

## **93. PROFILE ON ENVELOPES AND PAPER BAGS**

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## **I. SUMMARY**

This profile envisages the establishment of a plant for the production of 50 tonnes of envelopes and paper bags per annum.

The current demand for the proposed product is estimated at 200.8 tonnes per annum and it is projected to reach at 359.6 tonnes by the year 2014.

The project will create employment opportunity for 8 persons.

The total investment requirement of the project is estimated at Birr 1.50 million, out of which Birr 18,500 is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 16% and a net present value (NPV) of Birr 354,680 discounted at 10.5%.

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

Paper envelopes are stationery articles that are used to enfold letters (documents) in modern private, office, etc written communications. Paper bags are a multi-wall bag which are made up of more than two sheets of strong Kraft paper (normally 3 – 4 ply) for the purpose of holding hand hold articles.

## **III. MARKET STUDY AND PLANT CAPACITY**

### **A. MARKET STUDY**

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

Envelopes and paper bags are mainly used in correspondence by individuals as well as all types of private and government entities. As there is no domestic production of these items, the county's requirement is mainly met through import. However, it has to be

noted that non-standard and low quality paper bags are produced by the informal sector for packing of fruits and other commercial goods. The main raw materials used by the informal sector are waste papers such as newspapers, cement paper bags and the like. Hence, the production of this sector is not considered in the analysis. The quantity and value of imported envelopes during the period 1993-2002 is presented in Table 3.1.

**Table 3.1**  
**IMPORT OF ENVELOPES**

<b>Year</b>	<b>Imported Envelopes (kg)</b>	<b>Value (Birr)</b>
1993	70,967	452,805
1994	39,687	716,005
1995	46,412	800,603
1996	38,061	552,389
1997	76,193	1,565,468
1998	33,468	628,344
1999	131,757	2,637,846
2000	233,004	3,900,497
2001	227,972	4,994,315
2002	122,257	1,968,352

As can be seen from Table 3.1, the import figure fluctuates from year to year. However, the average level of import during the period 1999 to 2002 has sharply increased as compared to the average import figure of the period 1993 to 1998. The average import figure during the period 1993 to 1998 was about 50.8 tonnes while for the period 1999 to 2002 was 178.7 tonnes.

To determine the present demand, the average level of import for the past four years, i.e., 1999 to 2002 was taken as a base. As envelopes are a mass consumption item needed by sectors of the society, demand is associated with the growth of urbanization, expansion of

literacy, urbanization as well as expansion and development of social and economic services. By considering the combined effect of the various influencing factors, demand for paper bags and envelopes in the country is assumed to grow at an annual average growth rate of 6%. Accordingly, present (2004) demand is estimated to be 200.8 tonnes.

## **2. Projected Demand**

To project the future demand the method used to determine the present demand is applied. Accordingly, the projected demand at annual 6% growth rate ranges from 253.5 tonnes by the year 2008 to 359.6 tonnes by the year 2014 (See Table 3.2.).

**Table 3.2**

**PROJECTED DEMAND FOR PAPER BAGS & ENVELOPES (TONNES)**

<b>Year</b>	<b>Projected Demand</b>
2004	200.8
2005	212.8
2006	225.6
2007	239.2
2008	253.5
2009	258.7
2010	284.8
2011	351.9
2012	320.0
2013	339.2
2014	359.6

Considering the geographical locatiopn and socio-economic conditions of the region, the project is assumed to have a market share of 15% of the total projected demand. Accordingly, a small scale plant that have a capacity of producing 40 to 50 tonnes per annum is recommended.

### 3. Pricing and Distribution

The price of paper bags and envelopes varies depending on the size and the quality of the paper used. Based on the average import value, an ex-factory price of Birr 17,500 per tonne is recommended.

The product will find its market outlet through the existing stationery enterprises.

## B. PLANT CAPACITY & PRODUCTION PROGRAMME

### 1. Plant Capacity

Based on the market study, the proposed plant will have a capacity to produce 50 tonnes of envelopes and paper bags per annum having different sizes. The plant is envisaged to operate in one shift of 8 hours for 264 days per year. However, it is also possible to work in two shifts based on actual market conditions.

### 2. Production Programme

The fact that manufacturing of envelopes and paper bags is not complicated, it may take only a short time to develop the specific skills and knowhow of envelop and paper bag production. The production build-up programme is recommended to start at 90% to get enough time to penetrate the market and then gradually rise to full capacity (100%) in the 2<sup>nd</sup> year of operation.

**Table 4.1**  
**PRODUCTION PROGRAMME**

<b>Year of Production</b>	<b>1<sup>st</sup> Year</b>	<b>2<sup>nd</sup> Year</b>
Production in %	90%	100%
Envelop (Tonnes)	32	35
Paper bags (Tonnes)	14	15

#### IV. MATERIALS AND INPUTS

##### A. MATERIALS

The raw materials required for the manufacturing of envelopes and paper bags are mainly paper and glues, the break down of which is indicated in Table 4.1 below.

**Table 4.1**  
**LIST OF RAW MATERIALS AND COST**

Sr. No.	Description	Qty. (Tonnes)	Cost in Birr ('000)
1	Kraft paper	57	312.0
2	Glue	15	230.0
3	Packing materials	30	96.0
<b>Grand Total</b>			<b>638.0</b>

##### B. UTILITIES

The plant will use electrical energy and water as main utilities. Estimated annual utilities consumption along with corresponding cost is indicated in Table 4.2.

