

# Pre-Feasibility Study

## SEMI INTENSIVE SHEEP FARMING



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## 1. INTRODUCTION TO SMEDA

The Small and Medium Enterprise Development Authority (SMEDA) was established with the objective to provide fresh impetus to the economy through the launch of an aggressive SME support program.

Since its inception in October 1998, SMEDA had adopted a sectoral SME development approach. A few priority sectors were selected on the criterion of SME presence. In depth research was conducted and comprehensive development plans were formulated after identification of impediments and retardants. The all-encompassing sectoral development strategy involved recommending changes in the regulatory environment by taking into consideration other important aspects including financial aspects, niche marketing, technology up gradation and human resource development.

SMEDA has so far successfully formulated strategies for sectors including, fruits and vegetables, marble and granite, gems and jewelry, marine fisheries, leather and footwear, textiles, surgical instruments, urban transport and dairy. Whereas the task of SME development at a broader scale still requires more coverage and enhanced reach in terms of SMEDA's areas of operation.

Along with the sectoral focus a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of viable business opportunities for potential SME investors. In order to facilitate these investors, SMEDA provides business guidance through its help desk services as well as development of project specific documents. These documents consist of information required to make well-researched investment decisions. Pre-feasibility studies and business plan development are some of the services provided to enhance the capacity of individual SMEs to exploit viable business opportunities in a better way. This document is in the continuation of this effort to enable potential investors to make well informed investment decisions.

## 2. PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects

of project concept development, start-up, and production, finance and business management.

### 3. PROJECT PROFILE

The project is related to setting up a semi intensive sheep farm in promising areas of Balochistan. The document highlights all the marketing, management, and financial aspects required for the establishment and successful running of the project.

#### 3.1 *Project Brief*

The farm will serve as breeding and rearing farm for sheep. The project can be established in promising areas for sheep breeding where the average rainfall is at least 250 to 400 ml/year. Once the production of the farm attains its full capacity, it could also supply sheep to other parts of the country.

#### 3.2 *Opportunity Rationale*

With the frequent droughts, lesser rains and over use of grass lands, the pastures are becoming unproductive and hence extensive range grazing is becoming difficult and without profit. The alternative is that livestock owners having some fixed land base should be encouraged to undertake intensive / semi intensive farming which in the beginning would be little expensive but with the current lucrative price structure of meat throughout the country coupled with its developing exports potentials, would prove profitable enterprise. With the switching over to semi-intensive farming which would warrant supplementary feeding, non-conventional and economical feeding techniques and improved genetic material, the livestock farming can become a cost effective enterprise with its down stream positive effects in the farming community. The country can thus also be benefited with increased productivity of animal protein.

Since nutrition is a serious limiting factor in the livestock industry of Balochistan with the result that many animals arrive at the market in less than optimal body condition with body weight on the lower end, there is a dire need to ensure feed availability round the year with proper protein contents for increasing livestock productivity rather than its numbers. Such a situation directs to adopt non-conventional feed preparation and feeding techniques like treatment of wheat/ rice straws and other crop residues with urea or ammonia, molasses blocks, silage making, concentrate mixtures with low cost formulae, feed lots, semi intensive farming and ewe flushing etc. such techniques have already been tested and demonstrated to the farmers under different projects.

Based on the above facts, this pre-feasibility for sheep farm consisting of 200 heads of sheep using open pastures for grazing and providing stall feeding with intensive animal health coverage has been prepared for interested entrepreneurs as a guidance tool.

### 3.3 *Market Entry Timing*

Demand and supply fluctuates during the year depending upon Eid-Ziha and winter season. If the farmer is targeting Eid for sale of its young stock, it is suggested that pregnant female stock is purchased 16 to 18 months before the next Eid so that sufficient time is available for lambing and weight gain for the young stock. Normally sheep is impregnated in month of September and October.

#### Peak Season

Supply and demand for goats and sheep are at peak before Eid-Ziha, due to mass slaughter for Qurbani. A large Number of middlemen come to markets from Quetta, Punjab, Sindh and other areas to buy stocks and transport them to their areas.

Another season with higher supply and demand is the months of November and December. In these month's lambs and kids become adult, gain weight and no more depend on their mothers, and producers bring them to market for sale, Nomad and other livestock breeders want to sell their surplus stock because it is very difficult to breed them in winter.

#### Off-peak Season

June and July is off-peak season for livestock supply and demand because February, March and April are reproductive season for goats and sheep and newly born lambs and kids depend on their mothers. Moreover, consumption of meat decreases during summer. In this season, goats and sheep are also used for milking purpose.

### 3.4 *Proposed Business Legal Status*

The business can be started as sole proprietorship or partnership because of great potential involved. Furthermore, comparatively fewer complications are involved informing, administering and running the sole proprietorship or partnership businesses.

### 3.5 *Proposed Product Mix*

The farm would focus on the breeding and rearing of young stock for marketing, additionally the raw materials produced (manure and wool) which would be sold in local markets to

agricultural farmers and carpet manufacturers respectively. For better price of wool it is suggested that only sheep with white wool are bred. Once the farm has been established surplus female stock of breeding age i.e. after eighteen months could also be sold in market since it brings a better price as compared to young females of non breeding age.

