

**131. PROFILE ON THE PRODUCTION OF ELASTIC
AND NON ELASTIC BRAIDS AND WEBBINGS**

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I. SUMMARY

This profile envisages the establishment of a plant for the production of elastic and non elastic braids and webbings with a capacity of 650 tons of elastic and non elastic braids and 25 tones of elastic and non elastic webbings per annum. Elastic and non elastic braids and webbings are materials of strong fabrics used in belts, upholstery, bindings, the edges of rings and are used in different textile products.

The demand for elastic and non elastic braids and webbings is met entirely through import. The present (2012) demand for elastic and non elastic braids and webbings is estimated at 116 tones. The demand for elastic and non elastic braids and webbings is projected to reach 187 tones and 300 tones by the year 2017 and 2022, respectively.

The principal raw materials required are cotton yarn, rubber thread, dying and belching chemicals out of which cotton is available locally where as the rest have to be imported.

The total investment cost of the project including working capital is estimated at Birr 6.69 million. From the total investment cost the highest share (Birr 4.74 million or 70.86%) is accounted by fixed investment cost followed by initial working capital (Birr 1.08 million or 16.22%) and pre operation cost (Birr 864.90 thousand or 12.92%). From the total investment cost Birr 3.09 million or 46.17% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 31.10% and a net present value (NPV) of Birr 7.13 million discounted at 10%.

The project can create employment for 34 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 forward linkage with the textile manufacturing sub sector and also generates income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTION AND APPLICATION

Elastic braids are three or more interwoven strands of different elastic and non-elastic yarns. They are materials of strong fabrics used in belts, upholstery, bindings, the edges of rings, etc. They are thus used in different textile products. They are easily manufactured using simple textile equipment.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

Elastic braids are used by garment, shoe and various travelling bag manufactures. Therefore the local demand for the product is influenced largely by the expansion of the indicated industries. Currently a number of projects in the area of garment and related articles manufacturing are already operational and under implementation. When all the licensed projects become operational the local demand for elastic braids will increase considerably.

Since there is no domestic facility for manufacturing of elastic braids, the products are imported from overseas. For the purpose of the past supply and estimating the present demand the import data registered for narrow fabrics with greater than 5% elastomeric yarn and braids in the piece used for shoe factories and others is utilized. Import of elastic braids is given in Table 3.1.

Table 3.1**IMPORT OF NARROW FABRICS WITH ELASTOMERIC YARN & BRAIDS**

Year	Quantity (Tone)	Value (`000 Birr)
2002	19	625
2003	51	749
2004	11	169
2005	10	264
2006	12	303
2007	14	378
2008	38	568
2009	41	869
2010	75	2,286
2011	104	3,133

Source: - Ethiopian Revenues & Customs Authority.

As could be seen from Table 3.1, import data of narrow woven fabrics with elastomeric yarn and braids show a strong growth trend starting year 2008. The yearly average level of import during the period 2002--2007 was only about 19 tones. By the year 2008 the quantity imported was 38 tones, which is double than the preceding years annual average. Similarly the imported quantity increased to 41 tones and 75 tones during the period 209 and 2010, respectively. This means that import of 2009 has grown by about 8% and 83% compared to their respective preceding years. Similarly, imported quantity during 2011 has increased by more than 38% compared to year 2010. Generally, imported quantity in the past five years (2007--2011) has shown a remarkable growth rate. The imported volume of 2011 is more than seven fold of the quantity imported in 2007. This is believed to be as a result of the establishment of new garment factories, which are the main end users of the product.

To estimate the current demand the imported quantity of year 2011 and the future development of the garment industry is taken in to account. According to the GTP the manufacturing sector is planned to grow by 20% per annum and the textile manufacturing sector is given high priority for its development. Hence, by taking year 2011 as a base and applying a conservative growth rate of 12% the current demand is set at 116 tones.

2. Projected Demand

The demand for elastic braids is related with the expansion of the garment and leather goods production. Ethiopia has a good potential to expand the garment and the leather sector due to the availability of the basic raw materials. Moreover, the government has given due attention to these sectors in its industrial policy. Considering these favorable situations, the demand for elastic braids is estimated to grow by an average rate of 10 % per annum (see Table 3.2).

