

Investment Office ANRS

**PROJECT PROFILE ON THE ESTABLISHMENT
OF STEEL PIPES PRODUCING PLANT**

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1. Executive Summary

This profile envisages the establishment of a plant for the production of 6600 tons of tubes & pipes per year.

The present demand for tubes and pipes is estimated at 43,621 tons per annum. The demand is expected to grow to 54,718 tons and 151,737 tons by the year 2001 and 2010; respectively.

The total investment requirement is estimated at Birr 48.6 million out of which Birr 73.7 million is in foreign currency.

The plant will create employment opportunity for 25 persons.

The project is financially viable with internal rate of return (IRR) of 25.4% and net present value (NPV) of Birr 8.7 million.

2. Product Description and Application

Welded steel pipes are longitudinally welded hollow structures with circular or rectangular/square cross sections. Steel pipes are essential items in building construction and manufacturing industries for the transport of water and steams as well as making for furniture and similar light structures elements. The galvanized versions could be used for water pipes. Since this project does not include galvanizing plant it doesn't produce galvanized pipes. However, it could supply the welded tubes to a separate galvanizing factory.

3. Market Study, Plant Capacity and Production Program

3.1 Market Study

3.1.1 Present Demand and Supply

Until recently the Addis Gas and Plastic Factory is the only plastic chairs producing factory in demand or galvanized pipes mainly used for conveyance of water, gas, and other liquid is affected by a number of factors such as urbanization and development of urban facilities; industrialization, rural water and irrigation schemes development, availability of substitutes like PVC pipes.

Demand for black furniture, mechanical, and structural pipes and tubes on its part is affected by development of basic facilities like schools, hospitals, hotels; the existing pipe using industries and billboard advertising.

The Countries demand for different sizes of steel tubes and pipes are met largely from imports and to some extent from local production mainly by the state owned factory called Kality Steel Industry (KASI), which is estimated to produce about 2000 tons of steel pipes and tubes of assorted sizes and dimensions.

The imported quantity and CIF value of different sizes and form of tubes, pipes, profiles, hollow profiles etc made of cast iron, steel, stainless steel, alloy, etc that are used for water and gas pipelines and structures are presented in table 1 bellow. As shown in the table the country has been importing about 32,791 tons of such different types of tubes and pipes on the average for the last ten years with CIF value of about Birr 200.3 million. We can also see that the import of products has increased substantially starting from 1993 indicating the general growth of the construction sector in particular and the economy of the country in general.

Table 1
IMPORT OF TUBES, PIPES AND PROFILES

Year	Quantity (Ton)	Value ('000' Birr)
1990	20,567	89,030
1991	15,999	72,992
1992	-	-
1993	35,875	157,958
1994	39,472	153,426
1995	49,524	227,781
1996	34,552	248,184
1997	34,530	392,248
1998	53,972	335,601
1999	43,423	325,567
Total	327,914	2,002,787
Average	32,791	200,279

Source:- Customs Authority, External Trade Statistics

The present demand for such items is assumed to be the average imports from 1993 to 1999 i.e. 41621 tons plus the local product of KASI (2000 tons); which totals to 43621 tons.

3.1.2 Projected Demand

The main demand for steel pipe, tubes and profiles comes from construction of apartment buildings, villas etc, industrial installation and main secondary water system, rural/water developments schemes, infrastructural facilities and from the furniture industry. In these respect, the growth in population, urbanization and growth in distribution of clean water and the ever increasing construction of commercial apartment buildings and villas, education and health services, etc require huge supply of steel pipes, tubes and profiles at regional and country level. There is no plant that produces such products in Amhara Region. It transports steel pipes, tubes and profiles from Addis Ababa, which indicates that it is highly essential to have a steel pipes making plant in the region as building construction and water supply are rapidly growing.

In this respect the demand for steel pipes and tubes is mainly influenced by the rate of growth of both the construction sector and GDP of the country.

The present rate of growth of the construction sector and the GDP is about 14.5% and 11% respectively. Based on the estimated present effective demand (43621 tons) and applying the average rate of growth of the construction sector and the GDP, say 12%, the forecasted demand for steel tubes and pipes are presented on table 3.

TABLE 3
TOTAL PROJECTED DEMAND FOR STEEL PIPES AND TUBES

Year	quantity (tons)
2001	54,718.0
2002	61,284.2
2003	68,638.3
2004	76,874.9
2005	86,099.8
2006	96,431.8
2007	108,003.6
2008	120,964.1
2009	135,479.8
2010	151,737.3

As indicated in the table above, the projected demand ranges from 54,718.0 tons in 2001 to 151,737.3 tons in 2010. Therefore the existing and potential demand for steel pipes and tubes warrants the establishment and viable operation of a new steel pipe making plant in Amhara Region.