### 3.6 Production Capacity

The farm will start production with 200 adult females for production. The over all farm size at this capacity would be around 547 animals including male stock less than one year of age, female stock less than 18 months of age and Female stock of breeding age. The limit of 200 adult breeding females has been imposed on the farm because very large herd would be difficult to be managed and fed.

#### Project Investment

The total project investment is Rs. 3.1 Million which includes working capital of Rs. 424,169 and Capital Cost of Rs. 2.7 Million It is assumed that the project would be totally equity financed.

### 3.7 Recommended Project Parameters

Table 3.7 Project Parameters

Max Capacity	Human Resource	Technology/Machinery	Location
200 Adult breeding	4	Local Made	Quetta & other feasible livestock rearing areas of Balochistan
Financial Summary			
Total Cost	IRR	NPV	Pay Back Period
Rs. 3.1m	25%	1,928,893	4.85 Years

### 3.8 Suitable Location

The suitable areas to establish sheep farm are northern and central Balochistan.

#### Northern Balochistan:

They include Killa Saifullah, Ziarat, Loralai, Zhob districts, Barkhan and MusaKhel Districts.

**Central Balochistan:**

They include several locations in Sibi, Kalat, Mastung and Khuzdar Districts. The major areas are:  
Sibi District: Harnai, Sanni, Gandawa, Khost and Kachhi plains. Kalat District: Mangocher and Johan.

Mastung District: Valley of Johan, Dasht, Isplinji and Karh-de-Gab.

**3.9 Key Success Factors/Practical Tips for Success**

- Livestock is one of the Major Strength of Balochistan. It is an integral part of the rural economy contributing 53.2 percent in Agricultural GDP while amounting to more than 11.5 percent in the national GDP.
- Traditional Farming is in practice in the province for Centuries.
- There is a great demand of livestock in local and international markets especially in Middle Eastern countries provided that farming is done on accepted standards.
- Northern and central Balochistan have the ideal climate for raising our local species of Goat and Sheep.
- Semi intensive farming is economical with better results.
- Availability of Trained Labor for Farming
- Local Availability of Raw material

**3.10 Strategic Recommendations**

- Establishment of the farms in areas where grazing is available.
- The farming should be done on scientific grounds taking care of Vaccination and Concentrate etc.
- Best quality female and male stock should be selected for breeding.
- New feeding techniques including concentrate feeding and preparation of urea molasses blocks, wheat straw treatment should be used for better results.
- Well-trained/experienced staff adding in the efficiency of the farm.



## 4. CURRENT INDUSTRY STRUCTURE

### 4.1 Introduction

Balochistan area wise is the largest province of Pakistan with a total land mass of 348,189 sq. km. it has a variety of geographic features including mountains, deserts, rangelands, forests and coastal line. Due to the low rainfall extensive crop culture operations are not possible in all the areas. It is estimated that about 15 per cent of the rangeland are located in areas having more than 250 mm annual rainfall, which can support perennial grasses and shrubs. Hence, barring some portions of Sibi, Mastung, Kalat, and Zhob districts, rest of the land surface does not even support rearing of livestock throughout the year thus necessitating seasonal migration of nomadic and transhumant grazers to find feed for their livestock, which include mostly sheep, goats and lesser number of cattle and camels. In spite of difficult conditions for livestock industry, it occupies a pivotal place in the economy of Balochistan due to being the mainstay of more than 75% of the people inhabiting the countryside in the relative absence of other means of subsistence. Due to recent drought particularly in Balochistan province which continued for almost 7 to 8 years the livestock population dropped considerably. It also reduced the resistance of the remaining livestock against diseases and other parasites.

The province is famous for possessing few carpet and mutton quality sheep capable to thrive well under harsh climate and at low level of nutrition namely Mengaly, Bibrik (Beevragh), Harnai, Balochi and Rakhshani.

Keeping in view the economical prospective, it is suggested that Balochi, Bibrik and Harnai sheep should be used in the farm, as these varieties have same feeding habits and could easily be managed as compare to the other varieties of sheep ( Mengaly and Rakhshani).

### 4.2 Prevalent system of Livestock production

Being a range based livestock production system, it is mostly nomadic and pastoralists migrate according to season, availability of feed for their flocks, opportunities for selling their own labor, to and for movement from summer and winter quarters adopting fixed migratory routes. Twice a year, in spring and autumn, groups of nomads and transhumant livestock owners follow precise itineraries to and from highlands of Balochistan. Two such itineraries can be distinguished as under:-

The east-west migratory routes, followed by Brahvi transhumant.

The north south migratory routes, usually followed by Pushtoon nomads and transhumant.

