	5	Total (2+3+4+5)
2004/05	2,841	40,709	1,930	2,270	467,350	512,259
2005/06	2,758	54,964	2,141	2,198	458,894	518,197
2006/07	2,131	21,367	2,223	2,392	683,900	709,882
2007/08	4,219	78,511	4,174	3,492	584,213	670,390
2008/09	5,599	49,544	1,234	976	69,538	121,292
2009/10	4,280	44,371	2,774	1,395	400,939	449,479
Average	3,638	48,244	2,413	2,121	444,139	496,917

- Note:-**
1. Number of sports clubs or teams registered for annual competition
 2. Number of sports persons registered for annual competition
 3. Number of referees of different types of sports
 4. Number of coaches of different types of sports
 5. Number of Sport for All Committee and Participants (for health/physical fitness, for recreation & competition)

As could be seen from Table 3.1 and 3.2, there is a substantial growth in the import of sportswear and sports activity in the country. Total imports of the product and sports activity in the country on the average grew, respectively, at the rate of 34.5% and 44% annually during the period under reference. To determine the present unsatisfied demand for the product average total import of the period under consideration is first assumed to reflect the demand for the year 2011. Then, a modest estimate of average annual growth rate of 10% is applied to arrive at the current (year 2012) unsatisfied demand for the product. Thus, the current unsatisfied demand for the product is estimated at 1,635,983 pieces (667tons).

2. Demand Projection

The demand for sports wear is influenced mainly by the awareness of the population on the importance of sports for health and physical fitness and the growth of sports activity in the country. Based on the significant increase in imports of sportswear and sports activity in the country, a modest estimate of average annual growth rate of 10% is assumed in projecting the future demand for sportswear. The projected demand for the product is depicted in Table 3.3.

Table 3.3
PROJECTED DEMAND FOR SPORTS WEAR

Year	Projected Demand	
	Tons	No.
2013	733.7	1,799,581
2014	807.1	1,979,539
2015	887.8	2,177,493
2016	976.6	2,395,243
2017	1,074.2	2,634,767
2018	1,181.6	2,898,243
2019	1,299.8	3,188,068
2020	1,429.8	3,506,875
2021	1,572.8	3,857,562
2022	1,730.0	4,243,318

3. Pricing and Distribution

On the basis of the customs data for 2011 (the latest data available), the CIF price of sportswear was Birr 109,299 per ton (Birr 55.5 per piece). Allowing 30% for import duty and other clearing expenses, the factory gate price for the envisaged plant is estimated at Birr 142,089 per ton (Birr 72 per piece).

The envisaged plant can use the existing sports goods wholesale and retail channel to distribute its product. The product can also be directly sold to sports clubs as they are bulk purchasers.

B. PLANT CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

Considering the minimum economic size plants available in the market, the capacity of the envisaged plant is 750 tons (1,839,589 pieces) of sportswear per annum. This capacity is selected on the basis of two shifts per day (16 hrs per day) and 300 working days a year.

2. Production Program

Full capacity production may not be achieved until the skill of operating the production equipment is well developed and / or until the business gets a significant market share of the product.

The capacity utilization rate is, therefore, 75%, and 85% for the first and second year, respectively. Full capacity production will be achieved in the third year, and will continue thereafter. Considering Sundays and public holidays as non-working days, the plant will be in operation for 300 days a year.

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

The major raw materials required for the production of sports wear are cotton yarn and mixed cotton-acrylic yarn. Cotton yarn can be purchased from local markets whereas mixed cotton-acrylic yarn can be purchased from abroad. Annual raw material requirement and cost at full capacity operation of the plant is shown in Table 4.1.

