

BEEF VALUE CHAIN IN PAKISTAN



State Bank of Pakistan
Agricultural Credit & Microfinance Department
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Preface

The value chain financing (VCF) is evolving as an attractive model of spreading the various risks in agri/rural finance among different fund providers. Keeping this in perspective, and to sensitize lending institutions about the potential business prospects in VCF, SBP carried out a research study to identify the potential agri. value chains in Pakistan through reputable consultants. The study highlighted various layers and players within different value chains in terms of activities, potential for investments, issues & challenges in strengthening VCF.

The desired research study and its findings' report were completed in December, 2014. The report provides a detailed assessment of six main value chains in the country: i) Potato, ii) Tobacco, iii) Beef, iv) Dairy, v) Basmati Rice, and vi) Aquaculture and Inland Fishery.

This report on Beef value chain in Pakistan is a part of that comprehensive report. Its basic aim is to enable financial institutions to more clearly understand the specific value chain dynamics and prepare their related strategy for increasing agri. financing thereto.

Disclaimer: Whilst every effort has been made to ensure the quality and accuracy of this report; however, State Bank of Pakistan shall not be responsible for the contents of this report. This report is meant for educational purposes and for general information only. In no event will the State Bank, its affiliates or other stakeholders be liable for any mistakes.

Executive Summary

Pakistan's meat value chain is an extension of the dairy value chain as animals are raised for milk and there are no dedicated beef breeds. Throughout history livestock has remained part and parcel of livelihood systems in the Sub Continent. Enjoying robust economic growth rates of 4% livestock accounts for 55% of agriculture value added. Meat value chain is a PKR 1.3 trillion market. In contrast to conventional farming, yields per animal are 70-80% higher in modern feedlot fattening thereby ensuring higher returns per animal during the same period. Exports of beef and mutton fetch 3.5 and 2.2 times higher returns respectively compared to domestic sales.

The cold chain and slaughtering facilities all across the country are in dire straits and need serious overhauling with establishment of new hygienic slaughtering, processing and cold chain facilities. The more affluent urban based consumers are increasingly demanding quality meat under hygienic conditions and are willing to pay a premium. The way forward certainly lies in promotion of exports where the returns are three times higher for large ruminants and at least twice for small ruminants. There are between 20-26 meat exporters and smuggling of live animals to Afghanistan and Iran is hurting the industry as the more lucrative trade of offal's, leather and other vital organs also moves to the importing country to the detriment of local tannery and offal's' trade. The methodology used included search of secondary data sources in addition to primary information gathered via workshops, focus group discussions, and semi structured interviews and cross validation. Keeping pace with rising input costs, meat prices are also rising fuelled by demographics, rising affluence, and increasing consumption at restaurants.

The informal sources i.e. beoparis, arthis, pekars, gawallas, dhoochies, are the main financiers within the dairy value chain involving cash flow cycles of one week to one month. Business transactions are based on trust and remain informal and involve no formal written contract. That creates a dilemma as small holders (having 2-5 animals) account for 80% of the production are considered un-bankable by commercial banks since they have 0-5 acres of land and thereby have no collateral to show.

Analysis of the value chain involved travel to major dairy production areas including the peri- urban Landhi Cattle Colony Karachi besides Interior Sindh, Southern, Central and Northern Punjab and parts of KPK including Peshawar and Charsadda and adjoining areas. Value chain finance is a dire need of the hour for new start-ups, business expansion, and product diversification, establishment of cold chain and introduction of high yielding breeds. The option of advancing finances to producers and other SMEs via the middlemen like, beoparis, pekars arthis, gawallas and dhoochies to reach 80% of producers needs the development of a suitable on- lending product. Development of Sharia compliant financial instruments promises to add a wide array of choices in finances to the religious minded businessmen.

List of Abbreviations Used

Punjab Livestock and Dairy Development Board	PLDDB
Pakistan Dairy Development Company	PDDC
Punjab Agriculture and Meat Company	PAMCO
United States Agency for International Development	USAID
Artificial Insemination	AI
Ministry of Food Agriculture and Livestock	MINFAL
Value Chain Analysis	VCA
Non Governmental Organizations	NGOs
United States Department of Agriculture	USDA
Agri. Business Support Fund	ASF
Gross Domestic Product	GDP
National Agriculture Research Council	NARC
Pakistan Standards and Quality Control Authority	PSQCA
Milk Collection Centers	MCC
Gulf Cooperation Council	GCC
Training Service Providers	TSPs
Total Mixed Ration	TMR
Khyber Pukhtoonkhwa	KPK
Small & Medium Enterprise Development Authority	SMEDA
Zarai Taraqiati Bank Limited	ZTBL

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Value Chain Overview

Nature of Products Defining the Value Chain

Pakistan is amongst one of the top consumers of red meat in the world including beef that comprises cow and buffalo meat besides mutton which in turn comprises goat meat and sheep meat. The country that annually produces 1.769 million metric tons (mt) of beef and 629,000 tons of mutton out of which an estimated 1% is exported.

Historically, red meat (i.e. mutton and beef) was and continues to be brought fresh by consumers and typically purchases are made at butcher shops where meat is custom cut according to individual customer preferences. However, unhygienic conditions prevalent at butcher shops coupled with lack of a reliable cold chain have impeded diversification and meaningful progress. Red meat is cut according to the market requirements and most meat is sold fresh without involving any processing. Mince is the only variety of meat involving simple processing at butcher shops. Consuming 779, 000 tons mutton in 2011-12, Pakistan ranks at number three in term of mutton consumption and number two in terms of goat production trailing behind China ranked at number one. Mutton is favoured in the domestic market but at times sheep meat is sold as goat meat or is mixed with goat meat. Likewise cow and buffalo meat are interchangeably used since the consumer can hardly distinguish between the two. Since rates vary for each meat type, it is the consumer who ends up paying the price.

In spite of rising domestic meat consumption the gap between demand and supply is widening and in the process creating opportunities for investors. According to the FAO Pakistan's per capita meat consumption at 18 kg per person remains far below the global standard of 42 kg. Nearly 35 million of rural population derives their incomes from livestock. Industry experts estimate that exports of live animals from Pakistan is more than twice the allowed quota set by the Commerce Ministry as smuggling continues unabated at the cost of the national exchequer not to mention the huge losses to auxiliary offal's and tannery industries.

There exists a phenomenal potential in feedlot fattening as Pakistan's existing meat industry is dominated by outdated management practices. Under modern fattening management and feeding regimes a year old buffalo or cattle calf would attain a weight of 200-250 kilograms in contrast to the highly inefficient yields of 100-150 kilograms. Recognized important breeds make up only 30% of the buffalo and cattle populations while the remaining 70% animals is comprised of non-descript breeds that hold untapped potential if cross bred with superior breeds.

Background of the Value Chain and Current Status

Agriculture is the bedrock of Pakistan's economy and livestock forms an integral part of the agriculture sector. According to Economic Survey of Pakistan livestock sector contributed 55.1 % to agriculture valued added and 11.6% to the national GDP during 2010-12 and contributes more than all cash crops put together. While gross value added of livestock sector surged from 672 billion to 700 billion thereby experiencing 4% growth inspite of the massive damages from floods during the same period. Livestock sectors gross value added stood at 21% of the national GDP. An estimated 35 million households draw their livelihoods from the livestock sector. Livestock serves as a major source of instant cash for farmers in times of hardship as it meet the liquidity requirements for hard pressed farmers. What are the core functions (processes of transformation) in the value chain?

Meat is traded as whole carcasses at rural or urban slaughterhouses (including export oriented private slaughterhouses). While at the slaughterhouse or wholesale levels meat is brought in maunds (40 kilograms) and entire carcasses or pieces are traded irrespective of the weight of the carcass or the piece

by meat beoparis (traders) to meat retailers. The norm is cutting the carcasses into four pieces comprising of the front and hind legs. Often times carcasses are also cut into eight pieces. A parallel market for offal's considered to be half of the meat trade exists. Offal's have separate beoparis just like the meat beoparis and are traded at wholesale and retail levels. Upon reaching retail shops meat is deboned and as per market requirements.

Regulatory Environment

After the passage of eighteenth constitutional amendment livestock has now essentially become a provincial subject falling under the Provincial Ministries of Livestock in each province with an elaborate network of government livestock extension departments. Slaughter houses operate under the municipal governments that regulate the prices of products and fixes municipal taxes on entry of animals into slaughter houses and cattle mandis (markets).

Livestock being an integral part of the food chain is governed at the Federal level by the Federal Ministry of Food Security & Research (formerly the Federal Ministry of Food Agriculture and Livestock (MINFAL) albeit with a drastically reduced role focusing on food security issues.

Exports permits are issues by the Federal Ministry of Commerce while export consignments have to be cleared and certified by the Quarantine Department of the Federal Ministry of Food Security and Research. Animal Quarantine and Import and Export Act 1979 and rules 1980 have to be followed. Conversely, municipal governments regulate the slaughtering and certification of meat for the domestic market.

All provincial governments with Punjab and Sindh being at the forefront provide extension services that include free of cost vaccinations against disease outbreak. PAMCOs "Save the Calf" initiative aimed at slaughtering of week old male calves has been hugely successful as it offers Rs 3200 cash incentive per calf after six months. Resultantly, prices of week old calves have gone up from Rs800-1200 to upwards of Rs. 4,500 while farmers have begun to retain the male calves for fattening.

Figure 1: LAHORE MUNICIPAL GOVERNMENT'S APPROVED SCHEDULE OF RATES

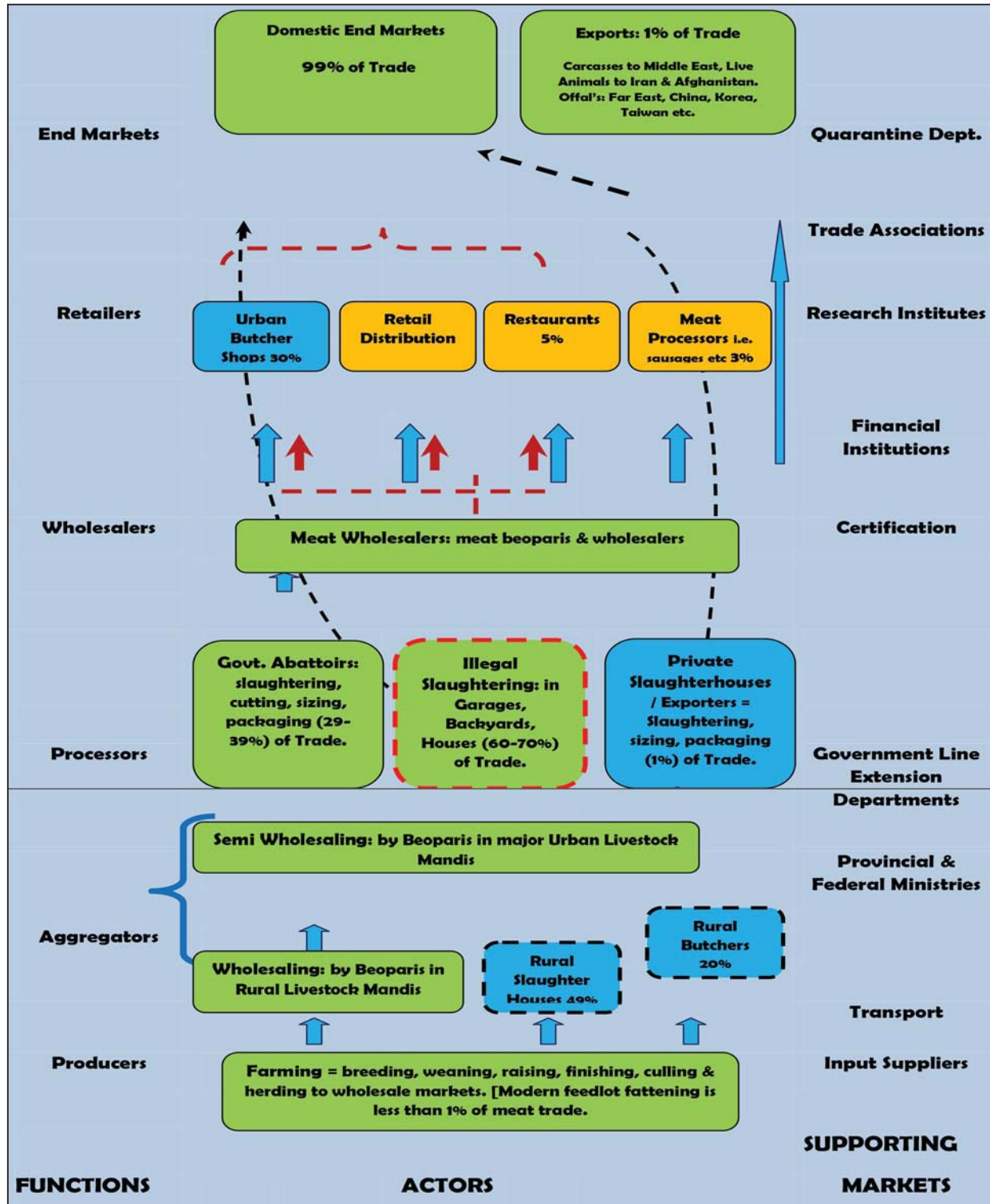
منظور شدہ شیڈول بکرومنڈی	
شاہ پورہ کانجرا ملتان روڈ لاہور	
منظور شدہ شیڈول بکرومنڈی	
بڑا چانور 135	چھوٹا چانور 30
لوڈنگ فیس	
کپ اپ 100	مزدا 4 ولیز 300
مزدا 6 ولیز 500	ٹرک 500
تکھ بازاری ریٹ اندرون بکرومنڈی	
کفری 80	چراپی ریسٹر 50
ٹوک 250	شامیانہ 15x12 150
ہولنہ 100	ٹی شال کوکھانیا 50
سبز چارہ برطانیہ مارکیٹ ریٹ	

Board Posted at Gate of Bakra Mandi at Shahpur Kanjra Lahore in November 2012

Board at entrance of Cattle Market Lahore with schedule of government approved taxes on small and large ruminants entering Bakra Mandi Lahore includes taxes on trucks, Mazda pickups, and other approved rates.