Table 3.2
PROJECTED DEMAND FOR ELASTIC BRAIDS (TONS)

Year	Quantity
2013	128
2014	140
2015	154
2016	170
2017	187
2018	205
2019	226
2020	248
2021	274
2022	300

The demand for the product will increase from 128 tones in the year 2013 to 205 tones and 300 tones by the year 2018 and 2022, respectively.

3. Pricing and Distribution

A factory gate price of Birr 110 per kg is recommended based on import data. The product will find its market outlet through the exiting textile and leather products accessory wholesalers.

B. PLANT CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

Considering the economic scale of production, available technology and production management, the annual total production capacity of the plant is set to be 50 tones elastic and non elastic braids and 25 tone of elastic and non elastic webbings per annum The envisaged plant will operate in two shifts eight hours per day for three hundred days within a year considering 13 holidays and 52 Sunday per year and assuming that maintenance activities will be performed during off hours and Sunday

2. Production Program

The production of textile products in general requires the manpower to take time until they develop a skill and knowledge of the production process. The envisaged plant will run in full load after two years of its implementation period

Table 3.3

ANNUAL PRODUCTION PROGRAM

No.	Description	Production Year		
		1	2	3
1	Capacity utilization rate (%)	75.00	85.00	100.00
2	Elastic and non elastic braids	37.50	42.50	50.00
3	Elastic and non elastic webbings	18.75	21.25	25.00

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

The major raw material required for the production of elastic and non elastic braids and webbings are cotton yarn, rubber thread, dyeing and belching chemicals out of which cotton can be available locally and the rest of raw material will be imported. The direct and auxiliary raw materials required for annual plant production capacity with their quantity and related cost is shown in Table 4.1.

Table 4.1
ANNUAL RAW MATERIAL REQUIREMENT

NO.	Description	Qty	Unit	Unit Cost (Birr) /Ton	Cost (`000 Birr)		
					LC	FC	Total
1	Cotton yarn	50	ton	38,000.00	1,900.00	0.00	1,900.00
2	Polyester yarn	25	ton	45,000.00	168.75	1125.00	1,293.75
3	Rubber thread	15	ton	56,000.00	126.00	840.00	966.00
4	Dyeing chemical	3	ton	18,000.00	10.28	68.51	78.79
5	Bleaching chemical	4	ton	15,000.00	16.20	108.00	124.20
Total					2,221.23	2,141.51	4,362.74

B. UTILITES

Electricity for energy and water as cleaning agent are the utilities required by the plant. Annual cost of utilities at full capacity operation is estimated at Birr 190,000 (see Table 4.2)

Table 4.2
UTILITY CONSUMPTION

Sr. No.	Description	Annual consumption	unit	unit cost (Birr)	Total Cost ("000 Birr)
1	Electricity	200,000	kwh	0.58	116.0
2	Water	7,400	m ³	10	74.0
Total Annual cost					190.0

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

The raw materials such as polyester or cotton yarn and rubbers will be rewind on a winding machine to the required length which will be fed to braiding and weaving machines but, before the weaving operations the yarn will be treated with chemicals to give the required color and will be fed to the braiding operation process which involves braiding machineries of different specification as per the product to be produced. And the webbing line will receive a colored yarn with rubbers and weaving operation will be done

Finally as per the required length and specification the final product will be cut to size with the cutting machine and will be packed to be delivered to warehouse

2. Environmental Impact

In terms of emissions, envisaged plant production will have some bleaching and dyeing chemicals that will be disposed in the process to the environment which will be a pollutant to the surrounding ecosystem, so the plant will implement a waste treatment mechanism with additional investment of Birr 750,000.00 for environmental protection

B. ENGINEERING

1. Machinery and Equipment

Total cost of machinery and equipment is Birr 2,570,400. The list of direct and auxiliary machinery, tools and equipments required for the plant and their estimated cost is shown in Table 5.1