#### 4.3. *Characteristics of Breeds Recommended for Sheep Farming:*

##### 4.3.1 Balochi Sheep

It is a large sized fat tailed breed important in central, southern and some south-western parts of the province. It is a mutton and dairy sheep, producing coarse wool. The color of the body and ears is white with black or brown spots on the head, legs and even on body in some areas. The average wool production is 1.7 kg dirty and .8 Kg. clean with 90% white color, 8 % grey and 2% black. Average adult live weight is 34 kg.

##### 4.3.2 Harnai

It is a medium sized, fat tail sheep generally found in Sinjawi, Loralai, Ziarat and Harnai areas of the province. The color is predominantly white with black or brown spots on the ears and face. It is usually bred for wool, which is dense and heavy. The average wool production is 1.5 kg dirty and 1 kg clean. The wool is 94 % white and 6 % Grey in color. Average adult body weight is around 30-32 kg. The breed also produces excellent quality mutton.

##### 4.3.3 Bibrik

A medium to small sized fat tailed breed generally kept in the eastern and north eastern parts of Balochistan: Kohlu, Bugti, Barkhan, Musakhel and some parts of Loralai and Zhob districts. It has a white body with black or brown marks on the head and face. The breed is mainly for good quality mutton, and wool. The average wool production is 1.5 kg dirty and .7 kg Clean, and is 100 % white in color. Average adult live-weight is 27 kg.

#### 4.4 *Problems and Issues faced by the Livestock Sector*

##### ➤ Effect of Drought:

Drought was long recorded in Balochistan, but due to slow change and non-availability of technical facilities drought was not noticed until its full effects were seen on the ground especially on livestock.

Drought has created a very big space in the population of livestock and adversely affected the industry. Major share of local livestock is done by farmers in these areas. This situation created great economic losses to the industry. The remaining Livestock has declining growth, which is vulnerable to diseases. This situation decreases interest of the breeders and industry is deteriorating slowly.

This situation demands a great attention from the authorities in the form of some compensation as to make this profession survive, keeping in view the traditional life of these areas as livestock is part of family in this society.

➤ Issues related to production:

The most important issue in production is long-lasting drought that caused feed scarcity, affected fertility, weight gain of animals, caused diseases and production losses. It also increased cost of production and decreased breeders' interest. Most of the local producers are farmers, drought badly affected agriculture, which sequentially affected livestock.

➤ Issues related to Diseases:

Numbers of diseases are found in livestock, most common diseases are Peste Des Petits ruminants (KATA), PPR, Pneumonia, Piro Plasmosis, Fasciolasis, Ticks & Mange, sheep pox, Lungs and Stomach worm and Liver fluke. Sometimes the diseases causes epidemic situation in the area. If treatment is not provided on time the animal get weaker and weaker and ultimately die. Livestock departments and hospitals are working at District and Teshil level, and they are providing Prophylaxes and consultancy services to breeders through vaccination and regular checks of farms and flukes.

**Table 4.4.1. Vaccination schedule for protecting sheep from Diseases**

Months	First week	Second week	Third week	Forth week
January	Enterotoxaemia II Anthrax		Sheep Pox	
February			Foot and Mouth disease	
March				
April				
May	Pleuropneumonia			
June	Enterotoxaemia I		Anthrax	
July	Sheep Pox			

<b>August</b>				
<b>September</b>			Foot and Mouth disease	
<b>October</b>				
<b>November</b>			Pleuropneumonia	
<b>December</b>				

➤ Issues related to Selling:

Monopoly of the middlemen is the most important issue in the markets, normally final consumers buy one or two heads and cannot buy whole flock, so sellers are bound to sell their flocks to middlemen. Middlemen buy stocks on very low prices keep them for very few days and sell on higher prices. Most of the sellers are nomads they are bound to sell their stocks to middlemen before going to other area.

Another reason for the monopoly of middlemen is Local producer cannot stay in the market for a long period, he is bound to sell his stock to middlemen.

Yet another issue in selling is the weakness of animals due to diseases and drought. Weak animals cannot be sold easily and on good price.

Buying and selling activities are very low in the months of June and July which makes it difficult for the small produces to sell their flocks.

Transportation of stock to other areas positively affected the sale and sale price. If local market is not good, people take their flock to other markets nearby to Quetta etc. Now they are becoming less and less dependent on middlemen. Transportation modes made the breeder concern about their stocks, due to which they normally bring their sick stocks to hospital.

Sale price is affected by demand and supply, during peak season, i.e. Eid-Ziha prices are very high due to higher demands. Other factors that affect prices are

- Operational Cost
- Rainfall
- Cultivation
- Number of buyers from out like Quetta, Punjab and other areas
- Season
- Health of the stock

➤ Issues affecting Meat and milk production:

Meat and milk production depends on the breeds. Balochi and Harnai breeds of sheep produce more meat than other breeds. Meat and milk production is also affected by supply of feed, rainfall, nutrition, cultivation and health of the animal.

➤ Facilities in livestock markets:

There is none of the facility of water, shelter, feed stores in any of the market of Kalat, Mastung Sibi, Rakni, Muslim Bagh, and Killa Saifullah. Feed houses are there that sell feed of animal to seller or buyers. Veterinary medical facilities are strongly needed, as sick animals come to these markets with out any check up, cause's diseases to other healthy animals.

