

**175. PROFILE ON THE PRODUCTION OF
KEROSENE STOVE**

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I. SUMMARY

This profile envisages the establishment of a plant for the production of kerosene stove with a capacity of 90,000 units per annum. Kerosene stove is a product that is used to generate heat by burning kerosene fuel.

The demand for kerosene stove is met entirely through import. The present (2012) demand for kerosene stove is estimated at 152,945 pieces. The demand for kerosene stove is projected to reach 186,081 pieces and 226,396 pieces by the year 2017 and 2022, respectively.

The principal raw materials required are various sizes of M.S sheet metal and paint which have to be imported.

The total investment cost of the project including working capital is estimated at Birr 8.46 million. From the total investment cost the highest share (Birr 5.55 million or 65.60%) is accounted by fixed investment cost followed by initial working capital (Birr 1.90 million or 22.49%) and pre operation cost (Birr 1.0 million or 11.91%). From the total investment cost Birr 2.86 million or 33.79% is required in foreign currency.

The project is financially viable with an internal rate of return (IRR) of 34.44% and a net present value (NPV) of Birr 15 million discounted at 10%.

The project can create employment for 22 persons. The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports and also generates income for the Government in terms of tax revenue and payroll tax.

II. PRODUCT DESCRIPTIONS AND APPLICATIONS

Kerosene stove is a product that is used to generate heat by burning kerosene fuel. The stove is made of metal sheet that has a chamber to store the fuel kerosene. At the top of the stove a flame is formed from the slowly volatilizing kerosene fuel. The material to be heated is placed on the top of the stove at the tip of the produced flame. The flame temperature is controlled by adjusting the length of the wicks. The stove is a suitable source of heat energy for domestic cooking purposes.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

The country's requirement for kerosene stove is met through imports. Table 3.1 shows the quantity of kerosene stove annually imported during 2002-2011. As can be seen from the Table, imports of the product exhibited fluctuate from year to year. Import ranges from 88,389 pieces during 2005 to 273,553 pieces during 2002.

Table 3.1
IMPORTS OF KEROSENE STOVE (PIECES)

Year	Quantity
2002	273,553
2003	157,750
2004	151,610
2005	88,389
2006	177,933
2007	141,765
2008	170,494
2009	155,958
2010	145,544
2011	157,332

Source: Ethiopian Revenue and Customs Authority.

Assuming supply was driven by demand, the average annual supply of kerosene stove during the recent three years (2009-2011) is considered as the present effective demand for the product. Accordingly, the present (2012) demand for kerosene stove is estimated at 152,945 pieces.

2. Projected Demand

The demand for kerosene stove is mainly associated with the urban population. Hence, a 4% rate of growth which corresponds to the rate of urbanization in the country is applied in projecting the demand for the product. Table 3.2 depicts the projected demand for the products.

Table 3.2
PROJECTED DEMAND FOR KEROSENE STOVE (PIECES)

Year	Projected Demand
2013	159,063
2014	165,425
2015	172,042
2016	178,924
2017	186,081
2018	193,524
2019	201,265
2020	209,316
2021	217,688
2022	226,396
2023	235,452
2024	244,870
2025	254,664

3. Pricing and Distribution

The current retail price of kerosene stove ranges from Birr 250 to Birr 600. Accordingly, the recommended the factory gate price for the envisaged plant is Birr 300. The envisaged plant can distribute its products through the existing wholesale and retail network, which includes department stores, merchandise shops and supermarkets.

B. PLANT CAPACITY AND PRODUCTION PROGRAM

1. Plant Capacity

By considering the market demand and minimum economies of scale a plant that can produce 90,000 units of kerosene stove per annum on a single shift is selected.

2. Production Program

Developing the skill required to manufacture kerosene stove and penetrating the market will take some time. Considering the time required for skill development and market penetration the plant is assumed to operate at 75% of its installed capacity in the first year of operation. It will gradually increase to 85% during the second year of operation. Full capacity utilization (100%) will be achieved in the third year and then after (see Table 3.3).

Table 3.3

ANNUAL PRODUCTION PROGRAM

	Year 1	Year 2	Year 3-10
Annual Production	67,500	76,500	90,000
Capacity %	75	85	100

IV. RAW MATERIAL AND INPUTS

A. RAW AND AUXILIARY MATERIALS

The major raw materials required for the manufacture of kerosene stove are various sizes of M.S sheet metal and paint. The source of the raw materials will be import. Annual cost of raw materials is Birr 7.9 million. Details of required raw material requirement and corresponding cost at full capacity production are shown in Table 4.1.