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

Utility	Unit	Consumption	Unit Cost (Birr)	Total Cost (Birr)
Electrical Energy	kWh	2,150	0.4736	1.018
Water	m <sup>3</sup>	150	1.67	250.5
<b>Grand Total</b>				<b>1,268.5</b>

## **V. TECHNOLOGY AND ENGINEERING**

### **A. TECHNOLOGY**

#### **1. Production Process**

The production process to manufacture paper bags and envelopes includes cutting the paper into size and feed that to the envelop making machine in blocks of 150 to 200 sheets depending upon the thickness of the paper. These, are then, folded and glued 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.

#### **2. Source of Technology**

The machinery required to manufacture paper bags and envelopes are simple. All the machinery have to be imported from abroad. The following company is recommended as source of technology and machinery.

Associate Pacific Machine Corporation;

724 Via Alonndra;

Camarillo, CA, 93012 USA;

805(445-4740(800);

679 – APMC.

### **B. ENGINEERING**

#### **1. Machinery and Equipment**

The list of machinery and equipment required for making paper envelopes and paper bags is given in Table 5.1. The total cost of machinery and equipment is estimated at Birr 18,500.



**Table 5.1****LIST OF MACHINERY AND EQUIPMENT REQUIREMENT**

<b>Sr. No.</b>	<b>Machine/Equipment Description</b>	<b>Qty. (No.)</b>
1.	Paper Cutting Machine	1
2.	Multis-size Envelop Making Machine	1

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

The required area for both building and open space for the plant is estimated to be 400 m<sup>2</sup>, out of which 300 m<sup>2</sup> will be a built-up area. The total cost of civil works, at the rate of Birr 1,500 per m<sup>2</sup> is, estimated at Birr 450,000. The total cost of land lease at the rate of Birr 2.50 per m<sup>2</sup> and for a period of 70 years is estimated at Birr 70,000. Thus, the total investment cost of land, building and civil works assuming that the total land lease cost will be paid in advance will be Birr 520,000.

**3. Proposed Location**

Based on the availability of infrastructure, utility and market, Assosa town is recommended as the best location of the envisaged plant.

**VI. MANPOWER AND TRAINING REQUIREMENT****A. MANPOWER REQUIREMENT**

The plant will require about 8 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.

**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	2,000	24,000
2.	Production & Techn Dept.	1	1,800	21,600
3.	Operators	2	700	16,800
4.	Prod & Tech. Helpers	1	350	4,200
5.	Sells & Purchase Person	1	500	6,000
6.	Store keeper	1	400	4,800
7.	Driver	1	500	6,000
	<b>Sub Total</b>	<b>8</b>		<b>83,400</b>
8.	Workers benefit 25% of basic Salary			20,850
	<b>Grand Total</b>	<b>8</b>		<b>104,250</b>

**B. TRAINING REQUIREMENT**

The manufacturing of paper envelopes and paper bags is not such a complicated process. Hence, it only needs to arrange short term a local training for the production and technical head on how to maintain and operate the machine, which may cost the project about Birr 6,000.

## VII. FINANCIAL ANALYSIS

The financial analysis of the envelopes and paper bags 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	3 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	30 days
Work in progress	1 day
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 Birr 1.05 million. 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>Foreign Currency</b>	<b>Local Currency</b>	<b>Total</b>
1	Land	-	70.00	70.00
2.	Building and Civil Work	-	450.00	450.00
3.	Plant Machinery and Equipment	-	18.5	18.5
4.	Office Furniture and Equipment	-	50.0	50.0
5.	Vehicle	-	150.0	150.0
6.	Pre-production Expenditure*	-	197.1	197.1
	<b>Total Investment cost</b>	<b>-</b>	<b>935.55</b>	<b>935.55</b>
7	Working Capital	-	116.2	116.2
	<b>Grand Total</b>	<b>-</b>	<b>1,052.17</b>	<b>1,052.17</b>

## **B. PRODUCTION COST**

The annual production cost at full operation capacity is estimated at Birr 874,810 (see Table 7.2). The material and utility cost accounts for 73 per cent while repair and maintenance take 0.10 per cent of the production cost.

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*\* Pre-production expenditure include interest during construction (Birr 132,100), training (Birr 6,000), and costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.*

**Table 7.2****ANNUAL PRODUCTION COST ('000 BIRR)**

<b>Items</b>	<b>Year</b>			
	<b>3</b>	<b>4</b>	<b>7</b>	<b>10</b>
Raw Material and Inputs	574.20	638.00	638.00	638.00
Labour direct	56.3	62.5	62.5	62.5
Utilities	1.14	1.27	1.27	1.27
Maintenance and repair	0.83	0.93	0.93	0.93
Labour overheads	23.46	26.06	26.06	26.06
Administration cost	37.53	41.70	41.70	41.70
<b>Total Operating Costs</b>	<b>712.32</b>	<b>791.46</b>	<b>791.46</b>	<b>791.46</b>
Depreciation	58.35	58.35	58.35	45.35
Cost of Finance	76.60	68.94	45.96	22.98
<b>Total Production Cost</b>	<b>828.40</b>	<b>897.79</b>	<b>874.81</b>	<b>838.84</b>

**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.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable cost}} = 65 \%$$

## 3. Pay-Back Period

The investment cost and income statement projection are used to project the pay-back period. The project's initial investment and working capital will be fully recovered within 7 years.

## 4. Internal Rate of Return and Net Present Value

Based on the cash flow statement, the calculated IRR of the project is 16% and the net present value at 10.5% discount rate is Birr 354,680.

## D. ECONOMIC BENEFITS

The project can create employment for 8 persons. In addition to supply of the domestic needs, the project will generate Birr 497,000 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 saving effect to the country by substituting the current imports.