

**130. PROFILE ON THE PRODUCTION OF  
CHILDREN'S CLOTH**

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## **I. SUMMARY**

This profile envisages the establishment of a plant for the production of children's cloth with a capacity of 280,000 pieces per annum. Children's cloth is an article of outer clothing (same as coat or dress) usually exclusive of accessories, and which gives warmth and protection for babies and children.

The demand for children's cloth is met both from local production and imports. The present (2012) unsatisfied demand for children's cloth is estimated at 499,883 kg. The unsatisfied demand for children's cloth is projected to reach 805,066 kg and 1,296,568 kg by the year 2017 and 2022, respectively.

The principal raw materials required are fabrics, buttons, zippers, elastic braid and sewing threads which are available locally.

The total investment cost of the project including working capital is estimated at Birr 9.80 million. From the total investment cost the highest share (Birr 6.29 million or 64.34%) is accounted by fixed investment cost followed by initial working capital (Birr 2.09 million or 21.40%) and pre operation cost (Birr 1.39 million or 14.26%). From the total investment cost Birr 1.97 million or 20.18% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 33.55% and a net present value (NPV) of Birr 15.18 million discounted at 10%.

The project can create employment for 39 persons. The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports. The project will also create backward linkage with the textile sub sector and also generates income for the Government in terms of tax revenue and payroll tax.

## **II. PRODUCT DESCRIPTION AND APPLICATION**

For a very long period of the human history, children wore what can be called smaller versions of adult clothing with only minor differences that can save the kids from any hazard like strings in place of any harmful closure. It was not before early 1800s that specific kids clothing started to be manufactured.

Babies/children garment is an article of outer clothing (same as coat or dress) usually exclusive of accessories, and which gives warmth and protection for babies and children. The clothing is also provided with attractive and well fitting aesthetic look.

These products are produced from woven fabrics of cotton or cotton/polyester blend. They are produced in different designs and fashions. They consist of jacket/coat and trouser for boys (and girls) and skirts for girls. These garments are finding wide application in all parts of the country, particularly in urban towns.

## **III. MARKET STUDY AND PLANT CAPACITY**

### **A. MARKET STUDY**

#### **1. Past Supply and Present Demand**

The demand for children's cloth in Ethiopia is met both from local production and imports. However, local production of children's cloth is undertaken mainly by individual tailors throughout the country. The existing garment factories that are concentrated in Addis Ababa and its surroundings produce garments predominantly for civil adults, police and defense forces and workers uniforms.

Current production of children's cloth, which is undertaken by individual tailors, is on piece by piece basis in accordance with the desire of the clients. This method of production combined with inefficient operation of individual tailors makes children's cloth more expensive than the process based on industrial mass production.

Due to the shortage of children's cloth from domestic sources, the country has been importing a substantial amount of children cloth. Table 3.1 presents imports of children garments during 2000-2011. The country imports a variety of ready-made children garments that are made of various materials. The following selected products are considered for the purpose of this project.

- Children garments of wool,
- Children garments of cotton,
- Children garments of synthetic fibers and
- Children garments of other textiles

**Table 3.1**

**IMPORTS OF CHILDREN'S GARMENTS OF WOOL, COTTON, SYNTHETIC FIBER  
AND OTHER TEXTILES (IN KG)**

<b>Year</b>	<b>Children garments of wool</b>	<b>Children garments of cotton</b>	<b>Children garments of synthetic fibers</b>	<b>Children garments of other textiles</b>	<b>Total</b>
2000	6,555	25,188	8,605	5,066	45,414
2001	1,765	47,755	11,857	70,356	131,733
2002	34	34,550	87,550	162,141	284,275
2003	461	14,129	113,855	28,812	157,257
2004	2,278	4,942	65,824	28,403	101,447
2005		9,284	18,748	8,641	36,673
2006	88	3,336	116,917	10,618	130,959
2007		282	159,256	81,856	241,394
2008		483	419,830	72,115	492,428
2009			1,185,777	35,876	1,221,653
2010		12,566	1,192,068	120,043	1,324,677
2011		6,188	1,137,875	141,293	1,285,356
<b>Average</b>	<b>1,863.5</b>	<b>14,427.55</b>	<b>376,513.5</b>	<b>63,768.33</b>	<b>454,439</b>

*Source: Compiled From Ethiopian Revenues & Customs Authority data.*

Table 3.1 reveals that on the average about 454,439 kg of children's cloth are annually imported into the country. Of the various types of children's cloth, those made of synthetic fibers on the average accounted for about 83% of total imports. Children cloth made of cotton and other textiles accounts for about 3% and 14% of the total imports, respectively. The average share of children garment made of wool from the total quantity imported during the period under reference is negligible. The customs data also reveal that the country on the average exported 57,032 kg of children's cloth during the same period.