Table 5.1
LIST OF MACHINERY, TOOLS AND EQUIPMENTS

NO	Description	Qty	Unit	Unit Cost (Birr)	Total Cost ('000) Birr		
					LC	FC	Total (Birr)
1	Winding machine	1	pcs	270,000.00		270.00	270.00
2	Cutting machine	1	pcs	126,000.00		126.00	126.00
3	10 spindle braiding machine	2	pcs	90,000.00		180.00	180.00
4	12 spindle braiding machine	2	pcs	144,000.00		288.00	288.00
5	16 spindle braiding machine	2	pcs	180,000.00		360.00	360.00
6	32 spindle braiding machine	2	pcs	216,000.00		432.00	432.00
7	Weaving machine	1	pcs	270,000.00		270.00	270.00
8	Equipments and tools	1	set	216,000.00		216.00	216.00
Total Fob Price						2,142.00	2,142.00
15	Port handling, inland transport, insurance etc (20% of FOB)				428.40		428.40
Total machinery cost					428.40	2,142.00	2,570.40

2. Land, Building and Civil Works

The total land required by the project is about 800 m², of which 300 m² is built-up area. The cost of building and civil works is estimated at Birr 1,500,000.

According to the Federal Legislation on the Lease Holding of Urban Land (Proclamation No 272/2002) in principle, urban land permit by lease is on auction or negotiation basis, however, the time and condition of applying the proclamation shall be determined by the concerned regional or city government depending on the level of development.

The legislation has also set the maximum on lease period and the payment of lease prices. The lease period ranges from 99 years for education, cultural research health, sport, NGO , religious

and residential area to 80 years for industry and 70 years for trade while the lease payment period ranges from 10 years to 60 years based on the towns grade and type of investment.

Moreover, advance payment of lease based on the type of investment ranges from 5% to 10%. The lease price is payable after the grace period annually. For those that pay the entire amount of the lease will receive 0.5% discount from the total lease value and those that pay in installments will be charged interest based on the prevailing interest rate of banks. Moreover, based on the type of investment, two to seven years grace period shall also be provided.

However, the Federal Legislation on the Lease Holding of Urban Land apart from setting the maximum has conferred on regional and city governments the power to issue regulations on the exact terms based on the development level of each region.

In Addis Ababa, the City's Land Administration and Development Authority is directly responsible in dealing with matters concerning land. However, regarding the manufacturing sector, industrial zone preparation is one of the strategic intervention measures adopted by the City Administration for the promotion of the sector and all manufacturing projects are assumed to be located in the developed industrial zones.

Regarding land allocation of industrial zones if the land requirement of the project is below 5000 m², the land lease request is evaluated and decided upon by the Industrial Zone Development and Coordination Committee of the City's Investment Authority. However, if the land request is above 5,000 m², the request is evaluated by the City's Investment Authority and passed with recommendation to the Land Development and Administration Authority for decision, while the lease price is the same for both cases.

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

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

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

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

Table 5.2

NEW LAND LEASE FLOOR PRICE FOR PLOTS IN ADDIS ABABA

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

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

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

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

Table 5.3

INCENTIVES FOR LEASE PAYMENT OF INDUSTRIAL PROJECTS

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

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

Accordingly, the total land lease cost at a rate of Birr 266 per m² is estimated at Birr 212,800 of which 10% or Birr 21,280 will be paid in advance. The remaining Birr 191,520 will be paid in equal installments with in 28 years i.e. Birr 6,840 annually.

VI. HUMANRESOURCE AND TRAINING REQUIREMENTS

A. HUMANRESOURCE REQUIREMENT

A total of 34 persons are required by the plant annual cost of labor is Birr 652,320. The list of direct and indirect labor requirement and labor cost is shown in Table 6.1.

Table 6.1
HUMANRESOURCE REQUIREMENT AND COST

No.	Description	NO.	Monthly Salary (Birr)	Annual salary (in Birr)
1	Plant manager	1	8,000	96,000
2	Secretary	1	1,500	18,000
3	Administration and finance	1	3,500	42,000
4	Accountant	1	2,000	24,000
7	Operators	10	1,200	144,000
8	Production foreman	1	2,500	30,000
11	Clerk	1	800	9,600
12	Cashier	1	1,000	12,000
13	Assistant operator	10	700	84,000
14	Quality supervisor	1	1,600	19,200
15	Store keeper	1	1,400	16,800
16	Time keeper	1	1,200	14,400
17	Guards	4	700	33,600
Total		34	26,100	543,600
18	Employment benefits and allowances 20%		5,220	108,720
Total Annual Labor cost (Direct +Indirect)				652,320

