

65. LAUNDRY SOAP

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I. SUMMARY

This profile envisages the establishment of a plant for the production of Laundry Soap with a capacity of 3,600 tonnes per annum.

The present demand for the proposed product is estimated at 29,520 tonnes per annum. The demand is expected to reach at 37,352 tonnes by the year 2010.

The plant will create employment opportunities for 64 persons.

The total investment requirement is estimated at Birr 18.3 million, out of which Birr 2.0 million is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 16.85% and a net present value (NPV) of Birr 8.5 million, discounted at 8.5 %.

II. PRODUCT DESCRIPTION AND APPLICATION

Laundry Soap is a cleansing agent or detergent, made from animal and vegetable fats, oils and greases; chemically, the sodium salt of a fatty acid, formed by the interaction of fats and oils with alkali.

Most soaps remove grease and other dirt because some of their components are surface active agents, or surfactants. Surfactants have a molecular structure that acts as a link between water and the dirt particles, loosening the particles from the underlying fibers or other surfaces to be cleaned. It is used for laundry and household cleaning.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

Laundry soap, which is used for cleaning clothes as well as household utensils, is a necessity in urban households. The demand for the product is, therefore, mainly associated with urbanization. The country's requirement for laundry soap has been met through domestic production and import. Table 3.1 shows the supply of the product from domestic production and imports during 1989-2002. During the period under reference, total supply averaged at 64,293 tonnes, of which 12,301 tonnes constituted domestic production and the remaining 14,992 tonnes is met from imports. Thus, on the average, domestic production accounted for 44 per cent of the country's requirement for laundry soap, indicating much of the demand for the product (56%) is still met through imports.

Table 3.1
SUPPLY OF LAUNDRY SOAP (TONNES)

Year	Domestic Production	Import	Total Supply	Market Share (%)	
				Domestic Production	Imports
1989	9529	15661	25190	37.8	62.2
1990	7743	14706	22449	34.5	65.5
1991	3729	12537	16266	22.9	77.1
1992	4947	19592	24539	20.2	79.8
1993	15546	8856	24402	63.7	36.3
1994	13495	14149	64644	48.8	51.2
1995	13641	7838	21479	63.5	36.5
1996	16547	15229	31776	52.1	47.9
1997	12908	13766	26674	48.4	51.6
1998	9787	12910	22697	43.1	56.9
1999	13135	17504	30639	42.9	57.1
2000	17194	14200	31394	54.8	45.2
2001	14766	19792	34558	42.7	57.3
2002	19249	23147	42396	45.4	54.6
Average	12301	14992	64293	44	56

*Sources: Customs Authority, External Trade Statistics, various years
CSA, Statistical Abstract, 1990 - 2002.*

Assuming supply was driven by demand, the average annual supply of laundry soap for the period under reference, which constitutes domestic production and imports, is considered as the effective demand for the product for the year 2002. Since the consumption of laundry soap is associated with the growth of urban population, the demand for the product is assumed to grow by 4% that corresponds to the annual growth rate of the urban population. The demand for laundry soap for the year 2004 is, thus, estimated at 29,520 tonnes.

2. Projected Demand

The demand for laundry soap is projected based on the 4% annual growth rate of the urban population which is the major user of the product. The existing soap factories in the country, on the average, cover 44 per cent of the supply of the product. Assuming the factories will maintain their market share of the projected demand, the market share of the envisaged plant is shown in Table 3.2.

Table 3.2**PROJECTED DEMAND FOR LAUNDRY SOAP (TONNES)**

Year	Projected Demand	Market Share	
		Existing Factories	Unsatisfied Demand
2005	30701.0	13508.4	17192.6
2006	31929.0	14048.8	17880.3
2007	33206.2	14610.7	18595.5
2008	34534.4	15195.2	19339.3
2009	35915.8	15803.0	20112.9
2010	37352.5	16435.1	20917.4
2011	38846.6	17092.5	21754.1
2012	40400.4	17776.2	22624.2
2013	42016.4	18487.2	23529.2
2014	43697.1	19226.7	24470.4
2015	45445.0	19995.8	25449.2
2016	47262.8	20795.6	26467.2
2017	49153.3	21664.4	64525.8
2018	51119.4	22492.5	28626.9
2019	53164.2	23392.2	29771.9
2020	55290.8	24364.9	30962.8
2021	57502.4	25301.0	32201.3
2022	59802.5	26313.1	33489.4
2023	62194.6	64365.6	34829.0
2024	64682.4	28460.2	36222.1
2025	67269.7	29598.6	37671.0

3. Pricing and Distribution

Currently, the retail price of domestically produced laundry soaps ranges from Birr 2.00 to Birr 3.00 per 240 gm. Considering the minimum market price of Birr 2.00 per 240 gm and allowing 40 per cent for wholesale and retail margin, the envisaged plant is expected to sell its product at Birr 1.43 per 240 gm.

