24. PROFILE ON CANNED MEAT

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I. SUMMARY

This profile envisages the establishment of a plant for the production of 1,260 tonnes of Canned Meat per annum.

The current demand for the proposed product is estimated at 12,500 tonnes per annum and it is projected to reach at 19,852 tonnes by the year 2019.

The project will create employment for 197 persons.

The total investment cost of the project is estimated at Birr 30.9 million, out of which Birr 13 million is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 28% and a net present value (NPV) of Birr 34.34 million, discounted at 10.5%.

II. PRODUCT DESCRIPTION AND APPLICATION

Canned meat is a product prepared from goat, sheep, beef, pig, poultry and other ingredients used for preserving and giving suitable taste. Processed and packed meat nowadays is used in hospitals, hotels, restaurants, clubs and supermarkets. But the major market is export, especially to the Middle East countries.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

The product envisaged here is mainly for export. Despite its large livestock population, Ethiopia does not have an international market oriented livestock trade, earning low foreign currency income compared to the country's livestock resource. Various opportunities could be utilized to boost the current meager status of the sector.

According to information provided by the Livestock Exporters Association (LEA), 200 tonnes of meat was exported in 2003 to the middle east, earning the country USD 6 million (around 50 million birr). The total amount of meat and meat products exported from Ethiopia to various Middle East countries during a nine years period was 11,360 tonnes, i.e., on average 1,262 tonnes per annum. Around 5,000 tonnes of meat is expected to be exported by the end of year 2004; and this, according to the association, constitutes only 40% of the demand. Hence, on the basis of the above, the present export market for processed and packed meat to the Middle Eastern market is estimated to be about 12,500 tonnes.

2. Projected Demand

There is a wide market for Ethiopian food products in the Middle East which needs to be tapped through quality production and packaging. Since this is a competitive market, exporters face stiff quality standard requirements and competition from diverse suppliers. However, the geographic proximity of the country to the Middle East offers comparative advantage in terms of transport cost. Considering these factors, it would be reasonable to assume that the export market for processed meat from Ethiopia will grow by about 3% annually. Accordingly, demand for processed meat is projected to reach 19,850 tonnes by the year 2019, starting from 12,875 tonnes by the year 2005 (see Table 3.1).

Table 3.1

PROJECTED DEMAND FOR PROCESSED AND CANNED MEAT

(2004-2019)

Year	Projected Demand (Tonnes)
2004	12,500
2005	12,875
2006	13,261
2007	13,924
2008	14,342
2009	14,772
2010	15,215
2011	15,671
2012	16,142
2013	16,626
2014	17,125
2015	17,638
2016	18,168
2017	18,713
2018	19,274
2019	19,852

3. Pricing and Distribution

Canned meat (beef) sells for about 50 Birr/kg in the domestic market. Exported beef, however, fetches USD20-30 /kg currently. For the purpose of financial analysis, a factory-gate price of Birr 32,500 per tonne is adopted. The product can be directly exported.

B. PLANT CAPACITY AND PRODUCTION PROGRAMME

1. Plant Capacity

Based on the market study depicted above and the availability of livestock in the region, the annual capacity of the envisaged meat processing and packing plant is chosen to be 1,260 tonnes per annum.

2. Production Programme

The plant is assumed to start production at 75% of its rated capacity in the first year and increase its production to 85% in the second year. The plant will operate at full capacity (100%) starting from third year. The envisaged plant will operate eight hours in a single shift for 300 days a year and boost its production by operating in three shift basis.

IV. RAW MATERIALS AND INPUTS

A. MATERIALS

The major raw materials required for meat processing and canning plant are cattle, empty can and salt. The source of cattle and salt will be local while empty cans for packing have to be imported. The envisaged cattle-fattening project could supply the required cattles. The total material cost is about Birr 22,644,000. The list of raw materials requirement broken up by source is presented in the Table 4.1 below.

Table 4.1

RAW MATERIALS REQUIREMENT AND COST ('000 BIRR)

Sr. No.	Material	Qty	Unit Cost	LC	FC	Total
1	Cattle (head)	14,400	1,250	18,000	-	18,000
2	Empty can	3 million can	1/can	-	3,000	3,000
3	Table salt	144 tonnes	1,000	144	-	144
4	Packing material (can)	150,000 lts	10.00	1,500	-	1,500
Grand Total		-	-	**19,644**	**3,000**	**22,644**

B. UTILITIES

The utilities required for the plant is electricity, furnace oil and water. The total annual cost of utilities at full capacity is estimated to be Birr 3,681,481. The annual required amount of utilities along with cost is shown in Table 4.2.

