

**21. PROFILE ON SHEEP AND GOAT FARM**

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## **I. SUMMARY**

This profile envisages the establishment of sheep and goat farm with a capacity to accommodate 9.600 heads per annum.

The current demand for sheep and goat meat is estimated at about 47,165 tonnes. The demand is projected to reach 71,877 tonnes by the year 2015.

The project will create employment opportunities for about 19 persons.

The total investment cost of the project is estimated at Birr 3.36 million, out of which Birr 799.20 thousand is for plant machinery and equipment.

The project is financially viable with an internal rate of return (IRR) of 14% and a net present value (NPV) of Birr 691 thousand, discounted at 10.5%.

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

The indigenous breeds of the Ogaden Sheep and goat, which are highly acclimatized to the extreme conditions of the local climate, disease and parasites can be used. The black-head sheep from the Ogaden have high demand in the middle-east market. The flock will have sheep to goat ratio of 3:1. Main activities of the project will be conditioning, cleaning, feeding, upgrading, etc, of the above mentioned breeds. In the farm, intensive flock management, which includes proper feeding, ensuring the health of the flock, etc, will be carried out.

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

### **A. MARKET STUDY**

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

The total population of sheep and goat in the country is estimated at 10.95 million and 8.58 million heads, respectively in the year 2000.

Sheep are reared both on the highland and lowlands of the country while goats are doing well in the lowlands.

Somali Region is one of the regions with highest population of sheep and goat. The population of sheep and goat during the year 2000 in Somali Region was 240,000 and 348,500, respectively.

To estimate the domestic demand for sheep and goat, consumption data from the 1998 revised report, "1995/96 Household Income, Consumption and Expenditure Survey is analyzed. Table 3.1 depicts the average amount of sheep and goat meat consumed by different expenditure groups and the total consumption.

**Table 3.1**  
**DOMESTIC CONSUMPTION OF SHEEP AND GOAT MEAT**

Income Group	Number of Individuals in the Group	Average Quantity Annually consumed (Gm)		Total consumption (Tonnes)	
		Goat Meat	Sheep Meat	Goat Meat	Sheep Meat
<600	39,733	-	-	-	-
600-999	215,708	-	1	-	0.22
1000-1399	548,063	5	2	3	1
1400-1999	2,048,185	73	12	150	25
2000-2599	3,285,193	50	61	164	200
2600-3399	5,746,321	69	98	396	563
3400-4199	7,014,673	320	122	2245	856
4200-5399	9,606,476	334	227	3209	2181
5400-6599	7,770,271	284	309	2207	2401
6600-8999	8,746,435	911	354	7968	3096
9000-12599	5,061,294	865	538	4378	2723
12600-16199	1,331,572	368	1057	490	1407
16200-19999	612,842	241	1010	148	619
>20,000	662,299	1565	1773	1036	1174
<b>Total</b>	<b>52,689,066</b>	-	-	<b>22,393</b>	<b>15,246</b>

As can be seen from Table 3.1, domestic consumption of sheep and goat meat was 37,639 tonnes per annum. Given a total population of 52,689,066 at the time the survey was

conducted the per capita consumption is computed to be 0.71kg. using the total population for year 2001, the current demand for sheep and goat meat is estimated at 43,423 tonnes.

Sheep and goat are exported in various forms. While most of the export is in live animal, they are also exported in the form of carcasses and half carcasses in fresh or chilled form.

Total export of meat and meat products during the period 1990-1998 is as shown in Table 3.2.

**Table 3.2**  
**EXPORT OF MEAT AND MEAT PRODUCTS**

YEAR	Export (tonnes)
1990	208
1991	138
1992	15
1993	40
1994	209
1995	580
1996	1268
1997	1823
1998	2508

As can be seen from Table 3.2, export of meat and meat products has increased from 40 tonnes in 1993 to 2508 tonnes in 1998, showing an annual average growth of 36 per cent. Assuming this growth rate has continued, the present demand for exportable meat is estimated at 6,237 tonnes. The share of sheep and goat meat in the total meat and meat products export is estimated to be about 60 percent, i.e. 3,742 tonnes.

## **2. Demand Projection**

The domestic demand for sheep and goat meat is influenced by the rate of population growth and income, thus a 2.9% growth rate (the population growth rate) is used in projecting the local demand for the product. On the other hand in order to arrive at a reasonable estimate of the future export demand, the country's over all export performance have been analyzed and over the period 1991-2000, though there was considerable volatility export grew by an average growth of 4.8 percent per annum. Accordingly, future export demand for sheep and goat meat is assumed to grow by 4.8 per cent.

