

**85. PROFILE ON ENVELOPS , LABELS AND  
BADGES OF PAPER**

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## **I. SUMMARY**

This profile envisages the establishment of a plant for the production of paper envelopes and badges and labels with a capacity of 200 tonnes of envelopes and 300 tonnes of labels and badges per annum.

The major raw materials required are sheet paper of different qualities and glue which have to be imported.

The present demand for the proposed product is estimated at 288 tonnes for envelopes and 428 tonnes for labels and badges per annum. The demand is expected to reach at 567 tonnes for envelopes and 842 tonnes for labels and badges by the year 2018.

The total investment requirement is estimated at Birr 11.96 million, out of which Birr 5.50 million is required for plant and machinery. The plant will create employment opportunities for 27 persons.

The project is financially viable with an internal rate of return (IRR) of 13.40 % and a net present value (NPV) of Birr 1.61 million, discounted at 8.5%.

The establishment of such factory will have a foreign exchange saving effect to the country by substituting the current imports. It has also a forward linkage effect with the manufacturing sector.

## **II. PRODUCT DESCRIPTION AND APPLICATION**

Paper envelopes are stationery articles that are used to enfold letters (documents) in modern private, office, etc written communications. They are items of daily consumption in homes and offices.

Labels are pieces of paper attached to products to give instructions about it or identify it while badges are characteristic or identifying mark on a particular brand, quality or type of person. Labels may be required on products to provide warnings or to enable consumers compare similar products.

### III. MARKET STUDY AND PLANT CAPACITY

#### A. MARKET STUDY

##### 1. Past Supply and Present Demand

The demand for envelopes as well as labels and badges of paper are met from imports. Therefore, the data obtained on imports from the Ethiopian Customers Authority is presented in Table 3.1 to indicate the unsatisfied demand

**Table 3.1**  
**IMPORT OF ENVELOPES AND LABELS & BADGES OF PAPER(KG)**

Year	Envelopes of Paper	Labels & Badges of Paper
1998	33,468	280,037
1999	131,757	250,732
2000	233,004	120,601
2001	227,257	136,939
2002	122,257	521,714
2003	137,538	471,926
2004	187,726	210,964
2005	201,781	466,696
2006	375,424	383,863

**Source:- Ethiopian Customs Authority.**

Table 3.1. generally reveals that import of envelopes has been increasing during the past nine years although fluctuations occur in some years. When the data set is analyzed in to three group periods the following results are observed. During the period 1998-2000, the yearly average level of import was 133,076 kg. During the period 2001-2003, the yearly average level of import has increased to 162,350 kg. The increase in import during the period 2001-2003 as compared to the period 1998-2000 is about 22%. During the recent three years, i.e., 2004-2006, imported quantity has grown to 254,977 kg, which is higher than by about 57% as compared to the period 2001-2003.

Considering the fluctuations observed in some years, the average of the recent two years import is assumed to reflect the current demand. Accordingly, current unsatisfied demand for envelopes of paper is estimated at 288,602 kg.

With regard to labels and badges, of paper the import data is highly erratic. For instance, imported quantity during 1998 has been 280,037 kg and declined to 250,732 kg, 120,60 kg and 136,037 kg by the year 1999, year 2000 and year 2001, respectively. During the following two years, i.e., 2002 and 2003, the imported quantity increased to 521,714 kg and 471,926 kg. respectively. This is almost three times higher as compared to the annual import figures of year 2000 and 2001. However, the imported quantity during 2004 has dropped 210,964 kg, which is less than half of the previous year.

The fluctuations has also continued in the last two years of the data set. After increasing by more than two times in 2005, i.e., 466,696 kg, the import figure has again declined to 383,863 by the year 2006.

In the absence of a trend in the import data for labels and badges of paper, the following assumption are used to determine the current (2008) demand.

- The three years (2004-2006) average level of import has been taken as the effective demand for the year 2006. The recent three years average is found to be 354 tonnes.

- Demand is assumed to grow by 10% per annum in the past two years as the product is mainly associated with the growth of manufactured articles.

Based on the above assumptions, the current effective demand for labels and badges of paper is estimated at 428 tonnes.

## **2. Projected Demand**

The demand for envelopes will increase with literacy rate of the population, expansion of various governmental and non governmental organizations, financial institution and other service sectors. The literacy rate of the country is growing very fast and a number of organizations and private offices are on the rise due to social and economic development. The PASDEP document indicates that GDP will grow from 7 to 10% during the period 2005/06-2009/10.

Demand for labels and badges of paper is mainly related with the growth and development of the manufacturing sector. As population grows and income rises, the demand for manufactured goods will also increase. This inturn brings increase of demand for labels and badges by the manufacturing sector. The target set for the industrial sector during the period of PASDEP is to register an average annual growth rate of 11.5%.

