PROFILE ON THE PRODUCTION OF BISCUIT

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I. SUMMARY

This profile envisages the establishment of a plant for the production of biscuit with a capacity of 1,500 tons per annum. Biscuits are oven – baked food items with greater nutritive value than plain bread of equal weight.

The country`s requirement of biscuit is met through local production and import. The present (2012) demand for biscuit is estimated at 1.02 million tons. The demand for the product is projected to reach 1.15 million tons and 1.32 million tons by the years 2017 and 2022, respectively.

The principal raw material required is wheat flour, sugar, shortenings, salt, Sal volatile, sweet jelly, glucose, and starch. Wheat flour and sugar are locally available while the remaining raw materials have to be imported.

The total investment cost of the project including working capital is estimated at Birr 32.33 million. From the total investment cost the highest share (Birr 24.42 million or 75.52%) is accounted by fixed investment cost followed by initial working capital (Birr 4.89 million or 15.12%) and pre operation cost (Birr 3.02 million or 9.36%). From the total investment cost Birr 9.52 million or 29.44% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 29.55% and a net present value (NPV) of Birr 33.03 million discounted at 10%.

The project can create employment for 25 persons. The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports. The project will also create backward linkage with the agricultural sector and also generates income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTION AND APPLICATION

Biscuits are oven – baked food items with greater nutritive value than plain bread of equal weight. They are classified as hard, soft and “batter” biscuits. They can be savory, sweet, plain – baked, filled or coated (or a mixture of several of these options). Some

biscuits satisfy special dietary needs, such as those for high fiber, protein or extra vitamins (as in infant rusks). Biscuits also contain fat and often sugar, and are cut or molded into thin layers and baked rapidly and thoroughly. If packed in a moisture proof material, biscuits can have a long shelf life. Biscuit are largely consumed by children and teenagers.

III. MARKET STUDY AND PLANT CAPACITY

MARKET STUDY

1. Past Supply and Present Demand

Biscuits are very popular food items. They are pleasant in taste and do not require cocking and hence ready to be served. The local demand for biscuits is met both by domestic production and imports. Domestic production from 2001/02-2009/10 is shown in Table 3.1.

Table 3.1

DOMESTIC PRODUCTION OF BISCUITS (TONS)

Year	Production
2001/02	4,925
2002/03	5,639
2003/04	7,361
2004/05	10,115
2005/06	10,429
2006/07	13,994
2007/08	29,546
2008/09	19,259
2009/10	193,773

Sources:- *Central Statistics Agency, Large and Medium Scale Manufacturing and Electricity Industries, Various Issues.*

From Table 3.1 it can seen that domestic biscuits production which was 4,925 tons at the beginning of the period (2001/02) has grown to 193,773 tons by the end of the period

(2009/10). Domestic biscuits production has also exhibited a consistent rising pattern during 2001/02-2009/10 period with the exception of year 2008/09 (average growth rate of 130%). In that year production fell, but in the following year it grew by the maximum growth rate (of the period) which was 910% and attained the highest production level which was 193,773 tons. This huge increase in production is related to new plants with large capacity. In estimating the subsequent years' production, therefore, it was found appropriate to capture the rising trend. This was done by applying the average growth rate of the period on 2009/10 production. Accordingly, a figure of 445,677.9 tons and 1,025,059 tons respectively were arrived as an estimate of the 2011 and 2012 production.

In addition to the domestic production, biscuits are imported from various parts of the world. Import of biscuits for the period covering 2001--2011 is shown in Table 3.2.

Table 3.2

IMPORT OF BISCUITS (TONS)

Year	Import
2001	1,688
2002	15,429
2003	1,007
2004	1,400
2005	1,592
2006	26,643
2007	1,467
2008	1,039
2009	759
2010	1,397
2011	1,762

Source:- *Ethiopian Revenue and Customs Authority.*

Imports of biscuits during the period 2001-2011 were fluctuating highly. The highest imported quantity was during year 2002 and 2006, which stood at 15,429 tones and 26,643 tones, respectively. In the remaining nine years the imported quantity ranged from the lowest 759 tons (year 2009) to the highest 1,762 tones (year 2011), with a mean figure of 1,345 tones. For this reason, it was found appropriate to take the last three years average (after skipping the outlier value of 2009) in estimating the 2012 import level. Hence, the 2012 import was estimated at 1,399 tons.

The present demand is thus estimated at 1,026,458 tons by taking the total estimated consumption in 2012.