The product can get its market outlet through the existing wholesale and retail network that includes department stores, merchandise shops and supermarkets.

B. PLANT CAPACITY AND PRODUCTION PROGRAMME

1. Plan Capacity

Based on the projected demand indicated on the market study, minimum economies of scale & availability of raw materials, the envisaged plant is proposed to produce 3,600 tonnes of laundry soap per annum, working 300 days in a year, under three shift system of 8 hours each.

2. Production Programme

The plant is expected to start operation at 70% of the installed capacity with 10% progressive growth each year reaching full capacity in the fourth year and thereafter by considering the problem in market penetration and skill development.

IV. RAW MATERIALS AND INPUTS

A. RAW MATERIALS

The raw materials required for the manufacture of laundry soap are: fat or oils (blended or alone), caustic soda, sodium chloride, fillers like sodium silicate, talc, soda ash, etc. to impart good quality and lower the cost of additives like colourants, perfume. Most of the raw materials are locally available and only some are imported. The annual requirement and their respective cost when the plant operates at full capacity is depicted on Table 4.1 below.

Table 4.1

ANNUAL RAW MATERIALS REQUIREMENT AND COST

Sr. No.	Description	Qty.	Cost ('000)		
			FC	LC	TC
1	Fat or oil (hollow, palm or coconut)	3078 tonnes	7387.20	1846.8	9234
2	Caustic soda	506 tonnes	-	3036	3036
3	Salt	450 tonnes	-	675	675
4	Fillers	180 tonnes	-	360	360
5	Additives (coconut, perfume)	18 tonnes	144	36	180
	Grand Total		7531.20	5953.50	13455

The plant also needs packing materials like carton and scotch. The annual cost of packing materials is estimated to be Birr 800,000. Therefore, the total cost of raw materials and inputs is estimated at Birr 14.285 million.

B. UTILITIES

The utilities required by the plant are electricity, water and fuel oil. Approximately 720,000 kWh of electricity, 150,000 m³ water and 783 m³ of fuel oil will be consumed annually for the smooth running of the plant. The total cost of utilities is estimated to be Birr 2,598,780.

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

Fat - oil mixture is melted in the pan or soap kettle to which correctly weighed quantity of caustic soda lye is added gradually. The temperature is kept at 95-105°C. The whole mass is continuously stirred until the mixture thickens to consistency of trade. When the saponification process is over, a concentrated salt solution (or grain salt) is added to separate the lye.

The following process will be drying. Vacuum spray drying is used to convert the neat soap into dry soap pellets. The moisture content of the pellets will vary depending on the desired properties of the soap bar.

In the final processing step, the dry soap pellets pass through a bar soap finishing line. The first unit in the line is a mixer called amalgamator or crutcher in which the soap pellets are blended together with fragrance, colourants and fillers. The mixture is then homogenized and refined through rolling mills and refining plodders to achieve thorough blending and a uniform texture. Finally, the mixture is continuously extruded from the plodder, cut into bar - size units and stamped into its final shape in a soap press.

2. Source of Technology

The machinery and equipment required for the laundry soap plant can be obtained from the following company.

1. Noor Tech And feb (p)
Phone 91-0751-2328043
Fax 91-0751-2328043
Country Inida
Tansen road Industrial Area Gwalior
2. SaS Mariani
E mail: Contact us
Phone: 39362-239988
Country Italy
Address via Toscanini 46

3. Eskay International
 Phone: 91-281-2466782
 Fax 91-281-2463846
 India
 Tagore street, Tagore Road Rajkot

B. ENGINEERING

1. Machinery and Equipment

The machinery and equipment required by the envisaged plant is shown in Table 5.1 in detail. The total cost of machinery and equipment having a capacity of producing 3,600 tonnes of laundry soap is estimated at Birr 12 million. The plant needs two trucks and one pick up for transportation of finished product and raw materials as well as for office work. The total cost of vehicle is estimated at Birr 550,000.

Table 5.1
LIST OF MACHINERY AND EQUIPMENT

Sr. No.	Description	Qty.
1	Steam coiled vessel for melting fat or oil	1
2	Saponification kettle or pan	2
3	Vacuum dryer	1
4	Amalgamator / mixer/ crutcher	1
5	Pump	4
6	Milling machine (Tripple roll mill)	1
7	Plodder	1
8	Cutting machine	1
9	Stamping machine	1
10	Boiler	1

2. Land, Building and Civil Works

The total required area of land for the envisaged plant is about 3,000 m², out of which 1,500 m² is built-up area. The total land lease value at a rate of Birr 1.5 per m² and for 70 years of holding, is estimated to be Birr 315,000. The total construction cost, at a rate of Birr 1200 per m², is estimated to be Birr 1,800,000. Therefore, the total cost of land, building and civil works assuming that the total land lease cost will be paid in advance is approximately Birr 2,115,000.