As could be seen form Table 3.1, there is a substantial growth in the imports of children's cloth. Total imports of the product on the average grew at the rate of 69% annually during the reference period. To determine the present unsatisfied demand for the product average 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 499,883 kg.

## **2. Projected Demand**

Demand for children cloth is mainly influenced by the population of children as well as income of households. Given the country's rapid economic growth and the substantially high average rate of growth of imports of children's cloth (69%) observed during 2000-2011, a modest estimate of 10% average annual growth rate is considered in projecting the demand for children cloth. The projected future demand for the product is shown in Table 3.2.

**Table 3.2**  
**PROJECTED DEMAND FOR CHILDREN'S CLOTH (KG)**

<b>Year</b>	<b>Qty</b>
2013	549,871
2014	604,858
2015	665,344
2016	731,879
2017	805,066
2018	885,573
2019	974,130
2020	1,071,543
2021	1,178,698
2022	1,296,568

### **3. Pricing and Distribution**

The price of children's cloth depends on the type of the material used. Cotton fabrics and synthetic fabrics are assumed to be the main materials to be used by the envisaged plant. Based on the recent import data on imports of children's cloth made of cotton and synthetic fabrics, a factory gate price of Birr 54.70 per piece is recommended for projection of sales revenue.

The products will find their market outlet through existing wholesale and retail channel and by opening a factory shop at strategic locations.

## **B. PLANT CAPACITY AND PRODUCTION PROGRAMME**

### **1. Plant Capacity**

Based on the market study and considering other technical factors the envisaged plant production capacity is set at 280,000 pieces of assorted children's cloth per annum. The type of children's

cloth and proposed composition is presented in Table 3.3. A total of 300 working days per annum and a single shift of eight hours per day is the basis of capacity determination.

**Table 3.3**  
**PRODUCTION CAPACITY**

Sr. No.	Type of Cloth	Quantity (pcs)
1	Trousers & shirts	140,000
2	Girl's dress	140,000
	<b>Total</b>	<b>280,000</b>

## 2. Production Programme

The envisaged plant will start operation in a single shift, 8 hours a day, and 300 days a year. Production can be scheduled to grow to full capacity in three consecutive years, starting at 75% of installed capacity in the first year, and raising the production to 85% in the second year. Full capacity production will then be attained in the third year and then after. Production output can be doubled or tripled by introducing a second or third shift in the daily production programme depending upon the market demand. Table 3.4 below depicts the proposed production programme.

**Table 3.4**  
**PRODUCTION PROGRAMME**

Year	1	2	3
Capacity utilization (%)	75	85	100
Production (pieces) – Assorted	210,000	238,000	280,000



#### IV. RAW MATERIALS AND INPUTS

##### A. RAW MATERIALS

The raw materials required to produce children's cloth in the envisaged plant include fabrics, buttons, zippers, elastic braid and sewing threads and other is depicted in the table below.

Table 4.1 below presents annual requirements and corresponding costs of raw materials at full production capacity.

**Table 4.1**

**RAW MATERIALS REQUIREMENT AND COST AT FULL CAPACITY**

Sr. No.	Description	Unit of Measure	Qty	Unit Price	Total Cost, ('000 Birr)		
					LC	FC	TC
1	Polyester /cotton fabric	Meters	700,000	11.509	8,056.30	-	8,056.30
2	Buttons	Gross	5,600	14.45	80.92	-	80.92
3	Zipper	Gross	1,750	42.5	74.38	-	74.38
4	Elastic braid	Roll	350	37.4	13.09	-	13.09
5	Sewing thread	Dozen	3,500	11.9	41.65	-	41.65
6	Sewing thread (cones)	Pcs	9,240	2.55	23.56	-	23.56
7	Packing material	As req.	-		30.00	-	30.00
	<b>Grand Total</b>				<b>8,319.90</b>		<b>8,319.90</b>

##### B. UTILITIES

Utilities required by the plant are comprised of electricity, fuel oil and water. Steam is required for pressing. Table 4.2 presents annual requirement of utilities and corresponding cost at full production capacity.