**Table 3.2**  
**PROJECTED DEMAND FOR SHEEP AND GOAT MEAT**

Year	Domestic demand	Export demand	Total
2002	44,682	3,922	48,604
2003	45,978	4,110	50,088
2004	47,311	4,229	51,540
2005	48,685	4,432	53,117
2006	50,095	4,645	54,740
2007	51,548	4,868	56,416
2008	53,043	5,101	58,144
2009	54,581	6,346	59,927
2010	56,164	6,603	61,767
2011	57,793	5,872	63,665
2012	59,469	6,153	65,622
2013	61,193	6,449	67,642
2014	62,968	6,759	69,727
2015	64,794	7,083	71,877

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

The price of sheep and goat is dependent upon the supply to the market. According to C.S.A'S "Average Retail Prices of Goods and Services", the average price of sheep and goat in selected towns ranges between Birr 70 to 171 for the envisaged project a price of Birr 150 is recommended. Regarding distribution, it is recommended to supply its product directly to large group buying establishments and export and also use commissioned agents at strategic towns.

## B. PLANT CAPACITY AND PRODUCTION PROGRAMME

### 1. Plant Capacity

The farm will have capacity to accommodate 800 heads of sheep and goat per month. The actual operation will be based on a batch of 200 heads per week. The main function of the farm will be conditioning, cleaning, feeding, uprearing etc. of Ogaden bread sheep and goats. Hence, one batch will stay in the farm for one month, however, for effective utilisation of resources (manpower, equipment, transport, etc) and efficient operation and management the farm operation schedule will be based on weekly basis. In one week 220 heads, i.e, 165 sheep and 55 goat (assuming 10% unfitt) will be purchased and considered as one batch.

### 2. Production Programme

The farm will work all the year round. The farm will start at 75% of its capacity in the first year and full capacity in the second year and thereafter.

## IV. MATERIALS AND INPUTS

### A. MATERIALS

Annual inputs requirement at full capacity of sheep and goat farm are described in Table 4.1.

**Table 4.1**  
**ANNUAL RAW MATERIALS AND COSTS OF**  
**SHEEP AND GOAT FARM AT FULL CAPACITY**

No	Description	Qty	Cost, Birr in '000		
			Local	Foriegn	Total
1	Feed (tonnes)	15	20	-	20
2	Sheep (head)	8580	472	-	472
3	Goat (head)	2860	129	-	129
4	Vaccin & treatment injection	Sum	20	124	144
	<b>Total</b>		<b>641</b>	<b>124</b>	<b>765</b>

## **B. UTILITIES**

Annual requirement of electricity, water and fuel for processing and sanitation are estimated at 10,950 Kwh, 560 m<sup>3</sup> and 24500 liters, respectively. The total cost of utilities is about Birr 73,500 per annum.

## **V. TECHNOLOGY AND ENGINEERING**

### **A. TECHNOLOGY**

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

Sheep and goat will reach the farm through suppliers or contract as per the pre-determined procurement procedure. The next process will be receiving and treating the animals. The treatment includes weighing, vaccination and dipping followed by prophylactic treatment. Physical examination to isolate sick animals and separation of sexes are also part of the production process. Then, the actual feeding and supplements practice are the main part of the task. Castration will be done depending on the request of the client. The final stage of this process will be marketing. At this time it is also important to separate marketable and unfit animals.

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

The machinery and equipment required by the farm can be supplied by Hagbes Ethiopia PLC.

## **B. ENGINEERING**

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

The required machinery, equipment and tools are listed in Table 5.1. Total costs are estimated to be 799.20 thousand, out of which Birr 690 thousand (84%) is in foreign currency.

**Table 5.1****LIST OF MACHINERY AND EQUIPMENT WITH ESTIMATED COST**

No	Description	Qty (No.)	Unit Price (Birr)	Total Value (in '000 Birr)		
				Foreign	Local	Total
1	Deeping vat	1	25,000	5.0	20.0	25.0
2	Cruch	1	2,500	2.4	0.1	2.5
3	Syringes	15	2,500	34.5	3.0	37.5
4	Hoof treamer	5	200	0.9	0.1	1.0
5	Burdizzo crusher	5	300	1.4	0.1	1.5
6	Knapsak sprayer	3	800	2.3	0.1	2.4
7	Weigh bridge/scale	1	30,000	29.0	1.0	30.0
8	Feeder and water trough	16	2,500	20.0	20.0	40.0
9	Tractor	1	173,500	312.3	34.7	347.0
10	Trailer	2	50,000	89.9	10.1	100.0
11	Water tank	1	75,000	37.5	37.5	75.0
12	Reservior	1	138,100	135.6	2.5	138.1
<b>Total Cost</b>				<b>670</b>	<b>129.20</b>	<b>799.20</b>

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

The total area required for sheep and goat farm is about 320 ha., out of which only 130 m<sup>2</sup> is required as building area for store and isolation (treatment ward). Farm area needs fencing to isolate each of the 200 head batch. The cost of fencing is estimated at Birr 120,000. The total cost of building and civil works at the rate of Birr 1,500 per m<sup>2</sup> is estimated at Birr 195,000. On the other hand, the total lease cost at the rate of birr 46 per hectare and for 60 years of land holding is estimated at Birr 883,200.

