

## **105. PROFILE ON PRODUCTION OF BLANKET**

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## **I. SUMMARY**

This profile envisages the establishment of a plant for the production of blanket with a capacity of 250,000 pieces per annum.

The present demand for the proposed product is estimated at 2.54 million pieces per annum. The demand is expected to reach at 10.54 million pieces by the year 2017.

The plant will create employment opportunities for 136 persons.

The total investment requirement is estimated at about Birr 35.09 million, out of which Birr 25.74 million is required for plant and machinery.

The project is financially viable with an internal rate of return (IRR) of 15 % and a net present value (NPV) of Birr 7.25 million discounted at 8.5%.

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

A blanket is a piece of woven warm fabric, usually produced from wool, synthetic or cotton waste for use as a bed covering and a night wear. Nowadays, blankets are replacing the traditional hand woven “bana”, gabi and buluco in rural areas. The demand for blankets is met through import and local production.

Blanket is manufactured in standard sizes. The standards are based on the surface area of the blankets and the specific weight of the blankets. Accordingly, blankets could be light or medium in weight. Light weight blankets, have a specific weight of 450 gm/mm<sup>2</sup>, Medium weight of 550 gm/mm<sup>2</sup>, Standard size blankets have 160x220 mm and family size blankets are either 180x220 mm or 200x220 mm.

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

#### **A. MARKET STUDY**

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

Blankets are nightwear cloths covering beds. The supply of blankets is both from domestic production and import. Supply of blankets is presented in Table 3.1.

As can be seen from the table both local and imported supply are increasing. The domestic supply of woolen blankets is only from Debre Berhan Blanket Factory this type of blanket being entirely dependent on the supply of wool which is very limited for commercial consideration. The remaining domestic blankets although the Central Statistical Authority classification entails them as “waste cotton” and “others” they are made of waste mainly acrylic and wool, blankets made out of waste cotton are none existent. Imported blankets are also mainly made from synthetic yarn of mixed process waste. Generally, except those high priced blankets made from virgin acrylic with very limited supply, both domestically supplied and imported blankets are regenerated blankets.

The least square equation fitted for the total supply of blanket data set reveal.

$$Y = 545,485X - 905,215 \quad R^2 = 80.2\%$$

Applying this equation, the current effective demand for blankets is estimated at 5,095,120 kg or an equivalent 2,547,560 pieces of blankets.

**Table 3.1****SUPPLY OF BLANKETS**

Year	Domestic supply				Import in Kg	Total in Kg	
	Woolen	In Pieces					In Kg Total
		Waste Cotton	Others	Total			
1997	3,763	244,471	8,275	256,509	114,004	156,821	270,825
1998	2,757	194,466	16,527	213,750	95,000	127,850	222,850
1999	3,896	182,084	34,744	220,724	98,100	560,100	658,200
2002	3,334	144,653	40,478	188,465	83,762	719,375	803,137
2001	3,095	90,311	-	93,406	41,514	953,956	995,470
2002	1,845	90,311	-	92,156	40,958	1,661,300	1,702,258
2003	1,986	90,311	259,789	352,086	156,483	4,333,647	4,490,130
2004	2,260	90,311	254,912	347,483	154,437	2,955,733	3,110,170
2005	1,648	-	829,547	831,195	369,420	3,777,451	4,146,071

*Source: CSA Customs Authority*

## 2. Demand Projection

As a basic necessity the demand for blankets is dependent on population. Income also is another determining factor since most of the population cannot afford for a blanket. In light of the potential economic growth anticipated income will have more impact than population directly increasing the demand for blankets. In this study the demand for blankets is projected based on the supply equation.

$$Y = 545,485X - 905,215 \quad R^2 = 80.2\%$$

Accordingly the demand for blankets is expected to attain 10,550 tons or about 5.3 million pieces in 2017. Projected demand for blankets is presented in Table 3.2.

**Table 3.2**  
**PROJECTED DEMAND FOR BLANKETS**

<b>Year</b>	<b>Kg</b>
2008	5,460,605
2009	6,186,090
2010	6,731,575
2011	7,277,060
2012	7,822,545
2013	8,368,030
2014	8,913,515
2015	9,459,000
2016	10,004,485
2017	10,549,970

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

The retail price for imported 2.5 kg and 3.0 kg Chinese blankets are Birr 54 and 60 respectively. Therefore an average factory get price of Birr 56 per blankets are recommended for the new project under study.