**Table 4.2**  
**ANNUAL REQUIREMENT OF UTILITIES AND COST**

<b>Sr. No.</b>	<b>Description</b>	<b>Unit of Measure</b>	<b>Qty</b>	<b>Unit Price</b>	<b>Total Cost ('000 Birr)</b>
1	Electricity	kWh	100,000	0.60	60.00
2	Fuel oil	Litre	60,000	14.50	870.00
3	Water	M <sup>3</sup>	13,000	10.00	130.00
	<b>Grand Total</b>		-	-	<b>1,060.00</b>

## V. TECHNOLOGY AND ENGINEERING

### A. TECHNOLOGY

#### 1. Process Description

Kids clothing are made in various steps of cutting, sewing, assembling, decorating, and finishing. With the help of spreading machines, fabric is stacked on one another in reaches or lays that may go over 30.5m long and hundreds of plies (fabric pieces) thick. Markers, made in accordance to the patterns are attached to the fabric with the help of adhesive stripping or staples. Markers are laid in such a way so that minimum possible fabric gets wasted during cutting operation. The fabric is then cut with the help of cloth cutting machines suitable for the type of the cloth. These can be band cutters having similar work method like that of band saws; cutters having rotary blades; machines having reciprocal blades which saw up and down; die clickers similar to die or punch press; or computerized machines that use either blades or laser beams to cut the fabric in desired shapes.

There are what is called sewing stations for sewing different parts of the cut pieces. In this workplace, there are many operators who perform a single operation. One operator may make only straight seams, while another may make sleeve insets. Yet another two operators can sew the waist seams, and make buttonholes. Various industrial sewing machines too have different types of stitches that they can make. These machines also have different configuration of the

frame. Some machines work sequentially and feed their finished step directly into the next machine, while the gang machines have multiple machines performing the same operation supervised by a single operator. All these factors decide what parts of a garment can be sewn at that station.

Finally, the sewn parts of the garment, such as sleeves or pant legs, are assembled together to give the final form to the kids clothing. The next operations are those of finishing and/or decorating. Molding may be done to change the finished surface of the garment by applying pressure, heat, moisture, or certain other combination. Pressing, pleating and creasing are the basic molding processes. Creasing is mostly done before other finishing processes like that of stitching a cuff. Creasing is also done before decorating the garment with something like a pocket, appliqué, embroidered emblems etc. Then the finished garments are sorted based on size and packed.

Although the completed pieces of garments are checked at the quality station, yet it is a continuous process observed during all the manufacturing stages. Textile Machinery used for making kids clothing are also inspected at regular intervals. Most of them have shutoffs built into their structure and operation if they run out of threads or perform below the expected standards. The major unit of operations involved in children garment making consist of the following.

- Pattern design and patternmaking
- Cloth cutting, grading process by mechanical cutting system and piece bundling;
- Sewing by sewing machine;
- Trimming and inspection;
- Ironing and pressing for finishing process; and
- Button-hole making, bottoming, fixing of zippers and elastic are done at all required points.

## **2. Environmental Impact Assessment**

The main operation of the envisaged plant involves cutting, stitching, and ironing and such process does not have any direct negative impact in environment.

## B. ENGINEERING

### 1. Machinery and Equipment

Machinery and equipment required for the envisaged plant are conventional tailoring/sewing machinery. The list of equipment, quantity and associated costs are given in Table 5.1.

As shown in the table, the total cost of machinery and equipment is estimated at Birr 2,101,264 of which Birr 1,973,264 is required in foreign currency and the remaining Birr 128,000 is in local currency.

