

95. PROFILE ON PRINTING PRESS

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I. SUMMARY

This profile envisages the establishment of a printing press with a capacity to print 14,000 pcs of newspaper-sized impressions per hour.

The present demand for the proposed product is estimated at 3.22 million pcs and it is projected to reach 97.2 million pcs by the year 2014.

The project will create employment opportunities for 19 persons.

The total investment requirement is estimated at Birr 4.12 million, out of which Birr 1.66 million is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 24% and a net present value (NPV) of Birr 3.81 million, discounted at 10.5%.

II. PRODUCT DESCRIPTION AND APPLICATION

Print media is one of the most effective and economical mediums of communication and promotion and is used by all major businesses. The output of this business is printed material and can be classified into six broad categories:

- Promotional material, which includes items like financial reports, brochures, catalogues, posters, calendars, diaries and visiting cards, etc.;
- Office stationery, which includes letterheads, printed files, vouchers, invoices;
- Inward/outward documents etc., and books of account;
- Publishing material, which includes literature books and text books, etc.;
- Packaging material includes packing material of all kinds like boxes, cartons, etc.;

Another sector, which requires extensive services of printing press, is the educational sector in the form of books and other printed materials.

III. MARKET STUDY AND PLANT CAPACITY

A. MARKET STUDY

1. Past Supply and Present Demand

Printing press gives the service of printing newspaper, magazines, books, post cards, greeting cards, calendars, dairies, labels, leaflets, brochures, ledger cards and produces tickets and many other items.

Newspaper and magazines provide the public with economic, social and political news. In Ethiopia, the free press policy of the government has given rise to the booming newspaper market. Even with this historic booming of newspapers, however, the circulation of newspapers per head is one of the lowest in Africa. The low level of economic development and literacy rate are the major constraints.

Besides the newspapers, concentrated at Addis Ababa, printers all over the country are printing other materials. Promotional prints like labels, calanders, posters are the growing segments of the printing sector since businessmen are becoming more and more aware of advertisements and promotional contributions.

In the Benshangul-Gumuz region, there is no single printing press. However, the regional state alone through its bureaus has a significant demand for prints like posters for different occasions, brochures, magazines, ledger cards and newspapers. Other businesses also require different types of printed materials. All this requirement is currently fulfilled by giving orders to printers outside the region, usually to those located at Addis Ababa by traveling 687 kms.

Besides, the regional state and business enterprises demand individuals and communities need variety of printed products for different personal and social events. Therefore, establishing a printing press will save cost and time reliving them from troubles by the long journey to Addis Ababa.

Under a conservative estimate, the demand for printing materials for the region at an equivalent size of tabloid newspaper, is estimated at 1,200 per week, or 67,200 pages of tabloid newspapers size prints.

2. Projected Demand

The demand for printed materials is highly related with economic growth and social activities with the economic growth of the regional state. The main expected consumer of printed materials will have to serve the people with better services. These services directly or indirectly are related with printed materials. Besides, investment promotion in the region will result in more demand for printed material of every day operations of business, offices and institution.

Therefore, to project the future demand 3.76% growth rate of GDP achieved in the last four years is applied. Accordingly, the demand for printed materials by the year 2014 at equitable tabloid newspaper size will be 97,201 pieces.

Table 3.1
PROJECTED DEMAND FOR PRINTED MATERIALS IN EQUIVALENT
TABLOID NEWS PAPER SIZE

Year	Pieces
2005	69,727
2006	72,349
2007	75,069
2008	77,892
2009	80,821
2010	83,860
2011	87,013
2012	90,285
2013	93,680
2014	97,202

3. Pricing and Distribution

Based on the current price for an average tabloid newspaper size print at Addis Ababa, Birr 0.08 per single page of a newspaper is recommended for the new project. Printed materials will be collected by customers from the factory, hence the product needs rather regular visit to potential customers.

B. PLANT CAPACITY & PRODUCTION PROGRAMME

1. Plant Capacity

Based on the demand projection indicated above, the proposed unit has a capacity of printing 14,000 impressions per hour with two (2)-printing machines. The proposed machines have ability to print sheets of 140x180mm to 483x640mm dimensions. The plant is envisaged to operate in one shift of 8 hours per day for 264 days per year.

2. Production Programme

The fact the printing business is well distributed in our country, it may take only a short time to develop the specific skills and knowhow of the workers to manage the pre-printing and printing activities of the projected press. The maximum attainable capacity of machines at the beginning of its operation is assumed to be at 60% because of the wastage of time during cleaning & trial runs of the machine. It is, hence, recommended to gradually raise the capacity of the plant to its full capacity in the 3rd year of operation.