2. Demand Projection

The demand for biscuits is dependent on size of population in general and that of children and teenagers in particular. This segment represents the majority of the Ethiopian population and has been increasing fast. Therefore, the demand for biscuit is projected based on the annual population growth rate of 2.9%. Domestic producers of Biscuits are reported to be running at their full capacity. They don't also keep stocks since what is produced is directly delivered to the market. Fasting biscuits are also being produced by manufacturers which ensure continuous production throughout the year as informants from the subsector described and according to some studies (such as Yifru 2011). Hence, current domestic production level is assumed to continue (no change anticipated). The total projected demand, existing supply (assuming full capacity has been attained currently by domestic producer) and unsatisfied demand is presented in Table 3. 3.

Table 3.3

PROJECTED DEMAND, DOMESTIC SUPPLY AND UNSATISFIED DEMAND FOR BISCUITS (TONS)

Year	Total Projected Demand	Domestic Supply	Unsatisfied Demand
2013	1,026,458	1,025,059	1,399
2014	1,056,225	1,025,059	31,166
2015	1,086,856	1,025,059	61,797
2016	1,118,374	1,025,059	93,315
2017	1,150,807	1,025,059	125,748
2018	1,184,181	1,025,059	159,122
2019	1,218,522	1,025,059	193,463
2020	1,253,859	1,025,059	228,800
2021	1,290,221	1,025,059	265,162
2022	1,327,637	1,025,059	302,578

3. Pricing and Distribution

The prices of most biscuit brands are within reach of ordinary people's budget. Biscuits are, therefore, in demand in both urban and rural areas of the country. There are also many convenient outlets for biscuits including neighborhood and village shops. The general situation in the market for biscuits is going towards full fledged competition through brand development, range of products offered, delivery, advertisements and packaging. The price of biscuits varies with the brands and their contents and packaging are also different. The average price some of the most popular brands is Birr 4/100 gm. On the basis of this price level and taking in to account a margin of 25% for wholesalers and distributors, the recommended ex-factory price for the new project is Birr 3.20/100gm.

The new project can utilize the existing network of wholesalers and retailers such as neighborhood and village shops for its distribution.

B. PLANT CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

Based on the outcome of market study and considering the minimum economic scale of production, the envisaged plant will have production capacity of 1,500 tons of hard biscuits per annum. This capacity is proposed on the basis of a single shift of 8 hours per day and 300 working days per annum,

2. Production Program

Assuming that enough time during the initial period will be required by the envisaged plant for market penetration and technical skills development, the plant will start production at 75% of its rated capacity which will grow to 85% in the second year. Full capacity production will be achieved in the third year and then after. The annual production program is shown in Table 3.3.

Table 3.3

ANNUAL PRODUCTION PROGRAM AT FULL CAPACITY OPERATION

Sr.No.	Description	Unit of Measure	Production Year		
			1st	2nd	3rd & Onwards
1	Biscuit	ton	1,125	1,275	1,500
2	Capacity utilization rate	%	75	85	100

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

Various types of biscuits do exist depending on the ingredients used and manufacturing process employed. The envisaged plant will produce hard biscuit. The raw materials required for production of hard biscuit comprise wheat flour, sugar, shortenings, salt, Sal volatile, sweet jelly, glucose, and starch. The major raw materials like wheat flour and sugar can be obtained locally from flour mills and sugar factories while the remaining

raw materials will be imported. Annual requirement for raw materials at full production capacity of the envisaged plant and the estimated costs are given in Table 4.1.

Table 4.1

ANNUAL RAW AND AUXILIARY MATERIALS REQUIREMENT AT FULL CAPACITY PRODUCTION AND ESTIMATED COSTS

Sr. No.	Description	Unit of Measure	Req. Qty.	Unit Price, Birr/Unit	Cost, ('000 Birr)		
					F.C.	L.C.	Total
1	Flour	ton	1,188.0	9,000.00		1,0692.00	10692.00
2	Sugar	ton	247.5	14,000.00		3,465.00	3465.00
3	Shortening	ton	67.5	35,000.00	1,890.00	472.50	2362.50
4	Salt	ton	8.1	2,500.00		20.25	20.25
5	Sal volatile (ammonium carbonate)	ton	11.1	7,851.00	69.71	17.42	87.14
6	Sweet jelly	ton	21.6	52,500.00	907.20	226.80	1134.00
7	Glucose	ton	13.5	17,500.00	189.00	47.25	236.25
8	Starch	ton	32.4	10,500.00		340.20	340.20
Total					**3,055.91**	**15,281.42**	**18,337.34**

The main auxiliary material required for the envisaged plant is colored plastic film. The estimated annual cost of auxiliary material at lump sum and at full capacity production is Birr 600,000.

UTILITIES

Electric power and water are the power and utilities required for the envisaged plant. Annual requirement for power and utilities at full capacity production along with the estimated costs is shown in Table 4.2.

Table 4.2

ANNUAL POWER AND UTILITIES REQUIREMENT AT FULL CAPACITY PRODUCTION AND ESTIMATED COSTS

Item No.	Description	Unit of Measure	Required Qty	Unit Price, Birr/Unit	Cost, ('000 Birr)		
					F.C.	L.C.	Total
1	Electric power	kWh	1,140,000	0.579		660.06	660.06
2	Water	m3	1,000	10.00		10.00	10.00
Total						**670.06**	**670.06**

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

The production process of biscuit involves unit operations like raw materials preparation, dough mixing, laminating, cutting/moulding, baking, cooling, stacking and packing.

All materials except flour are preparatory mixed in a certain cream mixer. Materials used at this stage are sugar, shortenings, salt, millet jelly, glucose, starch etc. Materials pre-mixed in the previous stage are put into the mixing machine with flow and undergone fermentation. Then the dough is rolled by laminator to make the dough sheet and it is automatically punched in a moulded design by a cutting machine

Biscuit is then baked on a steel belt (or wire mesh belt) running in the oven for some minutes. The speed of the belt can be adjusted according to the kind of biscuit produced. After baking, biscuits are cooled on a cooling conveyor which is connected with the oven. Biscuits are stacked and then packed.

2 Environmental Impact

There envisaged plant does not have any pollutant emission to the environment. Thus the project is environment friendly.

B. ENGINEERING

1. Machinery and Equipment

The major plant machinery and equipment required for the envisaged plant comprise mixers, laminator, cutting machine, moulding machine, baking oven, conveyors, etc. The plant machinery and equipment required and their estimated costs are given in Table 5.1.

Table 5.1

MACHINERY AND EQUIPMENT REQUIREMENT AND ESTIMATED COSTS

Sr . No.	Description	Unit of Measure	Req. Qty.	Cost, ('000 Birr)		
				F.C.	L.C.	Total
1	Cream mixer	set	1	761.60	190.40	952.00
2	Dough mixing machine	set	1	856.80	214.20	1,071.00
3	Laminator	set	1	761.60	190.40	952.00
4	Cutting machine	set	1	761.60	190.40	952.00
5	Rotary molding machine	set	1	856.80	214.20	1,071.00
6	Steel belt oven	set	1	1,142.40	285.60	1,428.00
7	Cooling conveyor	set	1	666.40	166.60	833.00
8	3-step cooling conveyor	set	1	856.80	214.20	1,071.00
9	Stacking machine	set	1	856.80	214.20	1,071.00
10	Wire cut attachment	set	1	666.40	166.60	833.00
11	Oil spray machine	set	1	666.40	166.60	833.00
12	Revolving salt duster	set	1	666.40	166.60	833.00
Total				**9,520.00**	**2,380.00**	**11,900.00**

2. Land, buildings and Civil Works

The total land requirement of the plant, including provision for open space is 4,000 m^2, of which building will cover 2,500 m^2. The construction cost of buildings and civil works at a rate of Birr 4,500 per square meter is estimated at Birr 11.25 million.

According to the Federal Legislation on the Lease Holding of Urban Land (Proclamation No 721/2004) in principle, urban land permit by lease is on auction or negotiation basis,

however, the time and condition of applying the proclamation shall be determined by the concerned regional or city government depending on the level of development.

The legislation has also set the maximum on lease period and the payment of lease prices. The lease period ranges from 99 years for education, cultural research health, sport, NGO , religious and residential area to 80 years for industry and 70 years for trade while the lease payment period ranges from 10 years to 60 years based on the towns grade and type of investment.

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

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

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

Regarding land allocation of industrial zones if the land requirement of the project is below 5000 m^2 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^2 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^2. 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^2 .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^2 (see Table 5.2).