**Table 5.1**  
**MACHINERY AND EQUIPMENT REQUIREMENT AND COST**

Sr. No.	Description	Qty	Total Cost, ('000 Birr)		
			LC	FC	TC
1	Single needle stitching machine	16	-	96.00	96.00
2	Double needle stitching machine	12	-	320.00	320.00
3	Industrial sewing machine	22	-	432.00	432.00
4	Over lock machine	3	-	32.00	32.00
5	Button hole machine	3	-	49.12	49.12
6	Electrical cloth cutter	Set	-	17.35	17.35
7	Steam iron (set)	Set	-	2.40	2.40
8	Scissors & various tools (set)	Req	-	3.20	3.20
9	Work benches	Req	-	2.56	2.56
10	Shelves, tables, office furniture	Req	-	32.00	32.00
	FOB price		-	986.63	986.63
	Freight, Bank, Insurance, etc.		128	-	128.00
	<b>CIF Landed Cost</b>		<b>128</b>	<b>1,973.26</b>	<b>2,101.264</b>

## **2. Land, Building and Civil Works**

The total area required for plant site is estimated to be 1,500 m<sup>2</sup>. Of this, the built-up area of the factory will be 600 m<sup>2</sup>. Building cost is estimated to be Birr 5000 per m<sup>2</sup>, 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 5,000 m<sup>2</sup>, the land lease request is evaluated and decided upon by the Industrial Zone Development and Coordination Committee of the City's Investment Authority. However, if the land request is above 5,000 m<sup>2</sup>, the request is evaluated by the City's Investment Authority and passed with recommendation to the Land Development and Administration Authority for decision, while the lease price is the same for both cases.

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

The new regulation classified the city into three zones. The first Zone is Central Market District Zone, which is classified in five levels and the floor land lease price ranges from Birr 1,686 to Birr 894 per m<sup>2</sup>. The rate for Central Market District Zone will be applicable in most areas of the city that are considered to be main business areas that entertain high level of business activities.

The second zone, Transitional Zone, will also have five levels and the floor land lease price ranges from Birr 1,035 to Birr 555 per m<sup>2</sup>. This zone includes places that are surrounding the city and are occupied by mainly residential units and industries.

The last and the third zone, Expansion Zone, is classified into four levels and covers areas that are considered to be in the outskirts of the city, where the city is expected to expand in the future. The floor land lease price in the Expansion Zone ranges from Birr 355 to Birr 191 per m<sup>2</sup> (see Table 5.2).

**Table 5.2****NEW LAND LEASE FLOOR PRICE FOR PLOTS IN ADDIS ABABA**

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

Accordingly, in order to estimate the land lease cost of the project profiles it is assumed that all new manufacturing projects will be located in industrial zones located in expansion zones. Therefore, for the profile a land lease rate of Birr 266 per m<sup>2</sup> 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**

<b>Scored point</b>	<b>Grace period</b>	<b>Payment Completion Period</b>	<b>Down Payment</b>
Above 75%	5 Years	30 Years	10%
From 50 - 75%	5 Years	28 Years	10%
From 25 - 49%	4 Years	25 Years	10%

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

Accordingly, the total land lease cost at a rate of Birr 266 per m<sup>2</sup> is estimated at Birr 399,000 of which 10% or Birr 39,900 will be paid in advance. The remaining Birr 359,100 will be paid in equal installments with in 28 years i.e. Birr 12,825 annually.

## **VI. HUMAN RESOURCE AND TRAINING REQUIREMENT**

### **A. HUMAN RESOURCE REQUIREMENT**

The plant will be able to employ 39 persons. Annual salary requirement, including employee's benefit, will be Birr 340,170. The mix of production and administrative manpower required for the envisaged plant is shown in Table 6.1



**Table 6.1**  
**HUMAN RESOURCE REQUIREMENT AND LABOR COST**

<b>Sr. No.</b>	<b>Description</b>	<b>Req. No.</b>	<b>Monthly Salary</b>	<b>Annual Salary</b>
1	General manager	1	5,500	66,000
2	Administration	1	3,000	36,000
3	Production supervisor	1	3,500	42,000
4	Designer	1	2,500	30,000
5	Tailor	18	1,500	18,000
6	Assistant tailor	6	700	8,400
7	Mechanic	2	1,600	19,200
8	Electrician	2	1,600	19,200
9	Secretary	1	1,200	14,400
10	Clerk	1	900	10,800
11	Store keeper	1	1,200	14,400
12	Cashier	1	1,000	12,000
13	Guard	3	800	5400
	<b>Sub-total</b>	<b>39</b>	<b>-</b>	<b>295,800</b>
	Employee benefit			44,370
	<b>Total</b>	<b>39</b>		<b>340,170</b>