#### 4.5. Pakistan Contribution to the Sector

Table 4.5.1. Number of sheep by Sex and AGE in Pakistan

ADMINISTRATIVE UNIT	TOTAL SHEEP		SHEEP			
	HOUSEHOLDS REPORTING	NUMBER OF ANIMALS	ONE YEAR AND ABOVE			BELOW ONE YEAR
TOTAL			MALE	FEMALE		
KPK	273486	3363249	2296607	647833	1648774	1066643
PUNJAB	799762	6361767	4780628	951912	3828720	1581137
SINDH	269292	3958508	2754283	585915	2168367	1204223
BALUCHISTAN	221778	12804217	8288067	2178903	6109164	4516152
Total	1564318	26487741	18119585	4364563	13755025	8368155

Source: Agricultural Census Pakistan 2006 Statistics Division GoP

Table. 4.5.2. Number of Sheep Herds in Balochistan.

SIZE OF HERD	TOTAL SHEEP		NUMBER OF SHEEP ONE YEAR AND ABOVE			YOUNGSTOCK BELOW
	HOUSEHOLDS REPORTING	NUMBER OF SHEEP	TOTAL	MALE	FEMALE	ONE YEAR
<b>BALUCHISTAN PROVINCE TOTAL</b>	<b>221778</b>	<b>12804217</b>	<b>8288067</b>	<b>2178903</b>	<b>6109164</b>	<b>4516152</b>
001 TO 005 SHEEP	32791	104861	80398	38521	41879	24463
006 TO 015 SHEEP	54498	551371	377992	122123	255872	173382
016 TO 030 SHEEP	42854	944597	634181	174420	459767	310412
031 TO 050 SHEEP	31796	1273764	861086	234459	626627	412676
051 TO 075 SHEEP	21541	1324199	902449	244958	657492	421748
076 TO 100 SHEEP	11433	1001053	676997	177927	499074	324059
101 TO 150 SHEEP	10570	1310664	882159	220113	662043	428504
151 TO 200 SHEEP	4975	874918	619045	166494	452550	255868
201 TO 350 SHEEP	6437	1651116	1157931	324512	833417	493185
351 SHEEP AND ABOVE	4882	3767680	2095824	475384	1620439	1671857

Source: Agricultural Census Pakistan 2006 Statistics Division Go

## 5. MARKET ANALYSIS

### 5.1 Marketing Channels

Historically animals have not been marketed on a regular basis for income as a commercial endeavor but sold in times of need. Old females were sold in the spring to pay for supplies, and adult males in the fall for the production of LANDHI (dried meat) a winter staple food. When purchases of clothing, tea, sugar, grain, animal feed, seed, fertilizer or other market items are necessary animals are sold to provide sufficient funds. However, around population centers i.e. big towns and cities, producers have started to consider animal commercial ventures and targets specific markets.

Annual Horse and Cattle Show held at Sibi also provides farmers an opportunity to market their livestock within province as well as to other provinces, to Sindh and Punjab. Although livestock marketing is not well established in Balochistan, however there are livestock markets usually called "Pirri" scattered through out the province, but having very limited basic facilities both for farmers and animals. Marketing and distribution involves many stakeholders, producers (Agro pastoralists), dealers (usually from villages or adjoining areas), wholesalers, butchers, and consumers. It is difficult to be precise about their exact numbers and their role in the marketing process. The marketing takes place on individual animal as well as on lot basis. The different agents involved are described below:-

#### 5.1.1 Producers

Livestock producers are widely dispersed and only very rarely coordinate with each other. They sell their livestock principally at the village level. Since they sell small ruminants to meet urgent cash demand, the producers are not in a position to bargain very effectively. In a few cases, producers attempt to time the sale of animals to take advantage of seasonal fluctuation, but in general the expected price is not a determinant of the decision to sell.

#### 5.1.2 Village Dealers

Village dealers purchase animals from surrounding areas and sell them to wholesalers in town markets. They pay the animal transportation costs, feeding costs and their own transportation and food costs.

#### 5.1.3 Wholesalers and Commission Agents

Wholesalers buy from village dealers in small towns and transport the livestock to Quetta and the major consumption centers in other provinces such as Karachi and Lahore. Wholesalers also sell livestock through commission agents in the consumption centers. These agents are considered as an essential link with the buyers, and undertake the bargaining and arrangements of livestock sales.

#### 5.1.4 Butchers

Mutton, goat meat and beef are sold fresh and now even after refrigeration particularly in Quetta and other warmer areas, in small shops after 8-10 hours of slaughtering in traditional type slaughter houses which lack proper hygienic facilities. Most of the gross income returns to butchers come from meat sales, but a substantial portion is received from by-products such a skin, head, trotters, stomach, lung and liver.

### 5.1.5 Consumers

Non-graded meat is sold by the butchers in their shops where poor hygienic conditions do exist. The Government regulates consumer prices of essential commodities, one of which is meat, but does not guarantee minimum meat quality standards.