The distribution of blanket will follow the established channel.

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

### **1. Plant Capacity**

On the basis of demand projection made for the product and in consideration of high capital costs associated with high volume of production, a plant with a capacity of 250,000 blankets/year of the size 1.6X 2.2 m<sup>2</sup> is envisaged in this project profile.

Production capacity is based on a schedule of 300 working days per annum and 3 shifts of eight hours each per day.

## **2. Production Programme**

Considering the time needed for production skill development and market penetration, the capacity utilization rate is set at 80% and 90% in the first and second year, respectively. In the third year and thereafter full capacity production will be achieved.

## **IV. MATERIALS AND INPUTS**

### **A. RAW MATERIALS**

The main raw materials are acrylic waste fiber, cotton yarn, ribbons and threads. Acrylic waste fiber is imported and cotton yarn, ribbons and threads are available locally from Almeda Textile Share Company, Ethio-Japan Nylon Factory and Edget thread Factory. The auxiliary raw materials are plastic bag, Hessian cloth and steel strapping for packing of produced blanket. The quantity required and their costs are shown in Table 4.1.

**Table 4.1****MATERIAL AND INPUTS REQUIREMENT AND COST**

Description	UOM	Qty.	Unit Cost '000 Birr		Total Cost '000 Birr		Total '000 Birr
			F.C	L.C	F.C	L.C	
<b>A. <u>Raw Materials</u></b>							
Acrylic Waste	Tonnes	741	5		2223	1482	3705
Cotton Yarn	Tonnes	58		16		928	928
Ribbon	Km	926		0.26		240.76	240.76
Sewing thread	Tonnes	0.422		31.5		13.293	13.293
<b>B. <u>Auxiliaries</u></b>							
Plastic bag	Pcs	252,007		0.0005		126.004	126.0035
Hessian Cloth	Tonnes	2396	0.0025		5.99		5.99
Steel Strapping	Tonnes	2	26		52		52
<b>Grand Total</b>					<b>2280.99</b>	<b>2790.06</b>	<b>5071.047</b>

**B. UTILITIES**

The utilities required include electricity and water. The requirements and their costs are shown in the Table 4.2.

**Table 4.2****UTILITIES REQUIREMENT AND COST**

<b>Sr. No.</b>	<b>Description</b>	<b>Annual Requirement</b>	<b>Unit Cost</b>	<b>Total Cost ('000 Birr)</b>
1	Electricity (kwh)	1,012,523	0.4736	443.08
2	Water (m <sup>3</sup> )	4,167	3.1	12.92
	<b>Total</b>			<b>456</b>

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

The production process involves opening, blending, carding and ring spinning followed by cone winding to provide the weft yarn from source colored synthetic waste fiber Two-fold cotton yarns are used for making warps. After the warp is prepared weaving of weft and warp takes place by using shuttle less, flexible rapier 100m<sup>2</sup>. Then raising of the woven blanket follows. The raised blanket is cut, sewn and packed in bales. The envisaged project doesn't involve waste treatment.

**2. Source of Technology**

The machinery and equipment required by the plant can be obtained by contacting. The following company

All states Textile

Machinery inc:

Phone (864) 266-6195

USA

## B. ENGINEERING

### 1. Machinery and Equipment

The list of machineries and equipment required for the production of 250,000 blankets per year is as indicated in Table 5.1. The total cost of machinery and equipment is Birr 25.74 million, out of this Birr 13.86 million will be required in foreign currency.

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

Sr. No.	Description	Qty.
1	Lattice bed hopper feeder	1
2	Shaker Fear naught	1
3	Req breaking machine	1
4	Fearnaught (atomized)	1
5	Compressor	1
6	Condenser cards	1
7	Ring spinning frames	1
8	Cone winding	1
9	Section wrapper	1
10	Rapier looms	4
11	Raising machines	1
12	Sewing machines	3
13	Cutting machines	1
14	Bale press	1
15	Inspection table	1

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

Total land requirement of the project is estimated at 6000m<sup>2</sup>, out of which 2500m<sup>2</sup> is a built-up area. Cost of building construction, at a unit cost of Birr 2,300 per m<sup>2</sup>, is estimated at Birr 5,750,000. Total land lease cost, for a period of 80 years with cost of Birr 0.35 per m<sup>2</sup>, is estimated at Birr 168,000. The total investment cost for land, building and civil works, assuming that the total land lease cost will be paid in advance is estimated at Birr 5,918,000.