Broad Value Chain Map

Figure 2: PAKISTAN's MEAT VALUE CHAIN MAP



Modern feedlot fattening farming accounts for only a small fraction of the trade volume (far less than 1 %). Nevertheless, owing to its greater efficiency and higher returns potential (almost twice as much return) than conventional farming feedlot holds out an immense untapped potential. In 2011-12 Pakistan's herd size comprised of 36.9 million cattle, 32.7 million buffaloes, 28.4 million sheep and 63.1 million goats. Pakistan ranks number two in the world in terms of buffalo and goats after India and China respectively.

Table 1: PAKISTAN'S LIVESTOCK POPULATION

Pakistan's Livestock Population			
Species	2009-10	2010-11	2011-12
Cattle	43.3	35.6	36.9
Buffalo	30.8	31.7	32.7
Sheep	27.8	28.1	28.4
Goat	59.9	61.5	63.1
Camels	1.0	1.0	1.0
Horses	0.4	0.4	0.4
Asses	4.6	4.7	4.8
Mules	0.2	0.2	0.2
SOURCE: Ministry of National Food Security & Research			

According to Ministry of National Food Security & Research in 2011-12 Pakistan produced 3.23 million metric tonnes of meat with a retail value estimated at PKR 1.13 trillion that included 1.77 million metric tonnes of beef with a retail value of PKR 619 billion, 0.629 million metric tonnes mutton with a retail value of PKR 346 billion and 0.834 million metric tonnes of poultry meat with a retail value of PKR 167 billion.

Table 2: PAKISTAN'S MEAT PRODUCTION STATISTICS

Meat Production (000 Metric Tons)			
Species	2009-10	2010-11	2011-12
Beef	1,655	1,711	1,769
Mutton	603	616	629
Poultry Meat	707	767	834
Total Meat	2,965	3,095	3,232
SOURCE: Ministry of National Food Security & Research			

Predominantly, the SME sector lies at the producer and processor and wholesale and retail levels since the entire process of aggregation involves the process of trading of live animals where animals live change hands with no value addition at all. At the producer level farms maintaining between 20-50 animals valued between PKR 4-5 million (inclusive of shed and farm equipment) are considered medium enterprise while those above 50 valued starting from 7 million rupees and upwards (inclusive of shed and farm equipment) and above are considered large enterprise.

Table 3: ESTIMATED PRODUCTION OF LIVESTOCK RELATED PRODUCTS

Species	Units	2009-10	2010-11	2011-12
Eggs	Millions No's	11,839	12,457	13,144
Hides	000 No's	13,040	13,481	13,938
Cattle	"	6,496	6,640	6,842
Buffalo	"	6,445	6,640	6,842
Camels	"	99	100	101
Skins	000 No's	47,402	48,478	49,582
Sheep Skin	"	10,495	10,620	10,745
Goat Skin	"	23,061	23,685	24,237
Fancy Skin	"	13,846	14,173	14,509
Lamb Skin	"	3,117	3,154	3,192
Kid Skin	"	10,728	11,019	11,318
Wool	000 Tons	42.0	42.5	43.0
Hair	"	22.6	23.2	23.8
Edible Offal's	"	334	344	353
Blood	"	56.8	58.3	59.8
Guts		47,886	48,974	50,089
Casings		13,879	14,347	14,832
Horns & Hooves	000 Tons	48.1	49.5	50.9
Bones	"	713.4	735.1	757.5
Fats	"	228.1	234.8	241.7
Dung	"	1,008	1,039	1,071
Urine	"	311	320	329
Head & Trotters	"	208.2	214.0	220.1
Ducks, Drakes & Ducklings	Millions No's	0.6	0.6	0.5
SOURCE: Ministry of National Food Security & Research				

Value Chain Actors Their Roles and Relationships

Input Suppliers

Input suppliers include providers live animals, green fodder and forages, veterinary medicines, feed concentrates, nutritional supplements, molasses blocks, providers of AI services and embryo implant, services, animal suppliers, farm equipment manufacturers.

Producers

Production remains highly fragmented. Producers comprise primarily of farmers spread all over the country since livestock is considered more of a livelihood source than a commercial enterprises. The key

functions of the producers include breeding, weaning, raising, finishing, culling and herding to livestock markets. Farmers could choose to slaughter animals at homes for domestic consumption.

Aggregators

Aggregation of live animals involves a twofold process the first at the rural areas and the second at major urban markets. Auctioning of livestock takes place at each mandi (market) where traders and beoparis (for both live animals as well as meat beoparis) participate.

Semi - Wholesaling by Beoparis at Major Urban Livestock Markets Involves The Following Steps:

1. Inspect livestock on site at major city markets & select for price negotiations.
2. After price agreement purchase selected livestock.
3. Transport livestock to destination for semi wholesaling & retailing
4. Livestock groomed & fed at animal yards for onward sales to semi wholesalers & retailers
5. Wholesale Beoparis (traders) & retailers buy animals for slaughtering

Wholesaling by Beoparis in Rural Live Livestock Mandis Involves The Following Steps:

1. Farmers or beoparis' agents based in rural areas herd livestock to rural wholesale markets.
2. Beoparis (traders) inspect & select animals for purchase
3. Brokers intermediate between farmers & beoparis to negotiate prices.
4. Livestock groomed & fed at animal yards for onward sales to semi wholesalers & retailers.
5. Brokers intermediate between wholesalers & out-of- town semi wholesalers.
6. Out-of-town semi wholesalers buy & transport livestock to major Urban Livestock Mandis

Processors

Slaughtering is broken down into two types of markets namely rural based slaughterhouses targeting the 69% of the rural consumers and urban slaughterhouses targeting the 30% of urban market consumers coupled with 1% at export oriented slaughterhouses. Once the live animal destined for urban markets pass the 2nd auction stage at urban markets then they are transferred to urban slaughter houses.

Government abattoirs accounting for 29-39% animals where animals are slaughtered, cut, sized and packed for city based retail outlets or meat wholesalers. Private export oriented slaughterhouses account for a mere 1% of the total national trade while animals slaughtered exclusively at government abattoirs are supplied to domestic markets since private slaughterhouses have the license for exports only and they don't have the mandate to supply the local markets. While the bulk of the illegal slaughtering takes place at garages, backyards and houses. Industry insiders roughly estimate this trade accounts for between 60%-70% of the urban trade.

End markets/Buyers

Sixty nine percent of the end consumers are based in the villages and only one percent of Pakistan's meat is exported. Urban retailing accounts for 30% of the urban meat business. Grinding of meat and cutting it according to the markets requirements takes place at retail shops. Besides, the huge lucrative business of offal traders also thrives in separate specialized shops where after processing supplies are further transported to at other locations or goes on simultaneously within the same meat retail shops.

Supporting Institutions

At the federal level livestock falls under the Ministry of Food Security with the mandate to address food security issues of which livestock make an integral part. While with the passage of the 18th Constitutional Amendment livestock is declared a completely devolved subject that has further strengthened the already existing provincial ministries of livestock and fisheries. Besides, there are various institutions at the Federal and provincial levels i.e. Federal Ministry of Food Security and Research, National Agriculture Research Council (NARC), Buffalo Research Institute Bahawalnagar, Fodder Research Institute Sargodha and Pakistan Standards and Quality Control Authority (PSQCA). Some of the academic institutions include University of Veterinary & Animal Science Lahore and Faisalabad Agriculture University.

Input Supply

Input Suppliers and Other Participants Engaged in the Value Chain

Suppliers of live animals within the largely fragmented livestock sector number in the thousands and are spread all over the length and breadth of the country. Beoparis or traders of live animals are primarily based in the urban cities. However big beoparis also based in the major livestock clusters of Pakistan including Northern Sindh and Southern Punjab. Beoparis supply animals not on the basis of live weight but based on back of the mind calculations where no weighing balances are used. To understand the supplier dynamics one has to take kaleidoscopic view of the entire dairy and meat value chains. The fragmented nature of the farms where 80% of the farmers possess between 1-5 animals and essentially possess little or no land scope for commercial bank remains very limited because of the banks financing criterion. That criterion effectively shuts the door on small holders that interestingly account for 80% of the milk production and meat production effectively making Pakistan the world's fourth largest milk and 8th largest meat producer.

The nature of the milk and meat value chains is such that the fancier of dairy by default is also financing the growth of the meat value chain. Though at the second stage or slaughtering stage the financing is done by the meat beoparis where the payback period is from a week to one month in contrast to 5-6 months for the dairy value chains owing to the faster cash flow cycle involved in. Besides supply of animals, other inputs within the value chain include fodder suppliers, suppliers of feed concentrates, nutritional supplements, veterinary medicines, farm equipment manufacturers, AI and breeding and training services providers (TSPs) for animal husbandry and farm management.

Key Input Suppliers

Suppliers of feed concentrates and total mixed rations are primarily in the intensive cropping zones of Punjab and Sindh particularly the cotton, rice and maize growing areas as wastages from these crops are used as feed concentrates. Cotton seed rice husk, maize cobs and other left over are either mixed and manufactured at area of source or are shipped separately to bigger city markets allowing individual retailers to manufacture their own feeds and nutritional supplements.

Notable names in AI service providers in the country include Ghazi Brothers, Profarm Delaval, Altaf & Company, Real Sear, K&R and Sanam. While leading feed manufacturers include ICI based in Lahore and Dr Feed and Sindh Feed and Allied Products based in Karachi. Besides, a few names of feed manufacturing companies in Punjab include Pak Feeds Gujranwala and Multan Feeds based in Multan. Companies have dealerships based in most major urban and rural centers and their business arrangements range from formal as well as informal depending upon the size of their business volumes.

Contractual Arrangements

While AI, veterinary services and feed concentrates are paid for in cash by the farmers, green fodder and in some cases even feed concentrates are especially provided to dairy farmers (since milk serves as instant source of cash) while no such arrangements exist for feedlot fattening farms. The fact that meat is a by-product of the dairy industry, feedlot animals raised at the same dairy farms are extended the same facility by default by the informal sector. Green fodder is supplied at credit and in turn is linked with the cash cycle of the dairy farmer that normally is a month. The business relationship is based on intimate trust developed with no formal contract involved.

All inputs are available at retail and wholesale stores located within the production areas. Payment period for input supplies involving green fodder and other feed concentrates is between one week and up to a month. While AI, veterinary services and feed concentrates are paid for in cash by the farmers at the time of service delivery. Beoparis deliver animals at the desired location of the urban or city mandis and payment is accepted in cash or on credit where the payback period for credit is up to five and six months. Animal quality is determined by the purchasing dairy farmer. However, for other farm inputs quality gets scant attention and again is subject the prevalent prices. However progressive farmers and big peri-urban farmer remain quality conscious particularly in case of milk production since they cannot afford to compromise the input quality which ultimately affects the profit margins and raise overhead costs. But for most price sensitive small holders price remains a key driver of purchase decision.