The major types of black furniture and structural pipes and square and rectangular tubes and galvanized pipes to be produced by the plant are proposed in table 4.

Table 4
MAJOR TYPES OF BLACK FURNITURE, STRUCTURAL PIPES & TUBES

Size of black furniture structural pipes & tubes (mm)	Size of major types of galvanized pipes
20+	1/2"
25+	3/4 "
28	1"
32	1 1/4"
48	1 1/2"
25x25 mm	2"
40x40 mm	2 1/2"
20x30 mm	3"
30x50 mm	-
50x75 mm	-

3.1.3 Pricing and Distribution

Dimensionally pipes are wide ranging. Thus weight standards must be maintained as a corollary of maintaining competitiveness. Secondly, although wholesale prices at different consuming points vary depending upon the relative distances from the factory; in order for the products of the project to be fairly competitive at these points, the charge of KASI product at Addis Ababa must be at least lower than the product produced at Bahir Dar by the amount of the cost of transport from Addis Ababa to Bahir Dar. The weighted average price of this plant is assumed to be Birr 13,000 per ton of pipes and tubes.

With regard to distribution, whereas heavy users prefer to buy at factory gate, established channel of distribution like wholesalers and retailers may be streamlined so as to avail the product to small users.

3.2 Plant Capacity

The maximum capacity of the plant in terms of line speed is 60 meters per minute. In terms of weight, production capacity reaches 3 tons per hour. Annual capacity would be 6600 tons, based on single shift of 8 hours operation and 275 annual working days.

3.3 Production Program

The plant will start operating at 70% of its installed capacity. From the second year of operation its capacity utilization will increase by 10% every year and reach 100% capacity in year 4.

4. Raw Materials and Utilities

4.1 Availability and Source of Raw Materials

The raw material used is carbon steel coil, with internal and outer diameters of 630 mm and 1300 mm respectively, width of 65-345 mm and thickness of 1-4 mm. the unit cost of the coil is estimated to be Birr 9818 per ton, of which about 85% will be in foreign currency. Annual requirement of steel coil at full capacity production would be 6930 tons, and the corresponding cost is estimated at Birr 68.04 million.

4.2 Annual Requirement and Cost of Raw Materials and Utilities

The total installed electric power of the plant is estimated to be 450 kw. Annual consumption of electricity would be 810,000 kwh (assuming 75% load factor). Annual bill would be Birr 445,500. The daily water requirement is 120 cubic meters. Water could be recirculated after cooling. Assuming a circulation loss of 5%, the net annual water requirement would be 1800 cubic meters, and the corresponding cost Birr 4770.00, of which 75% is in foreign currency.

5. Location and Site

The location of steel pipes and tubes manufacturing plant should be in towns where power and infrastructure are adequately available and where similar plants are established for easy training and experience sharing. Therefore this project better be placed in Kombolcha town.

6. Technology and Engineering

6.1 *Production Process*

The manufacture of steel tubes involves the continuous forming of steel sheet strip into an open seam tube, welding of the open seam edges with high frequency resistance heating and continuous pressure jointing into welded tube, followed by reduction in tube diameter and then cutting into the desired length.

Alternatively, the production process or technology could be more labor intensive and be developed in to multi purpose work shop.

The technology on the production of Tubes and Pipes can be secured from Asian countries especially Taiwan and Japan.

6.2 *Machinery and Equipment*

The machinery and equipment required and the cost estimates are shown in Table 6. The estimated cost of the machinery and equipment is about Birr 14.5 million, of which 94 % is in foreign currency. The project will require about Birr 250,000 and Birr 20,000 to purchase a pick-up vehicle and office furniture & equipment, respectively.

Table 6.
MACHINERY AND EQUIPMENT

Description	Qty.	Cost ('000 Birr)		
		F.C	L.C	Total
Slitting M/C	1	2508	-	2508
Entry Egpt.		489	-	489
- Uncoiler	1			
- Shearing m/c	1			
- Coil end jointing fixture	1			
- Hoop feeder	1			
- Hoop exist guide roll	1			
Tube Mill		5379	-	5379
- Leveler	1			
- Forming m/c	1			
- Welding Egpt	1			
- Cooling system	1			
- Sizing m/c	1			
- Turks head	1			
Cutting m/c	1	477	-	477
D.C motor (125 HP)	1	648	-	648
Roll Tooling	Set	2667	-	2667
Auxiliaries				
- Jib cranes (2T)	1	153	-	153
- Compressor (15 HP)	1	153	-	153
- Maintenance	set	750	-	750
Spares		378		378
		13602		13602
Local costs		-	875	875
Total			875	14,477

The plant owner can reach machinery supplier through the following address.