Considering the PASDEP overall GDP growth and the target set for the industrial sector, demand for envelopes and labels and badges of paper is conservatively forecasted to grow by 7% per annum. The forecasted unsatisfied demand for the two products is shown in Table 3.2.

**Table 3.2.**  
**PROJECTED UNSATISFIED DEMAND FOR ENVELOPES**  
**AND LABELS AND BADGES OF PAPER (TONNES)**

<b>Year</b>	<b>Envelopes</b>	<b>Labels&amp; Badges</b>
2009	308.8	458.0
2010	330.4	490.1
2011	353.5	524.4
2012	378.3	561.1
2013	404.8	600.3
2014	433.1	642.4
2015	463.4	687.3
2016	495.8	735.4
2017	503.6	786.9
2018	567.7	842.0

Demand for envelopes will increase from 330 tonnes in the year 2010 to 433.1 tonnes and 567.7 tonnes by the year 2014 and year 2018, respectively. Similarly, the demand for labels and badges of paper will increase from 490.1 tonnes in the year 2010 to 642.4 tonnes and 842 tonnes by the year 2014 and 2018, respectively.

### **3. Pricing and Distribution**

The price of envelopes and labels and badges varies according to the quality of the paper used and the various designs to be printed. The average CIF value per kg of envelopes and labels and badges of paper during the last two years [2005-2006] was about Birr 13.28 and Birr 27.68, respectively. Adding 40% for other expenses, i.e., duty, inland transport and other charges Birr 18.59 and Birr 38.75 per kg of envelopes, labels and badges, respectively, is recommended as a -gate price.

Envelopes can find their market outlet through the existing stationery goods distributing enterprises. Labels and badges can be sold directly to the user industries.

## **B. PLANT CAPACITY & PRODUCTION PROGRAMME**

### **1. Plant Capacity**

Based on the demand projection indicated in Table 3.2 and minimum economies of scale, the proposed plant will have a production capacity 200 tonnes of envelopes and 300 tonnes of labels and badges per annum. The plant is envisaged to operate in a single shift of 8 hours for 300 days per year. However, production capacity can be doubled, if the plant is operated double shift of 16 hours a day based on actual market conditions.

### **2. Production Programme**

The fact that manufacturing of envelopes, labels and badges are very simple processes, it may take only a short time to develop the specific skills and knowhow of envelop production. But the market penetration will take two years. The production build-up programme is, therefore, recommended to be 70% and 90% of the full capacity operation in the first and second year and 100% in the third year and thereafter respectively. Table 3.3 below shows the production programme indicating capacity utilization of the plant.

**Table 3.3**

### **PRODUCTION PROGRAMME**

<b>Description</b>	<b>Unit of Measure</b>	<b>Production Programme</b>		
		<b>Year-1</b>	<b>Year-2</b>	<b>Year 3-15</b>
Envelope Production	Tonnes	140	180	200
Labels and badges	Tonnes	210	270	300
Capacity utilization	%	70	90	100



#### IV. MATERIALS AND INPUTS

##### A. RAW MATERIALS

The main raw materials required for the manufacturing of envelopes, labels and badges of paper are Kraft paper rolls, paper for labels and badges, adhesive and printing ink. All the raw materials are imported. Auxiliary materials required by the plant include card board boxes which can be obtained from local packing material producers. Table 4.1 below shows annual requirement of major raw and auxiliary materials at full production capacity of envelopes. The total cost of raw and auxiliary materials will, therefore, be Birr 12,172,000.

**Table 4.1**

##### **RAW MATERIALS REQUIREMENT AND COST (TONNES)**

<b>Sr. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Cost'000 (Birr )</b>
1	Kraft Paper for envelopes	200	2,000
2	Paper for label and badges	300	6,900
3	Adhesive	100	1,260
4	Printing ink	36	1,512
5	Packing materials	-	500
	<b>Total Amount</b>		<b>12,172</b>

##### B. UTILITIES

Electricity and water are the major utilities required by the plant. The total annual requirement at 100% capacity utilization rate and the estimated costs are given in Table 4.2 below. The annual expenditure on utilities will, therefore, be Birr 73,082.

**Table 4.2****UTILITIES CONSUMPTION AND COST AT FULL CAPACITY**

<b>Sr. No.</b>	<b>Utility</b>	<b>Unit of Measure</b>	<b>Qty.</b>	<b>Total Cost (Birr)</b>
1	Electricity	kWh	120,000	56,832
2	Water	m <sup>3</sup>	50,000	16,250
	<b>Grand Total</b>			<b>73,082</b>

**V. TECHNOLOGY AND ENGINEERING****A. TECHNOLOGY****1. Production Process**

The manufacturing process of envelopes involves the following steps:

- Cutting paper into required sizes
  - Feeding cut papers into the envelope making machine in blocks of 150 to 200 sheets depending upon the thickness of the paper,
  - Folding and gluing the envelopes to form the required envelop,
  - The envelopes are, then, packed in thousands and distributed to retail stationery shops.
- The process doesn't have adverse effect to the environment.