Traditionally, no formal contract mechanism exists within the industry; however, lately farms in the bigger cities of Punjab and Sindh have begun to move towards e-tagging as some meat retailers demand traceability. Lately, with increasing consumer awareness for traceability and e- tagging grounds are being created for contractual opportunities. A case in point is leading high end retail outlets in Karachi and Lahore besides. The fact that big corporate level players i.e. Engro Foods, plan to enter the meat market in a big way with a planned 500 outlets across the country do offer increasing opportunities for contracting. In Nov 2012 the market price for a good Neeli Ravi buffalo was between Rs. 125, 000 to Rs. 140,000 while the market price for a good Friesian, Jersey or Sahiwal cow costs somewhere between 100,000 up to 200,000. The live animal beoparis deliver these milking animals at the dairy farm gate. If the dairy farmer was unable to provide upfront cash then the beoparis still supply these animals their trusted clients (dairy farmers) on credit with the added condition that the supplier be paid both the principal amount as well as the Rs. 10,000 -12,000 profit per animal by the end of the fifth month.

Likewise, since the spent animals (those reaching end of their lactation period) end up being slaughtered for meat purposes, this time the beoparis buy these animals and sell to their established clientele that comprises meat beoparis or butchers on either cash that ranges from a low of Rs. 40,000 to a high of Rs. 80,000 (milking buffaloes or cows accumulate high body mass at dairy farms). Here the mode is either 100% cash or a certain percentage of credit is also involved with payback period that ranges between a week up to two weeks and even a month.

Logistical Activities Required to Source Inputs and Supplies

Large ruminants i.e. cattle and buffalos and small ruminants are rounded up by the beoparis or their agents based in the villages and taken to the nearest rural cattle markets either on foot or on small trucks and Suzuki vans. Alternatively, farmers may choose to take their cattle directly to the rural cattle markets where the first live auctions take place on specified dates. The animals purchased by urban butchers or meat beoparis are transported to their rural final destination for slaughtering.

Animals are then transported to the urban slaughterhouses. Again transportation costs are primarily borne by the live animal beoparis or alternatively by the meat beoparis depending on the type of arrangements. There are no specialized vehicles for animal transport and animals are crammed into vehicles and moved

to their final destinations i.e. urban cattle mandis. Most often the animal traders or beoparis pay for transportation right from the places of origin up to the urban cattle markets where the second live auction takes place.

Majority of large ruminants originate from Interior Sindh and Southern Punjab. Beoparis engage private transporters for logistics. Transportation is paid for by the beoparis to truckers who then transport the live animals to the urban markets. Before reaching the private slaughterhouses or city abattoirs all taxes and transportation costs are paid for and arranged by the beoparis who in turn may get their financing needs met from various actors within the value chain.

Given Pakistan's large geographic canvas and widely scattered production clusters an elaborate road network extensively covers the entire spectrum of the value chain from covering the movement of live animals from rural areas to the end markets. Lead times for transportation of live animals are from anywhere between a few hours up-to 48 hours depending upon the final destination. For exports consignments lead times vary depending upon the countries involved.

Production System

Primary Producers and Flow of Goods and Services

Punjab and Sindh have the biggest concentration of farm animals and particularly the areas lying between Sargodha in Northern Punjab, Lahore and Sahiwal and Jhang in Central and Bahawalpur, Vehari, Lodhran, Multan and Rahimyar Khan in Southern Punjab have major production areas. While in Sukkur, Larkana, Dadu, Shikarpur, Khairpur Mirs in Northern Sindh and Hyderabad, Nawabshah and Thatta in Interior and Southern Sindh have the largest dairy clusters.

Within the country production of both large and small ruminants is fragmented and remains concentrated in larger livestock cluster in the two major provinces of Punjab and Sindh. While the largest production clusters are based in the provinces of Punjab and Sindh for all types of meat animals. Supplies to the rest of the country originate from these two provinces. While the KPK and Baluchistan remain far behind as being net consumers of animals sourced from the two bigger provinces.

Farmers who are considered bankable possess between 7-50 large animals account for 16% of the national production. Since there are no dedicated beef breeds in the country and meat is essentially a by-product of the dairy value chain as the two remain intricately intertwined as milking animals after end of their lactation periods are sold for meat.

Major Cattle Breeds of Pakistan

Sahiwal and Red Sindhi are regarded as dual purpose (milk and beef) breeds while Tharri and Cholistani are regarded dual purpose dairy and beef breeds. Bhagnari, Brahama, Lohani, Dajal, Dhanni, Kankhej and Rojhan, are established draught animals in addition to many other non-descript breeds. While amongst the buffalo breeds Neeli Ravi is the leading milking animal followed other Kundi and other breeds. In Pakistan no specific breeds exist for beef production and the industry sources its supplies primarily from dairy herds that are near or have reached the end of their lactation period. Pakistan's beef needs are met primarily from the buffalo stocks originating mainly in the two key provinces of Punjab and Sindh. Neighboring India has made significant strides in exporting buffalo meat.(Mc Dowell et al 1995). There is no specific buffalo beef breed in the world Pakistan's Neeli Ravi buffalo on average weighs 647 kg versus India's Murrah weighing 584 kg and Egyptian buffalo weighing between 450-500 kgs.

Pakistani farmers decision on selection of a particular cattle, buffalo, sheep and goat breeds is influenced by many different factors including but not limited to available resources of green forages, water, the production system and environmental conditions. Cropping patterns are in turn further influenced by the prices of major cash crop viz a viz the costs of inputs. Farmers face acute shortage of forages during the May-June and Oct-November periods each year a situation that adversely impacts the feeding regimes of farm animals resulting in poor feed conversion ratios (FCRs).

Following poultry and mutton, beef is the third meat of choice for consumers in Pakistan. Farmers have little incentives for beef production as mostly spent animals (milking animals reaching the end of their lactation period or sick ones) are marked. Consumers have little quality consciousness as far as selection of beef is concerned, a situation that historically has negatively impacted production of quality beef as seen in the West. However, due to phenomenal demand for meat particularly coming from Iran, Afghanistan, Central Asia and the Gulf States Pakistani farmers finally were enjoying better prices for their farm animals. The recent ban on export of live animals to by the Peshawar High Court has slowed down trading activities. However, producers and exporters attach high hopes for export of red meat as a lucrative business in the future.

Major Sheep & Goat Breeds of Pakistan

Pakistan is number two in world rankings in terms of mutton production just behind China and has 30 breeds of sheep and thirty seven breeds of goats. Important sheep breeds include Burchi, Lohi, Thalli and Salt Range in Punjab, Bumbi, Kachhi and Kooka in Sindh, Balkhi, Damani and Kaghani in KPK and Baluchi, Harnai, Bibrik and Lakhshani in Baluchistan. While important goat breeds include Beetal, Dera Din Panah and Teddy in Punjab, Barbari and Kamoni in Sindh, Kaghani and Jatal in KPK and Khurasani, Lehra and Pahari in Baluchistan.

India that historically had served as a major supply source and reservoir for replenishment of live animals for Pakistan has in recent years tightened free westward movement of live animals into Pakistan thereby putting pressure on the supply side. Nevertheless, two-way movement of live animals between India and Pakistan though drastically reduced continues to thrive.

Pakistan's meat trade has surged significantly with the Middle East including Saudi Arabia, UAE, Oman, Qatar, Kuwait and Bahrain accounting for the bulk of meat exports. While high demand for meat in Iran and Afghanistan coupled with their long porous borders with Pakistan has resulted into large scale smuggling into the two neighboring countries much to the detriment of the domestic consumers who end up paying high prices for meat as domestic supplies come under pressure.

Production Systems

Production is inefficient owing to smaller herd sizes since farmers owning 1-6 cows form 84.1 percent of the total while in the case of buffaloes the same herd sizes are maintained by 83.4 percent of farmers thereby raising overhead costs and denying farmers economies of scale. Interestingly in the case of small ruminants the percentages of farmers owning 1-30 flock sizes for goats and sheep make up 88.9 percent and 96.7% of farmers respectively. It is a well known fact that the world over the bigger the herd sizes the greater the efficiencies. Interestingly between 13-14 % of farmers have herd sizes 7-15 cattle and buffaloes respectively while 2.3% of farmers maintain between 16-50 large ruminants. Less than 1% of farmers own more than 50 animals. Therefore the SME sector comprises of farmers keeping between 7-50 dairy animals that put together represent a total of 15.6 or approximately 16% of the nation's total animals.

Table 4: BREAKDOWN OF HERD SIZES OF VARIOUS ANIMALS

Herd Size	Cattle	Buffalo	Flock Size	Sheep	Goat
1-6	5.204	5.001	1-30	1.390	6.576
	(84.1%)	(83.4%)		(88.9%)	(96.7%)
7-15	0.826	0.843	31-75	0.119	0.173
	(13.3%)	(14.1%)		(7.6%)	(2.5%)
16-50	0.140	0.140	76-350	0.050	0.049
	(2.3%)	(2.3%)		(3.2%)	(0.7%)
> 50	0.018	0.012	> 350	0.005	0.004
	(0.3%)	(0.2%)		(0.3%)	(0.1%)
Total	6.188	5.996	Total	1.564	6.802
	(100%)	(100%)		(100%)	(100%)
SOURCE: Dr Mohammad Afzal former CEO LDDB					

Modern feedlot fattening farming is new to Pakistan and a few hundred modern farms exist in both urban and rural farms around the country.

Note: Greater details of feedlot fattening are given under Costs & Economics of Modern Feedlot Fattening Farms in Chapter 7- titled “Economics of each actor.

Since the primary purpose of raising farm animals is to bolster milk production and not commercial propagation for meat production, therefore there is no concept of contractual farming in Pakistan. Even if contract farming somewhere it must exist on a very small scale. Production can be broadly broken down into rural production with 2-5 animals per farm, peri- urban with starting from 20 animals to upwards of 50 and large scale commercial production with somewhere between 100-1000 animals per far. At the Cattle Colony in Karachi dedicated for milk production the biggest farms can have up to 4,000 animals spread over several sheds. While another category is that of desert /rangeland production particularly in Thar, Thal and Cholistan desert areas of Punjab and Sindh where traditional grazing takes place around water sources.

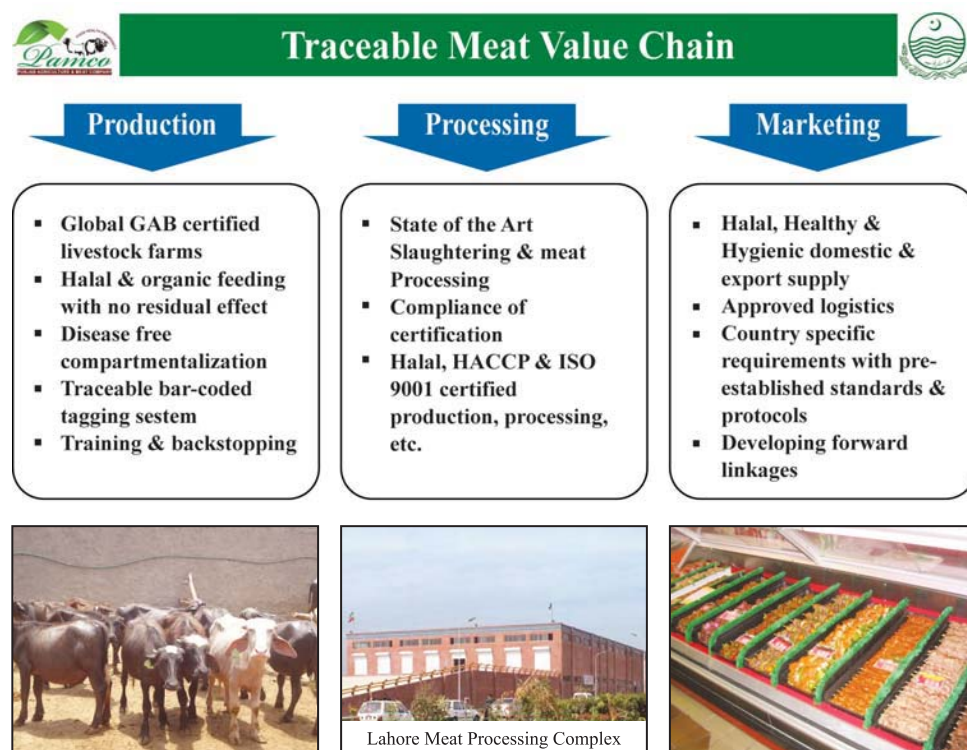
Technical & Quality Requirements in Production

Traditionally, meat sold in Pakistan had no specifications as the consumer had always put price above quality and the government’s price fixing allowed little room for quality improvements to the local industry. On the public sector front the Punjab Agriculture and Meat Company (PAMCO) established by the Punjab Government are at the forefront amongst the rest of the provinces by taking initiatives in enhancing export initiatives by getting Pakistan on the EU’s Commission 3rd Country List. It is also working on compliance of pre established protocols and Sanitary and Phyto Sanitary (SPS) Standards in collaboration with UNIDO besides HACCP and Global Gap standards. Only seven farms in Punjab are certified by Bureau Veritas the international standards accreditation agency a fact that highlights the long way the local industry has to go.