Company Name: Metalec AD Prilep

Contact Person: Mr. Jandre Zdraveski

Address: Aleksandar Makedonski 2/11

City: Prilep

State/Province: Prilep

Zip/PC: 7500

Country: Macedonia

Tel: + 38948403700

Fax: + 38948403735

<http://www.metalecprilep.com.mk>

6.3 Civil Engineering Cost

The plant will require about 5000 meter square of land of which total built-up area of the factory is estimated to be 15 meters by 105 meters or 1575 square meters. Building cost is estimated at Birr 2,835,000 million, of which around 30% will be in foreign currency.

7. Human Resource and Training Requirement

7.1 Human Resource

The total human resource requirement of the plant will be 24persons. The annual salary is estimated to be Birr 298,080. The manpower list and the labor cost are shown in Table 7.

Table 7
MANPOWER REQUIREMENT

Description	No.	Monthly Salary/person	Annual Salary
A. Administration			
Plant Manager	1	3,500	42,000
Secretary	1	700	8,400
Personnel	1	800	9,600
Accountant	1	800	9,600
Store keeper	1	800	9,600
Cleaner/messenger	1	400	4,800
Guard	3	400	14,400
B. Production & Maintenance			
Engineer	1	2,500	30,000
Supervisor	1	1,200	14,400
Operators & Helpers	12	600	86,400
Technicians	2	1,000	24,000
Total	25	12,700	253,200
Benefits (20%)			47,040
			300,240

7.2 Training Requirement

A training program is proposed for one engineer and one supervisor for about a month at the machinery supplier's plant. Training cost is estimated at Birr 45,000 of which about 70% will be in foreign currency.

8. Financial Analysis

8.1 Underlying Assumption

The financial analysis of milk powder producing plant is based on the data provided in the preceding sections and the following assumptions.

A. Construction and Finance

Construction period	2 years
Source of finance	40% equity and 60% loan
Tax holidays	2 years
Bank interest rate	12%
Discount for cash flow	18%
Value of land	Based on lease rate of ANRS
Spare Parts, Repair & Maintenance	3% of fixed investment

B. Depreciation

Building	5%
Machinery and equipment	10%
Office furniture	10%
Vehicles	20%
Pre-production (amortization)	20%

C. Working Capital (Minimum Days of Coverage)

Raw Material-Local	30 days
Raw Material-Foreign	120 days
Factory Supplies in Stock	30 days
Spare Parts in Stock and Maintenance	30 days
Work in Progress	10 days
Finished Products	15 days
Accounts Receivable	30 days
Cash in Hand	30 days
Accounts Payable	30 days

8.2 Investment

The total investment cost of the project including working capital is estimated at Birr 48.6 million as shown in table 8 below. The Owner shall contribute 40% of the finance in the form of equity while the remaining 60% is to be financed by bank loan.

The foreign component of the project accounts for Birr 36.5 million or 73.7% of the total investment cost.

Table 8: Total initial investment

	LC	FC	Total
Land	15,000		15,000
Building	2,835,000		2,835,000
Office equipment	20,000		20,000
Vehicles	250,000		250,000
machinery & equipment	875,000	13,602,000	14,477,000
Total Fixed Investment	3,995,000	13,602,000	17,597,000
Pre production	879,850		879,850
Total Initial Investment	4,874,850	13,602,000	18,476,850
Working capital	7,892,908	22,267,636	30,160,545
Total	12,767,758	35,869,636	48,637,395

**Pre-production capital expenditure includes - all expenses for pre-investment studies, consultancy fee during construction and expenses for company's establishment, project administration expenses, commission expenses, preproduction marketing and interest expenses during construction.*

8.3 Production Costs

The total production cost at full capacity operation is estimated to be about Birr 74.1 million (Table 8). Raw materials accounts for 81.1% of the total factory cost.

Table 8

Total Production Cost at full Capacity	
Items	Cost
1. Raw materials	68,040,000
2. Utilities	450,270
3. Wages and Salaries	300,240
4. Spares and Maintenance	527,910
<i>Factory costs</i>	69,318,420
5. Depreciation	1,817,420
6. Financial costs	2,918,244
<i>Total Production Cost</i>	74,054,084

8.4 Financial Evaluation

I. Profitability

According to the projected income statement the project will generate profit beginning from the first year of operation. The income statement and other profitability indicators show that the project will get 24% return on investment and 12% return on equity as well.