B. TRAINING REQUIREMENT

Individual operators will be trained during machinery commissioning and erection so that the operators and mechanics will be hired one month before the project implementation so the training will be conducted on job base arrangement focused on the production process parameters and specifications

VII. FINANCIAL ANALYSIS

The financial analysis of the elastic and non elastic braids and webbings project is based on the data presented in the previous chapters and the following assumptions:-

Construction period

1 year

Source of finance	30 % equity &70% loan
Tax holidays	3 years
Bank interest	10%
Discount cash flow	10%
Accounts receivable	30 days
Raw material local	30 days
Raw material imported	120 days
Work in progress	1 day
Finished products	30 days
Cash in hand	5 days
Accounts payable	30 days
Repair and maintenance	5% of machinery cost

A. TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated at Birr 6.69 million (See Table 7.1). From the total investment cost the highest share (Birr 4.74 million or 70.86%) is accounted by fixed investment cost followed by initial working capital (Birr 1.08 million or 16.22%) and pre operation cost (Birr 864.90 thousand or 12.92%). From the total investment cost Birr 3.09 million or 46.17% is required in foreign currency.

Table 7.1
INITIAL INVESTMENT COST ('000 Birr)

Sr. No	Cost Items	Local Cost	Foreign Cost	Total Cost	% Share
1	Fixed investment				
1.1	Land Lease	21.28		21.28	0.32
1.2	Building and civil work	1,500.00		1,500.00	22.41
1.3	Machinery and equipment	-519.60	3,090.00	2,570.40	38.41
1.4	Vehicles	450.00		450.00	6.72
1.5	Office furniture and equipment	200.00		200.00	2.99
	Sub total	1,651.68	3,090.00	4,741.68	70.86
2	Pre operating cost *				
2.1	Pre operating cost	427.11		427.11	6.38
2.2	Interest during construction	437.79		437.79	6.54
	Sub total	864.90		864.90	12.92
3	Working capital **	1,085.41		1,085.41	16.22
	Grand Total	3,601.99	3,090.00	6,691.99	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 1.58 million. However, only the initial working capital of Birr 1.08 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 6.96 million (see Table 7.2). The cost of raw material account for 62.64% of the production cost. The other major components of the production cost are financial cost, depreciation, cost of marketing and distribution, and direct labor which account for 5.19%, 11.05%, 5.03% and 7.81% respectively. The remaining 8.28% is the share of repair and maintenance, utility, 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	4,363	62.64
Utilities	191	2.74
Maintenance and repair	77	1.11
Labor direct	544	7.81
Labor overheads	109	1.57
Administration Costs	200	2.87
Land lease cost	0	0.00
Cost of marketing and distribution	350	5.03
Total Operating Costs	5,834	83.77
Depreciation	770	11.05
Cost of Finance	361	5.19
Total Production Cost	6,965	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 900 thousand to Birr 1.63 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 15.50 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.

$$\text{Break Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 3,465,000$$

$$\text{Break Even Capacity utilization} = \frac{\text{Break even Sales Value}}{\text{Sales revenue}} \times 100 = 33.78\%$$

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 4 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 31.10% 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 7.13 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 34 persons. The project will generate Birr 4.10 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 forward linkage with the textile manufacturing sub sector and also generates other income for the Government.

Appendix 7.A

FINANCIAL ANALYSES SUPPORTING TABLES

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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	3,054	3,490	3,927	4,363	4,363	4,363	4,363	4,363	4,363	4,363
Utilities	134	153	172	191	191	191	191	191	191	191
Maintenance and repair	54	62	69	77	77	77	77	77	77	77
Labour direct	381	435	490	544	544	544	544	544	544	544
Labour overheads	76	87	98	109	109	109	109	109	109	109
Administration Costs	140	160	180	200	200	200	200	200	200	200
Land lease cost	0	0	0	0	7	7	7	7	7	7
Cost of marketing and distribution	350	350	350	350	350	350	350	350	350	350
Total Operating Costs	4,189	4,737	5,286	5,834	5,841	5,841	5,841	5,841	5,841	5,841
Depreciation	770	770	770	770	770	80	80	80	80	80
Cost of Finance	0	482	421	361	301	241	181	120	60	0
Total Production Cost	4,958	5,988	6,476	6,965	6,911	6,162	6,101	6,041	5,981	5,921

