

**196. PROFILE ON THE PRODUCTION OF  
WEIGHING SCALES**

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## **I. SUMMARY**

This profile envisages the establishment of a plant for the production of weighing scales with a capacity of 20,000 units per annum. Weighing scales are used to measure the weight of any article.

The demand for weighing scales is met through import and domestic production. The present (2012) demand for weighing scales is estimated at 62,519 units. The demand for weighing scales is projected to reach 79,792 units and 101,838 units by the year 2017 and 2022, respectively.

The principal raw materials required are wires to be coiled into desired sizes and desired final spring wires which have to be imported.

The total investment cost of the project including working capital is estimated at Birr 19.34 million. From the total investment cost the highest share (Birr 10.37 million or 53.66%) is accounted by initial working capital followed by fixed investment cost (Birr 6.88 million or 35.61%) and pre operation cost (Birr 2.07 million or 10.73%). From the total investment cost Birr 2.75 million or 14.21% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 20.37% and a net present value (NPV) of Birr 13.14 million discounted at 10%.

The project can create employment for 24 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 packaging subsector and forward linkage with the service subsector and also generates income for the Government in terms of tax revenue and payroll tax.

## **II. PRODUCT DESCRIPTIONS AND APPLICATIONS**

Weighing scales are used to measure the weight of any article. The articles to be weighed are placed in different manners depending on the designs. For small weighing scales the article is suspended by means of a hook and the weight is read on the scale. The article may also be placed on a platform where the weight is immediately read either on the dial or on the balance.

Depending on their weighing capacity and the difference in their production process the product is classified in three different categories named as:-

- Type 1 Weighing up to 10 Kgs. Using springs indicator
- Type 2 Weighing up to 30 kgs. Using dial indicator
- Type 3 Weighing up to 500 kgs. Using balance levers

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

#### **A. MARKET STUDY**

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

Weighing Scales or Weighing machines are used for weighing purposes in business houses, industrial establishments, laboratories and personal or household purposes. Major volume of the products is imported from various countries. For the purpose of this study, the types of weighing scales/machines are categorized as personal weighing scales including households, weighing scales/machines including those machines with weighing capacity up to 30 kg and other weighing scales/machines with weighing capacity from 30 – 5000kg. The imported quantity of the weighing scales/ machines is given in table 3.1 below.

As could be seen from Table 3.1 the import data during the period was very erratic. For category 1 the import data jumped from 3,841 weighing scales in 2000 to 28,159 in 2002, and declined to 3,823 in 2003. Although the data showed an increasing trend from 2003 to 2007(except 2006), since then it has showed a very fluctuating growth trend. In the second and third categories, fluctuation of the data is the same. Consequently, the data for the total import of the products is very erratic. With this erratic data, trend analysis could not be worked out. Therefore, in order to estimate the present effective demand, the simple annual average of the period (excluding year 2009) has been considered.

**Table 3.1**  
**IMPORT OF WEIGHING SCALE (IN Number)**

<b>Year</b>	<b>(1) Personal/household Type of weighing scales</b>	<b>(2) Weighing scales/machines with weighing capacity of up to 30kg</b>	<b>(3) Weighing scales/machines with weighing capacity from 30- 500 kg</b>	<b>Total</b>
2000	3,841	7,475	9,655	20,971
2001	4,957	14,231	5,977	25,165
2002	28,159	31,219	3,384	62,762
2003	3,823	38,748	10058	52,629
2004	15,842	18,573	3,499	37,914
2005	20,034	37,869	18,357	76,260
2006	18,114	49,558	6,673	74,345
2007	19,383	68,816	5,186	93,385
2008*	68,296	1,368	-	69,664
2009*	-	-	-	-
2010	37,620	30,096	7,525	75,241
2011	14,489	31,326	14,637	60,452
Total	234,558	329,279	84,951	648,788
Average	21,323	29,934	7,723	58,980

*Source: - Ethiopian Revenues & Customs Authority*

\* *Import data could not be found from the External Trade Statistics for the years.*

For the present effective demand projection, the following assumptions have been made.