II. Breakeven Analysis

The project will break even at 12.9 % of capacity utilization.

III. Payback Period

Investment cost and income statement projection are used in estimating the project payback period. The project will payback fully the initial investment less working capital in two years time.

IV. Simple Rate of Return

The project's simple rate of return is 21.7% at full capacity utilization.

V. Internal Rate of Return and Net Present Value

Based on cash flow statement the calculated IRR of the project is 25.4% and the net present value at 18% discount is Birr 8.7 million.

VI. Sensitivity Analysis

If costs of raw materials are increased by 10 %, the plant will absorb it profitably

9. Economic and Social Benefit and Justification

Based on the foregoing presentation and analysis, we can learn that the proposed project possesses wide range of benefits that complement the financial feasibility obtained earlier. In general the envisaged project promotes the construction sector, socio-economic goals and objectives stated in the strategic plan of the Amhara National Regional State. These benefits are listed as follows:

A. Profit Generation

The project is found to be financially viable and earns on average a profit of birr 8.3 million per year and birr 83.4 million within the project life. Such result induces the project promoters to reinvest the profit which, therefore, increases the investment magnitude in the region.

B. Tax Revenue

In the project life under consideration, the region will collect about birr31.5 million from corporate tax payment alone (i.e. excluding income tax, sales tax and VAT). Such result creates additional fund for the regional government that will be used in expanding social and other basic services in the region

C. Import Substitution and Foreign Exchange Saving

As there is no sufficient local production of steel pipes, tubes and profiles in the country, the commencement of this project relieves a portion of the import burden. That is, based on the projected figure we learn that in the project life an estimated amount of US Dollar 89.6 million will be saved as a result of the proposed project. This will create room for the saved hard currency to be allocated to other vital and strategic sectors

D. Employment and Income Generation

The proposed project is expected to create employment opportunity to several citizens of the country. That is, it will provide permanent employment to 25 professionals as well as support staff. Consequently the project creates income of birr 300 thousand per year. This would be one of the commendable accomplishments of the project.

E. Pro Environment Project

The proposed production process will not harm the environment.

ANNEXES

Annex 1: Total Net Working Capital Requirements (in Birr)

	CONSTRUCTION		PRODUCTION			
	Year 1	Year 2	1	2	3	4
Capacity Utilization (%)	0.00	0.00	70%	80%	90%	100%
1. Total Inventory	0.00	0.00	37941360.42	43361554.77	48781749.12	54201943.46
Raw Materials in Stock- Total	0.00	0.00	16886290.91	19298618.18	21710945.45	24123272.73
Raw Material-Local	0.00	0.00	1298945.45	1484509.09	1670072.73	1855636.36
Raw Material-Foreign	0.00	0.00	15587345.45	17814109.09	20040872.73	22267636.36
Factory Supplies in Stock	0.00	0.00	54321.91	62082.19	69842.46	77602.73
Spare Parts in Stock and Maintenance	0.00	0.00	40313.13	46072.15	51831.16	57590.18
Work in Progress	0.00	0.00	1358047.85	1552054.69	1746061.53	1940068.36
Finished Products	0.00	0.00	2716095.71	3104109.38	3492123.05	3880136.73
2. Accounts Receivable	0.00	0.00	6552000.00	7488000.00	8424000.00	9360000.00
3. Cash in Hand	0.00	0.00	57311.67	65499.05	73686.44	81873.82
CURRENT ASSETS	0.00	0.00	27664381.19	31616435.64	35568490.10	39520544.55
4. Current Liabilities	0.00	0.00	6552000.00	7488000.00	8424000.00	9360000.00
Accounts Payable	0.00	0.00	6552000.00	7488000.00	8424000.00	9360000.00
TOTAL NET WORKING CAPITAL REQUIRMENTS	0.00	0.00	21112381.19	24128435.64	27144490.10	30160544.55
INCREASE IN NET WORKING CAPITAL	0.00	0.00	21112381.19	3016054.46	3016054.46	3016054.46

Annex 1: Total Net Working Capital Requirements (in Birr) (continued)