Furthermore, PAMCO has also taken initiatives on traceability of animals via e-tagging and bar coding. Plans are in the pipeline for ISO 14001 (EMS) and ISO 18001 (OHSAS) Certifications. The government has successfully negotiated approvals for exports to Middle Eastern countries notably, Saudi Arabia, Iran,

UAE and Malaysia. Since the export markets have their own requirements around 24 companies are engaged in meat exports

Figure 3: TRACEABLE MEAT VALUE CHAIN



SOURCE: Punjab Agriculture and Meat Company (PAMCO)

Aggregation of Live Animals

Wholesaling by Beoparis in Rural Livestock Markets

Farmers or the beoparis' agents based in rural areas herd livestock to rural wholesale markets where the beoparis (traders) inspect & select animals for purchase. After reaching the rural wholesale markets livestock is groomed and fed at animal yards for onward sales to semi wholesalers & retailers. The next stage is for brokers to intermediate between farmers & beoparis to negotiate prices. Then brokers intermediate between wholesalers & out-of-town semi wholesalers where out-of-town semi wholesalers buy & transport livestock to major urban livestock markets. Rural slaughter house owners or butchers each accounting for 49% and 20% of the domestic meat trade source their animals at the rural markets or even directly from the farmers and slaughter the animals for consumption by the rural consumers. Together a total of 69% of the meat is consumed in rural areas where majority of the population resides.

Semi Wholesaling by Livestock at Urban Livestock Markets

Beoparis inspect livestock on site at major city mandis & select the animal for price negotiations. After reaching prices agreements desired livestock are purchased once price agreement is reached between the parties involved. Animals are then transported to the urban destinations for semi wholesaling and retailing at the bigger city based cattle markets. Upon reaching the urban markets, livestock is groomed and fed for onward sales to semi wholesalers & retailers. Next comes the turn of meat beoparis or butchers who buy animals for slaughtering. The animals are then either taken to private slaughterhouses or municipality owned abattoirs where the actual slaughtering takes place.

Key Risks in Production

A key production risk is the lack of premium price for good quality meat for animals raised under modern feedlot fattening farms as local markets are price sensitive and have little appreciation for premium quality meat. Small herd sizes also deny the producer economies of scale since logistical arrangements for input and veterinary care for both preventive and curative measures become costly as farms are scattered.

Conversely, the modern feedlot farmer still retains the advantage of greater costs and price efficiencies as a one-year-old calf raised at conventional farm would weigh between 100-150 kilograms while the same calf managed at modern feedlot farm and fed total mixed rations (TMR) would weigh twice as much with an average weight of between 200-250 kilograms thereby ensuring both time savings and greater profitability.

Frequency of Financing Needs in Production

Big beoparis and pekars are key financiers of the dairy value chain as the meat value chain is an extension of the dairy value chain where dairy animals are readily financed by big beoparis or pekars (who are active in Asia's biggest peri-urban market namely the Landhi Cattle Colony). Greater details are given in the chapter on financing. This is one area where only where 16% of farmers possessing between 7-50 animals have an advantage by virtue of their possessing sufficient land to show as collateral to commercial banks but sadly very little bank financing actually goes into establishment of modern feedlot fattening farms.

A reflection of the production and aggregation driving value chain finance particularly in the larger commercial level peri-urban markets i.e. Landhi Cattle Colony Karachi can be seen from the fact that every month 6% of the farms' dairy animals have to be replaced to maintain optimum level milk production. For a hundred animal farm that translates into 72 animals (2/3rd) of all farm animals to be replaced each year. Since the herd mix comprises of 10% of cows and 90% buffaloes such facts translates into 0.6 cows and 5 buffaloes replaced each month at a 100 animal dairy farm where the price tag ranges between 125,000 -150,000 for buffalos and between 150,000-200,000 for cows. That in turn translates into asset financing requirements of 6 cows and 66 buffaloes each year or farm animal financing demand between 10-14 million rupees excluding financing needs for equipment and animal sheds. Country wide financing needs of simply replenishment of farm animals alone runs into billions of US\$.

Currently no financing of fixed assets is done by the informal sources such as pekars or live animal beoparis trading both dairy as well as meat animals since the meat and dairy value chains remain intricately intertwined as meat value chain is considered an extension or by-product of the dairy value chain and dairy animals fetch the highest prices. At Karachi's Landhi Cattle Colony in November 2012 market prices for spent animals (animals destined for slaughterhouses reaching the end of their lactation prices) stood at Rs. 80,000 for a buffalo and between 60,000- 80,000 for a cow). For cash strapped farmers unable to provide upfront cash to suppliers, the pekars or beoparis routinely charge Rs. 12,000 above the market price of each milking buffalo and between Rs. 18,000-20,000 above the market price for each milking cow.

The suppliers (beoparis and pekars) expect the dairy farmers to pay the principal as well as the financing charges within 5-6 months of the delivery of farm animals. The fact that the urban areas have a very huge and ever widening gap between milk demand and supply there consequently remains an ever increasing demand for working capital as well as asset financing. But clearly large infrastructure finance remains in short supply and only dairy animal finance remains a permanent feature of the informal sector owing to the 5 month payback period with huge profit margins. This clearly is one market within the fourth largest

milk producing country in the world where the informal sector is quite efficiently meeting the financing needs of the dairy as well as meat value chains while the formal banking channels remain distant spectators.

Farmers Capable of Fulfilling Bank Collateral Requirements

Nearly 16% of farmers own herd sizes varying between 7-50 animals and it is this group that can be considered bankable as they own sufficient land as collateral besides possessing hard assets whose farm animal value alone is estimated at well between 5-10 million animals. They currently avail agriculture credit and have no issues in securing agriculture loans and are comfortable in dealing with commercial banks procedures. This group has no dependence on the informal sources of finance. While the remaining 84% = (100%-16%) of farmers owning 1-6 animals are dependent on the beoparis and arthis for their financing needs often accessing informal finances without much difficulty.

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a) Working Capital Finance

As mentioned earlier, the 16% of farmers possessing 1-6 large ruminants are considered bankable while only 10% of goat and sheep farmers keeping between 7-50 animals would be considered bankable. That leaves an alarming 89-90% of small ruminants farmers considered as un-bankable since they possess between 1-6 animals.

Interesting it is this 89-90% of small ruminant owners who have over the years catapulted Pakistan to the world number two in terms of goat production behind China. Correspondingly, between 85-66% of farmers possessing 1-6 cattle or buffaloes place Pakistan as world number two in buffalo production.

b) Fixed Asset Financing

During interactions with industry players particularly the informal sources of finances it was revealed that only commercial banks were engaged in financing of fixed assets while the informal sources offered close to nothing in this arena.

At the farm production and logistics arenas, unmet areas of financing identified by progressive SMEs included financing of farm sheds and machinery i.e. feed grinder, grass chopper, feed mixer and tractors besides cold chain that are often used in silage making appropriate besides animal transport systems etc.

c) Constraints in Financing of Producers Needs

The greatest constraint identified is the financing of live farm animals. In the absence of livestock insurance commercial banks are shying away from delving into this area and even well positioned SMEs find difficulties in financing. On the other hand, 90% of goat and sheep farmers and an overwhelming majority i.e. 86% of large ruminant farmers are considered un-bankable since they possess little or no land at all. Fixed capital financing for farm sheds does not exist from the informal sector whereas the stringent requirements of commercial banks fend off industry players from turning towards the formal sources of finance.

Processing - Type of Products and Opportunities for Upgrading Finance

In the domestic market, meat processing began with slaughtering and very little value addition takes place as primarily small and large ruminants are cut and washed into between four and sometime eight pieces. Traditionally, the butcher processed the meat for making mince at butcher shops. There was little processing of meat beyond deboning and most meat available today comes with bones.

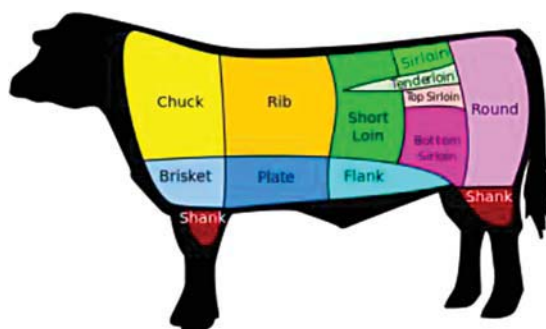
A few companies are engaged in meat processing and notable amongst them is Peshawar based Euro Foods that makes sausages, baked meat, smoked meat, meat loafs and other processed items. The meat processing companies also source their supplies from the live animal beoparis and those with no in-house slaughtering facilities directly from meat beoparis. While recently with the entrance of the German retail chain METRO and others like it have introduced meat as per the changing lifestyle requirements for the upscale wholesale market. Likewise a few high-end meat retail shop chains have opened while big players like Engro Foods are planning to enter the meat market in a big way with its plans of setting up 500 meat retail shops. An example of the specialized cuts demanded by the American consumer of beef is given below. Similarly, each individual market has own demand.

Sensing the increasing hygiene and health awareness amongst consumers both wholesalers, retailers and meat processors are keen to invest at the wholesale and retail ends and to complement these goals there needs to be significant improvement in modern slaughterhouses and feedlot fattening farms.

1. Beef is cut in Accordance within the Demand in the Consuming Country

Beef is cut in accordance with the market demand and even names of cuts vary from one country to another. For instance the cut described as "brisket" in the US is from a significantly different part of the carcass than British brisket. After separation from the carcass during butchering, beef is divided into primal cuts and used according to the country's cuisine for making steak, barbeque and numerous other purposes. The term "primal cut" is quite different from "prime cut", used to characterize cuts considered to be of higher quality. Since cuts vary between countries therefore, Brazilian, Argentinean, Japanese, Middle Eastern, Indian and Pakistani South cuts are altogether different. Since the animal's legs and neck muscles do the most work, they are the toughest; the meat becomes tenderer as distance from hoof and horn increases.

Figure 4: AMERICAN CUTS OF BEEF



SOURCE: <http://en.wikipedia.org/wiki/Beef>

At the processing stage slaughtering happens at least three levels namely the government sanctioned urban abattoirs accounting for 29-39% of the trade, village slaughterhouses and butcher houses accounting for 59-69% of the trade and export oriented private slaughterhouses accounting nearly one

percent of the trade. Processors are linked to beoparis of live animals who buy animals at auctions at the rural or city markets and delivery at the slaughterhouse gate. All costs of procurement and delivery of live animals are borne by the beoparis who in turn are paid by the slaughter houses either on the same day or within a week of physical delivery.

More than 90% of the processing and slaughtering facilities are outdated and in dire need of new investments into state of the art facilities. The facilities are inadequate and ill equipped with the modern facilities. The facilities for storage of meat are inappropriate and unhygienic lacking cold chain i.e. chillers and refrigerated transport facilities.

2. Availability and Use of Technology

The bulk of processing and slaughtering of animals comprises of methods that can best be described as un-hygienic and outdated besides posing serious environmental challenges to human health hazards. Only a select number of slaughter houses meet international standards. Most of the advanced and better equipped facilities are private slaughterhouses with a mandate to export.

3. Processing Throughput

Throughput improves markedly during the Islamic sacrificial month of Eid ul Adha each year and 2012 was no exception. However, decreasing purchasing power and rising costs of animals remain a concern. A look at year on year annual growth rates viz. a viz. Pakistan's total distribution reveal that supplies grew between 2005 and 2007 and peaking in 2006. According to USDA the country however experienced negative growth during 2011 and 2012 and is projected to enter positive territory in 2013 with comparatively higher growth.

4. Financing in Processing

Generally there's absence of both formal and informal financing facilities in the processing arena. This is essentially an uncharted territory since only 1-2% of animals get slaughtered at modern hygienic slaughterhouses while more than 98% of the work is undertaken at old unhygienic garages, backyards or government abattoirs operating under unhygienic conditions.