The manufacturing process of labels and badges involves the following steps; photoengraving, die making and printing. These process steps are described in detail as follows:

**Photoengraving:** - before any labels and badges can be printed, the labels and badges must be designed and transferred onto a printing block.

**Die Making:** - The label and badges which arrives in bulk must be cut to the desired label size with a die.

**Printing:** - After the die is made and the printing block is ready, the labels can be printed and cut in the printing machine.

The technology required to produce envelopes, labels and bages of paper is free from negative environmental impact.

## **2. Source of Technology**

The machinery required to manufacture envelopes are simple. All the machineries have to be imported from abroad. The following companies are recommended as source of technology and machinery.

1. Associate Pacific Machine Corporation;

724 Via Alonndra;  
Camarillo, CA, 93012 USA;  
805(445-4740(800);  
679 – APMC.

2. M/s ACME Sale s Corporation,

2, Jain Mandir,  
Sultan wind Road,  
Amritsar

3. M/s A. Ghosh & Co (P) Ltd.

47, Jhantala Road,  
Calcutta-700072

**B. ENGINEERING****1. Machinery and Equipment**

The list of machinery and equipment required for making paper envelopes is given in Table 5.1. The total estimated cost of machinery and equipment is estimated at Birr 5.5 million, out of which Birr 4.675 million is in foreign currency.

**Table 5.1****MACHINERY AND EQUIPMENT REQUIREMENT AND COST**

<b>Sr. No.</b>	<b>Machine/Equipment Description</b>	<b>Qty.</b>	<b>Cost(Birr)</b>		
			<b>LC</b>	<b>FC</b>	<b>TC</b>
1.	Paper Cutting Machine	1	74,250	420,750	495,000
2.	Multi-size Envelop Making Machine	1	115,500	654,500	770,000
3.	Moulds and dies	Req.	41,250	233,750	275,000
4.	Working table	Req.	33,000	187,000	220,000
5	Photopolymer Cliché processor	1	71,775	406,725	478,500
6	Flat Die-cutter Making Tool	1	66,000	374,000	440,000
7	Printing machine	1	132,000	748,000	880,000
8	Sheeting machine	2	51,150	289,850	341,000
9	Rewinding machine	1	43,725	247,775	291,500
10	UV Dryer	1	80,850	458,150	539,000
11	Rotary UV Tinter	1	61,875	350,625	412,500
12	Slitting machine	1	53,625	303,875	357,500
	<b>Total</b>		<b>825,000</b>	<b>4,675,000</b>	<b>5,500,000</b>

## **2. Land, Building and Civil Works**

The required area for both building and open space for the plant is estimated to be 1000 m<sup>2</sup>, out of which 500 m<sup>2</sup> will be a built-up area. 250m<sup>2</sup> of the area will be covered by production hall, 150m<sup>2</sup> of area by office building and 100m<sup>2</sup> by store. The total cost of civil works, at the rate of Birr 2,300 per m<sup>2</sup> (with EGA sheet roof, HCB wall, cement screed floor finish), is estimated at Birr 1,150,000.

According to the Federal Legislation on the Lease Holding of Urban Land (Proclamation No 272/2002) 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 5000 m<sup>2</sup> 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 m<sup>2</sup> 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.

The land lease price in the industrial zones varies from one place to the other. For example, a land was allocated with a lease price of Birr 284 /m<sup>2</sup> in Akakai-Kalti and Birr 341/ m<sup>2</sup> in Lebu and recently the city's Investment Agency has proposed a lease price of Birr 346 per m<sup>2</sup> for all industrial zones.

Accordingly, in order to estimate the land lease cost of the project profiles it is assumed that all manufacturing projects will be located in the industrial zones. Therefore, for this profile which is a manufacturing project a land lease rate of Birr 346 per m<sup>2</sup> 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 5.2 shows incentives for lease payment.

**Table 5.2****INCENTIVES FOR LEASE PAYMENT OF INDUSTRIAL PROJECTS**

<b>Scored Point</b>	<b>Grace Period</b>	<b>Payment Completion Period</b>	<b>Down Payment</b>
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 period of lease for industry is 60 years .