	PRODUCTION					
	5	6	7	8	9	10
Capacity Utilization (%)	100%	100%	100%	100%	100%	100%
1. Total Inventory	54201943.46	54201943.46	54201943.46	54201943.46	54201943.46	54201943.46
Raw Materials in Stock-Total	24123272.73	24123272.73	24123272.73	24123272.73	24123272.73	24123272.73
Raw Material-Local	1855636.36	1855636.36	1855636.36	1855636.36	1855636.36	1855636.36
Raw Material-Foreign	22267636.36	22267636.36	22267636.36	22267636.36	22267636.36	22267636.36
Factory Supplies in Stock	77602.73	77602.73	77602.73	77602.73	77602.73	77602.73
Spare Parts in Stock and Maintenance	57590.18	57590.18	57590.18	57590.18	57590.18	57590.18
Work in Progress	1940068.36	1940068.36	1940068.36	1940068.36	1940068.36	1940068.36
Finished Products	3880136.73	3880136.73	3880136.73	3880136.73	3880136.73	3880136.73
2. Accounts Receivable	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00
3. Cash in Hand	81873.82	81873.82	81873.82	81873.82	81873.82	81873.82
CURRENT ASSETS	39520544.55	39520544.55	39520544.55	39520544.55	39520544.55	39520544.55
4. Current Liabilities	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00
Accounts Payable	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00
TOTAL NET WORKING CAPITAL REQUIRMENTS	30160544.55	30160544.55	30160544.55	30160544.55	30160544.55	30160544.55
INCREASE IN NET WORKING CAPITAL	0.00	0.00	0.00	0.00	0.00	0.00

Annex 2: Cash Flow Statement (in Birr)						
	CONSTRUCTION		PRODUCTION			
	Year 1	Year 2	1	2	3	4
TOTAL CASH INFLOW	9238425.00	39398969.55	66612000.00	69576000.00	78156000.00	86736000.00
1. Inflow Funds	9238425.00	39398969.55	6552000.00	936000.00	936000.00	936000.00
Total Equity	3695370.00	15759587.82	0.00	0.00	0.00	0.00
Total Long Term Loan	5543055.00	23639381.73	0.00	0.00	0.00	0.00
Total Short Term Finances	0.00	0.00	6552000.00	936000.00	936000.00	936000.00
2. Inflow Operation	0.00	0.00	60060000.00	68640000.00	77220000.00	85800000.00
Sales Revenue	0.00	0.00	60060000.00	68640000.00	77220000.00	85800000.00
Interest on Securities	0.00	0.00	0.00	0.00	0.00	0.00
3. Other Income	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CASH OUTFLOW	9238425.00	9238425.00	83597446.81	68102276.04	77393682.07	84424258.75
4. Increase In Fixed Assets	9238425.00	9238425.00	0.00	0.00	0.00	0.00
Fixed Investments	8798500.00	8798500.00	0.00	0.00	0.00	0.00
Pre-production Expenditures	439925.00	439925.00	0.00	0.00	0.00	0.00
5. Increase in Current Assets	0.00	0.00	27664381.19	3952054.46	3952054.46	3952054.46
6. Operating Costs	0.00	0.00	48834402.88	55784589.72	62734776.56	69684963.40
7. Corporate Tax Paid	0.00	0.00	0.00	0.00	2924867.93	3588906.50
8. Interest Paid	0.00	0.00	7098662.74	3501892.41	2918243.67	2334594.94
9.Loan Repayments	0.00	0.00	0.00	4863739.46	4863739.46	4863739.46
10.Dividends Paid	0.00	0.00	0.00	0.00	0.00	0.00
Surplus(Deficit)	0.00	30160544.55	-16985446.81	1473723.96	762317.93	2311741.25
Cumulative Cash Balance	0.00	30160544.55	13175097.74	14648821.71	15411139.63	17722880.88

Annex 2: Cash Flow Statement (in Birr): Continued						
	PRODUCTION					
	5	6	7	8	9	10
TOTAL CASH INFLOW	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
1. Inflow Funds	0.00	0.00	0.00	0.00	0.00	0.00
Total Equity	0.00	0.00	0.00	0.00	0.00	0.00
Total Long Term Loan	0.00	0.00	0.00	0.00	0.00	0.00
Total Short Term Finances	0.00	0.00	0.00	0.00	0.00	0.00
2. Inflow Operation	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
Sales Revenue	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
Interest on Securities	0.00	0.00	0.00	0.00	0.00	0.00
3. Other Income	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CASH OUTFLOW	80063650.18	79722887.06	79314332.95	74042039.38	74042039.38	74042039.38
4. Increase In Fixed Assets	0.00	0.00	0.00	0.00	0.00	0.00
Fixed Investments	0.00	0.00	0.00	0.00	0.00	0.00
Pre-production Expenditures	0.00	0.00	0.00	0.00	0.00	0.00
5. Increase in Current Assets	0.00	0.00	0.00	0.00	0.00	0.00
6. Operating Costs	69684963.40	69684963.40	69684963.40	69684963.40	69684963.40	69684963.40
7. Corporate Tax Paid	3764001.12	4006886.74	4181981.36	4357075.98	4357075.98	4357075.98
8. Interest Paid	1750946.20	1167297.47	583648.73	0.00	0.00	0.00
9. Loan Repayments	4863739.46	4863739.46	4863739.46	0.00	0.00	0.00
10.Dividends Paid	0.00	0.00	0.00	0.00	0.00	0.00
Surplus(Deficit)	5736349.82	6077112.94	6485667.05	11757960.62	11757960.62	11757960.62
Cumulative Cash Balance	23459230.71	29536343.64	36022010.69	47779971.31	59537931.93	71295892.55