Nearly 98% of current finances come from meat beoparis who pay all charges from live animal purchases, transportation, government taxes as well as slaughtering fees up to delivery to butcher shops. Bank financing is available for private sector slaughterhouses while the informal sector has little to offer in this area.

Unmet Opportunities for Technology & Quality Upgrades in Processing

Establishment of modern slaughterhouses, refrigerated trucks and cold chain establishment particularly at Government slaughterhouses are area where financing opportunities exist since government slaughterhouses after all are contracted out by municipal governments to private parties. Availability of a financing window would raise the quality and hygiene standards of government owned slaughterhouses contracted to private parties.

The biggest constraint is lack of consumer awareness who are interested in eating meat but remain oblivious on the un- hygienic conditions of the slaughterhouses.

Markets

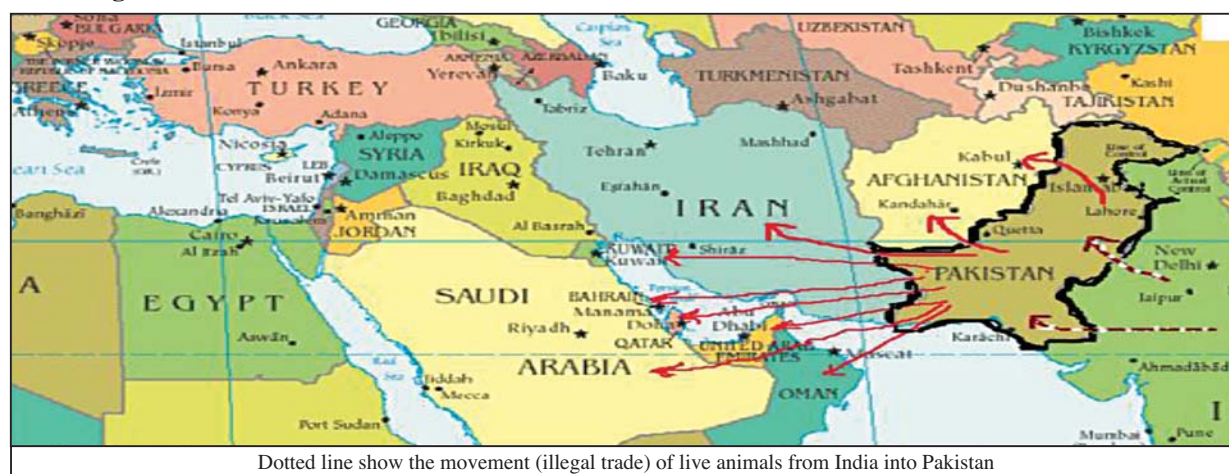
Market Size and Exports Volumes

Within a short span of sixteen years Pakistan's beef production doubled from 717,000 metric tons in 1996 to reach 1,400,000 metric tons. Yet this volume is not sufficient to meet market demand. Pakistan meets its supply and demand gaps by observing meatless days (two days per week when animals are not slaughtered officially). The government enforces meatless days in a deliberate attempt to control demand. According to stakeholders interviewed during the survey of the total animals 49%, 20%, 30% and 1% are slaughtered respectively in rural slaughterhouses, rural butcher shops, urban butcher shops and export oriented private slaughterhouses. While in the urban areas an estimated 60-70% of all slaughtering takes place illegally in garages, backyards and private houses. Likewise, 29- 39% of all urban slaughtering is taking place in Government Abattoirs and only 1% takes place at Export Oriented Private Slaughterhouses. That way 99% of all meat is consumed domestically and only 1% is exported valued at US\$ 123.61 million.

According to Punjab Agriculture and Meat Company (PAMCO) a 400 kilogram buffalo with a purchase price of 45,000 would fetch Rs. 52,375 in contrast to the huge export margins of Rs. 184, 200. Conversely a goat with a purchase price of Rs. 7,000 would fetch Rs. 7,615 in contrast to export value of Rs. 16, 910. Therefore exports ensure greater returns besides boosting foreign exchange reserves as beef exports fetch 3.5 times higher returns and mutton exports fetch 2.2 times greater returns than domestic sales. The future certainly lies in exports offering the greatest incentives for modern feedlot fattening farmers. A total of 23 companies are involved in meat exports including most of them based in either Karachi or Lahore and Gujranwala while exporting to Afghanistan is based in Peshawar.³

According to Economic Survey of Pakistan's for the year 2011-12 the national herd mix of the country comprises of 36.9 million cattle, 32.7 million buffaloes, 28.4 million sheep, 63.1 million goats and 1 million camels. According to the Ministry of Food Security & Research the gross value added of the livestock sector at constant factor cost increased from Rs. 672 billion in 2011 last year to Rs 700 billion by June 2012 registering an increase of 4 percent. Industry insiders put the figure at more than Rs. 800 billion for end of December 2012.

Figure 5: PAKISTAN'S MEAT EXPORTS to MIDDLE EAST, IRAN & AFGHANISTAN



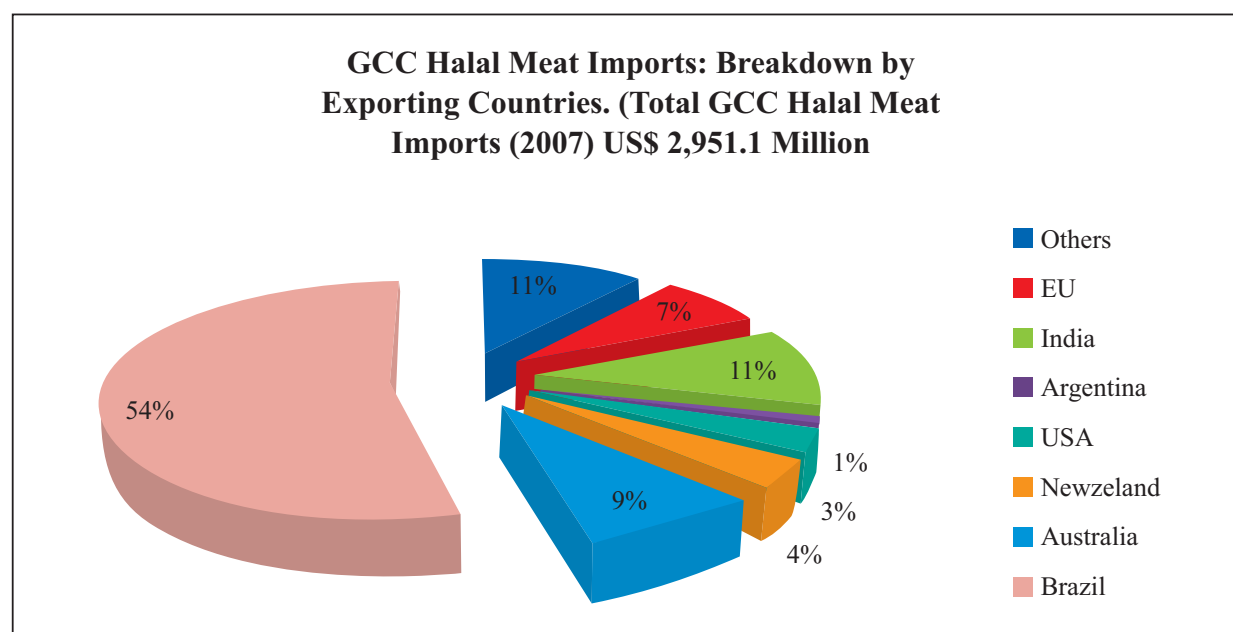
¹ These companies are listed in the official web site of 'All Pakistan Meat Exporters and Processors Association (APMEPA)' - www.apmepa.com

Opportunities in Halal Meat Market

Halal (meaning allowed in Arabic) meat is a US\$ 1 trillion global industry that is sourced from 56 billion heads.⁴ Total volumes traded in 2011 included 302 million metric tons out of which beef accounts for 67 million metric tons. In spite of Pakistan's strong credentials backed by its huge livestock population, it lags far behind with inherent inefficiencies resulting from poor farm management practices that are worsened by lack of good beef breeds in the local market. The halal food market is segmented in terms of the diversity of its definition, awareness, location, income, religion and ethnicity. The challenge in capturing the halal food export market lies in the producer's ability to meet international food safety and hygiene standards.

No wonder that the global halal food industry is dominated by non-Muslim countries based in the West including Brazil, USA, France, Australia, Canada and New Zealand. While dominant countries in the East include Thailand, Philippines, Indonesia, Malaysia, Singapore and India. For countries such as Pakistan the way forward lies in investing into more companies in the private sector on the pattern of PAMCO. Pakistani meat or meat products only stand a chance once the requisite investments are made into the infrastructure including slaughter houses and cold chain meeting global standards.

Figure 6: BREAKDOWN OF (GCC) HALAL MEAT IMPORTS



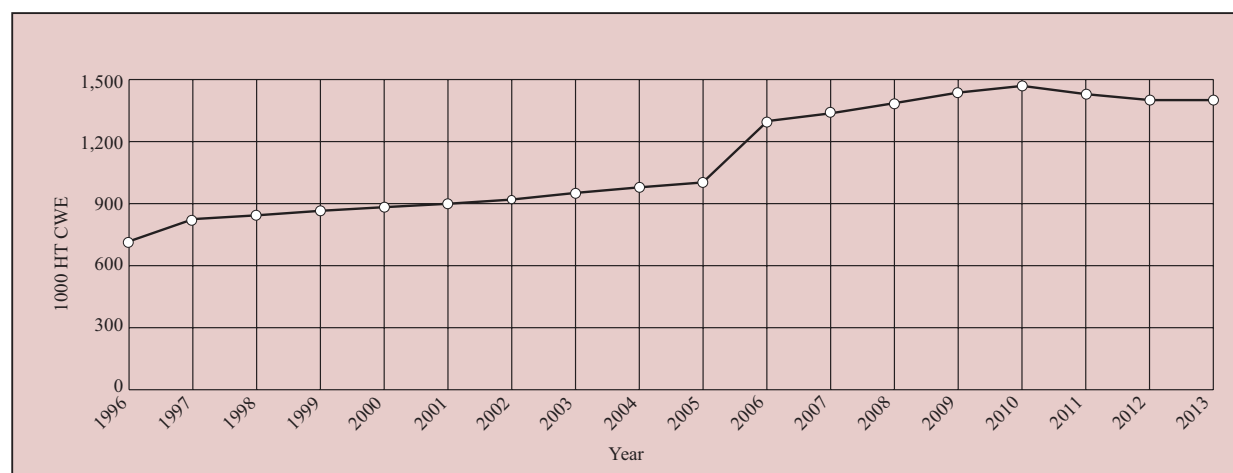
Source: WHF Secretariat Kasehdia –Analysis from Institution's Data Base

² <http://knowledgetoday.wharton.upenn.edu/2011/09/tapping-a-growing-halal-market/>

Table 5: PAKISTAN'S BEEF & VEAL PRODUCTION STATISTICS BY YEAR

Market Year	Production (1000 CWE)	Growth Rate
1996	717	NA
1997	827	15.34 %
1998	846	2.30 %
1999	867	2.48%
2000	886	2.19%
2001	903	1.92%
2002	925	2.44%
2003	953	3.03%
2004	979	2.73%
2005	1004	2.55%
2006	1300	29.48%
2007	1344	3.38%
2008	1388	3.27%
2009	1441	3.82%
2010	1470	2.01%
2011	1435	-2.38%
2012	1400	-2.44%
2013	1400	0.00%

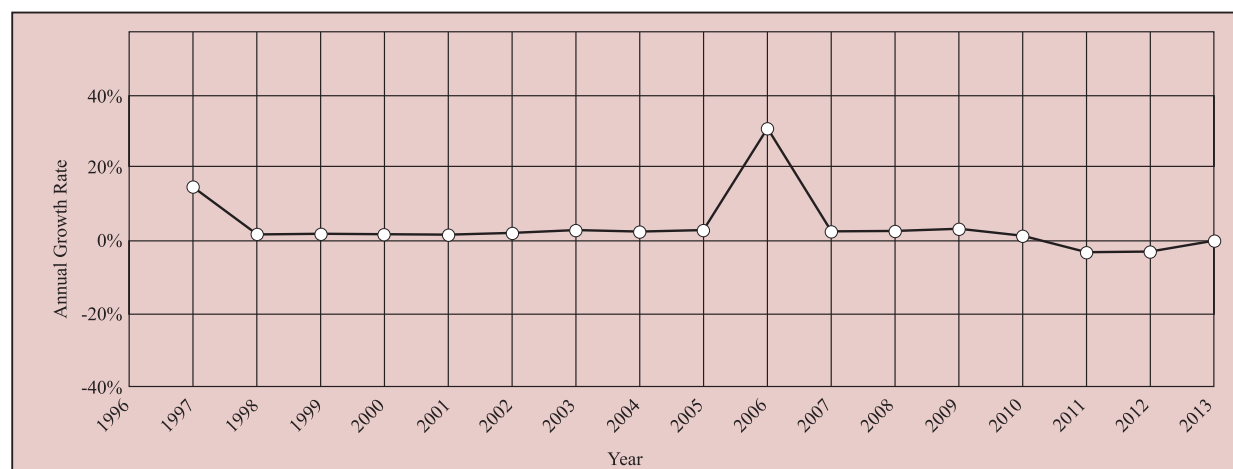
Figure 7: GRAPH SHOWING PAKISTAN's BEEF & VEAL PRODUCTION



SOURCE: United States Department of Agriculture (USDA)

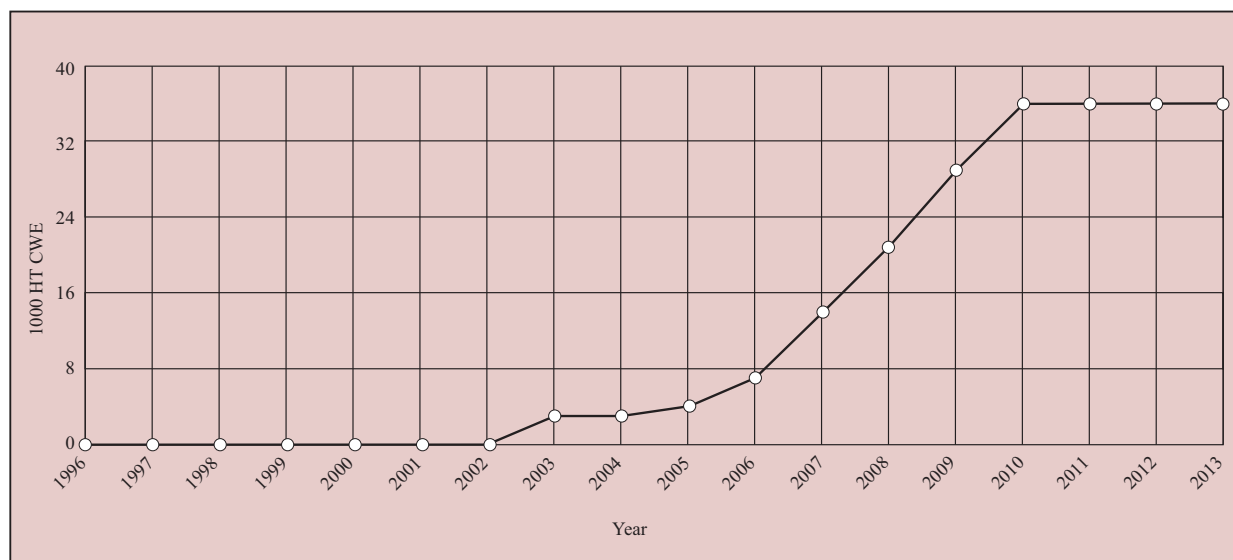
A sources show beef and veal production in the country doubling between 1996 to 2012 rising from 717, 000 CWE to reach 1400,000 CWE. Likewise USDA sources put annual growth rates for Pakistan's beef and veal distribution peaking in 2006 at around 30% and experiencing negative growth for 2011 and 2012.

Figure 8: ANNUAL GROWTH RATES IN PAKISTAN's BEEF & VEAL PRODUCTION



SOURCE: United States Department of Agriculture (USDA)

Pakistan's beef exports began in 2002 and have somewhat plateau-ed since 2010, trends which according to the USDA are forecasted to remain unchanged in 2013. The country exported meat (beef, mutton and camel meat) worth US\$ 123.61 million by June 2012 rising from US\$108.54 million in 2011 rising by 13.9%. On the domestic front a ban on export of live animals by the Peshawar High Court has put spanner in the works for the lucrative exports fuelled by demand in the neighboring countries Iran, Afghanistan and the Middle East. Since exports accounts for only 1% of the country's animal population of cattle and buffaloes it was seen as a boon for the country's farmers; the ban has slowed down export of live animals. However, smuggling continues unabated.

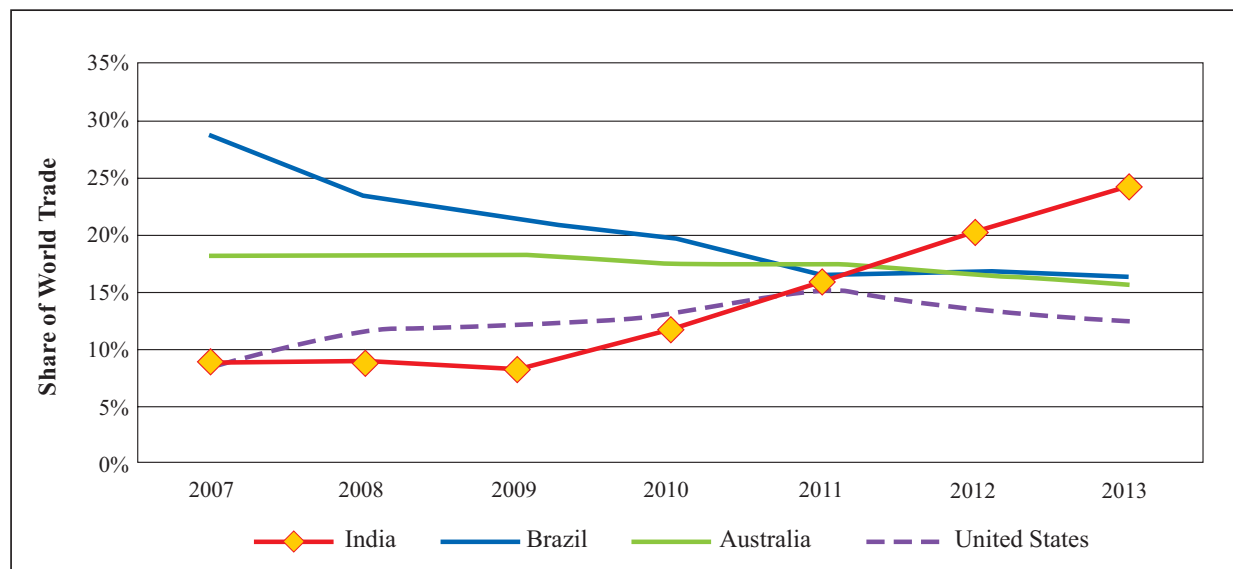
Figure 9: GRAPH SHOWING PAKISTAN'S BEEF & VEAL EXPORTS BY YEAR**SOURCE:** United States Department of Agriculture (USDA)

At the world stage India has surpassed giants such as Brazil, Australia and United States by taking number one position within a short span of less than a decade. Figures for export of live animals from Pakistan are given below.

Table 6: STATISTICS ON EXPORT OF LIVE ANIMALS FROM PAKISTAN (2009-2010)

Species	Karachi	Quetta	Peshawar	Total
Cattle	15,000	30,000	5,000	50,000
Buffaloes	5,000	30,000	15,000	50,000
Goat / Sheep	125,000	20,000	5,000	150,000
Camel	3,000	0	0	3,000
Total No of Animals	148,000	80,000	25,000	153,000
Source: Ministry of Food Security & Research Government of Pakistan Note: On the Other hand Meat Exports (beef, mutton and camel) were US\$ 123.61 million in 2011 and US\$ 108.54 million by June 2012				Value of Exports = US\$ 13.95 million

Figure 10: WORLD'S LEADING BEEF EXPORTERS

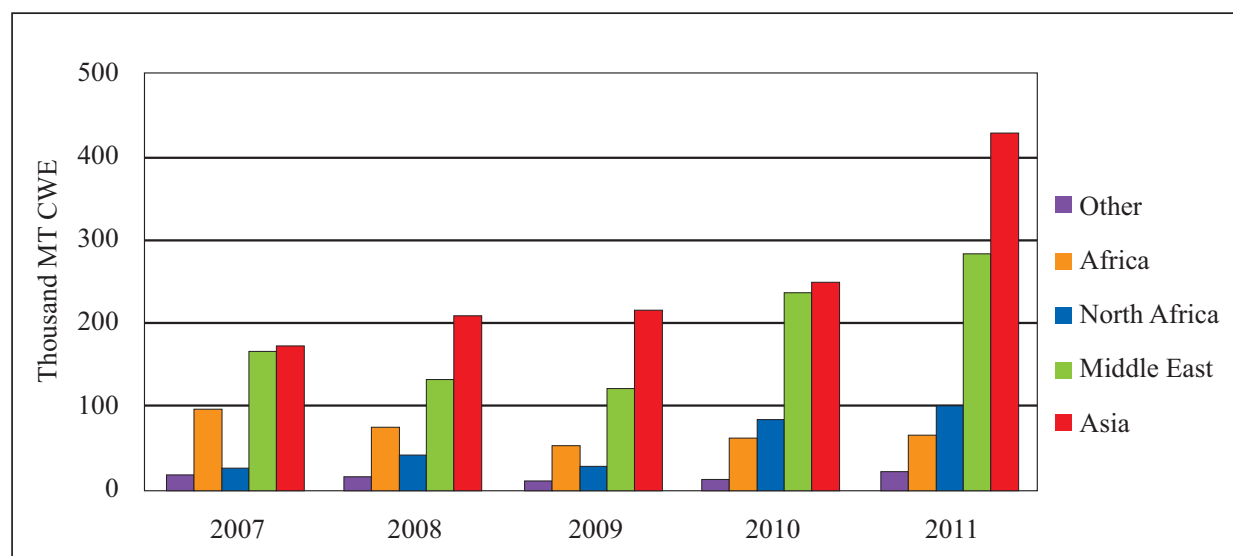


SOURCE: United States Department of Agriculture (USDA)

According to USDA projections with exports projected to grow by 29% or 2.16 million metric tons, India is further expected to consolidate its number one position as it left behind leading producers Brazil, Australia and the US. It has increased its world trade share from 8% in 2007 reaching 25% by 2012. Pakistan with somewhat similar agro ecological zones albeit with different dynamics has some important lessons to learn from its bigger neighbor.

India's phenomenal rise globally has been fueled primarily by shipments to many emerging, price sensitive and emerging markets in Asia where it capitalized on rising demand for low-cost products. However, India continues to have a strong foothold in Africa, North Africa as well as Middle East.

Figure 11: SHIPMENT'S TO ASIA FUEL INDIAN BEEF EXPORTS



SOURCE: United States Department of Agriculture (USDA)

Table 7: RANKING OF BEEF AND VEAL PRODUCING & CONSUMING COUNTRIES

Beef and Veal Selected Countries Summary 1,000 Metric Tons (Carcass Weight Equivalent)						
	2008	2009	2010	2011	2012	2013 Oct
Production						
Brazil	9,024	8,935	9,115	9,030	9,210	9,375
EU-27	8,090	7,913	8,048	8,023	7,815	7,700
China	6,132	5,764	5,600	5,550	5,540	5,580
India	2,552	2,514	2,842	3,244	3,643	4,168
Argentina	3,150	3,380	2,620	2,530	2,620	2,780
Australia	2,138	2,106	2,129	2,129	2,140	2,185
Mexico	1,667	1,705	1,745	1,804	1,815	1,795
Pakistan	1,388	1,441	1,470	1,435	1,400	1,400
Russia	1,490	1,460	1,435	1,360	1,350	1,345
Canada	1,289	1,252	1,273	1,154	1,060	1,055
Others	9,269	8,806	8,962	8,741	8,868	8,869
Total Foreign	46,189	45,276	45,239	45,000	45,461	46,252
United States	12,163	11,891	12,046	11,988	11,709	11,273
Total	58,352	57,167	57,285	56,988	57,170	57,525
Total Dom. Consumption						
Brazil	7,252	7,374	7,592	7,730	7,876	7,985
EU-27	8,352	8,263	8,147	7,941	7,855	7,750
China	6,080	5,749	5,589	5,523	5,524	5,571
Argentina	2,758	2,761	2,346	2,320	2,452	2,602
Russia	2,707	2,505	2,505	2,417	2,412	2,416
India	1,880	1,905	1,925	1,950	1,963	2,008
Mexico	2,033	1,976	1,938	1,921	1,915	1,920
Pakistan	1,371	1,414	1,436	1,402	1,367	1,367
Japan	1,173	1,211	1,225	1,238	1,248	1,248
Canada	1,036	1,016	1,000	1,009	951	930
Others	10,432	9,772	10,401	10,273	10,284	10,408
Total Foreign	45,074	43,946	44,104	43,724	43,847	44,205
United States	12,403	12,239	12,038	11,651	11,666	11,361
Total	57,477	56,185	56,142	55,375	55,513	55,566

According to the USDA, in terms of beef and veal production and domestic consumption the United States remains the world's largest producer of beef and veal followed by the EU, China and India with Pakistan ranked 9th globally. While India leads the pack in beef exports as it overtook the US and Brazil to assume that position.

Table 8: COMPARISON OF LOCAL VS. VALUE ADDED EXPORT - LARGE RUMINANTS

Comparison of Local Market VS. Value Added Export Markets								
(Export of Live Large Animal weighing 400 kg in Contrast Fetches Rs. 45,000/ Animal)								
Local Market					Value Added Exports			
Kind	Weight	Unit Rate Rs.	Amount Rs.		Kind	Weight	Unit Rate Rs.	Amount Rs.
Beef	200 kg	220 /kg	44,000		Beef	200 kg	800/kg	160,000
Blood	15kg	10/kg	150		Blood	15kg	10/kg	150
Bones	40kg	28/kg	1,100		Bones	20kg	50/kg	1,000
Fat	20kg	20/kg	400		Fat	20kg	20/kg	400
Stomach		200/unit	200		Stomach		350/unit	350
Intestine		25/unit	25		Intestine		800/unit	800
Offal's		4000/unit	4,000		Liver	3kg	4500/kg	13,500
Hide		2500/unit	2,500		Hide		8000/unit	8,000
Total			52, 375		Total			184,200
During export of live animals the local industry is deprived of the offals, hides, blood,bones and fat.								

SOURCE: Punjab Agriculture & Meat Company (PAMCO)

Table 9: COMPARISON OF LOCAL VS. VALUED ADDED EXPORT -SMALL RUMINANTS

Comparison of Local Market VS. Value Added Export Markets								
(Export of Live Small Animal weighing 30 kg in Contrast Fetches Around Rs. 7000 / Animal)								
Local Market					Value Added Exports			
Kind	Weight	Unit Rate Rs.	Amount Rs.		Kind	Weight	Unit Rate Rs.	Amount Rs.
Mutton	15kg	420 /kg	6,300		Beef	15 kg	700/kg	10,500
Blood	3kg	10/kg	30		Blood	3kg	10/kg	30
Bones	5kg	28/kg	140		Bones	2kg	50/kg	100
Fat	5kg	20/kg	100		Fat	5kg	20/kg	100
Stomach		80/unit	80		Stomach		80/unit	80
Intestine		15/unit	15		Intestine		100/unit	100
Offal's		700/unit	700		Liver	1kg	4500/kg	4,500
Skin		250/unit	250		Hide		1500/unit	1,500
Total			7,615		Total			16,910
During export of live animals the local industry is deprived of the offals, skin, blood,bones and fat.								

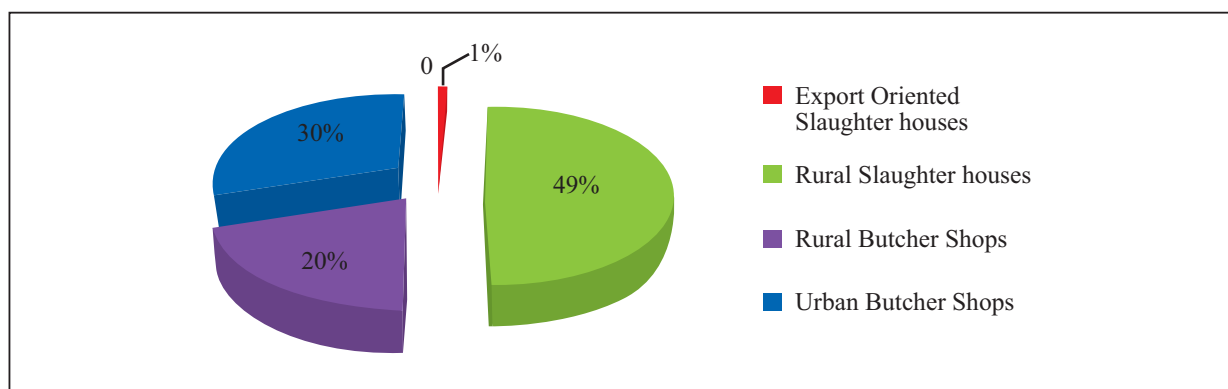
SOURCE: Punjab Agriculture & Meat Company (PAMCO)

In contrast to the domestic market, returns in export markets are two times higher for small ruminants and three times higher for large ruminants bringing home the message that the way forward lies in exports. When seen in light of the fact that animals in modern feedlot fattening farms add at least twice the weight of animals raised in conventional farms further builds the case that Pakistani farmers can fast track their cash cycles besides ensuring 100% higher returns by switching to modern feedlot fattening regimes and catapult the Pakistan meat producing industry to the next level at the world stage.

Product Flow in Various Channels and Their Volume

The rural and urban channel trade and corresponding volumes are given below:

Figure 11: SLAUGHTERING & MEAT TRADE PAKISTAN



Exports account for 1% of the total meat trade inclusive of mutton and beef (cow & buffalo) while 69% comprises of rural slaughtering (inclusive at 49% rural slaughterhouses and 20% at urban butcher shops). Whereas of the remaining 30% animals slaughtered in urban areas between 60-70% of all slaughtering is illegal since it is undertaken in garages, backyards and houses and between 29-39% of slaughtering is legal as it happens in government abattoirs.

Note: For greater details refer to value chain map.

Government's Role in Regulating Prices

The government remains a key player in determining the market structure along with the private sector led industry associations. On the down side, the government regulates meat prices through price fixing through its municipal arms to ensure food security to the general public. However, often times the wholesalers and retailers set their own prices and easily get away with the practice of selling at above the governments prescribed rates.

Market Risks & Challenges

Rise in export of live animals into Afghanistan and Iran has triggered a subsequent rise of 25% in domestic prices of live animals. There are both positive and negative connotations to this as rising exports also translate into better prices for farm animals but the down side is such trends have a detrimental effect on local meat consumers who switch from beef to poultry. The Government actively encourages export of carcasses as meat exports brings three times greater returns than live animals export.

A 400 kilogram buffalo with a purchase price of 45,000 would fetch Rs. 52,375 in contrast to the huge export margins of Rs. 184, 200. Conversely a goat with a purchase price of Rs. 7000 would fetch Rs. 7,615 in contrast to export value of Rs. 16, 910.

Disease outbreaks and epidemics arising from floods could create negative sentiments on Pakistani products. Rising costs of inputs could eat into profit margins. While next door India's emergence as the leading meat exporter of the world over the last decade has serious repercussions on meat exports from Pakistan's particular to the Middle East. Exporters met at Karachi, Lahore and Peshawar have spoken of the increasing financial clout of India as a major producer a situation that has forced Pakistani exporters to settle for the less competitive and less competitive carcass exports as Indian muscle forces Pakistani exporters out of the value added products.

a) Working Capital Finance

An overwhelming majority of the live animal trade is financed by the informal sources comprising primarily of big city based beoparis or their agents based in the villages who are extended advances by the big city based beoparis. Alternately, the big butchers or exporters with greater turnovers arrange the working capital finance again through informal arrangements which centers around an element of trust build over years of strong relationships. Slaughterhouses do manage to get working capital or running finance facilities.

b) Fixed Assets Finance

Large businesses i.e. export oriented slaughterhouses or even private contractors operating government abattoirs do have access to fixed asset financing. However, financing animals meant for slaughtering animals is done by meat beoparis or other beoparis supplying live animals as the returns or payback period.

c) Opportunities for Financing Technology Upgrades

Unmet opportunities for technology financing fall include establishment of new slaughterhouses, establishment and investments into cold chain at the slaughtering, transportation and meat wholesaling and retailing arenas.

Greater volatility in export regimes existing in export markets coupled with their stringent requirements on quality assurances are bigger constraints. However, such constraints can be easily overcome by establishing state of the art slaughtering facilities fully equipped with the requisite cold chain facilities. Given that traceability and e-tagging of animals is increasingly becoming a norm in international meat trade it would be prudent to strengthen both the forward as well as backward linkages.

SWOT Analysis

	Strength	Weakness	Opportunity	Threat
Profitability	<ul style="list-style-type: none"> High returns in modern feedlot fattening– 14-15% with yields being 60-70 Higher than conventional farming%. Contractual growing, leverage through cold storage and sales in lean period, easy and cheap availability of farm labour. Pakistan itself remains a huge consumer of meat with a rapidly growing domestic market for meat and meat products thereby ensuring long term profitability and high returns. 	<ul style="list-style-type: none"> Majority of domestic consumers are not quality conscious and go for low est price. Absence of beef breeds in Pakistan as the beef industry is considered a bye product of the dairy industry as mostly spent dairy animals reaching end of their lactation are slaughtered for meat. Slaughtering and meat handling facilities are outdated, inadequate and un-hygienic. Credit from informal sector is expensive but readily available 	<ul style="list-style-type: none"> Investment Open export Markets with Three times Greater earnings & untapped growth potential. Investment in front end retail shops Investment modern 	<ul style="list-style-type: none"> Floods & disease outbreaks negatively impact the supply chain and farming systems. Lack of appropriate slaughtering technology coupled with AI services results in lost business opportunities Long distances between markets make entire value chain price inefficient. Associated risks (local taxes, insecurity, deaths) & middlemen, beoparis / brokers taking margins that lead to overpriced meat

Stability	<ul style="list-style-type: none"> • Livestock is an integral part of the farming system of Pakistan and serves as supplementary income source for small holders (source of 80% of meat animals). 	<ul style="list-style-type: none"> • Farms are fragmented as herd sizes are small i.e. 80% of farmers are small holders having 2-5 animals and possess 0-5 acres and are described as un-bankable as they possess no land of their own. • Though small holders (2-5) animals account for 80% of animals they are landless (having no collateral for bank loans). 	<ul style="list-style-type: none"> • The country's huge livestock population in offers not only Food security but also offers long 	<ul style="list-style-type: none"> • Absence of credit & financial instruments.
Growth	<ul style="list-style-type: none"> • Huge livestock numbers offer the biggest guarantee for long term growth. • Rising international demand for Halal meat that stands at trillion US\$. 	<ul style="list-style-type: none"> • No weighing balance is used to determine animals weight rather beoparis or traders purchase and sell animals based on rough back of mind calculations. • Poor animal husbandry and farm management result in low feed conversion ratios and low returns. • Hygienic meat retailing remains weak owing to lack of private sector investments. • Feed quality remains poor thereby adversely impacting feed conversion ratios and farm production. • Shortages of green forages during May–April and June–August. 	<ul style="list-style-type: none"> • Institutionalizing credit to the value chain's informal sector actors will broaden the canvass for economic growth. • Beef & milk production Remains intricately intertwined since milking animals eaching end of their lactation period ending consumed for beef. 	<ul style="list-style-type: none"> • Cumbersome procedures on part of banks fends off vast majority of agricultural enterprises from the former financial institutions • Absence of livestock insurance serves as a major impediment.

Regulatory Environment	<ul style="list-style-type: none"> • Government is playing a facilitators role and allowing the private sector to serve as a growth engine • The passage of 18th Constitutional Amendment has devolved livestock to provinces.. 	<ul style="list-style-type: none"> • Ban of export of live animals increases the cost of doing business while allowing the black market to thrive. • Illegal trade (smuggling) thrives and deprives government of much needed foreign exchange besides denting tax money. 	<ul style="list-style-type: none"> • Doing away with practice of price fixing by the govt would unleash real growth potential. 	<ul style="list-style-type: none"> • The Govt's monopoly on price fixing to regulate meat prices serves as a disincentive and eats into profit margins besides discouraging much required new investments into the industry • Lack of a coherent policy on exports of live animals is hurting value chain actors at upstream & downstream levels. • Continuation of the ban by Peshawar on High Court export of live animals can hurt exports. • Waste disposal system at abattoirs is rudimentary. • Poor marketing infrastructure as facilities At mandis (animal markets) are in bad shape
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Job Generation	<ul style="list-style-type: none"> • Livestock accounts for 11% of national GDP and 55% of agriculture value added experiencing 4% annual growth rates. • 35 million rural farmers involved in the livestock industry. 	<ul style="list-style-type: none"> • Absence of credit facilities to majority of SMEs by banks continues to promote growth of the informal sector and hurts govt objectives economic growth. 	<ul style="list-style-type: none"> • Exports a % and promise higher returns. • Modern feedlot fattening farms ensure 70-80% higher returns and accelerate cash flow cycles by 100%. Demand for livestock products is rising with rise in urbanization and economic growth 	<ul style="list-style-type: none"> • Climate change and monsoon floods put livelihoods sources i.e. livestock and their feeding systems into jeopardy.
Geographic Focus	<ul style="list-style-type: none"> • Punjab & Sindh have comparative factor advantages for large ruminants particularly buffaloes while Baluchistan and KPK are best known for small ruminants. 	<ul style="list-style-type: none"> • Standardization remains below par in term of quality assurance, food i.e. Global GAAP, GMPs, and HAACP and resultantly keeps Pakistan from entering into global export markets. 	<ul style="list-style-type: none"> • Untapped prospect engage the SMEs in the informal sector who account for more than 90% of the trade in meat industry. 	<ul style="list-style-type: none"> • Inability to meet global safety and food standards impede Pakistani producers to diversify its meat exports.