**3. Proposed Location**

The envisaged project is proposed to be located at Gode or Jigjiga, where there is an easy foreign market access.

## VI. MANPOWER AND TRAINING REQUIREMENT

### A. MANPOWER REQUIREMENT

Manpower required and the corresponding labour cost are as shown in Table 6.1 below.

**Table 6.1**

#### **MANPOWER AND SALARY REQUIREMENT FOR SHEEP AND GOAT FARM**

Ser. No.	Description	Req. No.	Monthly salary, (Birr)	Annual salary (Birr)
1	Farm Manger	1	1200	14,400
2	Secretary	1	600	7,200
3	Flock Attendant	8	600	57,600
4	Ass. Veternarian	1	900	10,800
5	Record keeper	1	700	8,400
6	Drivers	2	700	16,800
7	Ass. Deiver	2	350	8,400
8	Guards	4	300	14,400
	<b>Sub Total</b>	<b>19</b>		<b>138,000</b>
	Employees benefit (25%)			34,500
	<b>Grand Total</b>	<b>19</b>		<b>172,500</b>

### B. TRAINING REQUIREMENT

No special training is required for the envisaged farm.

## VII. FINANCIAL ANALYSIS

The financial analysis of the sheep and goat project is based on the data presented in the previous chapters and the following assumptions:-

Construction period	2 year
Source of finance	30 % equity 70 % loan
Tax holidays	4 years
Bank interest	10.5%
Discounted cashflow	10.5%
Land value	Based on estimated lease rate of the region
Repair and maintenance	5 % of the total plant and machinery
Accounts receivable	30 days
Raw material local	30 days
Raw materials import	90 days
Work in progress	30 days
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 about Birr 3.36 million, out of which about 22% will be required in foreign currency. For detail see Table 7.1.

**Table 7.1**  
**INITIAL INVESTMENT COST ('000 BIRR)**

Ser. No.	Cost Items	Foreign Currency	Local Currency	Total
1	Site preparation & land	-	883.20	883.20
2.	Building and Civil Work	-	315.00	315.00
3.	Plant Machinery and Equipment	670.00	129.20	799.20
4.	Office Furniture and Equipment	-	50.00	50.00
5.	Vehicle	-	500.00	500.00
6.	Pre-production Expenditure*	-	548.10	548.10
	<b>Total Investment cost</b>	<b>670.00</b>	<b>2,425.50</b>	<b>3,095.50</b>
7	Working Capital	61.98	206.32	268.30
	<b>Total</b>	<b>731.98</b>	<b>2,631.82</b>	<b>3,363.80</b>

## B. PRODUCTION COST

The annual production cost at full operation capacity is estimated at Birr 1.47 million (see Table 7.2). The material and utility cost accounts for 57 per cent while repair and maintenance take 3 per cent of the production cost.

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\* *Pre-production expenditure include interest during construction (Birr448,100), and the balance accounts for cost of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.*

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

Items	Year			
	3	4	7	10
Raw Material and Inputs	573	765.00	765.00	765.00
Labour direct	62.1	82.80	82.80	82.80
Utilities	55.13	73.50	73.50	73.50
Energy and Power				
Spare parts				
Maintenance and repair	30.00	40.00	40.00	40.00
Factory overheads	25.90	34.50	34.50	34.50
Administration Overheads	55.20	55.20	55.20	55.20
Total Operating Costs	802.00	1,051.00	1,051.00	1,051.00
Depreciation	217.40	217.40	217.40	117.40
Cost of Finance	232.50	227.30	202.60	168.90
Total Production Cost	1,251.90	1,495.90	1,470.90	1,337.20

## C. FINANCIAL EVALUATION

### 1. Profitability

According to the projected income statement, the project will start generating profit in the second 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) will 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.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 43 \%$$

## 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 8 years.

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

Based on the cashflow statement, the calculated IRR of the project is 14 % and the net present value at 10.5% discount rate is Birr 691 thousand.

## D. ECONOMIC BENEFITS

The project can create employment for 19 persons. In addition to supply of the domestic needs, the project will generate Birr 2.3 million interms 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.