### 5.1.6. Wholesale Market Locations

Sheep and goats belonging to nomadic and transhumant grazers of Balochi and Brahvi tribes are marketed, besides Quetta, in Sibi and Jacobabad. They come down from their summer pastures in the highlands of Quetta, Mastung, Nushki, Kalat and Khuzdar districts to spend the winter in the lower plains of Kachhi and Nasirabad. Graziers of the Bugti and Marri tribes also market their surplus animals next to the local markets in Jacobabad and Sibi, alongside flock owners from the Bolan, Sibi, Jaffarabad and Nasirabad districts.

Sheep and goats belonging to the sedentary and transhumant grazers of the Khetran tribes of Barkhan, the Marri tribes of Kohlu agency and the Duki tehsil, the Pathan tribes of Musakhel district, and the Bugti tribes of Dera Bugti agency (Baker and Phailawag) are marketed in Rakhni (Barkhan district) a border check-post located on road to Punjab for further transport and consumption in various towns of Punjab.

**Table 5.1.6: Main Exit Markets:**

Exit Market Location	Destination	Mode of Transport	Species	Source of supply
South-East Sibi and Jacobabad (Sindh)	Karachi, Hyderabad, Sukkur and Parts of Punjab	Rail, Road	Sheep and goats, Cattle and camels, Horses, Donkeys	Balochi Tribes Brahvi Tribes Marri Tribes
South-West Bella, Doreji, Kanraj.	Karachi (Sindh)	Road, on hoof	Sheep and goats, Cattle	Transhumant grazier from Khuzdar, Awaran
North-East Rakhni	Lahore (Punjab) Faisalabad (Punjab) Multan (Punjab)	Road, on hoof	Sheep and goats	Khetran Tribe Bugti and Marri tribes Pathan tribes

Source: SMEDA survey



### 5.2. *Mode of Transportation:*

Earlier the flocks used to move on hoof to and for from the markets. Due to expansion of cities and increase of vehicular traffic all around it is no longer possible to bring the animals to markets on hoofs. Animals are usually transported on small trucks carrying about 70 sheep and goats or 8 to 10 beef animals.

### 5.3. *Brokerage/commission:*

Normally brokerage or commission is not fixed but minimum such charges range between Rs: 10/- to Rs: 15/- per head.

### 5.4. *Hired shelter:*

Hired shelter is available for unsold animals adjacent to markets in big towns where a fee of about Rs: 5-7 / per head is charged for one night. Feed stores are available in the vicinity for such an occasion.

### **Special occasions of marketing:**

Eid-ul-Azha is one special occasion when fattened animals especially goats and bullocks are in heavy demand and find good market in Karachi and other big cities like Lahore, Faisal Abad and Sialkot fetching handsome prices to the owners or middlemen.

Another such occasion is availed by the sheep owners of Barkhan, Musakhel, Marri and Bugti Districts at the influx of hunting teams coming from Saudi Arabia and United Arab Emirates. Lambs weighing 20 to 25 kg and yielding 12 to 14 Kg of meat are cherished by “Sheikhs and team members” and offered good price. This profitable trade goes on for at least two to three months annually.

## 6. BASIC REQUIREMENTS

Sheep Farming is very simple activity and does not require very sophisticated machinery and equipment. Following are the basic requirements for Sheep Farm.

*Table 6-1 Machinery and Equipment Requirement*

Description	Qty
Water Pump	1
Tubs	10
Balti (Small Water Drum)	10
Wheel Borrow	2
Weight scale	2
Ropes/ Scissors for shearing	8

## 7. HUMAN RESOURCE REQUIREMENT

Sheep farming is not a labor intensive project. Traditionally family is involved in grazing and feeding of sheep. For this particular project four attendants (Shepard) are required in the early years, which will increase to five attendants in 7th year.

**Table 7.1: Human Resource Requirement Details**

Description – HR Requirements	No:	Salary per month	Salary per year
Farm Manager	01	10,000	180,000
Helpers/shepherd	03	3000	108,000
<b>Total</b>			<b>288,000</b>

*Note: The staff salaries are estimated according to the market trends, however, the investor may set different pay scales.*

## 8. LAND AND BUILDING REQUIREMENT

A total of around 19,145 sq. feet land would be required for the Farm. Open Space requirement is 35 Sq.ft./Sheep while Shade requirement is 12 Sq.ft./Sheep.

### Recommended Mode

It is recommended to acquire/buy the total land required while the building would be expanded as the need arise in future.