Table 4.1
RAW MATERIAL REQUIREMENT AND COST

No	Raw Materials	Description	Annual Input (Ton)	Cost (,000 Birr)		Cost (,000Birr)
				F.C	L.C	Total
1	M.S sheet metal	0.6mm	250	3,238	809.38	4,046.88
2	M.S sheet metal	0.8mm	200	2956	739.00	3,695.00
3	Paints		8		160	160.00
	Total			6,194	1,708	7,902.88

B UTILITIES

Utilities required by the plant are electricity and water. Annual cost of utilities at full capacity operation is Birr 54,240. For details see Table 4.2.

Table 4.2
ANNUAL UTILITIES REQUIREMENTS AND COST

No	Utility	Unit	Quantity	Cost(Birr)
1	Electricity	kWh	72,000	41,740
2	Water	Meter cube	1,250	12,500
	Total			54,240

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Process Description

The various parts of the stove is made from fabrication of sheet metal The sheet metal is first cut into sizes and then fed to the double action press to form the stove kerosene container. Each of the parts undergoes fabrication on the drilling, pressing welding and formation. Each of the

fabricated part is assembled for the final stove product. The assembled parts are spray painted and stove drying is carried out. Finally, the item is tested, labeled and packed.

2. Environmental Impact

The plant does not have any negative impact on the environment, since the process involves cutting, punching and bending of sheet metals.

B. ENGINEERING

1. Machinery and Equipment

The total cost of plant machinery and equipment is estimated at Birr 3.48 million out of which Birr 2.86 million will be required in foreign currency. The list of machinery and equipment required for the plant is given in Table 5.1.

Table 5.1
LIST OF MACHINERY AND EQUIPMENT

Sr. No.	Machine	Description	Qty.
1	Guillotine shearing Machine	Cap 2mm/1500mm	1
2	Threadle sheering Machine	Cap2mm/1500mm	1
3	Circle cutting machine.(manual)	Cap 2mm/	2
4	Sheet metal Roller(manual)	Cap4mm	2
5	Seaming machine (manual)	Cap2mm	2
6	Beading machine(manual)	Cap 2mm	2
7	Double action Deep drawing Mechanical Press	Cap 80 Ton	1
8	Mechanical press	Cap 65 Ton	1
9	Mechanical press.	Cap30 T0n	1
10	Perforating press	Cap 30 Ton	1

Sr.	Machine	Description	Qty.
11	Fly wheel press	Cap 10 Ton	1
12	Spot Welding machine	30 kva	2
13	Arc welding machine	10 kva	2
14	Gas welding machine		2set
16	Pedestal Grinding Machine		1
17	Pillar Drilling Machine	20mm	1
18	Portable Electric drill	12mm	1
19	Tool Sets		1set
20	Material Handling Equipment		1set
21	Laboratory Equipments		1set
22	Paint/dryer stove/compressor		1set
23	Dies and Jigs	1 set	1set

2. Land, Building and Civil Works

The entire space requirement of the plant is 800 meter square. Total built-up area of the land is suggested to be 200 square meters. Total cost of building at the rate of Birr 4500/sq. meter amounts to Birr 900,000.

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 5,000 m², 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 m², 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 m². 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 m². 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 m² (see Table 5.2).

Table 5.2

NEW LAND LEASE FLOOR PRICE FOR PLOTS IN ADDIS ABABA

Zone	Level	Floor price/m²
Central Market District	1 st	1686
	2 nd	1535
	3 rd	1323
	4 th	1085
	5 th	894
Transitional zone	1 st	1035
	2 nd	935
	3 rd	809
	4 th	685
	5 th	555
Expansion zone	1 st	355
	2 nd	299
	3 rd	217
	4 th	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 m² 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 criteria 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 m² is estimated at Birr 212,800 of which 10% or Birr 21,280 will be paid in advance. The remaining Birr 191,520 will be paid in equal installments with in 28 years i.e. Birr 6,840 annually.

VI. HUMAN RESOURCE AND TRAINING REQUIREMENT.

A. HUMAN RESOURCE REQUIREMENT

The envisaged plant requires 22 workers of whom 13 workers are technical workers. The total yearly salary, including employees benefit, amounts to Birr 600,900. The details are shown in Table 6.1.