Table 4.1

RAW MATERIALS REQUIREMENTS AND COST

Sr. No.	Description	Qty (tones)	Cost ('000 Birr)		
			FC	LC	TC
1	Hoisory cotton yarn	525	-	26,250.00	26,250.00
2	Cotton acrylic yarn (soft hand knitting blended yarn)	262.5	42,787.50	6,418.13	81,500.00
	Total		42,787.50	32,668.13	107,750.00

Auxiliary materials required in the production of sports wear include sewing thread, elastic labels, polyethylene bags, needle sinkers, buttons, chemicals and other miscellaneous inputs. The detailed requirement and cost of auxiliary materials is indicated in Table 4.2.

Table 4.2

AUXILIARY MATERIALS REQUIREMENTS AND COST

Sr. No.	Description	Qty. (ton)	Cost ('000 Birr)		
			FC	LC	TC*
1	Sewing thread, elastic labels, polyethylene bags, etc.	60.0		3,130	3,130
2	Needle sinkers, buttons, etc	37.5	1,796	269	2,065
3	Chemicals	22.5	2,090	314	2,404
4	Miscellaneous	7.5	420	63	483
	Total cost	-	4,306	3,776	8,082

B. UTILITIES

Electricity and water are the utilities required for sportswear plant. Electricity requirement is estimated at 750,000 kWh and water consumption is estimated at 15,000 m³ per annum. The total annual expenditure on utilities will be Birr 517,500 (see Table 4.3).

Table 4.3

ANNUAL UTILITY REQUIREMENT AND COST

Sr. No.	Description	Annual Consumption	Unit	Unit Cost (Birr)	Total Cost ('000) Birr
1	Electricity	633,500	kWh	0.58	367.43
2	Water	15,000	m ³	10.00	150.00
Total Annual Cost					517.43

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

Knitting is one of the two methods of fabric manufacturing. The knitted fabrics are further used to make different types of sportswear.

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 types of sportswear which are produced by conventional procedures, i.e., cutting to the required shape and size, stitching and sewing.

2. Environmental Impact

The production process of sports wear does not have any adverse impact on the environment

B. ENGINEERING

1. Machinery and Equipment

The total cost of machinery and equipment is estimated at Birr 7.01 million. The list of required machinery and equipment with the corresponding cost is shown in Table 5.1.

Table 5.1

MACHINERY AND EQUIPMENT REQUIREMENT & COST

Sr. No.	Description	Qty	Cost ('000 Birr)		
			FC	LC	TC
1	Rapier machine	8	704	-	704
2	Automatic Latex Warping Machine	4	147	-	147
3	Interlock knitting m/c (with steel cylinder and dial with 3-stage stop motion, 696 dials)	8	323	-	323
4	Rib full interlocked knitting m/c (with steel cylinder and dials with 3 stage motion, 612 dial)	8	323	-	323
5	Sinker body knitting m/c (with full metal cylinder with steel walls inserted 3 stage motion)	8	323	-	323
6	10 spindle bobbin winding gm/c	4	108	-	108
7	3 thread over lock sewing m/c	20	808	-	808
8	Folding m/c	8	173	-	173
9	Rib cutting m/c	4	54	-	54
10	Simple chain stitching m/c	8	216	-	216
11	Single chain stitching m/c	8	216	-	216
12	Double chain stitching m/c	8	216	-	216
13	Flat stitching m/c	4	108	-	108
14	Sewing m/cs	12	485	-	485
15	Ball press with steel palter	8	108	-	108
16	Kiers bating equipment	4	216	-	216
17	Over lock m/c	12	485	-	485
18	Electric iron	12	2	-	2
19	Tables for fixing m/c, ironing, cutting, wooden stocks for works storage stocks	16	4	-	4
20	Scissors	8	1	-	1
21	Concrete s.s tanks for cleaning	8	108	-	108
22	Drying chambers (electric)	8	216		216
23	Lab. testing equipment	set	108		108

Sr. No.	Description	Qty	Cost ('000 Birr)		
			FC	LC	TC
24	Electric fitting and accessories	set	54		54
25	Water suppliers and fittings	set	54		54
26	Miscellaneous	Req.	54		54
	Sub-Total		5,614.00		5,614.00
	Bank, Insurance, freight, customs, land transport, etc.			1,403.50	1,403.50
	Grand Total		5,614.00	1,403.50	7,017.50

2. Land, Building and Civil Works

The total area of land required for sportswear producing plant, including provision for open space, is estimated at 1,500 m². This is supposed to consist of built up area and free space. Building construction the cost of 1,000 m² built-up areas will be Birr 5 million, at the rate of Birr 5,000 per m².