## **B. TRAINING REQUIREMENT**

It is proposed that production workers (tailors), designers and maintenance crew shall be given appropriate on-site training in the design, manufacture, quality control and operation of children's cloth, and on maintenance and operation of machinery. Such training programme should be incorporated in the contract agreement of the supplier of know how and machinery. Estimated cost of on-site training of this nature is about Birr 60,000.

## **VII. FINANCIAL ANALYSIS**

The financial analysis of the children's cloth 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	5 years
Bank interest	10%
Discount cash flow	10%
Accounts receivable	30 days
Raw material local	30 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 9.80 million (See Table 7.1). From the total investment cost the highest share (Birr 6.29 million or 64.34%) is accounted by fixed investment cost followed by initial working capital (Birr 2.09 million or 21.40%) and pre operation cost (Birr 1.39 million or 14.26%). From the total investment cost Birr 1.97 million or 20.18% is required in foreign currency.

**Table 7.1****INITIAL INVESTMENT COST ( '000 Birr)**

Sr. No	Cost Items	Local Cost	Foreign Cost	Total Cost	% Share
<b>1</b>	<b>Fixed investment</b>				
1.1	Land Lease	39.90		39.90	0.41
1.2	Building and civil work	3,000.00		3,000.00	30.68
1.3	Machinery and equipment	128.00	1,973.26	2,101.26	21.49
1.4	Vehicles	900.00		900.00	9.20
1.5	Office furniture and equipment	250.00		250.00	2.56
	<b>Sub total</b>	<b>4,317.90</b>	<b>1,973.26</b>	<b>6,291.16</b>	<b>64.34</b>
<b>2</b>	<b>Pre operating cost *</b>				
2.1	Pre operating cost	755.06		755.06	7.72
2.2	Interest during construction	639.69		639.69	6.54
	<b>Sub total</b>	<b>1,394.75</b>		<b>1,394.75</b>	<b>14.26</b>
<b>3</b>	<b>Working capital **</b>	<b>2,092.21</b>		<b>2,092.21</b>	<b>21.40</b>
	<b>Grand Total</b>	<b>7,804.86</b>	<b>1,973.26</b>	<b>9,778.12</b>	<b>100</b>

\* *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 3.03 million. However, only the initial working capital of Birr 2.09 million during the first year of production is assumed to be funded through external sources. During the remaining years the working capital requirement will be financed by funds to be generated internally (for detail working capital requirement see Appendix 7.A.1).*

**B. PRODUCTION COST**

The annual production cost at full operation capacity is estimated at Birr 12.30 million (see Table 7.2). The cost of raw material account for 67.65% of the production cost. The other major components of the production cost are financial cost, depreciation, utility, and cost of marketing and distribution which account for 4.29%, 7.29%, 8.62% and 5.69% respectively. The remaining 6.46% is the share of direct labour ,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)**

<b>Items</b>	<b>Cost ( 000 Birr)</b>	<b>%</b>
Raw Material and Inputs	8,320	67.65
Utilities	1,060	8.62
Maintenance and repair	105	0.85
Labour direct	296	2.41
Labour overheads	44	0.36
Administration Costs	350	2.85
Land lease cost	0	0.00
Cost of marketing and distribution	700	5.69
<b>Total Operating Costs</b>	<b>10,875</b>	<b>88.42</b>
Depreciation	896	7.29
Cost of Finance	528	4.29
<b>Total Production Cost</b>	<b>12,299</b>	<b>100.00</b>

**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 2.11 million to Birr 3.00 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 30.68 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.

$$\text{Break Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 6,433,000$$

$$\text{Break Even Capacity utilization} = \frac{\text{Break even Sales Value}}{\text{Sales revenue}} \times 100 = 26 \%$$

### **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 33.55% 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 15.18 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 39 persons. The project will generate Birr 7.99 million in terms of tax revenue. The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports. The project will also create backward linkage with the textile sub sector and also generates income for the Government in terms of payroll tax.