Table 6.1**LIST OF HUMAN RESOURCE REQUIREMENT AND LABOUR COST**

Sr. No.	Description	No.	Salary (Birr)	
			Monthly	Annual
A. ADMINISTRATION				
1	Plant Manager	1	5,000	60,000
2	Secretary	1	2,500	30,000
3	Accountant	1	2,500	30,000
4	Salesman/purchaser	1	2,500	30,000
5	Clerk	1	1,500	18,000
6	Cashier	1	2,000	24,000
7	General Service	3	800	28,800
SUB TOTAL		9		220,800
B. PRODUCTION				
8	Foreman/	1	2,500	30,000
9	Machinery Operators	5	2,000	120,000
10	Assistant Operators	2	1,500	36,000
11	Mechanics	2	2,000	48,000
12	Quality controller	1	1,500	18,000
13	Laborers	2	800	19,200
SUB TOTAL		13	-	271,200
TOTAL				
Employee's benefit (25% of basic salary)		-	-	123,000
GRAND TOTAL		22	-	615,000

B. TRAINING REQUIREMENT

On the job training of the operators would be enough for works with technical back ground. For the ten main technical workers an amount of Birr 10,000 would be required for initial start up and intermediate periodical training.

VII. FINANCIAL ANALYSIS

The financial analysis of the kerosene stove 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 imported	120 days
Work in progress	1 day
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 8.46 million (See Table 7.1). From the total investment cost the highest share (Birr 5.55 million or 65.60%) is accounted by fixed investment cost followed by initial working capital (Birr 1.90 million or 22.49%) and pre operation cost (Birr 1.0 million or 11.91%). From the total investment cost Birr 2.86 million or 33.79% 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	21.28		21.28	0.25
1.2	Building and civil work	900.00		900.00	10.64
1.3	Machinery and equipment	620.00	2,860.00	3,480.00	41.12
1.4	Vehicles	900.00		900.00	10.64
1.5	Office furniture and equipment	250.00		250.00	2.95
	Sub total	2,691.28	2,860.00	5,551.28	65.60
2	Pre operating cost *				
2.1	Pre operating cost	454.40		454.40	5.37
2.2	Interest during construction	553.60		553.60	6.54
	Sub total	1,008.00		1,008.00	11.91
3	Working capital **	1,902.94		1,902.94	22.49
	Grand Total	5,602.22	2,860.00	8,462.22	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 2.70 million. However, only the initial working capital of Birr 1.90 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 10.69 million (see Table 7.2). The cost of raw material account for 73.88% of the production cost. The other major components of the production cost are depreciation, direct labor and financial cost, which account for 9.61%, 4.60% and 4.27% respectively. The remaining 7.64% is the share of repair and maintenance, utility, labour overhead, cost of marketing and distribution 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 (000 Birr)	%
Raw Material and Inputs	7,902.00	73.88
Utilities	54.00	0.50
Maintenance and repair	104.00	0.97
Labour direct	492.00	4.60
Labour overheads	109.00	1.02
Administration Costs	200.00	1.87
Land lease cost	-	-
Cost of marketing and distribution	350.00	3.27
Total Operating Costs	9,211.00	86.12
Depreciation	1,027.88	9.61
Cost of Finance	456.72	4.27
Total Production Cost	10,695.60	100

C. FINANCIAL EVALUATION**1. Profitability**

Based on the projected profit and loss statement, the project will generate a profit through out its operation life. Annual net profit after tax will grow from Birr 1.86 million to Birr 2.95 million during the life of the project. Moreover, at the end of the project life the accumulated net cash flow amounts to Birr 29.14 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.

$$\text{Break Even Sales Value} = \frac{\text{Fixed Cost} + \text{Financial Cost}}{\text{Variable Margin ratio (\%)}} = \text{Birr } 4,009,782$$

$$\text{Break Even Capacity utilization} = \frac{\text{Break even Sales Value}}{\text{Sales revenue}} \times 100 = 30\%$$

4. Pay-back Period

The pay-back 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 2 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 34.44% 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 15 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 22 persons. The project will generate Birr 7.80 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 generate other income for the Government.

Appendix 7.A

FINANCIAL ANALYSES SUPPORTING TABLES

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	5,531	6,322	7,112	7,902	7,902	7,902	7,902	7,902	7,902	7,902
Utilities	38	43	49	54	54	54	54	54	54	54
Maintenance and repair	73	83	94	104	104	104	104	104	104	104
Labour direct	344	394	443	492	492	492	492	492	492	492
Labour overheads	76	87	98	109	109	109	109	109	109	109
Administration Costs	140	160	180	200	200	200	200	200	200	200
Land lease cost	0	0	0	0	7	7	7	7	7	7
Cost of marketing and distribution	350	350	350	350	350	350	350	350	350	350
Total Operating Costs	6,553	7,439	8,325	9,211	9,218	9,218	9,218	9,218	9,218	9,218
Depreciation	1,028	1,028	1,028	1,028	1,028	61	61	61	61	61
Cost of Finance	0	609	533	457	381	304	228	152	76	0
Total Production Cost	7,581	9,076	9,886	10,696	10,626	9,583	9,507	9,431	9,355	9,279