Table 4.1

PRODUCTION PROGRAMME

Year of Production	1st Year	2nd Year	3rd Year
Production in %	60%	85%	100%
Printing Press	30000	42500	50000

IV. MATERIALS AND INPUTS

A. MATERIALS

The most important raw materials used in printing press are paper, paper board, ink, glue and different chemicals. Imported as well as local paper and board is being used by the industry. Imported paper is normally used in annual reports, brochures, catalogues, prospectus and visiting cards, etc. Imported paper is readily available in local markets.

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

Raw Material	Unit of Measure	Req. Qty.	Unit Cost	Costs in Birr		
				LC	FC	Total
Offset paper (68g to 135g)	rolls	300	1,500.00	157,500	292,500	450,000
Ink (Different colour)	kgs	1,200	85.00	35,700	66,300	102,000
Plate (Different size)	pkt	200	225.00	15,750	29,250	45,000
Others	-	-		2,380	4,420	6,800
Grand Total	-	-		211,330	392,470	603,800

B. UTILITIES

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

Table 4.2**UTILITY CONSUMPTION OF THE PLANT AND
COST AT FULL CAPACITY (COST IN BIRR)**

Utility	Unit	Consumption	Unit Cost	Total Cost
Electrical Energy	kWh	14,700	0.4736	12,650
Water	m ³	2,600	1.67	4,342
Grand Total				16,992

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Production Process

In the design stage, the designer prepares the design of the product taking into account the overall look and feel of the paper. Text to be printed is typed and graphics to be shown are created. Designing of graphics is of two types, halftone and line art. Halftone is the reproduction of continuous-tone artwork (such as a photograph) through the application of a screen that converts the image into dots of various sizes. Line art is the art that is made up of continuous lines such as pen & ink drawings or typefaces. There is no tonal difference from one area to another. After designing, the designer sets page layout and the design is sent to the pre-press department. In the pre-press stage, the artwork is taken from its delivered state (either reflective art or digital file) all the way to the press plates. In pre-press stage, on the press, the plates are dampened, first by water rollers, and then ink rollers. The rollers distribute the ink from the ink fountain onto the plates. The image area of the plates picks up ink from the ink rollers. The water rollers keep the ink off the non-image areas of the plate. Each plate then transfers its image to a rubber blanket that in turn transfers the image to paper. The plate itself does not actually touch the paper. All of this occurs at a high speed. During the process, the machine-man checks the blending of inks to maintain the colour control. Print quality is checked frequently by the press operator. After printing, it reaches the bindery stage where the print material passes trimming, folding, perforating, collating, stitching, or gluing processes.

2. Source of Technology

The machinery and technology required to manufacture print materials is familiar to our country. All machinery have to be imported from abroad. The following company is recommended as source of technology and machinery.

PAKISTAN MACHINERY AND EQUIPMENT CO. (PVT.) LTD.

303, Aamir Trade centre, 233-1/A, PECHS, Block II

Shahrah-e-Quaideen, Karachi

Phone# 92-21-4551798, 4522776

Fax# 92-21-4522786

E-mail: pme@super.net.pk

B. ENGINEERING

1. Machinery and Equipment

The list of machinery and equipment required for printing press is given in Table 5.1. The total cost of machinery and equipment is estimated at Birr 1,658,700, out of which Birr 1.15 million is required in foreign currency.

Table 5.1
LIST OF MACHINERY AND EQUIPMENT

Sr. No.	Machine/Equipment Description	Qty.
1.	Off-set printing machine for sheet size 345 X 454	1
2.	Off-set Printing machine for sheet size 483 X 540	1
3.	Cutting machine	1
4.	Image Setting Camera	1
5.	Scanner	2
6.	Computers and Printer	3

2. Land, Building and Civil Works

The required area for both building and open space for the plant is estimated to be 1500 m², out of which 500 m² will be built-up area. The total land lease cost for 70 years of land holding at the rate of Birr 2.50/m² per year, is estimated to be Birr 262,500. The total cost of building and civil works, at the rate of Birr 2000 per m², is estimated at Birr 1 million. 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 1,262,500.