**Table 8.1: Land and Building Requirement Details**

Description – Land and Building	Cost/Sq. Ft	Area in Sq. ft	Total Cost
Land	7	19,145	134,015
Shed	200	4,398	879,600
Office cum Store	500	120	60,000
<b>Total</b>			<b>1,073,615</b>

### 8.2. Machinery and Equipments

**Table 8.2: Machinery and Equipments**

Description	Total Cost
Machinery and Equipments	20,000

## 9. PRODUCTION RELATED ASSUMPTIONS

- The financials provided are for a semi-intensive sheep farm. The farmers will use open area grazing since it is the cheapest source of nutrition and indigenous sheep are better suited for this open area grazing. To get the better results the farmer will use medicine, vaccination and supplementary feeding feed concentrate/molasses treatment for sheep to gain extra weight.
- The financial statements are made based on the assumption of having 1 ½ crops per year which is in line with the techniques being used in this commercial farming project.
- All the one year old males of progeny crop will be sold in market.
- Healthy females from adult stock will be kept for next pregnancy, while adult females that have not provided good results will be sold. (Around 8% of total adult female sheep population) At the age of 18 months.
- Adult Mortality Rate 2 %, new born mortality rate 5%.
- Females will be impregnated at the age of 12 months.
- (Delivery stage) after 6 months of pregnancy period i.e. at the age of 18 months.
- The project will initiate with a flock size of 200 sheep.
- Adult Sheep will be fed .350 Grams of concentrate daily. The amount of feed may

increase or decrease keeping in view the feeding habits of animals and its cost may increase with the increase in the number of heads at the farm.

## 10. PROJECT ECONOMICS

### 10.1 Total Capital Requirement

**Table 10.1: Total Capital Requirements**

<b>Capital Investment</b>	<b>Rs. in actual</b>
Land	134,015
Building/Infrastructure	939,600
Equipment/ Machinery	20,000
Live Stock	1,648,000
<b>Total Capital Costs</b>	<b>2,741,615</b>

<b>Working Capital</b>	<b>Rs. in actual</b>
Raw material inventory	24,169
Cash	400,000
<b>Total Working Capital</b>	<b>424,169</b>
<b>Total Investment</b>	<b>3,165,784</b>

### 10.2 Capital Structure of the project

**Table 10.2 Project Financing**

<b>Initial Financing</b>	<b>Rs. in actual</b>
Debt	-
Equity	<b>3,165,784</b>
<b>Total Investment</b>	<b>3,165,784</b>

## 11. FINANCIAL ANALYSIS

Financial Evaluation of ...											SMEDA
<b>Key Variables</b>											
Type of Machinery											...
Cost of One Machine											...
Number of Machines											...
Total Investment in Project											3,165,784
Equity	100%										3,165,784
Debt	0%										-
Lease	0%										-
Export-refinance	0%										-
Interest Rate											11%
Debt Tenure											5
Debt Payments per year											1
Total Number of Employees											...
											Rs. in actuals
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Free Cash Flow to Equity (FCFE)	(455,306)	1,014,771	(149,539)	2,165,959	689,773	2,538,062	876,934	2,658,754	990,012	2,829,719	
Free Cash Flow to Firm (FCFF)	(508,907)	1,071,783	(149,539)	2,165,959	689,773	2,538,062	876,934	2,658,754	990,012	3,902,831	
Profit margin on sales	-236%	56%	16%	67%	41%	72%	47%	75%	53%	78%	
ROE	-16%	21%	4%	27%	8%	22%	7%	18%	6%	15%	
		<b>Equity</b>		<b>Project</b>							
Internal Rate of Return (IRR)		28%		25%							
Modified Internal Rate of Return (MIRR)*		18%		16%							
Payback Period (yrs)		3.99		4.85							
Net Present Value (NPV)	@ 16%	2,421,040	@ 16%	1,928,893							
*Re-investment rate has been taken to be the interest on cash in bank, which in this case is 4%											

<b>Statement Summaries</b>										<b>SMEDA</b>
<b>Income Statement</b>										Rs. in actuals
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	224,630	1,950,677	1,244,359	3,199,419	1,725,915	3,451,830	1,725,915	3,451,830	1,725,915	3,451,830
Cost of goods sold	604,060	715,901	870,143	892,228	912,912	917,085	921,674	926,723	932,277	938,387
Gross Profit	(379,430)	1,234,776	374,216	2,307,191	813,003	2,534,745	804,241	2,525,107	793,638	2,513,443
<i>General administration &amp; selling expenses</i>										
Depreciation expense	48,980	48,980	48,980	67,499	67,499	70,640	70,640	70,640	70,640	70,640
Subtotal	156,980	162,380	207,740	234,197	242,532	254,425	263,614	273,262	283,394	294,031
Operating Income	(536,410)	1,072,396	166,476	2,072,993	570,471	2,280,321	540,627	2,251,844	510,244	2,219,412
Other income	8,000	20,295	37,600	77,928	135,043	199,600	267,900	338,613	411,589	487,983
Gain / (loss) on sale of assets	-	-	-	-	-	-	-	-	-	-
Earnings Before Interest & Taxes	(528,410)	1,092,691	204,076	2,150,922	705,514	2,479,921	808,526	2,590,458	921,833	2,707,396
Interest expense	1,706	1,706	-	-	-	-	-	-	-	-
Earnings Before Tax	(530,115)	1,090,986	204,076	2,150,922	705,514	2,479,921	808,526	2,590,458	921,833	2,707,396
Tax	-	-	-	-	-	-	-	-	-	-
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>(530,115)</b>	<b>1,090,986</b>	<b>204,076</b>	<b>2,150,922</b>	<b>705,514</b>	<b>2,479,921</b>	<b>808,526</b>	<b>2,590,458</b>	<b>921,833</b>	<b>2,707,396</b>
Balance brought forward		(530,115)	560,870	764,946	2,915,868	3,621,382	6,101,303	6,909,829	9,500,287	10,422,120
Total profit available for appropriation	(530,115)	560,870	764,946	2,915,868	3,621,382	6,101,303	6,909,829	9,500,287	10,422,120	13,129,515
Dividend	-	-	-	-	-	-	-	-	-	-
Balance carried forward	(530,115)	560,870	764,946	2,915,868	3,621,382	6,101,303	6,909,829	9,500,287	10,422,120	13,129,515