- The simple annual average of the period under consideration, which is 58,980 weighing scale, has been considered. The annual average of the first, second and third categories is 21,323, 29,934 and 7,723 weighing scales, respectively.
- The growth rate of the same period (6%) has also been considered for all categories.

Based on the above assumptions, the present effective demand for weighing scales for the whole period has been estimated at 62,519 weighing scales. For category 1, category 2 and category 3 it has been estimated at 22,602, 31,730 and 8,186 weighing scales, respectively.

## 2. Demand Projection

The demand for weighing scales is related with factors like the number of users of the product, the economic activity of trade, etc. Taking into consideration the increasing demand of the users of the products, an annual growth rate of 5% is assumed for the projected period.

**Table 3.2**  
**PROJECTED DEMAND FOR WEIGHING SCALES (IN NUMBER)**

<b>Year</b>	<b>Personal/household Type of weighing scales</b>	<b>Weighing scales/machines with weighing capacity of up to 30kg</b>	<b>Weighing scales/machines with weighing capacity from 30-500 kg</b>	<b>Total</b>
2013	23,732	33,317	8,595	65,645
2014	24,919	34,983	9,025	68,927
2015	26,165	36,732	9,476	72,373
2016	27,473	38,569	9,950	75,992
2017	28,847	40,497	10,448	79,792
2018	30,289	42,522	10,970	83,782
2019	31,803	44,648	11,519	87,971
2020	33,393	46,880	12,095	92,370
2021	35,063	49,224	12,700	96,989
2022	36,816	51,685	13,335	101,838
2023	38,657	54,269	14,002	106,930
2024	40,590	56,982	14,702	112,277
2025	42,620	59,831	15,437	117,891

### 3. Pricing and Distribution

There is a large variation in the price of weighing scales depending on the size, use, country of origin and specification. However, for the purpose of this study, the average recommend CIF price for each category of weighing scales/machines as indicated earlier is as follows.

- For Category 1, Birr 1,000,
- For Category 2, Birr 5,000.
- For Category 3, Birr 10,000

Regarding distribution, the plant will find its market outlet through shops that sell the product; or it can be produced and sold on order basis.

#### B. PLANT CAPACITY AND PRODUCTION PROGRAMME

##### 1. Plant capacity

Considering the market study, available technology and machinery, the production capacity of the plant is selected to be 20,000 units of assorted types of weighing scales annually.

##### 2. Production Program

Considering the production process involved, the time required for skill development and market penetration. The plant will start to operate at 70% of its installed capacity in the first year of operation and will increase to 80% in the second year and to 100% during third year and there after. The production program of the project is shown in Table 3.3

**Table 3.3**

#### **ANNUAL PRODUCTION PROGRAM**

		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Annual production</b>	<b>Type 1</b>	8,235	9,411	11,764
	<b>Type 2</b>	4,941	5,646	7,058
	<b>Type 3</b>	823	941	1,176
	<b>Total</b>	14,000	16,000	20,000
<b>Capacity %</b>		70	80	100

#### IV. RAW MATERIAL AND INPUTS

##### A. RAW AND AUXILIARY MATERIALS

The production of weighing scales requires wires to be coiled into desired sizes and desired final spring wires. The total cost for raw material is Birr 44.03 million. Table 4.1 shows the raw material requirements for the manufacture of all types of the product.

**Table 4.1**  
**RAW MATERIALS AND ANNUAL COST**

No	Raw Materials	Annual Requirement (ton)	Cost (000 Birr )		
			F.C	L.C	Total
1	High Carbon (spring) steel wires	45	1,035.0	207.0	1,242.0
2	M.s Sheet metal	120	2,160.0	432.0	2,592.0
3	Chakered plate	70	840.0	168.0	1,008.0
4	Flat Bar	150	9,000.0	1,800.0	10,800.0
3	Brass roads	90	11,250.0	2,250.0	13,500.0
4	1mm glass sheets	50	10,250.0	2,050.0	12,300.0
5	Mini gears, screws	12	2,100.0	420.0	2,520.0
6	Packing material	5		75.0	75.0
	<b>Total</b>		<b>36,635.0</b>	<b>7,402.0</b>	<b>44,037.0</b>

##### B. UTILITIES

The major utilities required by the plant are electricity and water. Annual cost of utilities during full capacity operation is estimated at Birr 53,100 (see Table 4.2).