3. Proposed Location

The plant is best located in an area where there is sufficient supply of raw material, water, electricity and near by the market center. The envisaged plant is proposed to be located at Assosa.

VI. MANPOWER AND TRAINING REQUIREMENT

A. MANPOWER REQUIREMENT

A total of 64 employees is required to run the laundry soap producing plant with the envisaged capacity. The detailed manpower required and their monthly salary is depicted on Table 6.1, below. The total cost of manpower including fringe benefits is estimated to be Birr 664,750.

Table 6.1

MANPOWER REQUIREMENT AND ANNUAL LABOUR COST (BIRR)

Sr. No.	Description	Req. No.	Monthly Salary	Annual Salary
1	General manager	1	2500	30,000
2	Executive secretary	1	750	9,000
3	Production and Technic manager	1	2000	24,000
4	Chemist	3	900	32,400
5	Administrative and finance manager	1	1800	21,600
6	Commercial manager	1	1800	21,600
7	Supervisor	3	800	28,800
8	Skilled operators	12	600	86,400
9	Unskilled workers	15	450	81,000
10	Personnel	1	900	10,800
11	Time keeper	3	450	16,200
12	Accountant	2	900	21,600
13	Cashier	1	500	6,000
14	Purchaser	1	900	10,800
15	Sales person	1	900	10,800
16	Store keeper	2	500	12,000
17	Mechanic	3	600	21,600
18	Electrician	3	600	21,600
19	Driver	3	400	14,400
20	Guard	6	300	21,600
	Sub-total	64		502,200
	Employees benefit (25% of sub total)			125,550
	Grand Total			627,750

B. TRAINING REQUIREMENT

Since the machinery and equipment are easy to operate, a special training arrangement is not needed. But operators, chemists, mechanics & electricians need a two weeks training during erection, commissioning period on the production process, raw material and product quality and operation and maintenance of machinery and equipment by the expert of machinery supplier. The total cost of training is estimated to be Birr 20,000.

VII. FINANCIAL ANALYSIS

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

Construction period	1 years
Source of finance	30 % equity
	70 % loan
Tax holidays	3 years
Bank interest	7.5 %
Discounted cashflow	8.5 %
Repair and maintenance	3 % of the total plant and machinery
Accounts receivable	30 days
Raw material, local	30 days
Raw materials, import	90 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 initial investment cost of the project including working capital is estimated at 18.3 million, of which 75.9 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 ('000 BIRR)
1	Land lease value	315
2.	Building and Civil Work	1,800
3.	Plant Machinery and Equipment	12,000
4.	Office Furniture and Equipment	60
5.	Vehicle	550
6.	Pre-production Expenditure*	995.2
7	Working Capital	2,574.8
	Total Investment cost	18,295.0
	Foreign share	75.9%

B. PRODUCTION COST

The annual production cost at full operation capacity of the plant is estimated at Birr 19 million (see Table 7.2). The material and utility cost accounts for 84.4 percent, while depreciation and financial cost take 12 per cent of the production cost.

Table 7.2
ANNUAL PRODUCTION COST AT FULL CAPACITY ('000 BIRR)

Items	Cost	%
Raw Material and Inputs	13,485	70.8
Utilities	2,598.8	13.6
Maintenance and repair	64.4	0.1
Labour direct	502.2	2.6
Factory overheads	125.5	0.7
Administration Cost	30.0	0.2
Total Operating Costs	16,768.9	88.0
Depreciation	1,464	7.5
Cost of Finance	851.3	4.5
Total Production Cost	19,047	100.0

* N.B Pre-production expenditure includes interest during construction (Birr 970.2 thousand), training (Birr 20 thousand), and (Birr 5 thousand) costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.

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 lifetime 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 4) is estimated by using income statement projection.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable cost}} = 49.4 \%$$

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 6 years.

4. Internal Rate of Return and Net Present Value

Based on the cash flow statement, the calculated IRR of the project is 16.85 % and the net present value at 8.5% discount rate is Birr 8.5 million.

D. ECONOMIC BENEFITS

The project can create employment for 64 persons. In addition to supply of the domestic needs, the project will generate Birr 0.7 million per annum in terms of tax revenue when it starts to operate at full capacity. Moreover, the Regional Government can collect employment, income tax and sales tax revenue. The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports.