Pre-Feasibility Study

CAMEL FARM
(40 CAMELS)

Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

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1. EXECUTIVE SUMMARY

Camel Farm is a project of the livestock. The project is proposed to be set up in rangelands of Balochistan, coastal areas and desert area of Cholistan, Thal and Tharparker. In these regions, camel is a source of milk and meat, transport facility provider and a racing/dancing animal, thus, playing an important role in the socioeconomic uplift of the local community. A herd of 40 camel breeders would be purchased and raised in conventional farming system. The breeder herd is assumed to give birth to 27 camel calves every two years. The female calves would be retained for milk and breeding purpose, while the male camels would be raised on the farm for 2 years and then sold into the local market. The milk from the camel cow would be sold directly to consumers or processing companies.

Cholistan desert has long been famous for raising different breeds of livestock and supply excellent quality of their products, which contribute a significant share to national meat, milk and wool output. The people residing in remote desert areas and nomads consume fresh raw or soured camel milk (a sort of yogurt). The nutrient contents of the camel milk are as good as or even better than that of the cow milk. Of great relevance for human nutrition in desert arid areas is its high vitamin C content ranging between 29 and 36 mg/litre milk, which amounts to three times the level of cow's milk and one and a half times as much as in human milk. Almost around all major cities in Pakistan mobile camel dairies are found. The nomad camel keeping families keep on moving from one suburb locality of the city to another and sell camel milk there. The reported milk yield ranges between 900 and 4000 litres in a lactation period of 250 to more than 500 days. The average daily yield under different management systems is reported to vary from 3 to 8 litres. The females are milked twice to four times a day in Pakistan. According to a very modest estimate, the camel milk annually produced in this country is 0.24 million tons valued at Rs. 2.4 billion.

The total initial cost for setting up the quail unit is estimated at Rs. 8.417 million. The project is proposed to be financed through 50% debt and 50% equity. The project NPV is projected around Rs. 15.949 million, with an IRR of 38% and a payback period of 4.27 years. The legal business status of this project is proposed as 'Sole Proprietorship'.

In this pre-feasibility study, all the calculations have been based on a breeder herd size of 40 camels, (2 males and 38 females). 70% of the females in the parent herd are assumed to be pregnant and would give birth to 27 camel calves every 2 years. The male camel calves are sold after being raised for two years. The female calves would be added to the breeding herd and would reproduce after 5 years and add to the milk production. Camel cows would be producing approximately 4500 litres of milk for a year.

2. INTRODUCTION TO SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established with an 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 finance, marketing, technology and human resource development.

SMEDA has so far successfully formulated strategies for industries such as horticulture, including export of fruits and vegetables, marble and granite, gems and jewellery, marine fisheries, leather and footwear, textiles, surgical instruments, transport, dairy etc. 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 continuation of this effort to enable potential investors to make well-informed investment decisions.

2 PURPOSE OF THE DOCUMENT

The objective of this pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. This 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, marketing, finance and business management. The document also provides sector information and international scenario, which have some bearing on the project itself.

The purpose of this document is to facilitate potential investors of Camel Farm by providing them a macro and micro view of the business with the hope that the information provided herein will aid potential investors in crucial investment decisions.

This report is based on the information obtained from industry sources as well as discussions with businessmen. In the financial model, since forecast/projections relate to the future periods, actual results are likely to differ because of events and circumstances that do not occur as expected.

3 PROJECT PROFILE

3.1 Opportunity Rationale

Livestock products not only provide high-value protein but are also important sources of a wide range of essential micronutrients, in particular minerals such as iron and zinc, and vitamins such as vitamin A. For the large majority of people in the world, particularly in developing countries, livestock products remain a desired food for nutritional value and taste. The existing daily availability of protein quantity per capita in Pakistan deriving from animal source including beef, mutton, poultry and fish combined amounts to 11 grams. This is far less than the recommended daily dietary protein allowance from animal source of 26 grams according to the World Health Organization standards.

The indigenous dromedary camel (Camelus dromedarius) has continued to be the sole source of food, transport, and income for hundreds of thousands of nomads, its potential for increasing food supplies and family income has almost been ignored by planners of development projects and researchers. There is sufficient evidence to indicate that the dromedary camel possesses practical and unique attributes for meat and milk production under intensive and extensive management in the arid and semi-arid regions of Pakistan. Due to prevailing droughts and the trend towards decreasing production of other animals, the camel has gained more attention as a way of bridging the gap between demand and supply. Decreasing camel population demands that we attend to the factors contributing towards its decline. Recent studies have shown that the camel is a prime candidate for meeting the milk requirements of pastoral people, and as well as other populations if managed, bred and fed properly.

Furthermore, in the context of change and global warming, under-exploited species like camel will find a better place to thrive and produce even under harsh climatic conditions. There are many virgin areas of research and development in this species, demanding that proper milk recording, selection and breeding practices are made to exploit its genetic potential to the maximum. Some planned and integrated efforts are needed in the camel-populated areas of Cholistan and Balochistan to undertake research and development on this species and allied matters. This is expected to bring revolutionary changes and further improvements in enhanced milk production and assist camel herders by improving their pastoral economy.[1]

1 Pakistan Veterinary Journal - 2010 "Economic Importance of Camel: Unique Alternative under Crisis" (www.pvj.com.pk/pdf-files/30_4/191-197.pdf)

3.2 Project Brief

The camel farming is a project of livestock sector, in which, the camels would be raised for both milk and meat purpose. The camel breeder herd would be raised on the conventional farming system. The adult breeding herd would be procured from local animal market. The milk of the camel cow would be sold directly to consumers or processing companies. In addition, the farm would work for the production of camels for sacrificial purpose as well as meat purpose. A herd of 40 camels would be sufficient to start the farm, having 2 males and 38 female camels. 70% of the female camels would purchased are assumed to be pregnant and would give birth after 6 months. Through out the project life 70% of the female camels in the parent herd are assumed to give birth to 27 camel calves every two years. The lactation period of female camels lasts around a year. The male camels would be raised for 2 years and sold in different animal markets.

The specific requirement would be met by maintaining the herd in harsh environments, and would be provided proper feed and good animal husbandry practices which would be monitored by the concerned staff.

3.3 Proposed Business Legal Status

The business legal status of the proposed project can either be sole proprietorship or partnership. Additionally, it can also be registered under the Companies Ordinance, 1984 with the Securities & Exchange Commission of Pakistan. The selection depends upon the choice of the Entrepreneur. This Pre-feasibility assumes the legal status to be Sole Proprietorship.

3.4 Proposed Capacity and Product Mix

In this pre-feasibility study, all the calculations have been based on a breeder herd size of 40 camels, (2 males and 38 female). 70% of the females in the parent herd are assumed to be pregnant and would give birth to 27 camel calves every 2 years. The male camel calves are sold after being raised for two years. The female calves would be added to the breeding herd and would reproduce after 5 years and add to the milk production. Camel cows would be producing approximately 4500 litres of milk for a year.

4 FEATURES OF CAMEL

4.1 Introduction of Camels

There are two main types of camels found in the world. One humped camel generally called Dromedary (*Camelus dromedarius*) is found in the Arabian deserts, Iran, Afghanistan, Central and South Asia and the other is Bactrian (*Camelus bactrianus*) two-humped camel, which is found in central Asia, Russia and China. In Pakistan, the dromedary type of camels are found with a population of around 1.00 million while the number of Bactrian are said to be approximately 1000 animals only, which are available in extremely northern areas of the country or a few are kept in the zoos.

Typical camel herd in desert

Courtesy: Dr. Raziq

4.2 Traits of Camel

The camels are regarded as the most intelligent animals and can find out their way in the desert when there are no signs of road. It is a unique beast of burden, which is loaded in sitting position and gets up with a jerk of its long neck. Camels do not need to be shod. The flat pads of the feet are horny and cushioned and help the camel to walk on the sand without making any sound while the feet of other animals sink into the sand. Due to this trait, the camel has been given the name "*ship of the desert*".

Camel is better as riding animal than horse. They are quieter and gentler than horses. Camels can carry more weight than horses. Also, a well-designed camel saddle has more room to carry whatever extra gear. The long muscular legs allow camels to cover great distances; they walk up to 40 km per day with 200 to 300 kg of baggage. Riding a camel is quiet and peaceful.

The ability of camel to allow its body temperature to fluctuate in response to certain forms of environmental stress saves significant amounts of energy and water. The well-developed hump is full of fat that serves as a store of water and food at the time of starvation. The fat of hump gets dissolved gradually during starvation and collects again when the camel gets adequate water and feed. Camel can eat anything when tired and hungry. Under very hot conditions, the camel may drink only every 8-10 days and loose up to 30% of the its live body weight through dehydration. Other animals die at 10% live body loss through dehydration. They can live without water for 3 days in summer and 7 days in winter. However, there are some examples of this animal remaining without water for 20 to 40 days. After 40 days the camel goes blind due to excessive dehydration.

The chest pad helps the animal to rest while sitting on the ground. The rest of the body is saved from concussion against the ground. There are other pads at the knee and half joint and in front of the joint of thighs. These prevent the limbs from

concussion against the ground. The camel sleeps less and possesses great power of remembrance. It keeps in mind the harsh behaviour, beating or even the abuses from the camel man and takes revenge at the appropriate time.

Camels are hornless and lack gall bladder. Their ears are small but have a great power of hearing. Camel can hear and understand the voice of its herder from a long distance. Camel has prominent eyes with a wide range of vision. They are protected by an overhanging upper lid with long eyelashes, which protect the eyeballs from powerful rays of the sun. The upper lip of the mouth has a cut in the middle. The flaps of the upper lip not only help in catching the twigs (thin shoots of the trees and bushes) but also enable the nostrils to cover to keep out the sand and dust at the time of sand / dust storms. Camel has a well-developed power to smell. They can smell water 50 miles away. Camels urinate less than 1 litre of urine per day in hot summer days.

4.3 The Camels of Pakistan

Camel is the only livestock specie which was originally domesticated for milk. In Pakistan camel population attained one million head with almost 20% of lactating camel producing around 0.6 million ton of milk annually (Raziq et al, 2008). Milk and meat are the principal products of camel. The huge amount of milk is not well documented and never marketed. The Pakistani camel breeds are highly diversified and can produce up to 40 litres of milk per day in ordinary grazing conditions. Such high yielding specimens are found in Pakistan, especially in desert areas of the country.

Table 4-1: Camel breeds in Pakistan

Provinces	Major Camel Breeds
Punjab:	Bagri (Booja), Brela (Thalocha), Campbelpuri, Marecha
Balochistan:	Brahvi , Kachhi , Kharani , Lassi , Makrani , Pishin, Rodbari
KPK	Gaddi, Ghulmani, Khader, Maya
Sindh	Dhatti , Kharai , Larri (Sindhi), Sakrai

Table 4-2: Camel population in districts of the Suleiman Mountainous Region[2]

District	Male	Female	Total
Barkhan	2,098	4,078	6,176
Killa Saifullah	6,369	4,558	10,927
Kohlu	24,796	23,647	48,443
Loralai	1,396	494	1,890
Musakhel	6,708	13,898	20,606

[2] *Raziq et al. Journal of Ethno biology and Ethno medicine, Livestock Census, 2006*

Zhob	2,343	844	3,187
Total			**91,229**

4.4 Camel breeds of Punjab

The Cholistani pastoralists keep two distinct camel breeds, Marrecha and Brela. The production systems and the characteristics of these breeds differ.

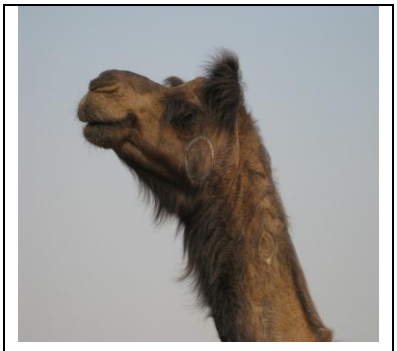
Table 4-3: District wise distribution of Camel[3]

Sr. No	District	No. of Camel Heads
1	Bahawalpur	11,328
2	Rajanpur	18,338
3	Bhakkar	19,339
4	Mianwali	8,796
5	Layyah	16,344
6	Khushab	8,594
7	Jhang	8,289
8	Attock	8,443
9	DG Khan	11,745

4.4.1 Marrecha

The Marrecha is known as dual type in Punjab. Marrecha camel is also known as Bekaneri camel in Rajasthan, India. This breed of camel is well adapted to the sandy desert and is best suited to work in desert ecosystems. These animals can travel 100 to 125 km a day at a high speed of 20-25 km per hour. Marrecha camels have good milk production ability in the desert ecology, thus herders also select this breed for more milk to sustain human life in the desert.

The average herd size of the Mareecha camel is 37. Majority are female with 20-25 lactating camels. The color ranges from blackish brown to light brown and fawn; majority of the camels are fawn. Marrecha has long thin neck, long legs, long eye lashes, hair on the ears and neck with medium head and pointed muzzles. The rabbit like ears are the salient feature of this breed. The top priority of Mareecha herders is to produce drought camels for the transportation of their families in the desert. As Marrecha is highly demanded for its racing ability and beauty, the herders stress on its beauty.



Marrecha Camel

[3] *Research Report of Dr. A. Raziq*

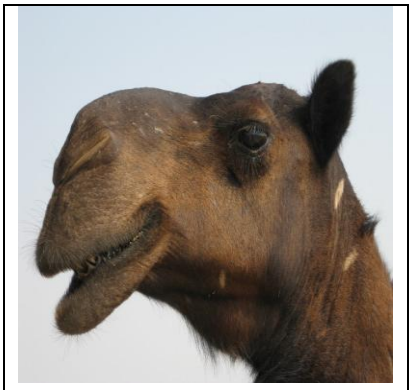
This breed is mainly used for the transportation and riding in the desert. The males are trained for many events and riding in the desert. There is high demand for Mareecha camel by race hobbyist in local market and Middle East. Mareecha camel is liked by hobbyists and carters of the cities and produces milk in harsh conditions with high temperature and scarcity of feed and water. This characteristic of Mareecha camel enables its' herders to live in deep deserts and use the camel milk as food security. They also provide good amount of milk to male calves for vigor and good health.

The male animals are sold at the age of 2-3 years at different times in a year. They are sold locally and in famous camel fairs. Channan Peer fair is one of the famous fair for male Marrecha animals. They fetch good price according to its beauty, attraction and taste of the buyer.

4.4.2 Brela

The Brela camel originates from the Thal desert of Pakistan. Thal desert is irrigated and brought under canal irrigation. The women in these areas usually sell milk as means of earning for themselves.

Brela is good milk producer with sustainable lactation yield, hence a good source of earning in the form of milk for its herders especially women folk. It is a docile animal and would allow a stranger to milk it. It is also adaptive in any ecosystem and may be raised in areas for milk production where camels are normally not raised. The male Brela camel is mainly raised and sold for meat.



Brela Camel

The average herd size of the Brela camel is 26, with the majority being females. The percentage of lactating camels in the herd ranges from 23-27%, but that depends upon the status of the year (dry or wet). The milking season of Brela is from October to March. It is higher milk producing animal producing 22 litres per day with a lactation length of 9 months (Raziq 2009b) and milked regularly, twice a day. The color of the animal ranges from blackish brown to light brown, majority being deep brown, sometimes white specimen are also found. Brela is one of the massive breed of the country with thick neck, wide chest, muscular legs and massive head. The hanging lip is one of the salient features of the breed.

4.5 Camel Milk

Camel milk is slightly saltier as compared to cow's milk, three times as rich in Vitamin C and is known to be rich in iron, unsaturated fatty acids and B vitamins. It is a natural and essential food item in areas where there is a scarcity of water and forage. Camel is most efficient animal in milk production on per unit feed consumption basis. Research shows that a cow in rangelands conditions needs 9.1 kg

of dry matter feed to produce one litre of milk, while camel produce one litre of milk by consuming only 1.9 kg of dry matter feed under the same conditions.

The lengthy days without water do not depress the camel's milk quantity or quality. The milk becomes even more watery during the period of water scarcity to fulfil the water requirements of thirsty suckling calves. Camel cow has four teats with at least two orifices in each teat. If one orifice is blocked the milk can come through the other orifice. Camel contains equal quantity of milk in four quarters unlike cows who have more milk in hindquarters. The colostrums are white and watery instead of thick and cream coloured (cow colostrums).

Camel milk is a nervine tonic and is good for eyesight. It is a booster of the immune system, contains protective proteins, including the immunoglobulin necessary for maintaining the immune system and for brain development. It contains 25-30 times as much lactoferrin as cow milk. Lactoferrin is a fairly recently discovered iron containing protein that has been shown to have antiviral, antifungal, anti-inflammatory, analgesic and anti-carcinogenic effects.

Camel's milk is a rich source of proteins with potential anti-microbial and protective activity. The fat globules are smaller in camel's milk than in cow's milk and that explains why camel's milk is unstable at high temperature. Camel's milk protein is coated with fats, which enhance protein absorption in intestines. Camel's milk fat contains much higher concentration of long-chained fatty acids (C 14 - C 18) than short-chained fatty acids, and is therefore healthier. Sour camel's milk is not a waste but is a part of the traditional diet in Somalia known as "susa" and in Arabia as "Al-garss" and in Baloch pastoral areas as "Sorain".

4.6 Camel Meat

Camel meat is relatively high in polyunsaturated fatty acid in comparison to beef. This is an important factor in reducing the risk of cardiovascular diseases. Camel meat is also used for remedial purposes for diseases such as hyperacidity, hypertension, pneumonia and respiratory disease. Camel lean meat contains about 77% water, 19% protein, 2.8% fat, and 1.2% ash with a small amount of intramuscular fat, which renders it a healthy food for humans. Camel meat has raspberry red to dark brown colour. The fat of the camel meat is white. Camel meat is processed and used in burgers, patties, sausages etc. Camels reach live weights of about 650 kg at 7–8 years of age, and produce carcass weights ranging from 125 to 400 kg with dressing-out percentage values from 55% to 70%. Camel carcasses contain about 57% muscle, 26% bone and 17% fat.

5 CRUCIAL FACTORS & STEPS IN DECISION MAKING

Before making a decision, whether to invest in this project or not, one should carefully analyze the associated risk factors. SWOT analysis can help in analyzing these factors which play an important role in decision making.

5.1 Strengths

- Camels are the preferred livestock species in extremely dry zones, enabling individuals to live in otherwise uninhabitable areas.
- Strengthening livestock sector
- Doctors often prescribe it to convalescing patients; it may be recommended for people living with AIDS, and for reducing diabetes and coronary heart disease
- A source of earning for nomads living in rangelands of Balochistan and desert areas of Cholistan, Thar and Thal.
- Milk yield of Camel can go up to 20 litres per day.
- Camel farming does not require extensive set up as it follows conventional farming system.
- Camel milk typically fetches over a dollar a litre that would mean regular income for nomadic herders who currently have few other sources of revenue.

5.2 Weaknesses

- Marketing is one major issue of camel husbandry.
- Due to lack of awareness, camel meat demand is lesser as compared to other meat types in local areas. Interest from Pakistani consumers in camel meat is limited.
- More intensive feeding of camels by traders or butchers within city boundaries may enhance the value of camels before slaughter. However, little information exists on changes in carcass composition during the feeding process.

5.3 Opportunities

- A growing awareness that the camel can serve as a major food (milk and meat) producer in semi-arid and arid areas has helped change its image from 'ship of the desert' to 'a food security animal'.
- Camel meat and milk is daily kitchen item especially in Southern areas of Pakistan like Multan, Bahawalpur, Rahim Yar Khan etc. Developing opportunities to increase camel milk production by using concentrates, practicing early weaning and reducing calving intervals, as is done in Tunisia, could have positive economic benefits for herder pastoralists.
- Racing and safaris is one more avenue for fortifying camel production. Camel fairs and safaris are attracting thousands of people from around the world in many countries.
- Herders have lost access to traditional grazing grounds and tend to stay closer to urban centres and it might be possible to organize groups of camel owners for milk collection and link them up with dairy plants for activities such as milk collection, milk processing and cheese making.

- There is no application of improved preservation and value addition methods for raw camel milk using appropriate technologies. By the development of camel milk and dairy product standards, the trade in this sub-sector development may be enhanced.
- The milk can be pasteurized, chilled and packed for value addition. Many by-products can be made from camel milk and plenty of markets are available around Cholistan.

5.4 Threats

- Although, camel can be a good tool in the global environmental changing scenario and food insecurity situations, however, it is always neglected both at national and international levels. It attributes are never praised and no visible effort has been done for its development.
- Camels are very much under threat and up to 25% of the camels have vanished in the last decade. Only last year thousands of camels were dead because of a new respiratory camel disease.
- There is no proper documentation of the breeds and no support to enhance its use through closer collaboration between government, technical experts and other stakeholders. The economic potential of the camel remains limited in comparison to other livestock species.

6 CURRENT INDUSTRY STRUCTURE

6.1 Global perspective[4]

Although most camel milk is traded informally, a world market worth USD 10 billion is within the realm of possibility if key improvements are made (FAO statistics). Camels were once used almost exclusively as a means of transport across harsh environments for both man and goods. However there is a growing recognition of the value and benefits of camels for their milk, meat and fibres. Camel dairy products could provide not only more food for people in arid and semi-arid areas but also give nomadic herders a rich source of income. The total number of camels globally is said to be 20 million, but as most camels are owned by nomads, this number can only be estimated. Half camel population is in horn of Africa.

Nomads move in search of pasture according to the season and can live for up to a month in the desert on nothing but camel milk. As camel milk is normally produced under low input-low output systems, five litres a day is considered a decent yield.

Available world production of camel milk is officially put at 1.3 million tonnes, a tiny figure as compared to cow's milk. However, a recent FAO/CIRAD/KARKARA workshop estimated global camel milk output as 5.3 million tonnes, although even this may be a conservative estimate. Lactating camels each produce between 1,000

[4] *http://www.fao.org/ag/againfo/themes/en/dairy/camel.html*

and 12,000 litres of milk for anywhere between 8 and 18 months. The world's biggest camel milk producer is Somalia, with 850,000 tonnes a year, followed by Saudi Arabia with 89,000 tonnes.

The world population of camels is currently estimated at some 20 million. Somalia is believed to have the world's largest herd, with almost as many camels as humans. World production of camel milk available/used for human consumption is officially put at 1.3 million tones – 500 times less than cow's milk. The generally accepted figure for global camel milk production is 5.4 million tonnes, most of which goes to the calf. Lactating camel cows produce between 1,000 and 4,000 litres of milk for a period of anywhere between eight and 18 months. The world's biggest camel milk producer is Somalia, followed by Saudi Arabia.

A camel dairy in the UAE and an Austrian chocolatier recently teamed up in a joint venture to produce chocolate made from camel milk, sweetened with honey from Yemen. Making cheese from camel milk can be difficult, but the Mauritanian Tiviski Dairy processes camel milk into modern, high-quality products. Camel cheese "Camelembert" is one of their special items. Camel ice cream was first promoted by the Israeli scientist Reuven Yagil, but the National Research Centre on Camels in Bikaner, India, now also produces a delicious camel milk-based kulfi, a local variation on ice-cream. Camel oil, produced in Australia, is lower in cholesterol than other animal cooking fats, and can be used to make soaps and cosmetics, even creams for sensitive baby skin. A line of cosmetics based on camel milk is also the dream project of Nancy Abdeirrahmane from the Tiviski Dairy. Camel meat is healthier as they produce carcasses with less fat as well as having less levels of cholesterol in fat than other meat animals.

6.2 Local perspective

Livestock accounts for 52.2 percent of agricultural value added, contributes around 11.5 percent to GDP and affects the lives of 30 – 35 million people in rural areas. It is highly labour intensive and if proper attention is given to this sector, it will not only absorb more rural workforce but also help alleviate rural poverty in Pakistan.[5]

Pakistan teems with dromedaries but a few herds of two-humped camels (Bactrians) are also bred in the extreme northern areas. According to Qureshi et al. (1993), the camel population is unevenly distributed over the country, mainly in four distinct ecologic zones of Pakistan: (i) Sandy deserts (Thal and Cholistan in the Punjab and Thar in Sindh); (ii) Costal mangroves (Thatta, Badin and Karachi districts of Sindh), (iii) Mountainous tracts (all of Baluchistan, and the D.G. Khan and D.I. Khan districts of Punjab and NWFP, respectively); and (iv) Irrigated plains (all irrigated districts of Punjab and Sindh)

In Pakistan, 0.829 million tons camel milk is produced annually.[5] Moreover, 50 thousands tons of camel meat are produced annually, valued at Rs. 250 million (Economic Survey of Pakistan, 2007-08). The native camel also indirectly contributes

[5] *Economic Survey of Pakistan 2011-2012 (http://www.finance.gov.pk/survey/chapter_11/02-Agriculture.pdf)*

to the economy by surviving under the management systems of pastoralists, nomads and small farmers with surprisingly low inputs, mostly in the difficult and arid, drought-stricken areas and mountainous regions where the long-term survival of other livestock does not seem possible. Also, they do not compete with other livestock for their nutritive requirements, since most of the time they browse the tops of trees and shrubs. About 22,500 camel hides are obtained annually in Pakistan and are used to manufacture saddlers, sandals and beautiful decorative articles, some of which are also exported. Camel hair produced in Pakistan amounts to 20 thousand tons and is used for manufacturing blankets, floor mats, tent cloth and ropes. The calves are born with a soft woolly fleece, which is usually shorn once and is mixed with hair for manufacturing blankets (Khan et al., 2003).[6]

Pakistani and Afghanistani camels are supposed to produce the highest yields of milk, up to 30 litres per day. The Bactrian camel produces between 2.5-5 litres per day and the dromedary produces an average of 6-9 litres per day. Intensive breeding of cows has created animals that can produce 40 litres per day in ideal conditions. Camels, with their ability to go 21 days without drinking water, and produce milk even when feeding on low-quality fodder, are a sustainable option for food security in difficult environments.[7]

Table 6-1: Province wise Population of Camels in Pakistan[8]

Province	Population (Million Heads)	Province share (%)
Punjab	0.230	23.0
Balochistan	0.415	41.5
Sind	0.275	27.5
KPK	0.080	8.0
Total	**1.00**	**100**

7 MARKET ANALYSIS

The marketing of camel milk and meat follow the traditional channels of distribution. Generally, these are distributed in the market through middlemen (Arhti) and wholesalers. The role of Arhti is to identify a farm and negotiate the price.

8 FARM MANAGEMENT

Farm input required for a shed includes farm equipment (milking buckets, feeding mangers etc), electronic fixtures and other items (feed, vaccines & medicines, clean drinking water, electricity etc.). This unit will work for the production of milk and

[6] *Economic Importance of Camel: A Unique Alternative under Crisis (Pakistan Veterinary Journal) http://www.pvj.com.pk/pdf-files/30_4/191-197.pdf*

[7] *http://en.wikipedia.org/wiki/Camel_milk*

[8] *L&DD Dept., Govt. of the Punjab*

calves for meat. The breeder camels will be purchased from private farm of good genetic worth. A herd of 40 camels (70% female, 30% male) will be bought initially. The following practices will be performed under the supervision of an expert by which farmers can protect the herd from 80% diseases and improve the farm management. Camel can eat everything (bark, dates seed, salty mud and even paper) when there is scarcity of feed, while in good feeding conditions, it does prefer protein rich diet. Camel can browse at 3.5 m above the ground even at the thorny plants without any harm. Camels can travel many days without feed or water. A traveller can continue journey without bothering too much about the feed and water.

The arid and semi arid lands (such as Cholistan, Thar and Thal area) is covered with wide range of nutritious and drought tolerant species of vegetation. Deep in desert the camel mostly rely on Khar, Lana, Jand and Kareer, while in the peripheries mostly kikar is available along the water courses and road side.

Table 8-1: Vegetation available for Camel in Arid and Semi Arid areas

Trees		Bushes	
Local Name	**Botanical Name**	**Local Name**	**Botanical Name**
Kareer	Capparis aphylla	Khar	Suaeda fruticosa
Jand	Prosopis cineraria	Lana	Haloxylon salincornicum
Kikar	Acacia nilotica	Lani	Salsola foetida
Mallah	Zizyphus nummularia	Jand	Prosopis cineraria

8.1 Common Ailments

The disease register of camel is quite short (very few fatal diseases are reported in camel). Camel is resistant to many notorious diseases like foot and mouth disease, mad cow disease (BSE) and Brucellosis etc. There are some known camel diseases in Cholistan, only Trypanosomiasis (Surrah) is considered to cause economic losses. Surrah makes the animal weak and unable to produce or reproduce. The camel herders practice their traditional way of treatment which usually has minor effect. There are weak ties between the Veterinarians and local pastoral people. There is a big gap between the Veterinarians and the pastoral herders. Water scarcity is a tremendous issue of the pastoral people. During droughts period Tobas get dry and no water is available. Camel is resistant to ticks diseases. A load of more than 100 ticks on camel body cannot affect camel health and production. Furthermore, camels don't usually colic like horses do, although they occasionally bloat.

9 MANPOWER REQUIREMENTS

The following table below shows Human Resource requirement and the proposed annual salary for administrative and operational needs of the project:

Table 9-1: Manpower Requirement

Description	No.	Monthly Salary (Rs.)	Annual Salary (Rs.)
Farm Manager/ Purchaser	1	25,000	300,000
Labour for animals	6	9,000	648,000
Total	**7**		**948,000**

10 FARM EQUIPMENT

Various types of farm equipment are needed for feeding, drinking, handling the birds and for egg artificial incubation and hatching process. List of farm equipment proposed is given in table below:

Table 10-1: Machinery Details

Description	Total Amount (Rs.)
Farm Equipment (milking buckets, feeding mangers etc.)	75,000

11 OFFICE EQUIPMENT AND FURNITURE

Following tables present the office equipment and furniture/fixtures proposed for the unit:

Table 11-1 Office Furniture and Fixtures

Description	Total Amount (Rs.)
Total Furniture cost	30,000

12 LAND & BUILDING

12.1 Land and Building requirement

The land requirement for this proposed project is approximately 7 kanals. Details for civil works are given in table below.

Table 12-1 Infrastructure Details

Description of Covered area	Area (Sq ft)	Total construction cost (Rs.)
Shed for breeding camels	**6,000**	**900,000**
Shed for other camels	3,000	450,000
Open area for camels	18,000	0
Labourers room	180	90,000
Store	180	63,000
Kitchen	100	35,000
Washroom	72	25,200
Total constructed area	**27,532**	**1,563,200**

12.2 Recommended Mode for Acquiring Land

In this particular pre-feasibility, it has been assumed that the land is leased; the rent assumed in this pre-feasibility is around Rs. 29,000 per month for total area of 7 kanals.

12.3 Suitable Locations

The proposed project is assumed to be set up in rangelands of Balochistan, coastal areas and desert area of Cholistan, Thal and Tharparker. In rangelands, the local economy of the pastoralists depends directly or indirectly on camel. This trend is interwoven in their socio-economic system and provides them milk, meat, draught power and other livelihood.

13 PROJECT ECONOMICS

The total project cost is estimated around Rs. 8.417 million. The capital cost is estimated around Rs. 7.843 million and working capital of Rs. 0.574 million. The total cost, project returns and financial plan are given in the tables below:

Table 13-1 Total Project Cost

Account Head	Total Cost (Rs.)
Capital Cost	7,843,200
Working Capital Cost	574,398
Total Project Cost	**8,417,598**

Table 13-2 Project Returns

NPV (Rs.)	15,949,622
IRR	38%
Payback Period (Years)	4.27

Table 13-3 Financing Plan

Financing	Ratio	Rs.
Equity	50%	4,208,799
Debt	50%	4,208,799

13.1 Project Cost

Initial Investment	
Capital Investment	**Rs. in actuals**
Building/Infrastructure	1,563,200
Animals	6,100,000
Farm Equipment	75,000
Furniture & fixtures	30,000
Pre-operating costs	75,000
Total Capital Costs	**7,843,200**
Working Capital	**Rs. in actuals**
Raw material inventory	45,473
Upfront land lease rental	28,926
Cash	500,000
Total Working Capital	**574,398**
Total Investment	**8,417,598**
Initial Financing	**Rs. in actuals**
Debt	4,208,799
Equity	4,208,799

Project Returns		
	EQUITY	**PROJECT**
Net Present Value (Rs.)	8,807,021	15,949,622
Internal Rate of Return	46%	38%
Payback Period (Yrs)	4.35	4.27

13.2 Calculation Basis

Calculation Basis										
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
TOTAL PARENT HERD	40	40	40	40	40	40	40	40	40	40
Culling in parent herd of female stock	1	1	1	1	1	1	1	1	1	1
Remaining herd	39	39	39	39	39	39	39	39	39	39
Addition to the female herd	1	1	1	1	1	1	1	1	1	1
Feed consumption for parent herd	42	42	42	42	42	42	42	42	42	42
FEMALE HERD	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Females in Parent herd	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**
No. of females pregnant/lactating	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**
No. of females lactating		**27.0**		**27.0**		**27.0**		**27.0**		**27.0**
No. of calves by Parent herd										
Calving at 0.5 years (Herd 1)	13.0									
Calving at 2.5 years (Herd 2)			13.0							
Calving at 4.5 years (Herd 3)					13.0					
Calving at 6.5 years (Herd 4)							13.0			
Calving at 8.5 years (Herd 5)									13.0	
No. of females pregnant/lactating in Herd 1					**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**
No. of females lactating in Herd 1						**9.0**		**9.0**		**9.0**
No. of calves by first herd (0.5 years)										
Calving at 5.5 years						5.0				
Calving at 7.5 years								5.0		
Calving at 9.5 years										5.0
No. of females pregnant/lactating in Herd 2							**9.0**	**9.0**	**9.0**	**9.0**
No. of females lactating in Herd 2								**9.0**		**9.0**
No. of calves by second herd (2.5 years)										
Calving at 7.5 years								5.0		
Calving at 9.5 years										5.0
No. of females pregnant/lactating in Herd 3									**9.0**	**9.0**
No. of females lactating in Herd 3										**9.0**
No. of calves by second herd (4.5 years)										
Calving at 9.5 years										5.0
Mortality in new born females	1	0	1	0	1	1	1	1	1	1
New born Female Animals	13	0	13	0	13	5	13	10	13	15
Mortality of new borns										
Total new born	13	0	13	0	13	5	13	10	13	15
Total female animal	**13**	**13**	**26**	**26**	**39**	**44**	**57**	**67**	**80**	**95**
Culling in Parent herd	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Culling in herd 1					**1**	**1**	**1**	**1**	**1**	**1**
Culling in herd 2							**1**	**1**	**1**	**1**
Culling in herd 3									**1**	**1**
Total no. of animals culled	**1**	**1**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**

MALE HERD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Females in parent stock	**38**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**	**38.0**
No. of females pregnant	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**	**27.0**
No. of male calves by Parent herd										
Calving at 0.5 years	14.0									
Calving at 2.5 years			14.0							
Calving at 4.5 years					14.0					
Calving at 6.5 years							14.0			
Calving at 8.5 years									14.0	
No. of male calves by first herd (0.5 years)										
Calving at 5.5 years						4.0				
Calving at 7.5 years								4.0		
Calving at 9.5 years										4.0
No. of male calves by second herd (2.5 years)										
Calving at 7.5 years								4.0		
Calving at 9.5 years										4.0
No. of male calves by second herd (4.5 years)										
Calving at 9.5 years										4.0
New born Male Animals	14	0	14	0	14	4	14	8	14	12
Mortality of new borns	1	0	1	0	1	1	1	1	1	1
Total new born	13	0	13	0	13	3	13	7	13	11
Male calves sold after 2 years			13	0	13	0	13	3	13	7
Total No. of Male Animals	**13**	**13**	**13**	**13**	**13**	**16**	**16**	**20**	**20**	**24**
Herd size	**66**	**66**	**79**	**79**	**92**	**100**	**113**	**127**	**140**	**159**
Mortality in herd	2	2	2	2	2	2	3	3	3	4
Total Herd size	**64**	**64**	**77**	**77**	**90**	**98**	**110**	**124**	**137**	**155**

13.3 Cost Assumption

COST ASSUMPTIONS										
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Feed Cost per day per animal										
Feed cost for pregnant/lactating animals	110	121	133	146	161	177	195	214	236	259
Feed cost for other animals	70	77	85	93	102	113	124	136	150	165
Feed cost per day for all animals										
Feed for pregnant/lactating animals	1,485	1,634	1,797	1,977	2,899	3,189	4,385	4,823	6,366	7,003
Feed for other animals	1,505	1,656	2,372	2,609	3,536	4,340	5,642	7,162	8,853	11,389
Feed expense per year										
Feed for pregnant/lactating animals	542,025	596,228	655,850	721,435	1,058,105	1,163,916	1,600,384	1,760,422	2,323,757	2,556,133
Feed for other animals	549,325	604,258	865,634	952,197	1,290,568	1,584,218	2,059,484	2,613,960	3,231,353	4,156,944
Total annual feed expense	**1,091,350**	**1,200,485**	**1,521,484**	**1,673,633**	**2,348,673**	**2,748,134**	**3,659,868**	**4,374,383**	**5,555,110**	**6,713,077**
Purchase price per female breeders	150,000	165,000	181,500	199,650	219,615	241,577	265,734	292,308	321,538	353,692
Total cost of female breeders	5,700,000									
Total cost of male breeders	400,000									
Total cost of buying replacement herd - female	150,000	165,000	181,500	199,650	439,230	483,153	797,202	876,923	1,286,153	1,414,769
Total cost of camel purchase	**150,000**	**165,000**	**181,500**	**199,650**	**439,230**	**483,153**	**797,202**	**876,923**	**1,286,153**	**1,414,769**

13.4 Revenue Assumptions

REVENUE ASSUMPTIONS										
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Saleable milk production per animal per year	**4050**	**4050**	**4050**	**4050**	**4050**	**4050**	**4050**	**4050**	**4050**	**4050**
Per year milk production	54,675	54,675	54,675	54,675	72,900	72,900	91,125	91,125	109,350	109,350
Price per litre of milk	80	92	106	122	140	161	185	213	245	281
Revenue from sale of milk	**4,374,000**	**5,030,100**	**5,784,615**	**6,652,307**	**10,200,204**	**11,730,235**	**16,862,213**	**19,391,545**	**26,760,332**	**30,774,382**
Male calves sold after 2 years	0	0	13	0	13	0	13	3	13	7
Sales price of 2 year male animal	80,000	92,000	105,800	121,670	139,921	160,909	185,045	212,802	244,722	281,430
Revenue from sales of 2 year old	**-**	**-**	**1,375,400**	**-**	**1,818,967**	**-**	**2,405,583**	**638,405**	**3,181,384**	**1,970,011**
Female breeders sold after culling	1	1	1	1	2	2	3	3	4	4
Sales price of female breeders for culling	80,000	92,000	105,800	121,670	139,921	160,909	185,045	212,802	244,722	281,430
Revenue from female breeders for culling	**80,000**	**92,000**	**105,800**	**121,670**	**279,841**	**321,817**	**555,135**	**638,405**	**978,887**	**1,125,720**

13.5 Income Statement

Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	4,454,000	5,122,100	7,265,815	6,773,977	12,299,012	12,052,052	19,822,931	20,668,354	30,920,603	33,870,113
Cost of sales										
Cost of Camel Purchase	150,000	165,000	181,500	199,650	439,230	483,153	797,202	876,923	1,286,153	1,414,769
Feed expense	1,091,350	1,200,485	1,521,484	1,673,633	2,348,673	2,748,134	3,659,868	4,374,383	5,555,110	6,713,077
Direct labor	648,000	711,090	780,323	856,296	939,667	1,031,154	1,131,548	1,241,717	1,362,613	1,495,279
Total cost of sales	1,889,350	2,076,575	2,483,307	2,729,579	3,727,569	4,262,441	5,588,619	6,493,023	8,203,877	9,623,124
Gross Profit	2,564,650	3,045,525	4,782,508	4,044,398	8,571,443	7,789,612	14,234,312	14,175,332	22,716,727	24,246,988
General administration & selling expenses										
Administrative Salaries expense	300,000	329,208	361,261	396,433	435,031	477,386	523,865	574,869	630,839	692,259
Land lease rental expense	28,926	31,818	35,000	38,500	42,350	46,585	51,243	56,368	62,004	68,205
Electricity expense	60,000	66,000	72,600	79,860	87,846	96,631	106,294	116,923	128,615	141,477
Water expense	12,000	13,200	14,520	15,972	17,569	19,326	21,259	23,385	25,723	28,295
Gas expense	12,000	13,200	14,520	15,972	17,569	19,326	21,259	23,385	25,723	28,295
Travelling expense	120,000	126,000	132,300	138,915	145,861	153,154	160,811	168,852	177,295	186,159
Communications expense (phone)	36,000	37,800	39,690	41,675	43,758	45,946	48,243	50,656	53,188	55,848
Office expenses	12,000	12,600	13,230	13,892	14,586	15,315	16,081	16,885	17,729	18,616
Depreciation expense	88,660	88,660	88,660	88,660	88,660	88,660	88,660	88,660	88,660	88,660
Amortization of pre-operating costs	15,000	15,000	15,000	15,000	15,000	-	-	-	-	-
Subtotal	684,586	733,486	786,780	844,878	908,230	962,329	1,037,715	1,119,982	1,209,778	1,307,814
Operating Income	1,880,064	2,312,038	3,995,727	3,199,520	7,663,213	6,827,283	13,196,597	13,055,350	21,506,949	22,939,174
Other income (interest on cash)	40,297	54,508	150,693	272,770	504,863	912,191	1,567,578	2,447,958	3,629,676	5,199,566
Earnings Before Interest & Taxes	1,920,362	2,366,546	4,146,420	3,472,290	8,168,076	7,739,474	14,764,174	15,503,308	25,136,625	28,138,740
Interest expense on long term debt (Project Loan)	666,672	571,629	460,428	330,323	178,100	-	-	-	-	-
Interest expense on long term debt (Working Capital Loan)	27,128	-	-	-	-	-	-	-	-	-
Subtotal	693,800	571,629	460,428	330,323	178,100	-	-	-	-	-
Earnings Before Tax	1,226,562	1,794,917	3,685,992	3,141,966	7,989,975	7,739,474	14,764,174	15,503,308	25,136,625	28,138,740
Tax	257,578	448,729	921,498	785,492	1,997,494	1,934,868	3,691,044	3,875,827	6,284,156	7,034,685
NET PROFIT/(LOSS) AFTER TAX	**968,984**	**1,346,188**	**2,764,494**	**2,356,475**	**5,992,481**	**5,804,605**	**11,073,131**	**11,627,481**	**18,852,469**	**21,104,055**

13.6 Balance Sheet

Balance Sheet

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
Current assets											
Cash & Bank	500,000	305,948	784,202	2,229,659	3,225,732	6,871,527	11,372,300	19,979,251	28,979,907	43,613,617	60,377,706
Accounts receivable		183,041	196,769	254,546	288,489	391,911	500,364	654,965	832,013	1,060,047	1,331,316
Raw material inventory	45,473	50,020	63,395	69,735	97,861	114,506	152,494	182,266	231,463	279,712	-
Pre-paid annual land lease	28,926	31,818	35,000	38,500	42,350	46,585	51,243	56,368	62,004	68,205	-
Total Current Assets	574,398	570,827	1,079,367	2,592,440	3,654,433	7,424,528	12,076,403	20,872,850	30,105,387	45,021,581	61,709,022
Fixed assets											
Building/Infrastructure	1,563,200	1,485,040	1,406,880	1,328,720	1,250,560	1,172,400	1,094,240	1,016,080	937,920	859,760	781,600
Animals	6,100,000	6,100,000	6,100,000	6,100,000	6,100,000	6,100,000	6,100,000	6,100,000	6,100,000	6,100,000	6,100,000
Farm equipment	75,000	67,500	60,000	52,500	45,000	37,500	30,000	22,500	15,000	7,500	-
Furniture & fixtures	30,000	27,000	24,000	21,000	18,000	15,000	12,000	9,000	6,000	3,000	-
Total Fixed Assets	7,768,200	7,679,540	7,590,880	7,502,220	7,413,560	7,324,900	7,236,240	7,147,580	7,058,920	6,970,260	6,881,600
Intangible assets											
Pre-operation costs	75,000	60,000	45,000	30,000	15,000	-	-	-	-	-	-
Total Intangible Assets	75,000	60,000	45,000	30,000	15,000	-	-	-	-	-	-
TOTAL ASSETS	**8,417,598**	**8,310,367**	**8,715,247**	**10,124,660**	**11,082,993**	**14,749,428**	**19,312,643**	**28,020,430**	**37,164,307**	**51,991,841**	**68,590,622**
Liabilities & Shareholders' Equity											
Current liabilities											
Accounts payable		-	-	-	-	-	-	-	-	-	-
Other liabilities											
Total Current Liabilities	-	-	-	-	-	-	-	-	-	-	-
Other liabilities											
Deferred tax		(229,937)	(517,124)	(1,106,883)	(1,609,598)	(2,887,994)	(4,129,384)	(6,494,727)	(8,978,331)	(13,003,266)	(17,508,540)
Long term debt (Project Loan)	3,921,600	3,362,522	2,708,400	1,943,077	1,047,650	-	-	-	-	-	-
Long term debt (Working Capital Loan)	287,199	-	-	-	-	-	-	-	-	-	-
Total Long Term Liabilities	4,208,799	3,132,584	2,191,276	836,194	(561,948)	(2,887,994)	(4,129,384)	(6,494,727)	(8,978,331)	(13,003,266)	(17,508,540)
Shareholders' equity											
Paid-up capital	4,208,799	4,208,799	4,208,799	4,208,799	4,208,799	4,208,799	4,208,799	4,208,799	4,208,799	4,208,799	4,208,799
Retained earnings		968,984	2,315,172	5,079,666	7,436,141	13,428,622	19,233,228	30,306,358	41,933,839	60,786,308	81,890,363
Total Equity	4,208,799	5,177,783	6,523,971	9,288,465	11,644,940	17,637,422	23,442,027	34,515,158	46,142,638	64,995,107	86,099,162
TOTAL CAPITAL AND LIABILITIES	**8,417,598**	**8,310,367**	**8,715,247**	**10,124,660**	**11,082,993**	**14,749,428**	**19,312,643**	**28,020,430**	**37,164,307**	**51,991,841**	**68,590,622**

13.7 Cash Flow Statement

Cash Flow Statement

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Operating activities											
Net profit		968,984	1,346,188	2,764,494	2,356,475	5,992,481	5,804,605	11,073,131	11,627,481	18,852,469	21,104,055
Add: depreciation expense		88,660	88,660	88,660	88,660	88,660	88,660	88,660	88,660	88,660	88,660
amortization of pre-operating costs		15,000	15,000	15,000	15,000	15,000	-	-	-	-	-
amortization of training costs		-	-	-	-	-	-	-	-	-	-
Deferred income tax		(229,937)	(287,187)	(589,759)	(502,715)	(1,278,396)	(1,241,391)	(2,365,343)	(2,483,604)	(4,024,935)	(4,505,273)
Accounts receivable		(183,041)	(13,728)	(57,777)	(33,943)	(103,422)	(108,454)	(154,601)	(177,047)	(228,034)	(271,269)
Raw material inventory	(45,473)	(4,547)	(13,375)	(6,340)	(28,127)	(16,644)	(37,989)	(29,771)	(49,197)	(48,249)	279,712
Cash provided by operations	(45,473)	655,118	1,135,558	2,214,279	1,895,351	4,697,679	4,505,432	8,612,075	9,006,292	14,639,911	16,695,884
Financing activities											
Project Loan - principal repayment		(559,078)	(654,122)	(765,322)	(895,427)	(1,047,650)	-	-	-	-	-
Working Capital Loan - principal repayment		(287,199)	-	-	-	-	-	-	-	-	-
Add: land lease expense		28,926	31,818	35,000	38,500	42,350	46,585	51,243	56,368	62,004	68,205
Land lease payment	(28,926)	(31,818)	(35,000)	(38,500)	(42,350)	(46,585)	(51,243)	(56,368)	(62,004)	(68,205)	-
Additions to Project Loan	3,921,600	-	-	-	-	-	-	-	-	-	-
Additions to Working Capital Loan	287,199	-	-	-	-	-	-	-	-	-	-
Issuance of shares	4,208,799	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	8,388,673	(849,170)	(657,304)	(768,822)	(899,277)	(1,051,885)	(4,658)	(5,124)	(5,637)	(6,200)	68,205
Investing activities											
Capital expenditure	(7,843,200)	-	-	-	-	-	-	-	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(7,843,200)	-	-	-	-	-	-	-	-	-	-
NET CASH	500,000	(194,052)	478,254	1,445,457	996,074	3,645,794	4,500,774	8,606,951	9,000,655	14,633,710	16,764,089

14 KEY ASSUMPTIONS

Table 14-1: COGS/Revenue Calculation basis – Year 1

No. of Male camels in parent herd	38
No. of Female camels in parent herd	2
Calving interval (years)	2
Fertility percentage in herd	70%
Mortality percentage in new born	2%
Mortality percentage in breeder	2%
Culling percentage in all herds	3%
Age at first calving (years)	5
Male to female ratio in new born	50:50
Gestation time period (days)	388
Lactation Period (days)	300
Milk production per animal per year (litres)	4,500
Saleable Milk per animal per year (litres)	4,050
Sales price per litre of milk (Rs.)	80
Sales price of 2 year old male camels (Rs.)	80,000
Sales price of female breeder camels for culling (Rs.)	80,000
Sales price growth rate	15%
Cost of female breeders (Rs.)	150,000
Cost of male breeders (Rs.)	200,000
Cost of goods sold growth rate	10%
Per day feed cost for pregnant/lactating camels (Rs.)	110
Per day feed cost for other animals (Rs.)	70

Table 14-2 Expense Assumptions

COGS growth rate	10%
Operating costs growth rate	5%
Travelling expense	Rs. 120,000 per annum
Office expenses	Rs. 12,000 per annum
Building depreciation rate	5%
Machinery & Equipment depreciation rate	10%
Furniture & Fixtures depreciation rate	10%

Table 14-3 Economy Related Assumptions

Inflation rate	10%
Electricity growth rate	10%
Water price growth rate	10%

Gas price growth rate	10%
Wage growth rate	10%

Table 14-4: Cash Flow Assumptions

Accounts receivable in days	15
Accounts payable in days	0
Raw material inventory (days)	15

Table 14-5 Financial Assumptions

Project life (Years)	**10**
Debt	50%
Equity	50%
Interest rate on long-term debt (KIBOR + 5%)	17%
Interest rate on short-term debt	17%
Interest on cash in bank	10%
Debt tenure (Years)	5
Debt payments per year	1

15 ANNEXURE

Table 15-1: Industry Experts

Name	Addresses
Prof. Dr. Muhammad Yunas	Department of Livestock Management, Faculty of Animal Husbandry, University of Agriculture, Faisalabad, Pakistan 041-9200161-170
Dr. Abdul Raziq	President, Society of Animal, Veterinary and Environmental Scientists (SAVES) Email: raziq2007@gmail.com
Dr. Arshad Iqbal	Professor/Chairman Department of Livestock Production and Management 051-9290115 , 9290080 aiqbal@uaar.edu.pk , aiqbal_uaf@yahoo.com

Table 15-2: Tax deduction income slabs

Income Slabs	**Tax Rate**
	0.00%
100,000 – 110,000	0.50%
110,000 – 125,000	1.00%

125,000 – 150,000	2.00%
150,000 – 175,000	3.00%
175,000 – 200,000	4.00%
200,000 – 300,000	5.00%
300,000 – 400,000	7.50%
400,000 – 500,000	10.00%
500,000 – 600,000	12.50%
600,000 – 800,000	15.00%
800,000 – 1,000,000	17.50%
1,000,000 – 1,300,000	21.00%
1,300,000 and above	25.00%