Table 5.2

NEW LAND LEASE FLOOR PRICE FOR PLOTS IN ADDIS ABABA

Zone	Level	Floor price/m^2
Central Market District	1st	1686
	2nd	1535
	3rd	1323
	4th	1085
	5th	894
Transitional zone	1st	1035
	2nd	935
	3rd	809
	4th	685
	5th	555
Expansion zone	1st	355
	2nd	299
	3rd	217
	4th	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^2 which is equivalent to the average floor price of plots located in expansion zone is adopted.

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

Table 5.3

INCENTIVES FOR LEASE PAYMENT OF INDUSTRIAL PROJECTS

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

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

Accordingly, the total land lease cost at a rate of Birr 266 per m^2 is estimated at Birr 665,000 of which 10% or Birr 65,500 will be paid in advance. The remaining Birr 598,500 will be paid in equal installments with in 28 years i.e. Birr 21,375 annually.

NB: The land issue in the above statement narrates or shows only Addis Ababa's city administration land lease price, policy and regulations.
Accordingly the project profile prepared based on the land lease price of Addis Ababa region.
To know land lease price, police and regulation of other regional state of the country updated information is available at Ethiopian Investment Agency's website www.eia.gov.et on the factor cost.

VI. HUMAN RESOURCE AND TRAINING REQUIREMENT

A. HUMAN RESOURCE REQUIREMENT

The total human resource requirement of the envisaged plant is 25 persons. The total human resource requirement and the estimated annual labour cost, including fringe benefits, are shown in Table 6.1.

Table 6.1

HUMAN RESOURCE AND ESTIMATED LABOR COST

Item No.	Job Title	Required No. of Persons	Salary, Birr	
			Monthly	Annual
1	Plant manager	1	4,500	54,000
2	Secretary	1	800	9,600
3	Accountant - clerk	1	800	9,600
4	Cashier	1	800	9,600
5	Personnel	1	850	10,200
6	Salesman	1	800	9,600
7	Store keeper	1	800	9,600
8	Production supervisor	1	2,000	24,000
9	Quality controller	1	1,500	18,000
10	Operator	3	2,100	25,200
11	Skilled worker	3	1,800	21,600
12	Laborer	6	2,400	28,800
13	Mechanic	1	900	10,800
14	Guard	3	1,200	14,400
Sub total		**25**	**21,250**	**255,000**
Fringe benefits (20% Basic salary)			**4,250**	**51,000**
Grand total			**25,500**	**306,000**

B. TRAINING REQUIREMENT

The production supervisor, quality controller, 3 operators and a mechanic should be given two weeks on – the – job training by advanced technician of equipment supplier on the operation, quality assurance, and maintenance of machinery and equipment. The total cost of training is estimated at Birr 140,000.

VII. FINANCIAL ANALYSIS

The financial analysis of the biscuit 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 days
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 32.33 million (See Table 7.1). From the total investment cost the highest share (Birr 24.42 million or 75.52%) is accounted by fixed investment cost followed by initial working capital (Birr 4.89 million or 15.12%) and pre operation cost (Birr 3.02 million or 9.36%). From the total investment cost Birr 9.52 million or 29.44% 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	66.50		66.50	0.21
1.2	Building and civil work	11,250.00		11,250.00	34.80
1.3	Machinery and equipment	2,380.00	**9,520.00**	11,900.00	36.81
1.4	Vehicles	900.00		900.00	2.78
1.5	Office furniture and equipment	300.00		300.00	0.93
	Sub total	**14,896.50**	**9,520.00**	**24,416.50**	**75.52**
2	**Pre operating cost ***				
2.1	Pre operating cost	912.50		790.00	2.44
2.2	Interest during construction	2,115.17		2,115.17	6.54
	Sub total	**3,027.67**		**3,027.67**	**9.36**
3	**Working capital ****	**4,887.75**		**4,887.75**	**15.12**
	Grand Total	**22,811.92**	**9,520.00**	**32,331.92**	**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 6.69 million. However, only the initial working capital of Birr 5.20 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 27.02 million (see Table 7.2). The cost of raw material account for 70.09% of the production cost. The other major components of the production cost are depreciation and financial cost which account for 11.93% and 7.54% respectively. The remaining 10.44% is the share of

labour, utility, repair and maintenance, labour overhead and administration cost. For detail production cost see Appendix 7.A.2.