SMEDA											
Rs. in actuals											
Statement Summaries											
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	400,000	-	1,014,771	865,231	3,031,190	3,720,963	6,259,024	7,135,958	9,794,712	10,784,724	13,614,443
Raw material inventory	24,169	30,021	38,388	41,206	44,122	46,328	48,645	51,077	53,631	56,312	-
<b>Total Current Assets</b>	<b>424,169</b>	<b>48,484</b>	<b>1,142,555</b>	<b>1,037,741</b>	<b>3,257,933</b>	<b>3,969,702</b>	<b>6,520,453</b>	<b>7,399,819</b>	<b>10,061,127</b>	<b>11,053,820</b>	<b>13,827,227</b>
<i>Fixed assets</i>											
Land	134,015	134,015	134,015	134,015	134,015	134,015	134,015	134,015	134,015	134,015	134,015
Building/Infrastructure	939,600	892,620	845,640	1,169,046	1,103,547	1,100,861	1,032,221	963,581	894,941	826,301	757,661
Machinery & equipment	20,000	18,000	16,000	14,000	12,000	10,000	8,000	6,000	4,000	2,000	-
Furniture & fixtures	-	-	-	-	-	-	-	-	-	-	-
Office vehicles	-	-	-	-	-	-	-	-	-	-	-
( Livestock	1,648,000	2,306,000	3,077,210	3,394,415	3,569,500	3,569,500	3,569,500	3,569,500	3,569,500	3,569,500	3,569,500
<b>Total Fixed Assets</b>	<b>2,741,615</b>	<b>3,350,635</b>	<b>4,072,865</b>	<b>4,711,476</b>	<b>4,819,062</b>	<b>4,814,376</b>	<b>4,743,736</b>	<b>4,673,096</b>	<b>4,602,456</b>	<b>4,531,816</b>	<b>4,461,176</b>
<i>Intangible assets</i>											
Total Intangible Assets	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL ASSETS</b>	<b>3,165,784</b>	<b>3,399,119</b>	<b>5,215,420</b>	<b>5,749,217</b>	<b>8,076,995</b>	<b>8,784,078</b>	<b>11,264,189</b>	<b>12,072,916</b>	<b>14,663,583</b>	<b>15,585,636</b>	<b>18,288,404</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable	-	50,144	59,555	72,071	73,842	75,412	75,602	75,802	76,012	76,233	71,604
Short term debt	-	55,306	-	-	-	-	-	-	-	-	-
<b>Total Current Liabilities</b>	<b>-</b>	<b>105,450</b>	<b>59,555</b>	<b>72,071</b>	<b>73,842</b>	<b>75,412</b>	<b>75,602</b>	<b>75,802</b>	<b>76,012</b>	<b>76,233</b>	<b>71,604</b>
<i>Other liabilities</i>											
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	3,165,784	3,823,784	4,594,994	4,912,199	5,087,284	5,087,284	5,087,284	5,087,284	5,087,284	5,087,284	5,087,284
Retained earnings	-	(530,115)	560,870	764,946	2,915,868	3,621,382	6,101,303	6,909,829	9,500,287	10,422,120	13,129,515
<b>Total Equity</b>	<b>3,165,784</b>	<b>3,293,669</b>	<b>5,155,865</b>	<b>5,677,146</b>	<b>8,003,152</b>	<b>8,708,666</b>	<b>11,188,587</b>	<b>11,997,113</b>	<b>14,587,571</b>	<b>15,509,404</b>	<b>18,216,799</b>
<b>TOTAL CAPITAL AND LIABILITY</b>	<b>3,165,784</b>	<b>3,399,119</b>	<b>5,215,420</b>	<b>5,749,217</b>	<b>8,076,995</b>	<b>8,784,078</b>	<b>11,264,189</b>	<b>12,072,916</b>	<b>14,663,583</b>	<b>15,585,636</b>	<b>18,288,404</b>
<i>Note: Total assets value will differ from project cost due to first installment of leases paid at the start of year 0</i>											