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 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 m² is estimated at Birr 399,000 of which 10% or Birr 39,900 will be paid in advance. The remaining Birr 359,100 will be paid in equal installments within 28 years i.e. Birr 12,825 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 plant requires a total of 60 administration and production personnel. . Annual labor cost is Birr 1,255,680. The human resource requirement by type of job and corresponding labor cost is indicated in Table 6.1.

B. TRAINING REQUIREMENT

Training of production workers is essential in order to efficiently operate production equipment and produce marketable and acceptable products. Training program can be executed during erection and commissioning of production equipment. An estimated training cost of Birr 300,000 will be allocated.

Table 6.1

HUMANRESOURCE REQUIREMENT AND LABOR COST

No.	Description	No.	Monthly Salary(Birr)	Annual salary ('000) Birr
1	Plant manager	1	6,000.00	72.0
2	Secretary	1	1,500.00	18.0
3	Administration and finance	1	3,500.00	42.0
4	Accountant	1	2,000.00	24.0
5	Mechanic	2	2,200.00	52.8
6	Electrician	2	2,200.00	52.8
7	operators	30	1,400.00	504.0
8	production foreman	2	3,000.00	72.0
9	Clerk	1	800.00	9.6
10	Cashier	1	1,000.00	12.0
11	Assistant operator	10	700.00	84.0
12	Quality supervisor	2	1,600.00	38.4
13	store keeper	1	1,400.00	16.8
14	time keeper	1	1,200.00	14.4
15	Guards	4	700.00	33.6
Total		60	29,200.00	1,046.4
16	Employees benefit and allowances 20%		5,840.00	209.3
Total Annual Labor Cost (Direct +Indirect)				1,255.7

VII. FINANCIAL ANALYSIS

The financial analysis of the sportswear 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 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 43.77 million (see Table 7.1). From the total investment cost ,the highest share (Birr 27.14 million or 62.01%) is accounted by initial working capital followed by fixed investment cost (13.21 million or 30.17%) and pre operation cost (Birr 3.42 million or 7.82%). From the total investment cost, Birr 5.61 million or 12.82% is required in foreign currency.

Table 7.1

INITIAL INVESTMENT COST ('000 Birr)

Sr. No	Cost Items	Local Cost	Foreign Cost	Total Cost	% Share
1	Fixed investment				
1.1	Land Lease	39.90		39.90	0.09
1.2	Building and civil work	5,000.00		5,000.00	11.42
1.3	Machinery and equipment	1,403.50	5,614.00	7,017.50	16.03
1.4	Vehicles	900.00		900.00	2.06
1.5	Office furniture and equipment	250.00		250.00	0.57
	Sub total	7,593.40	5,614.00	13,207.40	30.17
2	Pre operating cost *				
2.1	Pre operating cost	560.53		560.53	1.28
2.2	Interest during construction	2,863.75		2,863.75	6.54
	Sub total	3,424.28		3,424.28	7.82
3	Working capital **	27,142.81		27,142.81	62.01
	Grand Total	38,160.49	5,614.00	43,774.49	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 38.83 million. However, only the initial working capital of Birr 27.14 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 122.85 million (see Table 7.2). The cost of raw material account for 94.29% of the production cost. The other major components of the production cost are depreciation, financial cost, direct labor, and utility which

account for 1.56%, 1.92%, 0.85%, and 0.42% respectively. The remaining 0.96% is the share of cost of marketing and distribution, 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 three)

