113. PROFILE ON TABLE SALT

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I. SUMMARY

This profile envisages the establishment of a plant for the production of table slat with a capacity of 30,000 tonnes per annum.

The present demand for the proposed product is estimated at 281,514 tonnes per annum. The demand is expected to reach at 413,412 tonnes by the year 2020.

The plant will create employment opportunities for 34 persons.

The total investment requirement is estimated at about Birr 14.56 million, out of which Birr 2.5 million is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 30 % and a net present value (NPV) of Birr 16.49 million discounted at 8.5%.

II. PRODUCT DESCRIPTION AND APPLICATION

Table salt is a white crystalline powder salt fortified by Iodine.
Salt has become the most accepted food for iodine fortification because it is one of the few commodities that are almost universally consumed by all sections of a community and at approximately the same level throughout the year, irrespective of economic level.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

Salt (sodium chloride) is essential to the health of human beings. The country's requirement of salt has been met both from local production and import. Import of table salt is shown in Table 3.1.

Table 3.1

IMPORT OF TABLE SALT (TONNES)

Year	Import (Tonnes)
2000	67,289
2001	149,642
2002	174,107
2003	296,044
2004	57,629
2005	73,174
2006	10,043

Source:- *Ethiopian Customs Authority.*

Table 3.1 reveals that import of table salt fluctuates from year to year. Local supply of salt comes mainly from a place called Afdera which is found in the Afar Regional state. Other traditional producers or local suppliers include cooperatives found in Somali and Oromiya Regional States. However, the locally produced salt does not have the required iodine content. As a result a disease of the thyroid gland commonly called goiter is wide spread in most parts of the country. The major means of mitigating this problem is to establish a number of plants that can iodized the locally produced salt from the above sources.

As mentioned above the demand for table salt is related with human consumption Hence, the estimation of present demand for iodized salt is related with population size. Based on the Ethiopian Nutrients Institute (ENI) , the consumption of salt per capita is 10 grams per day or 3.65 kg per year.

Accordingly the current demand for the product is thus, computed taking the latest (2007) population size. The present demand estimated based on per capita consumption is shown in Table 3.2.

Table 3.2

TOTAL TABLE SALT CONSUMPTION (2007)

	Population size	Table salt Consumption	
		Per person (Kg)	Total (Tones)
SNNPRS	**15,321,000**	**3.65**	**55,921**
County Level	**77,127,000**	**3.65**	**281,514**

As can be seen from Table 3.2 the total country level consumption for table salt is estimated at 281,514 tones of which the share of SNNPRS is 55,921 tones.

2. Projected Demand

Table Salt consumption is directly related with population growth. Based on this fact population growth rate which is about 3 % is used to project the future demand for iodized salt by taking the current effective demand as a base. The projected demand up to the year 2020 is shown in Table 3.2.

Table 3.2

PROJECTED DEMAND FOR TABLE SALT (TONNES)

Year	Projected Demand
2008	289,959
2009	298,658
2010	307,617
2011	316,846
2012	326,351
2013	336,142
2014	346,226
2015	356,613
2016	367,311
2017	378,331
2018	389,681
2019	401,371
2020	413,412

3. Pricing and Distribution

The ex-factory price of iodized salt have been set at Birr 1,700 per ton by considering the current price of un iodized salt as well as similar product in the market.

The plant can use the existing whole sellers of salt for distributing its product throughout the country.

B. PLANT CAPACITY AND PRODUCTION PROGRAMME

1. Plant Capacity

According to the market study, the demand of table salt in the year 2008 will be 289,959 tones, whereas this demand will grow to 413,412 by the year 2020. Taking only about 10% of the demand of the year 2008, the envisaged plant will have an annual production capacity of 30,000 tones of table will be installed. Production capacity is based on a schedule of 300 working days per annum and 8 shifts of eight hours per day.

2. Production Programme

The plant under consideration is assumed to operate in a single shift of 8 hrs a day for 300 days a year. It is also planned that the plant will operate at 85% and 100% capacity in the first and second year, respectively considering the problem of market penetration and skill development of production.

IV. MATERIALS AND INPUTS

A. RAW MATERIALS

The major raw material for the production of table salt is common salt and iodine common salt can be obtained from Afar and iodine will be imported. The plant also needs packing materials

as auxiliary input. The list annual requirement and cost of raw materials is depicted in Table 4.1 below. The total annual cost of raw materials is estimated at Birr 45,657,000.

Table 4.1

ANNUAL RAW MATERIAL REQUIREMENT

Sr. No.	Description	Qty	Cost ('000 Birr)		
			LC	FC	Total
1.	Raw salt (tonnes)	30,597	30,597	-	30,597
2.	Iodine (tonnes)	3	-	60	60
3.	Packing material (plastic bag + card box)	60 million	15,000	-	15,000
	Total		**45,597**	**60**	**45,657**

B. UTILITIES

Electricity is the major utility required as it is used as power source for heavy duty crushing machines installed in the plant. The estimated annual consumption is 150,000 kWh. Water is also required for general purpose in the plant. Its annual consumption is estimated to be 600 m^3. The annual total cost of electricity and water is estimated at about Birr 71,040 and Birr 1,860 respectively. The total cost of utilities is estimated at Birr 72,900.

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

Common salt or sodium chloride (Nacl) is specially produced for human consumption. The iodine content present in each kilogram of salt is around 70-100 mg, which is adequate to prevent the formulation of goiter in the neck.