**Appendix 7.A**

**FINANCIAL ANALYSES SUPPORTING TABLES**





**Appendix 7.A.2**  
**PRODUCTION COST ( in 000 Birr)**

<b>Item</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>	<b>Year 11</b>
Raw Material and Inputs	5,824	6,656	7,488	8,320	8,320	8,320	8,320	8,320	8,320	8,320
Utilities	742	848	954	1,060	1,060	1,060	1,060	1,060	1,060	1,060
Maintenance and repair	74	84	95	105	105	105	105	105	105	105
Labour direct	207	237	266	296	296	296	296	296	296	296
Labour overheads	31	35	40	44	44	44	44	44	44	44
Administration Costs	245	280	315	350	350	350	350	350	350	350
Land lease cost	0	0	0	0	13	13	13	13	13	13
Cost of marketing and distribution	700	700	700	700	700	700	700	700	700	700
<b>Total Operating Costs</b>	<b>7,823</b>	<b>8,840</b>	<b>9,858</b>	<b>10,875</b>	<b>10,888</b>	<b>10,888</b>	<b>10,888</b>	<b>10,888</b>	<b>10,888</b>	<b>10,888</b>
Depreciation	896	896	896	896	896	145	145	145	145	145
Cost of Finance	0	704	616	528	440	352	264	176	88	0
<b>Total Production Cost</b>	<b>8,719</b>	<b>10,440</b>	<b>11,369</b>	<b>12,299</b>	<b>12,224</b>	<b>11,385</b>	<b>11,297</b>	<b>11,209</b>	<b>11,121</b>	<b>11,033</b>

**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	10,721	13,784	15,316	15,316	15,316	15,316	15,316	15,316	15,316	15,316
Less variable costs	7,123	8,140	9,158	10,175	10,175	10,175	10,175	10,175	10,175	10,175
<b>VARIABLE MARGIN</b>	<b>3,599</b>	<b>5,644</b>	<b>6,159</b>	<b>5,141</b>	<b>5,141</b>	<b>5,141</b>	<b>5,141</b>	<b>5,141</b>	<b>5,141</b>	<b>5,141</b>
in % of sales revenue	33.56	40.95	40.21	33.57	33.57	33.57	33.57	33.57	33.57	33.57
Less fixed costs	1,596	1,596	1,596	1,596	1,609	858	858	858	858	858
<b>OPERATIONAL MARGIN</b>	<b>2,002</b>	<b>4,048</b>	<b>4,562</b>	<b>3,545</b>	<b>3,532</b>	<b>4,283</b>	<b>4,283</b>	<b>4,283</b>	<b>4,283</b>	<b>4,283</b>
in % of sales revenue	18.68	29.37	29.79	23.14	23.06	27.97	27.97	27.97	27.97	27.97
Financial costs		704	616	528	440	352	264	176	88	0
<b>GROSS PROFIT</b>	<b>2,002</b>	<b>3,344</b>	<b>3,947</b>	<b>3,017</b>	<b>3,092</b>	<b>3,931</b>	<b>4,019</b>	<b>4,107</b>	<b>4,195</b>	<b>4,283</b>
in % of sales revenue	18.68	24.26	25.77	19.70	20.19	25.67	26.24	26.82	27.39	27.97
Income (corporate) tax	0	0	0	905	928	1,179	1,206	1,232	1,259	1,285
<b>NET PROFIT</b>	<b>2,002</b>	<b>3,344</b>	<b>3,947</b>	<b>2,112</b>	<b>2,164</b>	<b>2,752</b>	<b>2,814</b>	<b>2,875</b>	<b>2,937</b>	<b>2,998</b>
in % of sales revenue	18.68	24.26	25.77	13.79	14.13	17.97	18.37	18.77	19.17	19.58