Items	Cost (000 Birr)	%
Raw Material and Inputs	115,832	94.29
Utilities	518	0.42
Maintenance and repair	211	0.17
Labor direct	1,046	0.85
Labor overheads	209	0.17
Administration Costs	250	0.20
Land lease cost	0	0.00
Cost of marketing and distribution	500	0.41
Total Operating Costs	118,566	96.51
Depreciation	1,921	1.56
Cost of Finance	2,363	1.92
Total Production Cost	122,849	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 6.72 million to Birr 9.55 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 118.82 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.

$$\text{Break -Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 55,629,000$$

$$\text{Break -Even Capacity utilization} = \frac{\text{Break- even Sales Value}}{\text{Sales revenue}} \times 100 = 23\%$$

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 31.09% 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 52.61 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 60 persons. The project will generate Birr 25.16 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 yarn factories 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	20,270.60	23,166.40	26,062.20	28,958.00	28,958.00	28,958.00	28,958.00	28,958.00	28,958.00	28,958.00
Accounts receivable	6,928.85	7,912.73	8,896.62	9,880.50	9,881.57	9,881.57	9,881.57	9,881.57	9,881.57	9,881.57
Cash-in-hand	16.68	19.07	21.45	23.83	24.01	24.01	24.01	24.01	24.01	24.01
CURRENT ASSETS	27,216.13	31,098.20	34,980.27	38,862.33	38,863.58	38,863.58	38,863.58	38,863.58	38,863.58	38,863.58
Accounts payable	73.33	83.80	94.28	104.75	104.75	104.75	104.75	104.75	104.75	104.75
CURRENT LIABILITIES	73.33	83.80	94.28	104.75	104.75	104.75	104.75	104.75	104.75	104.75
TOTAL WORKING CAPITAL	27,142.81	31,014.40	34,885.99	38,757.58	38,758.83	38,758.83	38,758.83	38,758.83	38,758.83	38,758.83

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	81,082	92,666	104,249	115,832	115,832	115,832	115,832	115,832	115,832	115,832
Utilities	363	414	466	518	518	518	518	518	518	518
Maintenance and repair	148	169	190	211	211	211	211	211	211	211
Labour direct	732	837	941	1,046	1,046	1,046	1,046	1,046	1,046	1,046
Labour overheads	146	167	188	209	209	209	209	209	209	209
Administration Costs	175	200	225	250	250	250	250	250	250	250
Land lease cost	0	0	0	0	13	13	13	13	13	13
Cost of marketing and distribution	500	500	500	500	500	500	500	500	500	500
Total Operating Costs	83,146	94,953	106,759	118,566	118,579	118,579	118,579	118,579	118,579	118,579
Depreciation	1,921	1,921	1,921	1,921	1,921	225	225	225	225	225
Cost of Finance	0	3,150	2,756	2,363	1,969	1,575	1,181	788	394	0
Total Production Cost	85,067	100,024	111,436	122,849	122,468	120,379	119,985	119,591	119,198	118,804

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	92,715	119,205	132,450	132,450	132,450	132,450	132,450	132,450	132,450	132,450
Less variable costs	82,646	94,453	106,259	118,066	118,066	118,066	118,066	118,066	118,066	118,066
VARIABLE MARGIN	10,069	24,752	26,191	14,384	14,384	14,384	14,384	14,384	14,384	14,384
in % of sales revenue	10.86	20.76	19.77	10.86	10.86	10.86	10.86	10.86	10.86	10.86
Less fixed costs	2,421	2,421	2,421	2,421	2,433	738	738	738	738	738
OPERATIONAL MARGIN	7,648	22,332	23,770	11,963	11,951	13,646	13,646	13,646	13,646	13,646
in % of sales revenue	8.25	18.73	17.95	9.03	9.02	10.30	10.30	10.30	10.30	10.30
Financial costs		3,150	2,756	2,363	1,969	1,575	1,181	788	394	0
GROSS PROFIT	7,648	19,181	21,014	9,601	9,982	12,071	12,465	12,859	13,252	13,646
in % of sales revenue	8.25	16.09	15.87	7.25	7.54	9.11	9.41	9.71	10.01	10.30
Income (corporate) tax	0	0	0	2,880	2,995	3,621	3,739	3,858	3,976	4,094
NET PROFIT	7,648	19,181	21,014	6,721	6,987	8,450	8,725	9,001	9,277	9,552
in % of sales revenue	8.25	16.09	15.87	5.07	5.28	6.38	6.59	6.80	7.00	7.21