Table 7.2

ANNUAL PRODUCTION COST AT FULL CAPACITY (year three)

Items	Cost (in 000 Birr)	%
Raw Material and Inputs	18,937	70.09
Utilities	670	2.48
Maintenance and repair	595	2.20
Labour direct	255	0.94
Labour overheads	51	0.19
Administration Costs	500	1.85
Land lease cost	0	0.00
Cost of marketing and distribution	750	2.78
Total Operating Costs	**21,758**	**80.54**
Depreciation	3,223	11.93
Cost of Finance	2,036	7.54
Total Production Cost	**27,017**	**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 4.92 million to Birr 8.04 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 74.11 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.

$$\text{Break Even Sales Value} = \frac{\text{Fixed Cost + Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 14{,}175{,}000$$

$$\text{Break Even Capacity utilization} = \frac{\text{Break even Sales Value}}{\text{Sales revenue}} \times 100 = 31.18\%$$

4. Payback Period

The payback 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 29.55% 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 33.03 million which is acceptable. For detail discounted cash flow see Appendix 7.A.5.

D. ECONOMIC AND SOCIAL BENEFITS

The project can create employment for 25 persons. The project will generate Birr 20.66 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 agricultural sector and also generates income for the Government in terms of payroll tax.

Appendix 7.A

FINANCIAL ANALYSES SUPPORTING TABLES

Appendix 7.A.1

NET WORKING CAPITAL (in 000 Birr)

Items	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Total inventory	3,550.75	4,024.18	4,734.34	4,734.34	4,734.34	4,734.34	4,734.34	4,734.34	4,734.34	4,734.34
Accounts receivable	1,375.53	1,550.60	1,813.20	1,813.20	1,814.98	1,814.98	1,814.98	1,814.98	1,814.98	1,814.98
Cash-in-hand	14.59	16.54	19.46	19.46	19.76	19.76	19.76	19.76	19.76	19.76
CURRENT ASSETS	**4,940.87**	**5,591.32**	**6,566.99**	**6,566.99**	**6,569.07**	**6,569.07**	**6,569.07**	**6,569.07**	**6,569.07**	**6,569.07**
Accounts payable	53.13	60.21	70.83	70.83	70.83	70.83	70.83	70.83	70.83	70.83
CURRENT LIABILITIES	**53.13**	**60.21**	**70.83**	**70.83**	**70.83**	**70.83**	**70.83**	**70.83**	**70.83**	**70.83**
TOTAL WORKING CAPITAL	**4,887.75**	**5,531.11**	**6,496.16**	**6,496.16**	**6,498.24**	**6,498.24**	**6,498.24**	**6,498.24**	**6,498.24**	**6,498.24**

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	14,203	16,097	18,937	18,937	18,937	18,937	18,937	18,937	18,937	18,937
Utilities	503	570	670	670	670	670	670	670	670	670
Maintenance and repair	446	506	595	595	595	595	595	595	595	595
Labour direct	191	217	255	255	255	255	255	255	255	255
Labour overheads	38	43	51	51	51	51	51	51	51	51
Administration Costs	375	425	500	500	500	500	500	500	500	500
Land lease cost	0	0	0	0	21	21	21	21	21	21
Cost of marketing and distribution	750	750	750	750	750	750	750	750	750	750
Total Operating Costs	**16,506**	**18,607**	**21,758**	**21,758**	**21,780**	**21,780**	**21,780**	**21,780**	**21,780**	**21,780**
Depreciation	3,223	3,223	3,223	3,223	3,223	480	480	480	480	480
Cost of Finance	0	2,327	2,036	1,745	1,454	1,163	873	582	291	0
Total Production Cost	**19,729**	**24,156**	**27,017**	**26,726**	**26,456**	**23,423**	**23,132**	**22,841**	**22,551**	**22,260**

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	25,313	28,688	33,750	33,750	33,750	33,750	33,750	33,750	33,750	33,750
Less variable costs	15,756	17,857	21,008	21,008	21,008	21,008	21,008	21,008	21,008	21,008
VARIABLE MARGIN	**9,556**	**10,830**	**12,742**	**12,742**	**12,742**	**12,742**	**12,742**	**12,742**	**12,742**	**12,742**
in % of sales revenue	37.75	37.75	37.75	37.75	37.75	37.75	37.75	37.75	37.75	37.75
Less fixed costs	3,973	3,973	3,973	3,973	3,994	1,251	1,251	1,251	1,251	1,251
OPERATIONAL MARGIN	**5,584**	**6,858**	**8,769**	**8,769**	**8,748**	**11,490**	**11,490**	**11,490**	**11,490**	**11,490**
in % of sales revenue	22.06	23.91	25.98	25.98	25.92	34.05	34.05	34.05	34.05	34.05
Financial costs		2,327	2,036	1,745	1,454	1,163	873	582	291	0
GROSS PROFIT	**5,584**	**4,531**	**6,733**	**7,024**	**7,294**	**10,327**	**10,618**	**10,909**	**11,199**	**11,490**
in % of sales revenue	22.06	15.79	19.95	20.81	21.61	30.60	31.46	32.32	33.18	34.05
Income (corporate) tax	0	0	0	2,107	2,188	3,098	3,185	3,273	3,360	3,447
NET PROFIT	**5,584**	**4,531**	**6,733**	**4,917**	**5,105**	**7,229**	**7,432**	**7,636**	**7,840**	**8,043**
in % of sales revenue	22.06	15.79	19.95	14.57	15.13	21.42	22.02	22.63	23.23	23.83