**Table 4.2**  
**ANNUAL UTILITY REQUIREMENTS**

No	Utility	Unit	Quantity	Cost (Birr)
1	Electricity	Kwh	75,000	43,600
2	Water	Meter cube	950	9,500
	<b>Total</b>			<b>53,100</b>

## V. TECHNOLOGY AND ENGINEERING

### A. TECHNOLOGY

#### 1. Process Description

The product is classified into three types according to the technological process of manufacturing that is required.

**Type1:-** These products are mini scales that are used for weighing materials up to 10kgs.

The manufacturing involves:-

- Cutting and coiling of wire in cylindrical shape,
- Cutting and rolling of sheet metal,
- Preparing of wire hooks;
- Electroplating, painting, calibrating of scale, and
- Assembly.

**Type 2:-** These products are used to weigh articles up to 30kgs. When using one end of the scale is suspended by a hook and the weight is suspended on the other end. The weight is read by means of the dial indicator on the clock like face. The manufacture involves:-

- Cutting of spring wire coiling, and cutting of sheet metal;
- Press forming of sheet metal for dial face,
- Preparation of hooks,
- Printing of dial face,
- Electroplating painting, and
- Assembly.

**Type 3:-** This weighing scale can be manufactured to weigh up to 500 kgs. If desired, the product can be manufactured in three modules i.e. up to 100, 200, 250 and 500kgs as the market requires.

## 2. Environmental Impact

The manufacturing involves cutting of sheet metal, checkered plate, cutting rods and flat bars, fabrication of bushings, painting, electroplating and assembly. The electroplating effluents are treated before discharging. Hence, the plant does not have negative impact on the environment. The cost of effluent treatment system is included in the cost of machinery and equipment.

## B. ENGINEERING

### 1. Machinery and Equipment:-

The total cost of the required machinery and equipment is estimated at Birr 3.21 million of which Birr 2.75 million is required in foreign currency. The list of the required machines and equipments is indicated on Table 5 .1.

**Table 5.1**

**LIST OF REQUIRED MACHINERY AND EQUIPMENT FOR**

<b>Sr. No.</b>	<b>Description</b>	<b>Qty.</b>
1	Guillotine sheering machine	1
2	Mechanical Press 30t Cap.	1
3	Surface grinder	1
4	Lathe machine	1
5	Shaper machine	1
6	Fly wheel press 10 ton	1
7	Pipe bending machine	1
8	Pillar Drilling machine	2
9	Spot welding machine	1
10	Arc Welding Machine	2

<b>Sr. No.</b>	<b>Description</b>	<b>Qty.</b>
11	Gas welding Set	2
12	Portable Electric grinder	2
13	Portable Electric Drill	2
14	Glass Crafting Tools	1set
15	Material Handling Equipment	1
15	Effluent treatment system	1set
16	Workshop Hand tools and cutters	1set

## **2 Land, Building and Civil Work**

The envisaged plant requires a total land area of 1,000 m<sup>2</sup>, of which 500 m<sup>2</sup> would be built-up area. Building construction cost at a rate of Birr 5,000/m<sup>2</sup> is estimated to be Birr 2.5 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 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 266,000 of which 10% or Birr 26,600 will be paid in advance. The remaining Birr 239,400 will be paid in equal installments with in 28 years i.e. Birr 8,550 annually.

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

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

The envisaged plant requires a total of 24 workers for one shift operation. Of the total workers 15 are technical workers and the total yearly salary and benefits amounts to Birr 611,280. The details are shown in Table 6.1