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	13,768	122,795	119,215	132,460	132,450	132,450	132,450	132,450	132,450	132,450	132,450	44,662
Inflow funds	13,768	30,080	10	10	0	0	0	0	0	0	0	0
Inflow operation	0	92,715	119,205	132,450	132,450	132,450	132,450	132,450	132,450	132,450	132,450	0
Other income	0	0	0	0	0	0	0	0	0	0	0	44,662
TOTAL CASH OUTFLOW	13,768	113,226	105,923	117,335	131,629	127,481	127,713	127,437	127,162	126,886	122,673	0
Increase in fixed assets	13,768	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	27,216	3,882	3,882	3,882	1	0	0	0	0	0	0
Operating costs	0	82,646	94,453	106,259	118,066	118,079	118,079	118,079	118,079	118,079	118,079	0
Marketing and Distribution cost	0	500	500	500	500	500	500	500	500	500	500	0
Income tax	0	0	0	0	2,880	2,995	3,621	3,739	3,858	3,976	4,094	0
Financial costs	0	2,864	3,150	2,756	2,363	1,969	1,575	1,181	788	394	0	0
Loan repayment	0	0	3,938	3,938	3,938	3,938	3,938	3,938	3,938	3,938	0	0
SURPLUS (DEFICIT)	0	9,569	13,293	15,125	821	4,969	4,737	5,013	5,288	5,564	9,777	44,662
CUMULATIVE CASH BALANCE	0	9,569	22,862	37,987	38,808	43,777	48,514	53,527	58,815	64,379	74,157	118,819

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	92,715	119,205	132,450	132,450	132,450	132,450	132,450	132,450	132,450	132,450	44,662
Inflow operation	0	92,715	119,205	132,450	132,450	132,450	132,450	132,450	132,450	132,450	132,450	0
Other income	0	0	0	0	0	0	0	0	0	0	0	44,662
TOTAL CASH OUTFLOW	40,911	87,018	98,824	110,631	121,447	121,573	122,200	122,318	122,436	122,555	122,673	0
Increase in fixed assets	13,768	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	27,143	3,872	3,872	3,872	1	0	0	0	0	0	0	0
Operating costs	0	82,646	94,453	106,259	118,066	118,079	118,079	118,079	118,079	118,079	118,079	0
Marketing and Distribution cost	0	500	500	500	500	500	500	500	500	500	500	0
Income (corporate) tax		0	0	0	2,880	2,995	3,621	3,739	3,858	3,976	4,094	0
NET CASH FLOW	-40,911	5,697	20,381	21,819	11,003	10,877	10,250	10,132	10,014	9,895	9,777	44,662
CUMULATIVE NET CASH FLOW	-40,911	35,214	-14,833	6,986	17,989	28,865	39,115	49,247	59,260	69,156	78,933	123,596
Net present value	-40,911	5,179	16,843	16,393	7,515	6,754	5,786	5,199	4,671	4,197	3,770	17,219
Cumulative net present value	-40,911	35,731	-18,888	-2,495	5,020	11,773	17,559	22,758	27,430	31,626	35,396	52,615

NET PRESENT VALUE 52,615
INTERNAL RATE OF RETURN 31.09%
NORMAL PAYBACK 3 years