## **3. Proposed Location**

The plant is supposed to be located at wonago worada in dilla town.

# **VI. MANPOWER AND TRAINING REQUIREMENTS**

## **A. MANPOWER REQUIREMENT**

Manpower requirement of the plant is 136 persons, of which 103 are direct production workers and 33 are administrative and supervisory staff. Details of manpower requirement and estimate of annual expenses for salaries is presented in the Table 6.1.

**Table 6.1****MANPOWER REQUIREMENT AND LABOUR COST**

<b>Description</b>	<b>No.</b>	<b>Monthly Salary Persons</b>	<b>Annual Salary (Birr)</b>
General Manager	1	3,000	36,000
Executive Secretary	1	900	10,800
Prod. And Technical. Manager	1	2,300	27,600
Commercial Manager	1	2,000	24,000
Administrative and Finance Manager	1	2,000	24,000
Production Head	1	1,800	21,600
Technical Head	1	1,800	21,600
Personnel	1	1,500	18,000
Supervisors	3	3,600	43,200
Foremen	15	13,500	162,000
Operators	36	14,400	21,600
Assistant operators	36	14,400	172,800
Mechanics	6	3,600	43,200
Electricians	6	3,600	43,200
General Service Head	1	1,200	14,400
Store keeper	2	1,000	12,000
Time keeper	3	1,200	14,400
Accountant	3	2,400	28,800
Secretary typist	3	1,800	21,600
Purchaser	1	700	8,400
Sales officer	1	700	8,400
Cashier	1	500	6,000
Driver	1	550	6,600
Guard	10	4,000	48,000
<b>Total</b>	<b>136</b>	<b>82,450</b>	<b>838,200</b>
Workers benefit (25% basic salary)			209,550
<b>Grand Total</b>	<b>136</b>		<b>1,047,750</b>

## **B. TRAINING REQUIREMENT**

Supervisors, foreman, and operators, mechanics & electricians need to be given on job training for about two weeks by qualified personnel of machinery supplier. The training cost is estimated at about Birr 30,000.

## **VII. FINANCIAL ANALYSIS**

The financial analysis of the blanket 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%
Discount cash flow	8.5%
Accounts receivable	30 days
Raw material local	30days
Work in progress	2 days
Finished products	30 days
Cash in hand	5 days
Accounts payable	30 days

## **A. TOTAL INITIAL INVESTMENT COST**

The total investment cost of the project including working capital is estimated at Birr 35.09 million, of which 51 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 Cost (‘000 Birr)
1	Land lease value	168.0
2	Building and Civil Work	5,750.0
3	Plant Machinery and Equipment	25,740.0
4	Office Furniture and Equipment	125.0
5	Vehicle	200.0
6	Pre-production Expenditure*	2,141.0
7	Working Capital	970.7
	<b>Total Investment cost</b>	<b>35,094.7</b>
	Foreign Share	51%

\* N.B Pre-production expenditure includes interest during construction ( Birr 1.99 million) training (Birr 30 thousand ) and Birr 120 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 11.24 million (see Table 7.2). The material and utility cost accounts for 49.15 per cent, while repair and maintenance take 1.60 per cent of the production cost.

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

Items	Cost	%
Raw Material and Inputs	5,071.05	45.09
Utilities	456	4.06
Maintenance and repair	180	1.60
Labour direct	502.92	4.47
Factory overheads	167.64	1.49
Administration Costs	335.28	2.98
Total Operating Costs	6,712.89	59.70
Depreciation	2944	26.18
Cost of Finance	1588.41	14.13
<b>Total Production Cost</b>	<b>11,245.30</b>	<b>100</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 including cost of finance when it starts to operate at full capacity ( year 3) is estimated by using income statement projection.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 44 \%$$

## 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 15 % and the net present value at 8.5% discount rate is Birr 7.25 million.

## D. ECONOMIC BENEFITS

The project can create employment for 136 persons. In addition to supply of the domestic needs, the project will generate Birr 7.55 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.