**Table 6.1****LIST OF HUMAN RESOURCE REQUIREMENT AND ANNUAL SALARY**

Sr. No.	Description	No.	Salary (Birr)	
			Monthly	Annual
<b>A. Administration</b>				
1	Plant Manager	1	5,000	60,000
2	Secretary	1	2,500	30,000
3	Accountant	1	2,500	30,000
4	Salesman/purchaser	1	2,500	30,000
5	Clerk	1	1,500	18,000
6	Cashier	1	2,000	24,000
7	General Service	3	800	28,800
<b>Sub Total</b>		<b>9</b>		<b>220,800</b>
<b>B. Production</b>				
8	Forman	1	2,500	30,000
9	Machinery Operators	5	2,000	120,000
10	Assistant Operators	2	1,500	36,000
11	Technicians	1	2,000	24,000
12	Electricians	1	2,000	24,000
13	Quality controller	1	1,500	18,000
14	Laborers	4		38,400
<b>Sub Total</b>		<b>15</b>	<b>-</b>	<b>290,400</b>
<b>Total Basic Salary</b>				<b>511,200</b>
<b>Employee's Benefit (25% Of Basic Salary)</b>		<b>-</b>	<b>-</b>	<b>100,080</b>
<b>Total</b>		<b>24</b>	<b>-</b>	<b>611,280</b>

**B. TRAINING REQUIREMENT**

A two week on the job demonstration of the operation of the machine and manufacturing process would be enough for the operation of the machine for workers with basic technical background. Owing to the product variety, the training/demonstration /have to be done at intervals depending on the production need. For Such periodic training an amount of Birr 50,000 will be required to conduct the trainings at four rounds in one year.

## VII. FINANCIAL ANALYSIS

The financial analysis of the weighing scales 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 19.34 million (See Table 7.1). From the total investment cost the highest share (Birr 10.37 million or 53.66%) is accounted by initial working capital followed by fixed investment cost (Birr 6.88 million or 35.61%) and pre operation cost (Birr 2.07 million or 10.73%). From the total investment cost Birr 2.75 million or 14.21% is required in foreign currency.

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

r. No	Cost Items	Local Cost	Foreign Cost	Total Cost	% Share
<b>1</b>	<b>Fixed investment</b>				
1.1	Land Lease	26.60		26.60	0.14
1.2	Building and civil work	2,500.00		2,500.00	12.93
1.3	Machinery and equipment	460.00	2,750.00	3,210.00	16.60
1.4	Vehicles	900.00		900.00	4.65
1.5	Office furniture and equipment	250.00		250.00	1.29
	<b>Sub total</b>	<b>4,136.60</b>	<b>2,750.00</b>	<b>6,886.60</b>	<b>35.61</b>
<b>2</b>	<b>Pre operating cost *</b>				
2.1	Pre operating cost	810.50		810.50	4.19
2.2	Interest during construction	1,265.26		1,265.26	6.54
	<b>Sub total</b>	<b>2,075.76</b>		<b>2,075.76</b>	<b>10.73</b>
<b>3</b>	<b>Working capital **</b>	<b>10,378.06</b>		<b>10,378.06</b>	<b>53.66</b>
	<b>Grand Total</b>	<b>16,590.42</b>	<b>2,750.00</b>	<b>19,340.42</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 14.79 million. However, only the initial working capital of Birr 10.37 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 42.28 million (see Table 7.2). The cost of raw material account for 91.19% of the production cost. The other major components of the production cost are depreciation, financial cost, direct labour, and cost of marketing and distribution which account for 2.30%, 2.52%, 1.06%, and 1.55% respectively. The remaining 1.38% 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)**

<b>Items</b>	<b>Cost (000 Birr)</b>	<b>%</b>
Raw Material and Inputs	44,037.00	91.19
Utilities	53.00	0.11
Maintenance and repair	161.00	0.33
Labour direct	512.00	1.06
Labour overheads	100.00	0.21
Administration Costs	350.00	0.72
Land lease cost	-	-
Cost of marketing and distribution	750.00	1.55
<b>Total Operating Costs</b>	<b>45,963.00</b>	<b>95.18</b>
Depreciation	1,109.10	2.30
Cost of Finance	1,217.81	2.52
<b>Total Production Cost</b>	<b>48,289.91</b>	<b>100</b>

**C. FINANCIAL EVALUATION****1. Profitability**

Based on the projected profit and loss statement, the project will generate a profit through out its operation life. Annual net profit after tax will grow from Birr 2.76 million to Birr 4 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 38.48 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.

$$\text{Break Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 14,592,851$$

$$\text{Break Even Capacity utilization} = \frac{\text{Break even Sales Value}}{\text{Sales revenue}} \times 100 = 28\%$$

### **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 6 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 20.37% 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 13.14 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 24 persons. The project will generate Birr 10.32 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 packaging subsector and forward linkage with the service subsector also and generates other income for the Government.