Annex 3: DISCOUNTED CASH FLOW-TOTAL CAPITAL INVESTED						
	CONSTRUCTION		PRODUCTION			
	Year 1	Year 2	1	2	3	4
TOTAL CASH INFLOW	0.00	0.00	60060000.00	68640000.00	77220000.00	85800000.00
1. Inflow Operation	0.00	0.00	60060000.00	68640000.00	77220000.00	85800000.00
Sales Revenue	0.00	0.00	60060000.00	68640000.00	77220000.00	85800000.00
Interest on Securities	0.00	0.00	0.00	0.00	0.00	0.00
2. Other Income	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CASH OUTFLOW	9238425.00	9238425.00	69946784.07	58800644.18	68675698.95	76289924.35
3. Increase in Fixed Assets	9238425.00	9238425.00	0.00	0.00	0.00	0.00
Fixed Investments	8798500.00	8798500.00	0.00	0.00	0.00	0.00
Pre-production Expenditures	439925.00	439925.00	0.00	0.00	0.00	0.00
4. Increase in Net Working Capital	0.00	0.00	21112381.19	3016054.46	3016054.46	3016054.46
5. Operating Costs	0.00	0.00	48834402.88	55784589.72	62734776.56	69684963.40
6. Corporate Tax Paid	0.00	0.00	0.00	0.00	2924867.93	3588906.50
NET CASH FLOW	9238425.00	-9238425.00	-9886784.07	9839355.82	8544301.05	9510075.65
CUMMULATIVE NET CASH FLOW	9238425.00	18476850.00	28363634.07	18524278.24	-9979977.19	-469901.54
Net Present Value (at 18%)	9238425.00	-7829173.73	-7100534.38	5988535.72	4407055.43	4156941.71
Cumulative Net present Value	9238425.00	17067598.73	24168133.11	18179597.38	13772541.95	-9615600.24

Annex 3: DISCOUNTED CASH FLOW-TOTAL CAPITAL INVESTED (Continued)

	PRODUCTION					
	5	6	7	8	9	10
TOTAL CASH INFLOW	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
1. Inflow Operation	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
Sales Revenue	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
Interest on Securities	0.00	0.00	0.00	0.00	0.00	0.00
2. Other Income	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CASH OUTFLOW	73448964.52	73691850.14	73866944.76	74042039.38	74042039.38	74042039.38
3. Increase in Fixed Assets	0.00	0.00	0.00	0.00	0.00	0.00
Fixed Investments	0.00	0.00	0.00	0.00	0.00	0.00
Pre-production Expenditures	0.00	0.00	0.00	0.00	0.00	0.00
4. Increase in Net Working Capital	0.00	0.00	0.00	0.00	0.00	0.00
5. Operating Costs	69684963.40	69684963.40	69684963.40	69684963.40	69684963.40	69684963.40
6. Corporate Tax Paid	3764001.12	4006886.74	4181981.36	4357075.98	4357075.98	4357075.98
NET CASH FLOW	12351035.48	12108149.86	11933055.24	11757960.62	11757960.62	11757960.62
CUMMULATIVE NET CASH FLOW	11881133.94	23989283.80	35922339.04	47680299.66	59438260.28	71196220.90
Net Present Value (at 18%)	4575213.08	3801051.35	3174648.10	2650903.60	2246528.48	1903837.69
Cumulative Net present Value	-5040387.16	-1239335.81	1935312.29	4586215.90	6832744.37	8736582.07
Net Present Value (at 18%)	8,736,582.07					
Internal Rate of Return	25.4%					