The production of table salt is very simple because it involves few simple unit operations i.e. crushing and mixing.

Usually in iodized salt production, raw salt either in rock or in evaporated brine salt form are put in a crusher to reduce the size of the crystals to the required standard or then stored in an intermediate silo or container. From there it is gradually fed to the mixer, where iodine a specified amount of iodine is dozed. After the iodine is thoroughly mixed with powder salt for some time in the mixer packing machine where is packed in half kilogram package of plastic bag and card box.

B. ENGINEERING

1. Machinery and Equipment

The list of machinery for the production of 30,000 tones of table salt is shown in the Table 5.1. The total cost of machinery and equipment is estimated at Birr 2.5 million.

Table 5.1

REQUIRED MACHINERY AND EQUIPMENT

Sr. No.	Description	Qty
1.	Silos (stainless steel)	2
2.	Crushers (Roller/ball)	2
3.	Mixers	2
4.	Packing m/c	1

2. Source of Technology

The following machinery suppliers can be contacted for the supply of iodized salt processing machineries and equipment.

1. ENDECO S.P.A .
   Prato Oella Valle 81 - Padova
   Tel. +39049655433
   Fax +39049655697
2. Sunita impex Pvt. Ltd
   36A Bentinck Street, 1st floor,
   Kolkala 700 069, India
   Tel. 2248 1986 /87, 22430102
   Fax. 91-33 2248 3664
   E-mail: kolkata: Admin@sunitaimpex.com

2. Land, Building and Civil Works

The plant requires a total of 1500 m^2 area of land out of which 1,000 m^2 is built-up area which includes Processing area, raw material stock area, offices etc. Assuming construction rate of Birr 1500 per m^2, the total cost of construction is estimated to be Birr 1.5 million. The total cost, for a period of 80 years with cost of Birr 1 per m^2, is estimated at Birr 1,500. The total investment cost for land, building and civil works is estimated at Birr 1,501,500.

3. Proposed Location

According to the resource potential study of the region, the raw material is identified in Hamer woreda. Based on the availability of raw material infrastructure, utility and market out let Dimeka town of Hamer woreda is selected and recommended to be the location of the envisaged plant

VI. MANPOWER AND TRAINING REQUIREMENT

A. MANPOWER REQUIREMENT

The total manpower requirement of the envisaged plant is about 34 persons. Details of manpower required and annual labour cost are indicated in the Table 6.1.

Table 6.1

ANNUAL MANPOWER REQUIREMENT AND LABOUR COST ('000 BIRR)

Sr. No.	Description	Req. No.	Salary	
			Monthly	Annually
1.	Manager	1	1800	21,600
2.	Secretary	1	600	7,200
3.	Administrative Staff	4	2400	28,800
4.	Commercial Staff	5	3000	36,000
5.	Production Technologist	1	1300	15,600
6.	Technicians	2	800	9,600
7.	Skilled Workers	5	2000	24,000
8.	Unskilled Workers	15	250	45,000
	Sub Total	34		187,200
	Benefits 25%			46,800
	Total			**234,000**

B. TRAINING REQUIREMENT

As stated above, the technological process is so simple that it doesn't require special skill. Thus, no training is required.

VII. FINANCIAL ANALYSIS

The financial analysis of the table salt 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	8%
Discount cash flow	8.5%
Accounts receivable	30 days
Raw material local	30 days
Work in progress	5 days
Finished products	30 days
Cash in hand	5 days
Accounts payable	30 days

A. TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated at Birr 14.56 million, of which 53 per cent 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

Sr. No.	Cost Items	Total Cost ('000 Birr)
1	Land lease value	120.0
2	Building and Civil Work	1,500.0
3	Plant Machinery and Equipment	2,500.0
4	Office Furniture and Equipment	100.0
5	Vehicle	250.0
6	Pre-production Expenditure*	440.9
7	Working Capital	9,650.9
	Total Investment cost	**14,561.8**
	Foreign Share	53

** N.B Pre-production expenditure includes interest during construction (Birr 209.91 thousand) and Birr 150 thousand costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc*.

B. PRODUCTION COST

The annual production cost at full operation capacity is estimated at Birr 47.15 million (see Table 7.2). The material and utility cost accounts for 96.98 per cent, while repair and maintenance take 0.24 per cent of the production cost.

Table 7.2

ANNUAL PRODUCTION COST AT FULL CAPACITY ('000 BIRR)

Items	Cost	%
Raw Material and Inputs	45,657.00	96.82
Utilities	72.9	0.15
Maintenance and repair	113.65	0.24
Labour direct	112.32	0.24
Factory overheads	37.44	0.08
Administration Costs	74.88	0.16
Total Operating Costs	46,068.19	97.70
Depreciation	421	0.89
Cost of Finance	665.76	1.41
Total Production Cost	**47,154.95**	**100**

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 including cost of finance when it starts to operate at full capacity (year 3) is estimated by using income statement projection.

$$BE = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 21\ \%$$

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 4 years.

4. Internal Rate of Return and Net Present Value

Based on the cash flow statement, the calculated IRR of the project is 30 % and the net present value at 8.5% discount rate is Birr 16.49 million.

D. ECONOMIC BENEFITS

The project can create employment for 34 persons. In addition to supply of the domestic needs, the project will generate Birr 8.51 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.