**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	30,826	39,633	44,037	44,037	44,037	44,037	44,037	44,037	44,037	44,037
Utilities	37	48	53	53	53	53	53	53	53	53
Maintenance and repair	113	145	161	161	161	161	161	161	161	161
Labour direct	358	461	512	512	512	512	512	512	512	512
Labour overheads	70	90	100	100	100	100	100	100	100	100
Administration Costs	245	315	350	350	350	350	350	350	350	350
Land lease cost	0	0	0	0	9	9	9	9	9	9
Cost of marketing and distribution	750	750	750	750	750	750	750	750	750	750
<b>Total Operating Costs</b>	<b>32,399</b>	<b>41,442</b>	<b>45,963</b>	<b>45,963</b>	<b>45,972</b>	<b>45,972</b>	<b>45,972</b>	<b>45,972</b>	<b>45,972</b>	<b>45,972</b>
Depreciation	1,109	1,109	1,109	1,109	1,109	125	125	125	125	125
Cost of Finance	0	1,392	1,218	1,044	870	696	522	348	174	0
<b>Total Production Cost</b>	<b>33,508</b>	<b>43,943</b>	<b>48,290</b>	<b>48,116</b>	<b>47,951</b>	<b>46,792</b>	<b>46,618</b>	<b>46,444</b>	<b>46,271</b>	<b>46,097</b>

196-23  
**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	36,270	46,633	51,814	51,814	51,814	51,814	51,814	51,814	51,814	51,814
Less variable costs	31,649	40,692	45,213	45,213	45,213	45,213	45,213	45,213	45,213	45,213
<b>VARIABLE MARGIN</b>	<b>4,621</b>	<b>5,941</b>	<b>6,601</b>	<b>6,601</b>	<b>6,601</b>	<b>6,601</b>	<b>6,601</b>	<b>6,601</b>	<b>6,601</b>	<b>6,601</b>
in % of sales revenue	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74
Less fixed costs	1,859	1,859	1,859	1,859	1,868	884	884	884	884	884
<b>OPERATIONAL MARGIN</b>	<b>2,762</b>	<b>4,082</b>	<b>4,742</b>	<b>4,742</b>	<b>4,733</b>	<b>5,717</b>	<b>5,717</b>	<b>5,717</b>	<b>5,717</b>	<b>5,717</b>
in % of sales revenue	7.61	8.75	9.15	9.15	9.14	11.03	11.03	11.03	11.03	11.03
Financial costs		1,392	1,218	1,044	870	696	522	348	174	0
<b>GROSS PROFIT</b>	<b>2,762</b>	<b>2,690</b>	<b>3,524</b>	<b>3,698</b>	<b>3,863</b>	<b>5,022</b>	<b>5,196</b>	<b>5,370</b>	<b>5,543</b>	<b>5,717</b>
in % of sales revenue	7.61	5.77	6.80	7.14	7.46	9.69	10.03	10.36	10.70	11.03
Income (corporate) tax	0	0	0	1,109	1,159	1,506	1,559	1,611	1,663	1,715
<b>NET PROFIT</b>	<b>2,762</b>	<b>2,690</b>	<b>3,524</b>	<b>2,589</b>	<b>2,704</b>	<b>3,515</b>	<b>3,637</b>	<b>3,759</b>	<b>3,880</b>	<b>4,002</b>
in % of sales revenue	7.61	5.77	6.80	5.00	5.22	6.78	7.02	7.25	7.49	7.72