**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
<b>TOTAL CASH INFLOW</b>	<b>7,046</b>	<b>13,476</b>	<b>13,787</b>	<b>15,319</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>5,445</b>
Inflow funds	7,046	2,755	3	3	0	0	0	0	0	0	0	0
Inflow operation	0	10,721	13,784	15,316	15,316	15,316	15,316	15,316	15,316	15,316	15,316	0
Other income	0	0	0	0	0	0	0	0	0	0	0	5,445
<b>TOTAL CASH OUTFLOW</b>	<b>7,046</b>	<b>10,578</b>	<b>10,717</b>	<b>11,647</b>	<b>13,481</b>	<b>13,136</b>	<b>13,299</b>	<b>13,237</b>	<b>13,175</b>	<b>13,114</b>	<b>12,173</b>	<b>0</b>
Increase in fixed assets	7,046	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	2,116	294	294	294	1	0	0	0	0	0	0
Operating costs	0	7,123	8,140	9,158	10,175	10,188	10,188	10,188	10,188	10,188	10,188	0
Marketing and Distribution cost	0	700	700	700	700	700	700	700	700	700	700	0
Income tax	0	0	0	0	905	928	1,179	1,206	1,232	1,259	1,285	0
Financial costs	0	640	704	616	528	440	352	264	176	88	0	0
Loan repayment	0	0	880	880	880	880	880	880	880	880	0	0
<b>SURPLUS (DEFICIT)</b>	<b>0</b>	<b>2,899</b>	<b>3,070</b>	<b>3,673</b>	<b>1,835</b>	<b>2,180</b>	<b>2,017</b>	<b>2,079</b>	<b>2,141</b>	<b>2,202</b>	<b>3,143</b>	<b>5,445</b>
<b>CUMULATIVE CASH BALANCE</b>	<b>0</b>	<b>2,899</b>	<b>5,969</b>	<b>9,641</b>	<b>11,476</b>	<b>13,656</b>	<b>15,673</b>	<b>17,752</b>	<b>19,893</b>	<b>22,095</b>	<b>25,238</b>	<b>30,683</b>

**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
<b>TOTAL CASH INFLOW</b>	<b>0</b>	<b>10,721</b>	<b>13,784</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>15,316</b>	<b>5,445</b>
Inflow operation	0	10,721	13,784	15,316	15,316	15,316	15,316	15,316	15,316	15,316	15,316	0
Other income	0	0	0	0	0	0	0	0	0	0	0	5,445
<b>TOTAL CASH OUTFLOW</b>	<b>9,138</b>	<b>8,113</b>	<b>9,131</b>	<b>10,148</b>	<b>11,781</b>	<b>11,815</b>	<b>12,067</b>	<b>12,094</b>	<b>12,120</b>	<b>12,146</b>	<b>12,173</b>	<b>0</b>
Increase in fixed assets	7,046	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	2,092	291	291	291	1	0	0	0	0	0	0	0
Operating costs	0	7,123	8,140	9,158	10,175	10,188	10,188	10,188	10,188	10,188	10,188	0
Marketing and Distribution cost	0	700	700	700	700	700	700	700	700	700	700	0
Income (corporate) tax		0	0	0	905	928	1,179	1,206	1,232	1,259	1,285	0
<b>NET CASH FLOW</b>	<b>-9,138</b>	<b>2,608</b>	<b>4,653</b>	<b>5,168</b>	<b>3,535</b>	<b>3,501</b>	<b>3,249</b>	<b>3,222</b>	<b>3,196</b>	<b>3,170</b>	<b>3,143</b>	<b>5,445</b>
<b>CUMULATIVE NET CASH FLOW</b>	<b>-9,138</b>	<b>-6,530</b>	<b>-1,877</b>	<b>3,291</b>	<b>6,826</b>	<b>10,326</b>	<b>13,575</b>	<b>16,797</b>	<b>19,993</b>	<b>23,163</b>	<b>26,306</b>	<b>31,751</b>
Net present value	-9,138	2,371	3,846	3,883	2,414	2,174	1,834	1,654	1,491	1,344	1,212	2,099
Cumulative net present value	-9,138	-6,768	-2,922	961	3,375	5,549	7,383	9,036	10,527	11,871	13,083	15,182

NET PRESENT VALUE                    15,182  
INTERNAL RATE OF RETURN            33.55%  
NORMAL PAYBACK                        2 years