Annex 4: NET INCOME STATEMENT (in Birr)					
	PRODUCTION				
	1	2	3	4	5
Capacity Utilization (%)	70%	80%	90%	100%	100%
1. Total Income	60060000.00	68640000.00	77220000.00	85800000.00	85800000.00
Sales Revenue	60060000.00	68640000.00	77220000.00	85800000.00	85800000.00
Other Income	0.00	0.00	0.00	0.00	0.00
2. Less Variable Cost	48567240.68	55505417.92	62443595.16	69381772.40	69381772.40
VARIABLE MARGIN	11492759.32	13134582.08	14776404.84	16418227.60	16418227.60
(In % of Total Income)	19.14	19.14	19.14	19.14	19.14
3. Less Fixed Costs	2084582.20	2096591.80	2108601.40	2120611.00	2120611.00
OPERATIONAL MARGIN	9408177.12	11037990.28	12667803.44	14297616.60	14297616.60
(In % of Total Income)	16	16	16	17	17
4. Less Cost of Finance	7098662.74	3501892.41	2918243.67	2334594.94	1750946.20
5. GROSS PROFIT	2309514.38	7536097.87	9749559.77	11963021.66	12546670.40
6. Income (Corporate) Tax	0.00	0.00	2924867.93	3588906.50	3764001.12
7. NET PROFIT	2309514.38	7536097.87	6824691.84	8374115.16	8782669.28
RATIOS (%)					
Gross Profit/Sales	4%	11%	13%	14%	15%
Net Profit After Tax/Sales	4%	11%	9%	10%	10%
Return on Investment	24%	26%	21%	22%	22%
Return on Equity	12%	39%	35%	43%	45%

Annex 4: NET INCOME STATEMENT (in Birr):Continued					
	PRODUCTION				
	6	7	8	9	10
Capacity Utilization (%)	100%	100%	100%	100%	100%
1. Total Income	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
Sales Revenue	85800000.00	85800000.00	85800000.00	85800000.00	85800000.00
Other Income	0.00	0.00	0.00	0.00	0.00
2. Less Variable Cost	69381772.40	69381772.40	69381772.40	69381772.40	69381772.40
VARIABLE MARGIN	16418227.60	16418227.60	16418227.60	16418227.60	16418227.60
(In % of Total Income)	19	19	19	19	19
3. Less Fixed Costs	1894641.00	1894641.00	1894641.00	1894641.00	1894641.00
OPERATIONAL MARGIN	14523586.60	14523586.60	14523586.60	14523586.60	14523586.60
(In % of Total Income)	17	17	17	17	17
4. Less Cost of Finance	1167297.47	583648.73	0.00	0.00	0.00
5. GROSS PROFIT	13356289.13	13939937.87	14523586.60	14523586.60	14523586.60
6. Income (Corporate) Tax	4006886.74	4181981.36	4357075.98	4357075.98	4357075.98
7. NET PROFIT	9349402.39	9757956.51	10166510.62	10166510.62	10166510.62
RATIOS (%)					
Gross Profit/Sales	16%	16%	17%	17%	17%
Net Profit After Tax/Sales	11%	11%	12%	12%	12%
Return on Investment	22%	21%	21%	21%	21%
Return on Equity	48%	50%	52%	52%	52%

Annex 5: Projected Balance Sheet (in Birr)

	CONSTRUCTION		PRODUCTION			
	Year 1	Year 2	1	2	3	4
TOTAL ASSETS	9238425.00	48637394.55	57498908.93	61107267.35	64004219.73	68450595.44
1. Total Current Assets	0.00	30160544.55	40839478.93	46265257.35	50979629.73	57243425.44
Inventory on Materials and Supplies	0.00	0.00	16980925.95	19406772.51	21832619.08	24258465.64
Work in Progress	0.00	0.00	1358047.85	1552054.69	1746061.53	1940068.36
Finished Products in Stock	0.00	0.00	2716095.71	3104109.38	3492123.05	3880136.73
Accounts Receivable	0.00	0.00	6552000.00	7488000.00	8424000.00	9360000.00
Cash in Hand	0.00	0.00	57311.67	65499.05	73686.44	81873.82
Cash Surplus, Finance Available	0.00	30160544.55	13175097.74	14648821.71	15411139.63	17722880.88
Securities	0.00	0.00	0.00	0.00	0.00	0.00
2. Total Fixed Assets, Net of Depreciation	9238425.00	18476850.00	16659430.00	14842010.00	13024590.00	11207170.00
Fixed Investment	0.00	8798500.00	17597000.00	17597000.00	17597000.00	17597000.00
Construction in Progress	8798500.00	8798500.00	0.00	0.00	0.00	0.00
Pre-Production Expenditure	439925.00	879850.00	879850.00	879850.00	879850.00	879850.00
Less Accumulated Depreciation	0.00	0.00	1817420.00	3634840.00	5452260.00	7269680.00
3. Accumulated Losses Brought Forward	0.00	0.00	0.00	0.00	0.00	0.00
4. Loss in Current Year	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL LIABILITIES	9238425.00	48637394.55	57498908.93	61107267.35	64004219.73	68450595.44
5. Total Current Liabilities	0.00	0.00	6552000.00	7488000.00	8424000.00	9360000.00
Accounts Payable	0.00	0.00	6552000.00	7488000.00	8424000.00	9360000.00
Bank Overdraft	0.00	0.00	0.00	0.00	0.00	0.00
6. Total Long-term Debt	5543055.00	29182436.73	29182436.73	24318697.28	19454957.82	14591218.37
Loan A	5543055.00	29182436.73	29182436.73	24318697.28	19454957.82	14591218.37
Loan B	0.00	0.00	0.00	0.00	0.00	0.00
7. Total Equity Capital	3695370.00	19454957.82	19454957.82	19454957.82	19454957.82	19454957.82
Ordinary Capital	3695370.00	19454957.82	19454957.82	19454957.82	19454957.82	19454957.82
Preference Capital	0.00	0.00	0.00	0.00	0.00	0.00
Subsidies	0.00	0.00	0.00	0.00	0.00	0.00
8. Reserves, Retained Profits Brought Forward	0.00	0.00	0.00	2309514.38	9845612.25	16670304.09
9. Net Profit After Tax	0.00	0.00	2309514.38	7536097.87	6824691.84	8374115.16
Dividends Payable	0.00	0.00	0.00	0.00	0.00	0.00
Retained Profits	0.00	0.00	2309514.38	7536097.87	6824691.84	8374115.16