**Appendix 7.A.4****CASH FLOW FOR FINANCIAL MANAGEMENT ( in 000 Birr)**

<b>Item</b>	<b>Year 1</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>	<b>Scrap</b>
<b>TOTAL CASH INFLOW</b>	<b>7,697</b>	<b>47,953</b>	<b>46,644</b>	<b>51,820</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>17,592</b>
Inflow funds	7,697	11,683	11	6	0	0	0	0	0	0	0	0
Inflow operation	0	36,270	46,633	51,814	51,814	51,814	51,814	51,814	51,814	51,814	51,814	0
Other income	0	0	0	0	0	0	0	0	0	0	0	17,592
<b>TOTAL CASH OUTFLOW</b>	<b>7,697</b>	<b>44,082</b>	<b>47,532</b>	<b>50,400</b>	<b>49,856</b>	<b>49,741</b>	<b>49,914</b>	<b>49,792</b>	<b>49,670</b>	<b>49,548</b>	<b>47,687</b>	<b>0</b>
Increase in fixed assets	7,697	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	10,417	2,959	1,479	0	1	0	0	0	0	0	0
Operating costs	0	31,649	40,692	45,213	45,213	45,222	45,222	45,222	45,222	45,222	45,222	0
Marketing and Distribution cost	0	750	750	750	750	750	750	750	750	750	750	0
Income tax	0	0	0	0	1,109	1,159	1,506	1,559	1,611	1,663	1,715	0
Financial costs	0	1,265	1,392	1,218	1,044	870	696	522	348	174	0	0
Loan repayment	0	0	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	0	0
<b>SURPLUS (DEFICIT)</b>	<b>0</b>	<b>3,871</b>	<b>-888</b>	<b>1,420</b>	<b>1,958</b>	<b>2,073</b>	<b>1,900</b>	<b>2,022</b>	<b>2,144</b>	<b>2,266</b>	<b>4,127</b>	<b>17,592</b>
<b>CUMULATIVE CASH BALANCE</b>	<b>0</b>	<b>3,871</b>	<b>2,983</b>	<b>4,403</b>	<b>6,361</b>	<b>8,434</b>	<b>10,335</b>	<b>12,357</b>	<b>14,501</b>	<b>16,766</b>	<b>20,893</b>	<b>38,485</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>36,270</b>	<b>46,633</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>51,814</b>	<b>17,592</b>
Inflow operation	0	36,270	46,633	51,814	51,814	51,814	51,814	51,814	51,814	51,814	51,814	0
Other income	0	0	0	0	0	0	0	0	0	0	0	17,592
<b>TOTAL CASH OUTFLOW</b>	<b>18,075</b>	<b>35,346</b>	<b>42,915</b>	<b>45,963</b>	<b>47,073</b>	<b>47,131</b>	<b>47,478</b>	<b>47,530</b>	<b>47,582</b>	<b>47,635</b>	<b>47,687</b>	<b>0</b>
Increase in fixed assets	7,697	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	10,378	2,947	1,474	0	1	0	0	0	0	0	0	0
Operating costs	0	31,649	40,692	45,213	45,213	45,222	45,222	45,222	45,222	45,222	45,222	0
Marketing and Distribution cost	0	750	750	750	750	750	750	750	750	750	750	0
Income (corporate) tax		0	0	0	1,109	1,159	1,506	1,559	1,611	1,663	1,715	0
<b>NET CASH FLOW</b>	<b>-18,075</b>	<b>924</b>	<b>3,718</b>	<b>5,851</b>	<b>4,741</b>	<b>4,683</b>	<b>4,336</b>	<b>4,284</b>	<b>4,232</b>	<b>4,179</b>	<b>4,127</b>	<b>17,592</b>
<b>CUMULATIVE NET CASH FLOW</b>	<b>-18,075</b>	<b>17,152</b>	<b>13,434</b>	<b>-7,583</b>	<b>-2,842</b>	<b>1,841</b>	<b>6,177</b>	<b>10,461</b>	<b>14,693</b>	<b>18,872</b>	<b>22,999</b>	<b>40,591</b>
Net present value	-18,075	840	3,072	4,396	3,238	2,908	2,448	2,198	1,974	1,772	1,591	6,782
Cumulative net present value	-18,075	17,236	14,163	-9,767	-6,529	-3,621	-1,174	1,025	2,999	4,771	6,362	13,145

NET PRESENT VALUE            13,145  
INTERNAL RATE OF  
RETURN                            20.37%  
NORMAL PAYBACK                6 years