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	**25,329**	**32,369**	**28,695**	**33,761**	**33,750**	**33,750**	**33,750**	**33,750**	**33,750**	**33,750**	**33,750**	**15,430**
Inflow funds	25,329	7,056	7	11	0	0	0	0	0	0	0	0
Inflow operation	0	25,313	28,688	33,750	33,750	33,750	33,750	33,750	33,750	33,750	33,750	0
Other income	0	0	0	0	0	0	0	0	0	0	0	15,430
TOTAL CASH OUTFLOW	**25,329**	**23,562**	**24,493**	**27,678**	**28,519**	**28,332**	**28,950**	**28,746**	**28,542**	**28,339**	**25,227**	**0**
Increase in fixed assets	25,329	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	4,941	650	976	0	2	0	0	0	0	0	0
Operating costs	0	15,756	17,857	21,008	21,008	21,030	21,030	21,030	21,030	21,030	21,030	0
Marketing and Distribution cost	0	750	750	750	750	750	750	750	750	750	750	0
Income tax	0	0	0	0	2,107	2,188	3,098	3,185	3,273	3,360	3,447	0
Financial costs	0	2,115	2,327	2,036	1,745	1,454	1,163	873	582	291	0	0
Loan repayment	0	0	2,908	2,908	2,908	2,908	2,908	2,908	2,908	2,908	0	0
SURPLUS (DEFICIT)	**0**	**8,806**	**4,202**	**6,082**	**5,231**	**5,418**	**4,800**	**5,004**	**5,208**	**5,411**	**8,523**	**15,430**
CUMULATIVE CASH BALANCE	**0**	**8,806**	**13,008**	**19,090**	**24,321**	**29,739**	**34,539**	**39,544**	**44,751**	**50,162**	**58,686**	**74,115**

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**	**25,313**	**28,688**	**33,750**	**33,750**	**33,750**	**33,750**	**33,750**	**33,750**	**33,750**	**33,750**	**15,430**
Inflow operation	0	25,313	28,688	33,750	33,750	33,750	33,750	33,750	33,750	33,750	33,750	0
Other income	0	0	0	0	0	0	0	0	0	0	0	15,430
TOTAL CASH OUTFLOW	**30,217**	**17,150**	**19,572**	**21,758**	**23,868**	**23,968**	**24,878**	**24,965**	**25,052**	**25,140**	**25,227**	**0**
Increase in fixed assets	25,329	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	4,888	643	965	0	2	0	0	0	0	0	0	0
Operating costs	0	15,756	17,857	21,008	21,008	21,030	21,030	21,030	21,030	21,030	21,030	0
Marketing and Distribution cost	0	750	750	750	750	750	750	750	750	750	750	0
Income (corporate) tax		0	0	0	2,107	2,188	3,098	3,185	3,273	3,360	3,447	0
NET CASH FLOW	**-30,217**	**8,163**	**9,115**	**11,992**	**9,882**	**9,782**	**8,872**	**8,785**	**8,698**	**8,610**	**8,523**	**15,430**
CUMULATIVE NET CASH FLOW	**-30,217**	**-22,054**	**-12,939**	**-947**	**8,935**	**18,717**	**27,590**	**36,375**	**45,072**	**53,683**	**62,206**	**77,636**
Net present value	-30,217	7,421	7,533	9,009	6,750	6,074	5,008	4,508	4,058	3,652	3,286	5,949
Cumulative net present value	-30,217	-22,796	-15,263	-6,253	497	6,570	11,579	16,087	20,144	23,796	27,082	33,031

NET PRESENT VALUE	33,031
INTERNAL RATE OF RETURN	29.55%
NORMAL PAYBACK	4 years