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	9,450	12,150	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500
Less variable costs	6,203	7,089	7,975	8,861	8,861	8,861	8,861	8,861	8,861	8,861
VARIABLE MARGIN	3,247	5,061	5,525	4,639	4,639	4,639	4,639	4,639	4,639	4,639
in % of sales revenue	34.36	41.66	40.93	34.36	34.36	34.36	34.36	34.36	34.36	34.36
Less fixed costs	1,378	1,378	1,378	1,378	1,385	418	418	418	418	418
OPERATIONAL MARGIN	1,869	3,683	4,147	3,261	3,254	4,221	4,221	4,221	4,221	4,221
in % of sales revenue	19.78	30.32	30.72	24.16	24.11	31.27	31.27	31.27	31.27	31.27
Financial costs		609	533	457	381	304	228	152	76	0
GROSS PROFIT	1,869	3,074	3,614	2,804	2,874	3,917	3,993	4,069	4,145	4,221
in % of sales revenue	19.78	25.30	26.77	20.77	21.29	29.01	29.58	30.14	30.70	31.27
Income (corporate) tax	0	0	0	841	862	1,175	1,198	1,221	1,244	1,266
NET PROFIT	1,869	3,074	3,614	1,963	2,012	2,742	2,795	2,848	2,902	2,955
in % of sales revenue	19.78	25.30	26.77	14.54	14.90	20.31	20.70	21.10	21.49	21.89

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	6,006	11,941	12,155	13,505	13,500	13,500	13,500	13,500	13,500	13,500	13,500	3,822
Inflow funds	6,006	2,491	5	5	0	0	0	0	0	0	0	0
Inflow operation	0	9,450	12,150	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	0
Other income	0	0	0	0	0	0	0	0	0	0	0	3,822
TOTAL CASH OUTFLOW	6,006	9,044	9,082	9,892	11,543	11,222	11,459	11,405	11,352	11,299	10,484	0
Increase in fixed assets	6,006	0	0	0	0	0	0	0	0	0	0	0
Increase in current assets	0	1,938	273	273	273	1	0	0	0	0	0	0
Operating costs	0	6,203	7,089	7,975	8,861	8,868	8,868	8,868	8,868	8,868	8,868	0
Marketing and Distribution cost	0	350	350	350	350	350	350	350	350	350	350	0
Income tax	0	0	0	0	841	862	1,175	1,198	1,221	1,244	1,266	0
Financial costs	0	554	609	533	457	381	304	228	152	76	0	0
Loan repayment	0	0	761	761	761	761	761	761	761	761	0	0
SURPLUS (DEFICIT)	0	2,897	3,073	3,613	1,957	2,278	2,041	2,095	2,148	2,201	3,016	3,822
CUMULATIVE CASH BALANCE	0	2,897	5,971	9,584	11,541	13,819	15,860	17,955	20,103	22,304	25,320	29,142

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	9,450	12,150	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	3,822
Inflow operation	0	9,450	12,150	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	0
Other income	0	0	0	0	0	0	0	0	0	0	0	3,822
TOTAL CASH OUTFLOW	7,909	6,820	7,706	8,593	10,053	10,080	10,393	10,416	10,439	10,461	10,484	0
Increase in fixed assets	6,006	0	0	0	0	0	0	0	0	0	0	0
Increase in net working capital	1,903	268	268	268	1	0	0	0	0	0	0	0
Operating costs	0	6,203	7,089	7,975	8,861	8,868	8,868	8,868	8,868	8,868	8,868	0
Marketing and Distribution cost	0	350	350	350	350	350	350	350	350	350	350	0
Income (corporate) tax		0	0	0	841	862	1,175	1,198	1,221	1,244	1,266	0
NET CASH FLOW	-7,909	2,630	4,444	4,907	3,447	3,420	3,107	3,084	3,061	3,039	3,016	3,822
CUMULATIVE NET CASH FLOW	-7,909	-5,279	-835	4,072	7,519	10,939	14,046	17,130	20,192	23,231	26,246	30,068
Net present value	-7,909	2,391	3,672	3,687	2,354	2,124	1,754	1,583	1,428	1,289	1,163	1,473
Cumulative net present value	-7,909	-5,518	-1,846	1,841	4,196	6,319	8,073	9,656	11,084	12,373	13,535	15,009

NET PRESENT VALUE 15,009
INTERNAL RATE OF RETURN 34.44%
NORMAL PAYBACK 2 years