TABLE 4.2

UTILITIES REQUIREMENT AND COST

Sr. No.	Material	Qty.	Unit Cost	Cost ('000 Birr)
1	Electricity	67,500 kWh	0.4738	31,981.5
2	Water	135,000 m^3	2.50	337,500
3	Furnace fuel	1,440 m^3	2,300	3,312,000
Grand Total		-	-	**3,681,481**

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

The animals are subject to medical check up to be sure that they are free from any disease before they are slaughtered. After slaughtering and before the viscera is removed, inspection has been carried out by veterinary staff. Then, the meat is washed to remove blood and kept in the chilled room.

After the meat is thoroughly chilled, it is then dressed and superficial fat is removed before processing further after trimming and chopping. The bones are removed and the meat is then cut to uniform size of sliced chunks of 1.25 cm thickness. The meat is then soaked into salt water for giving a salty taste and to kill the micro organisms. It is weighed and filled into cans and seaming process will be carried out. After seaming the

cans are fed into a jet-spraying can washer for cleansing with a neutral cleanser. Then, the seamed cans undergo sterilization immediately.

2. Source of Technology

The machinery and equipment required by the canned meat production plant can be obtained from an Indian company that specializes on supplying equipment and machinery for dairies, food industries and breweries. The company can be contacted through the following address.

KPSAR ENGINEERING WORKS.
Tel. 91-11-5440092.
Fax 91 - 11-546 2626.
INDIA.

B. ENGINEERING

1. Machinery and Equipment

The list of machinery and equipment is given in Table 5.1. The total cost of equipment and machinery required to produce 1,260 tonnes of canned meat per annum is estimated to be Birr 10 million, of which 8.5 million is required in foreign currency.

Table 5.1.

LIST OF MACHINERY AND EQUIPMENT

Sr. No.	Description	Qty.
1	Nobbing and Cutting	1
2	Washing Tank	4
3	Salt Soaking Tank	4
4	Empty Can Conveyor	2
5	Packing Conveyor	1
6	Table for Balance	2
7	Tray	400
8	Can Assembling Table	1
9	Cooking Box (Steamer)	1
10	Drainer	2
11	Can Supplying Table	2
12	Rotary Filler	2
13	Vacuum Seamer	2
14	Vaccum Pump	2
15	Can Wahser	1
16	Chain hoist with Trolley Rail	1
17	Clutch Door Type Horizontal retort	5
18	Basket Cooler	50
19	Jacketed Steam Kettle	3
20	Stainless Tank	2
21	Gear Pump	1
22	Balance	20
23	Seaming Micrometer	2
24	Seaming Wire Gauge	2
25	Seaming Scale	2
26	Seam Band Saw Frame	2
27	Seam Band Saw	10
28	Vacuum Can Tester	2
29	Hand Can Tester	2
30	Saccharimeter	2
31	Inspection Bar	2
32	Thermometer	15
33	Salinometer	2
34	Boiler	1

2. Land, Building and Civil Work

The envisaged plant will require a total land area of 7,500 m^2, of which 3000 m^2 will be covered by factory and office buildings, stores, etc. The total cost of building and civil works at a rate of Birr 1800 per m^2 will be Birr 5,400,000. Cost for holding of land at lease rate of Birr 1.5 per m^2 for 70 years is estimated at Birr 787,500.Therefore, assuming that the total land lease cost will be paid in advance, the total cost for land holding, building and civil works is estimated at Birr 6,187,500.

3. Proposed Location

The envisaged plant is proposed to be located at where there is labour, infrastructure and raw material necessary for the smooth running of the plant. Accordingly, Assosa town is recommended to be the location of the envisaged plant.

VI. MANPOWER AND TRAINING REQUIREMENT

A. MANPOWER REQUIREMENT

The manpower requirement of the plant will be 197 persons. Table 6.1 shows the details of manpower requirement of the plant and estimated annual labour cost including fringe benefits.

Table 6.1

MANPOWER REQUIREMENT AND ESTIMATED ANNUAL LABOUR COST

Sr. No.	Description	Req. No.	Salary in Birr	
			Monthly	Annual
1	Plant Manager	1	3000	36,000
2	Secretary	2	700	8400
3	Finance & Administration Manager	1	2500	30,000
4	Senior clerical Worker	1	600	7,200
5	Assistant clerical Worker	1	450	5,400
6	General Service	1	1500	18,000
7	Production and Technic Manager	1	2500	30,000
8	Production Head	1	2000	24,000
9	Technic Head	1	2000	24,000
10	Commercial Manager	1	2500	30,000
11	Purchaser	1	1500	18,000
12	Salesman	1	1500	18,000
13	Accountant	2	1500	36,000
14	Personnel	1	1500	18,000
15	Time-keeper	3	1350	16,200
16	Store-keeper	2	900	10,800
17	Veterinary Doctor	1	2500	30,000
18	Food Technologist	1	2000	24,000
19	General Mechanic	3	2400	28,800
20	Assistant Mechanic	3	1800	22,600
21	Electrician	3	2400	28,800
22	Operators	150	67,500	810,000
23	Driver	6	2750	33,000
24	Guard	6	1800	21,600
25	Cleaner	3	450	5,400
	Sub-total	**197**		**1,324,200**
	Employees benefit			331,050
	25% of basic salary			
	Grand Total	**197**		**1,655,250**

B. TRAINING REQUIREMENT

It is suggested, to train production and technical manager, production and technical head, mechanics, electricians and operators on-the-job training at the actual site on the actual working condition by competent expert of the machinery & technology supplier for about two weeks during erection & commissioning period. The training cost is estimated to be Birr 100,000.

VII. FINANCIAL ANALYSIS

The financial analysis of the canned meat project is based on the data presented in the previous chapters and the following assumptions:-

Construction period	2 years
Source of finance	30 % equity
	70 % loan
Tax holidays	6 years
Bank interest	10.5%
Discounted cash flow	10.5%
Repair and maintenance	5 % of the total plant and machinery
Accounts receivable	30 days
Raw material, local	
• Cattle	15 days
• Others	60 days
Raw material import	90 days
Work in progress	2 days
Finished products	15 days
Cash in hand	5 days
Accounts payable	30 days

A. TOTAL INITIAL INVESTMENT COST

The total initial investment cost of the project including working capital is estimated at Birr 30.92 million, of which 38% will be required in foreign currency. The major breakdown of the total initial investment cost is shown in Table 7.1.

Table 7.1

INITIAL INVESTMENT COST ('000 BIRR)

Sr. No.	Cost Items	Foreign Currency	Local Currency	Total
1	Land	-	787.50	787.50
2.	Building and Civil Work	-	5,400.00	5,400.00
3.	Plant Machinery and Equipment	8,500.00	4,500.00	13,000.00
4.	Office Furniture and Equipment	-	250.00	250.00
5.	Vehicle	-	750.00	750.00
6.	Pre-production Expenditure*	-	3200.72	3200.72
	Total Investment cost	**8,500.00**	**15,388.32**	**23,888.22**
7	Working Capital	-	7,032.91	7,032.91
Grand Total		**8,500.00**	**22,421.13**	**30,921.13**

B. PRODUCTION COST

The annual production cost at full operation capacity of the plant is estimated at Birr 31.66 million (see Table 7.2). The material and utility cost accounts for 83% while repair and maintenance take 1.5 per cent of the production cost.

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* *Pre-production expenditure include interest during construction (Birr 3.2 million), training (Birr 100,000), and costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.*

Table 7.2

ANNUAL PRODUCTION COST ('000 BIRR)

Items	Year			
	3	**4**	**7**	**10**
Raw Material and Inputs	16,979.26	19,239.16	22,644	22,644
Labour direct	596	675	795	795
Utilities	2,761	3,128	3,681	3,681
Maintenance and repair	375	425	500	500
Labour overheads	248	281	331	331
Administration Cost	397	450	530	530
Total Operating Costs	**21,355.84**	**24,198.26**	**28,488.37**	**28,488.37**
Depreciation	1,856	1,856	1,856	1,606
Cost of Finance	1,857	1,743	1,325	761
Total Production Cost	**25,068.7**	**27,797.39**	**31,661.87**	**30,847.90**

C. FINANCIAL EVALUATION

1. Profitability

According to the projected income statement, the project will start generating profit in the first year of operation. Important ratios such as profit to total sales, net profit to equity (Return on equity) and net profit plus interest on total investment (return on total investment) show an increasing trend during the life-time of the project. The income statement and the other indicators of profitability show that the project is viable.

2. Break-even Analysis

The break-even point of the project is estimated by using income statement projection.

$$BE = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable cost}} = 17\%$$

3. Pay-Back Period

The investment cost and income statement projection are used to project the pay-back period. The project's initial investment will be fully recovered within 5 years time.

4. Internal Rate of Return and Net Present Value

Based on the cash flow statement, the calculated IRR of the project is 28% and the net present value at 10.5% discount rate is Birr 34.34 million.

D. ECONOMIC BENEFITS

The project can create employment for 197 persons. In addition to supply of the domestic needs, the project will generate Birr 29.64 million in terms of tax revenue. Moreover, the Regional Government can collect employment, income tax and sales tax revenue. The establishment of such factory will have a foreign exchange earning effect to the country by exporting its product.