3. Proposed Location

Based on availability of infrastructure, utility and market outlet, Asosa town is proposed to be the location of the envisaged printing press

VI. MANPOWER AND TRAINING REQUIREMENT

A. MANPOWER REQUIREMENT

The project is machine oriented but skilled labour is important for success of the business. Skilled machine-man is required to operate the machine efficiently and effectively. Skill of machine-man will result in lower wastage of paper and ink, lower maintenance cost of machines and also longer life of machines. This will enhance quality of product and timely delivery of order and hence, help in creating a good image among customers. The envisaged project requires 19 labour force. The breakdown of manpower allocation and annual labour cost is indicated in Table 6.1

Table 6.1
MANPOWER REQUIREMENT AND ANNUAL LABOUR COST (BIRR)

Sr. No	Description	Req. No.	Monthly Salary	Annual Salary
1	Plant manager	1	3,000	36,000
2	Finance & Admin manager	1	2,500	30,000
3	Accountant & cashier	1	1,200	14,400
4	Production & Techn Dept	1	2,500	30,000
5	Operators	6	500	36,000
6	Electro-mech maintenance	2	1,000	24,000
7	Prod & Tech helpers	3	300	10,800
8	Commercial Dept Mgr	1	2,500	30,000
9	Seals & purchase	1	800	9,600
10	Store	1	400	4,800
11	Driver	1	500	6,000
	Sub-total	19	-	231,600
12	Employees Benefit 925% basic salary)			57,900
	Grand Total	19	-	289,500

B. TRAINING REQUIREMENT

The printing technology is not as such a new technology in our country. It is possible to get a skilled worker who has good experience from other similar companies. However, there may be a need to train a designer on graphic design so as to make the printed materials more competitive in the market. For that purpose, it is possible to arrange a local training for the graphic designer on how to use modern technology to design graphics on print materials. Such a training is estimated to cost about Birr 25,000.

VII. FINANCIAL ANALYSIS

The financial analysis of the printing press 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 cashflow	10.5%
Repair and maintenance	5 % of the total plant machinery and equipment
Accounts receivable	30 days
Raw material, local	30 days
Raw materials, import	90 days
Work in progress	1 days
Finished products	1 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 4.12 million, out of which about 29% will be required in foreign currency. Details are indicated in Table 7.1.

Table 7.1
INITIAL INVESTMENT COST ('000 BIRR)

Sr. No.	Cost Items	Foreign Currency	Local Currency	Total
1	Land	-	262.50	262.50
2.	Building and Civil Work	-	1,000.00	1,000.00
3.	Plant Machinery and Equipment	1150.00	508.7	1,658.70
4.	Office Furniture and Equipment	-	75.00	75.00
5.	Vehicle	-	250.00	250.00
6.	Pre-production Expenditure*	-	675.45	675.45
	Total Investment cost	1,150.00	2,771.65	3,921.65
7	Working Capital	-	205.18	205.18
	Grand Total	1,150.00	2976.83	4,126.83

* *Pre-production expenditure include interest during construction (Birr 525,450), training,(Birr 25,000) and 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 of the printing press is estimated at Birr 1.52 million (see Table 7.2). The material and utility cost accounts for 41 per cent while repair and maintenance take 5.5 per cent of the production cost.

Table 7.2
ANNUAL PRODUCTION COST ('000 BIRR)

Items	Year			
	3	4	7	10
Raw Material and Inputs	362.28	513.28	603.80	603.80
Labour direct	83.38	118.12	138.96	138.96
Utilities	10.20	14.44	16.99	16.99
Maintenance and repair	49.76	70.49	82.93	82.93
Labour overheads	34.74	49.22	57.90	57.90
Administration Cost	55.58	78.74	92.64	92.64
Total Operating Costs	595.94	844.24	993.23	993.23
Depreciation	307.12	307.12	307.12	227.12
Cost of Finance	304.79	286.12	217.50	124.92
Total Production Cost	1,207.85	1,437.49	1,517.85	1,345.26

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 the percentage of net profit to total sales, net profit to equity (return on equity) and net profit plus interest to total investment (return on total investment) will show an increasing trend throughout the production life of the project.

The income statement and other profitability indicators show that the project is viable.

2. Break-even Analysis

The break-even point of the project is estimated by using income statement projection.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable cost}} = 16 \%$$

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 5 years.

4. Internal Rate of Return and Net Present Value

Based on the cashflow statement, the calculated IRR of the project is 24 % and the net present value at 10.5% discount rate is Birr 3.81 million.

D. ECONOMIC BENEFITS

The project can create employment for 19 persons. In addition to supply of the domestic needs, the project will generate Birr 4.01 million in terms of tax revenue. Moreover, the Regional Government can collect employment, income tax and sales tax revenue.