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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	5,775	7,425	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250
Less variable costs	3,839	4,387	4,936	5,484	5,484	5,484	5,484	5,484	5,484	5,484
VARIABLE MARGIN	1,936	3,038	3,314	2,766	2,766	2,766	2,766	2,766	2,766	2,766
in % of sales revenue	33.53	40.91	40.17	33.53	33.53	33.53	33.53	33.53	33.53	33.53
Less fixed costs	1,120	1,120	1,120	1,120	1,126	437	437	437	437	437
OPERATIONAL MARGIN	817	1,918	2,195	1,646	1,640	2,329	2,329	2,329	2,329	2,329
in % of sales revenue	14.14	25.84	26.60	19.96	19.87	28.23	28.23	28.23	28.23	28.23
Financial costs		482	421	361	301	241	181	120	60	0
GROSS PROFIT	817	1,437	1,774	1,285	1,339	2,088	2,149	2,209	2,269	2,329
in % of sales revenue	14.14	19.35	21.50	15.58	16.23	25.31	26.04	26.77	27.50	28.23
Income (corporate) tax	0	0	0	386	402	627	645	663	681	699
NET PROFIT	817	1,437	1,774	900	937	1,462	1,504	1,546	1,588	1,630
in % of sales revenue	14.14	19.35	21.50	10.91	11.36	17.72	18.23	18.74	19.25	19.76

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

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Scrap
TOTAL CASH INFLOW	5,169	7,334	7,430	8,255	8,250	8,250	8,250	8,250	8,250	8,250	8,250	2,898
Inflow funds	5,169	1,559	5	5	0	0	0	0	0	0	0	0
Inflow operation	0	5,775	7,425	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	0
Other income	0	0	0	0	0	0	0	0	0	0	0	2,898
TOTAL CASH OUTFLOW	5,169	5,748	5,977	6,465	7,339	7,146	7,310	7,268	7,226	7,184	6,540	0
Increase in fixed assets	5,169	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	1,122	156	156	156	1	0	0	0	0	0	0
Operating costs	0	3,839	4,387	4,936	5,484	5,491	5,491	5,491	5,491	5,491	5,491	0
Marketing and Distribution cost	0	350	350	350	350	350	350	350	350	350	350	0
Income tax	0	0	0	0	386	402	627	645	663	681	699	0
Financial costs	0	438	482	421	361	301	241	181	120	60	0	0
Loan repayment	0	0	602	602	602	602	602	602	602	602	0	0
SURPLUS (DEFICIT)	0	1,586	1,453	1,790	911	1,104	940	982	1,024	1,066	1,710	2,898
CUMULATIVE CASH BALANCE	0	1,586	3,040	4,830	5,741	6,845	7,785	8,767	9,791	10,857	12,568	15,466

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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	5,775	7,425	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	2,898
Inflow operation	0	5,775	7,425	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	0
Other income	0	0	0	0	0	0	0	0	0	0	0	2,898
TOTAL CASH OUTFLOW	6,254	4,340	4,888	5,436	6,220	6,242	6,467	6,485	6,503	6,522	6,540	0
Increase in fixed assets	5,169	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	1,085	151	151	151	1	0	0	0	0	0	0	0
Operating costs	0	3,839	4,387	4,936	5,484	5,491	5,491	5,491	5,491	5,491	5,491	0
Marketing and Distribution cost	0	350	350	350	350	350	350	350	350	350	350	0
Income (corporate) tax		0	0	0	386	402	627	645	663	681	699	0
NET CASH FLOW	-6,254	1,435	2,537	2,814	2,030	2,008	1,783	1,765	1,747	1,728	1,710	2,898
CUMULATIVE NET CASH FLOW	-6,254	-4,819	-2,282	532	2,561	4,569	6,351	8,116	9,863	11,591	13,301	16,199
Net present value	-6,254	1,305	2,097	2,114	1,386	1,247	1,006	906	815	733	659	1,117
Cumulative net present value	-6,254	-4,949	-2,853	-739	647	1,894	2,900	3,806	4,620	5,354	6,013	7,130

NET PRESENT VALUE 7,130
INTERNAL RATE OF RETURN 31.10%
NORMAL PAYBACK 4 years