Annex 5: Projected Balance Sheet (in Birr): Continued

	PRODUCTION					
	5	6	7	8	9	10
TOTAL ASSETS	72369525.26	76855188.20	81749405.25	91915915.87	102082426.49	112248937.11
1. Total Current Assets	62979775.26	69056888.20	75542555.25	87300515.87	99058476.49	110816437.11
Inventory on Materials and Supplies	24258465.64	24258465.64	24258465.64	24258465.64	24258465.64	24258465.64
Work in Progress	1940068.36	1940068.36	1940068.36	1940068.36	1940068.36	1940068.36
Finished Products in Stock	3880136.73	3880136.73	3880136.73	3880136.73	3880136.73	3880136.73
Accounts Receivable	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00
Cash in Hand	81873.82	81873.82	81873.82	81873.82	81873.82	81873.82
Cash Surplus, Finance Available	23459230.71	29536343.64	36022010.69	47779971.31	59537931.93	71295892.55
Securities	0.00	0.00	0.00	0.00	0.00	0.00
2. Total Fixed Assets, Net of Depreciation	9389750.00	7798300.00	6206850.00	4615400.00	3023950.00	1432500.00
Fixed Investment	17597000.00	17597000.00	17597000.00	17597000.00	17597000.00	17597000.00
Construction in Progress	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Production Expenditure	879850.00	879850.00	879850.00	879850.00	879850.00	879850.00
Less Accumulated Depreciation	9087100.00	10678550.00	12270000.00	13861450.00	15452900.00	17044350.00
3. Accumulated Losses Brought Forward	0.00	0.00	0.00	0.00	0.00	0.00
4. Loss in Current Year	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL LIABILITIES	72369525.26	76855188.20	81749405.25	91915915.87	102082426.49	112248937.11
5. Total Current Liabilities	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00
Accounts Payable	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00	9360000.00
Bank Overdraft	0.00	0.00	0.00	0.00	0.00	0.00
6. Total Long-term Debt	9727478.91	4863739.46	0.00	0.00	0.00	0.00
Loan A	9727478.91	4863739.46	0.00	0.00	0.00	0.00
Loan B	0.00	0.00	0.00	0.00	0.00	0.00
7. Total Equity Capital	19454957.82	19454957.82	19454957.82	19454957.82	19454957.82	19454957.82
Ordinary Capital	19454957.82	19454957.82	19454957.82	19454957.82	19454957.82	19454957.82
Preference Capital	0.00	0.00	0.00	0.00	0.00	0.00
Subsidies	0.00	0.00	0.00	0.00	0.00	0.00
8. Reserves, Retained Profits Brought Forward	25044419.25	33827088.53	43176490.92	52934447.42	63100958.04	73267468.66
9. Net Profit After Tax	8782669.28	9349402.39	9757956.51	10166510.62	10166510.62	10166510.62
Dividends Payable	0.00	0.00	0.00	0.00	0.00	0.00
Retained Profits	8782669.28	9349402.39	9757956.51	10166510.62	10166510.62	10166510.62