(0) (0) (0) (0)											
SMEDA											
Rs. in actuals											
<b>Statement Summaries</b>											
<b>Cash Flow Statement</b>											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<i>Operating activities</i>											
Net profit	-	(530,115)	1,090,986	204,076	2,150,922	705,514	2,479,921	808,526	2,590,458	921,833	2,707,396
Add: depreciation expense	-	48,980	48,980	48,980	67,499	67,499	70,640	70,640	70,640	70,640	70,640
Raw material inventory	(24,169)	(5,852)	(8,367)	(2,818)	(2,916)	(2,206)	(2,316)	(2,432)	(2,554)	(2,682)	56,312
Accounts payable	-	50,144	9,412	12,516	1,771	1,570	190	200	210	220	(4,628)
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(24,169)	(455,306)	1,070,077	220,847	2,165,959	752,587	2,538,062	876,934	2,658,754	990,012	2,829,719
<i>Financing activities</i>											
Change in short term debt	-	55,306	(55,306)	-	-	-	-	-	-	-	-
Issuance of shares	3,165,784	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financ	3,165,784	55,306	(55,306)	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(2,741,615)	-	-	(370,386)	-	(62,814)	-	-	-	-	-
Cash (used for) / provided by invest	(2,741,615)	-	-	(370,386)	-	(62,814)	-	-	-	-	-
<b>NET CASH</b>	<b>400,000</b>	<b>(400,000)</b>	<b>1,014,771</b>	<b>(149,539)</b>	<b>2,165,959</b>	<b>689,773</b>	<b>2,538,062</b>	<b>876,934</b>	<b>2,658,754</b>	<b>990,012</b>	<b>2,829,719</b>
Cash balance brought forward		400,000	-	1,014,771	865,231	3,031,190	3,720,963	6,259,024	7,135,958	9,794,712	10,784,724
Cash available for appropriation	400,000	-	1,014,771	865,231	3,031,190	3,720,963	6,259,024	7,135,958	9,794,712	10,784,724	13,614,443
Dividend	-	-	-	-	-	-	-	-	-	-	-
Cash carried forward	400,000	-	1,014,771	865,231	3,031,190	3,720,963	6,259,024	7,135,958	9,794,712	10,784,724	13,614,443



## 12. KEY ASSUMPTIONS

### 12.1 Breed Plan

	Year	1-2			3-4			5-6			7-8			9-10		
	Months	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
Adult Female	200	200	180	162	236	261	253	270	270	270	270	270	270	270	270	270
Extra Females sold Breeding age		0	0	0	36	61	53	70	70	70	70	70	70	70	70	70
Adult Female with Limits	200	200	180	162	200	200	200	200	200	200	200	200	200	200	200	200
Adult Mortality	2%	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
Adult Females Culled	8%	16	14	13	16	16	16	16	16	16	16	16	16	16	16	16
Balance Females		180	162	146	180	180	180	180	180	180	180	180	180	180	180	180
Adult Male Required	3%	6.00	5	5	6	6	6	6	6	6	6	6	6	6	6	6
New Born	95%	190	171	154	190	190	190	190	190	190	190	190	190	190	190	190
New Born Mortality	5%	10	9	8	10	10	10	10	10	10	10	10	10	10	10	10
Balance Progeny		181	162	146	181	181	181	181	181	181	181	181	181	181	181	181
Female		90	81	73	90	90	90	90	90	90	90	90	90	90	90	90
Male		90	81	73	90	90	90	90	90	90	90	90	90	90	90	90
3-10 Month old Female		0	90	81	73	90	90	90	90	90	90	90	90	90	90	90
11-18 Month old Female		0	0	90	81	73	90	90	90	90	90	90	90	90	90	90
Young Male Culled		0	90	81	73	90	90	90	90	90	90	90	90	90	90	90
Balance		367	420	468	521	530	547	547	547	547	547	547	547	547	547	547

**Table 12-2 Cost of Goods Sold per Unit of Production**

COGS (Raw material per unit)	Per Animal/ Day	Per Animal / Year
Live Stock	Rs. 8,000	Rs. 8,000
Concentrate (Daily requirement 0.500 kg/ Animal) (Average price of 1 kg Rs. 20)	Rs. 8	Rs. 1648
Prophylaxis (Vaccine and De wormer) ( 26 + 24 )		Rs. 50
COGS 1 (Raw material per unit)		Rs. 9,698

**Cost of Goods Sold per Unit of Production (CoGS)**

The per unit CoGS for one year calculated as about Rs. 9,698 rupees, the amount consist of 8,000 rupees of Sheep (one year hold) on average basis, whereas the concentrate and prophylaxis ( Vaccine and Dewormer) used per animal for the whole period are of Rs. 1648, and Rs. 50 respectively

**Table 12-3 Production Related Assumptions**

Capacity at beginning	200
Sale price growth rate per annum	10%
Production capacity utilization in first year	80%
Production capacity utilization growth rate	10%
Maximum production capacity utilization	95%

**Table 12-4 Economic Related Assumptions**

Inflation rate	10%
Wage growth rate	10%
Electricity Growth Rate	10%

**Table 12-5 Cash Flow Assumptions**

Accounts Receivables Cycle (In Days)	30
Accounts Payable Cycle (In Days)	30
Initial cash on hand	Rs. 400,000