Accordingly, the total lease cost, for a period of 60 years with cost of Birr 346 per m<sup>2</sup>, is estimated at Birr 20.76 million of which 10% or Birr 2,076,000 will be paid in advance. The remaining Birr 18.68 million will be paid in equal installments with in 28 years, i.e., Birr 667,286 annually.

## **VI. MANPOWER AND TRAINING REQUIREMENT**

### **A. MANPOWER REQUIREMENT**

The plant will require about 27 workers at the beginning of the plant operation. The breakdown of manpower allocation and annual labour cost including fringe benefit is indicated in Table 6.1. The total annual cost of manpower is estimated at Birr 327,750.

**Table 6.1****MANPOWER REQUIREMENT AND ANNUAL LABOUR COST (IN BIRR)**

<b>Sr. No.</b>	<b>Description</b>	<b>Req. No.</b>	<b>Salary Monthly</b>	<b>Salary Annual</b>
1.	Plant Manager	1	3,000	36,000
2	Production and tech. head	1	2,500	30,000
3.	Production supervisor	1	1,200	14,400
4.	Technician Operators	8	5,600	67,200
5.	Assistant operators	6	2,400	28,800
6	Electrician	1	800	9,600
7	Mechanic	1	800	9,600
8.	Sells & Purchase Person	1	1,200	14,400
9	Accountant	1	1,200	14,400
10	Personnel	1	1,200	14,400
11.	Store keeper	1	400	4,800
12.	Driver	1	500	6,000
13	Guard	3	1,050	12,600
	<b>Sub-Total</b>	<b>27</b>		<b>262,200</b>
	Workers benefit 25% of basic Salary			65,550
	<b>Total</b>			<b>327,750</b>

**B. TRAINING REQUIREMENT**

Supervisor, operators and technicians (mechanic and electrician) need to be trained on the operation and maintenance of machinery for two weeks by the expert of the machinery supplier during commissioning and erection. The total cost of training is estimated at Birr 50,000.



## VII. FINANCIAL ANALYSIS

The financial analysis of the paper envelop and badges 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	8.5%
Discount cash flow	8.5%
Accounts receivable	30 days
Raw material local	30 days
Raw Material import	90 days
Finished products	30 days
Cash in hand	5 days
Accounts payable	30 days
Repair and maintenance	3% of machinery cost

### A. TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated at Birr 11.96 million, of which 39 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 ( ‘ 000 Birr)**

<b>Sr. No.</b>	<b>Cost Items</b>	<b>Local Cost</b>	<b>Foreign Cost</b>	<b>Total Cost</b>
1	Land lease value	2,076.00	-	2,076.00
2	Building and Civil Work	1,150.00	-	1,150.00
3	Plant Machinery and Equipment	825.00	4,675.00	5,500.00
4	Office Furniture and Equipment	100.00	-	100.00
5	Vehicle	450.00	-	450.00
6	Pre-production Expenditure*	722.06	-	722.06
7	Working Capital	1,962.36	-	1,962.36
	<b>Total Investment cost</b>	<b>7,285.42</b>	<b>4,675.00</b>	<b>11,960.42</b>

\* *N.B Pre-production expenditure includes interest during construction ( Birr 572.06 thousand ) training (Birr 50 thousand ) and Birr 100 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 14.04 million (see Table 7.2). The raw material cost accounts for 86.68 per cent of the production cost. The other major components of the production cost are depreciation, financial cost and repair and maintenance which account for 5.25 %, 3.25% and 1.96 % respectively. The remaining 2.85 % is the share of utility, direct labour, labour over head and other administration cost.

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

<b>Items</b>	<b>Cost</b>	<b>%</b>
Raw Material and Inputs	12,172.00	86.68
Utilities	73.08	0.52
Maintenance and repair	275.00	1.96
Labour direct	157.32	1.12
Labour overheads	65.55	0.47
Administration Costs	104.88	0.75
Land lease cost	-	-
<b>Total Operating Costs</b>	<b>12,847.83</b>	<b>91.50</b>
Depreciation	737.50	5.25
Cost of Finance	456.39	3.25
<b>Total Production Cost</b>	<b>14,041.72</b>	<b>100</b>

**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 400.60 thousand to Birr 1.22 million during the life of the project. Moreover, at the end of the project life the accumulated cash flow amounts to Birr 12.48 million.

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

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 29 \%$$

### 4. Payback Period

The pay back period, also called pay – off period is defined as the period required to recover 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 7 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 13.40 % 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 into 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 principle a project is accepted if the NPV is non-negative.

Accordingly, the net present value of the project at 8.5% discount rate is found to be Birr 1.61 million which is acceptable.

## **D. ECONOMIC BENEFITS**

The project can create employment for 27 persons. In addition to supply of the domestic needs, the project will generate Birr 2.39 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 has a forward linkage effect with the manufacturing sector.