Economics and Gross Margins

The cost per kg is the highest for meat exporters but so are the profits per kg while costs are the lowest for municipal slaughterhouses as seen in the table that follows.

Table 10: COST STRUCTURE OF STAKEHOLDERS

Particulars		BEEF			MUTTON		
		Costs / Heads Rs.	Avg. Weight Kg	Cost/Kg	Costs / Heads Rs.	Avg. Weight Kg	Cost/Kg
MUNCIPAL SLAUGHTER HOUSE	Slaughter Charges	200	200	1	20	10	2
	Processing Charges + Chilling	0	200	0	0	10	0
	Transportation Charges	300	200	1.5	100	10	10
	Total	500	200	2.5	120		12
FRONT END RETAIL SHOPS	Slaughter Charges	100	100	1	10	10	1
	Processing Charges + Chilling	500	100	5	50	10	5
	Transportation Charges	2000	100	20	200	10	20
	Total	2,600	300	26	260	30	26
MEAT EXPORTER	Slaughter Charges	250	100	2.5	25	10	2.5
	Processing Charges + Chilling	1000	100	10	100	10	10
	Transportation Charges	6,400	100	64	640	10	64
	Total	7,650	100	76.5	765	10	76.5

Source: Dr Tanveer Iqbal CEO: Shafi Sons Meat Company Lahore

Likewise gross margins for meat exporters are higher followed by municipal slaughterhouses and front end retailers.

Table 11: GROSS MARGINS FOR STAKEHOLDERS

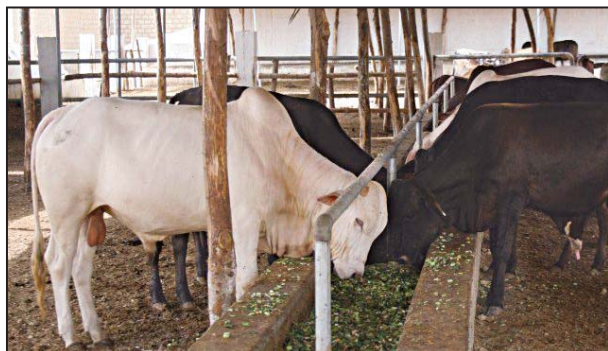
PARTICULARS	MEAT EXPORTER		MUNICIPAL SLAUGHTER HOUSE		FRONT END RETAIL SHOPS	
	Beef	Mutton	Beef	Mutton	Beef	Mutton
Buying Price	32,000	6,000	45,000	5,500	32,000	6,000
Buying Price / Kg Live	160	300	112.5	275	160	300
Price of Edible, Inedible Offals	4,800	1,100	5,000	1100	4,800	1100
Price /Kg Meat	272	490	200	440	272	490
Cost Of Processing	76.5	76.5	2.5	12	26	26
Selling Price/Kg	414	644	230	500	340	600
Margin %	34.8	24	13.0	12	12.4	14

Source : Dr Tanveer Iqbal CEO: Shafi Sons Meat Company Lahore

Case Study of Nawab Nadeem Uddin - Feedlot Farmer

Nawab Nadeemuddin is a progressive dairy and feedlot farmer and owns Nur Islam (NI) Dairies based in Moaza Rasulpur Tehsil Shujaabad District Multan. He raises both feedlot animals and dairy animals and has around two hundred animals at his farm. His family migrated from New Delhi after partition and settled in Multan where he actively participates in political activities besides his passion for farming. He is president of Livestock Breeders & Dairy Farm Association. He also finds time for pursuing a PHD degree and is frequently invited as guest speaker on topics related with farm management. He grows his own fodder and stresses that the key to success lies in herd management that include housing, selection of animals, nutrition, disease control, breeding, record keeping, farm mechanization and marketing. He emphasizes that the rules of thumb for dairying lies in carving interval and that of feedlot fattening lies in flock system just on the pattern on the flock system prevalent in poultry farming where the next flock has to enter the farm before the previous one is marketed.

Interviewed at his under construction commercial plaza site in Multan city he informed that he has a formal contract with Nestle to sell 600 litres of milk produced at his farm each day at Rs. 42/ litre. Emphasizing the importance of nutrition, he underscored the point that an animal left poorly fed for a day takes fifteen days to get back to the same stage. He said that farming is a long term commitment and farmers must keep their own progenies. He stressed that banks should provide only 30% finances whereas 70% should come from the farmers.



He raises feedlot animals and on Eid ul Azha occasion takes his animals to the Malir Mandi located on Super Highway Karachi where Pakistan's biggest cattle show is organized each year. Nawab Nadeemuddin explained that during Eid Occasions, animals are sold not on the basis of their meat but rather on their attractiveness and beauty and an average animal could fetch a price between 200,000 up to 2 million rupees. He did not reveal his costs and mentioned that he took around 85 animals to Karachi in 2012 out of which 40 didn't sell, a fact that he described as a loss. Nevertheless given the high profit margins 45 animals sold during Eid would fetch between 2-8 times more than on ordinary occasions. He said feedlot fattening was a highly profitable enterprise if managed properly. Being financially sound he seldom approaches the banks or informal sources to meet his finance needs.



Above pictures show Offal's Trade at Old Bakra Mandi Lahore



Above pictures show high end meat retail shops, government abattoir, cattle mandi in Karachi and Lahore

Sources of Inputs

For peri-urban farms such as the Karachi Cattle Colony and its counterparts in other major urban commercial centers inputs ranging from farm animals to supply of green fodder, feed concentrates, nutritional supplements etc are arranged by the businesses who have established shops within the same environs. For instance green fodder to Karachi is normally supplied from the Thatta area while that in other cities is provided from the nearby farms beyond the city precincts.

Whereas in the rural areas green fodder is locally available whereas inputs i.e. cotton seed cake, wheat bran, rice polish, maize waste and other items are supplied at village retail shops. Total Mixed Ration (TMR) along with the raw material for the feed concentrates are primarily procured from the major cotton, rice, maize growing areas of Punjab and Sindh while cheap labor is readily available in the cities while in the rural areas 3-4 members of a family remain dedicated to manage the farm animals.

Cash Conversion Cycle

Majority of farmers rely on centuries old outdated management practices that are highly uneconomical and result in spreading wastages all across the value chain. A reflection of the highly unproductive practices can be gauged from the fact that a year old buffalo or cattle calf raised on conventional methods would weigh between 100-120 kilograms only after one year. While the same calf fed on Total Mixed Ration (TMR) would be twice that weight by weighing around 200-250 kilograms by the end of the first year. Simply put, animals raised on conventional farming methods take twice as much time and resources to reach the same weight gained by animals under modern feedlot fattening methods. This translates cycle turnover time of two years under old outdated conventional methods in sharp contrast of one year for animal to gain the same weight. Undoubtedly, the efficient and guaranteed highest returns lie in the modern feedlot methods whose cash conversion cycle is one year a situation that allows efficient and judicious use of available resources while ensuring twice the returns in half the time.

Costs and Economics of Feedlot Fattening Farms

Detailed costs breakdown for feedlot fattening farms of large ruminants (cows and buffaloes) and goats and sheep is given in the table that follows titled “Economics of Feedlot fattening Farms”. It cost 15,000 rupees to purchase a year old cow or buffalo calf weighing 150 kilograms while a kid or lamb weighing around 12 kilograms cost around 3000 and 2600 rupees respectively. The feeding costs and subsequent weight gains for the finished calves weighing 264 kilograms and or kid and sheep weighing 22 kilogram along with the profit margins is also given below. (See greater details in the concerned table titled “ECONOMICS of FEEDLOT FATTENING FARMS” that follows). The total costs for 120 days of consumption (or feedlot fattening) stood at Rs. 29, 850 rupees for cows and buffalo calves and Rs 3,839 and Rs. 3,639 for goat and sheep respectively.

Table 12: ECONOMICS OF FEEDLOT FATTENING FARMS (as of Dec 2012)

PARTICULARS	BREAKDOWN for UNDERFED COW/ BUFFALO CALVES 15 months	BREAKDOWN for UNDERFED KID (6 months)	BREAKDOWN for UNDERFED LAMB (9 months)
Weight of animal at time of purchase (kg)	150	14	14
cost/kg	100	214	200
Total Cost (A)	15,000	3000	2800
Weight of animal (kg)			
Weight of animal at start (kg)	150	12	12
Weight of animal after 120 days (kg)	264	22	22
Total Weight Gain (264-150) (kg)	114	10	10
Per day Consumption (kg)	5.92	0.115	0.115
Total No of Consumption Days	120	120	120
Total Consumption Cost (Rs)	710.4	10.35	10.35
Price of TMR per kg (Rs)	20	20	20
TMR Costs for 120 days (Rs)	14,208	207	207
Manpower Costs (Rs)	372	372	372
Miscellaneous Costs (Rs.2/day X 120 days) (Rs)	240	240	240
Tagging & Vaccination Costs (Rs)	30	20	20
Total Costs for 120 days (B)	14,850	839	839
Weight by end of 120 days (kg)	264	22	22
Sale Price / kg at Farm Gate (Rs)	130	200	190
Total Sales Revenue / head (Rs) (C)	34,320	4,400	4,180
Total Costs of Fattening (D) = (A) + (B)	29,850	3,839	3,639
Profits(E) = (C) - (D)	4,470	561	541
Profits (%)	14.97%	14.61%	14.87%
TMR = Total Mixed Rations			

There are only a few goat enterprises that are analogous to beef feedlots. The explanations are several 1) the market rarely likes fat goats 2) goats are not very efficient in converting high energy feeds into body weight gain and 3) the likely cost-benefit ratios are such that it would be seldom profitable under TMR regimes alone. Source: Excerpt from Pinkerton F.R.L. Harvell, N Escobar and D. Drinkwater publication titled “Marketing Channels and Margins for Slaughter Goats” Southern Rural Development Center Mississippi State University (USA).

At the world stage Pakistan stands at number two just behind China in goat meat production. Typically young animals are slaughtered during the lean period. According to a Livestock & Dairy Development Board (LDDDB) study fattening of goats and sheep for 90-100 days has the potential to add 9-10 kilograms besides improving meat quality.

Breakdown of Typical Gross Margins Price Range of Meat Wholesalers (Beoparis) Observed at Old Bakra Mandi Lahore on Wed Nov 22nd 2012 (Animals purchased at Mandi, slaughtered & Transported from Government Abattoir at New Bakra Mandi Shahpur Kanjra)

Gross margins are highest for sheep at 9.95% and lowest for buffalo at 3.4% but given the large mass (volume) of buffaloes traded on a daily basis the returns remain high for investors.)

Figure 12: GROSS MARGINS FOR MEAT WHOLESALERS

	Buffalo 400 kg	Buffalo Export 220 kg	Goat 22kg	Sheep 22kg
Avg. Purchase Price/Animal Rs.	38,000 -55,000	29,000 -32,000	5,200 -5,400	4,700-4,800
Avg. Purchase Price /kg Rs.	39,000-57,000	30,000-34,000	5,460-5,700	5,250-5,350
Avg. Sale Price /Animal Rs.	95-138	132-146	236-246	214-218
Avg. Sale Price /kg Rs.	98-143	136-155	248-260	239-243
Margin Rs./Kg	3-5	4-9	12-14	21-23
Margin %	3-4%	3-6%	5 - 5.3%	9-9.5%

Figure 13: NET MARGINS FOR BEOPARIS (ANIMAL TRADERS)

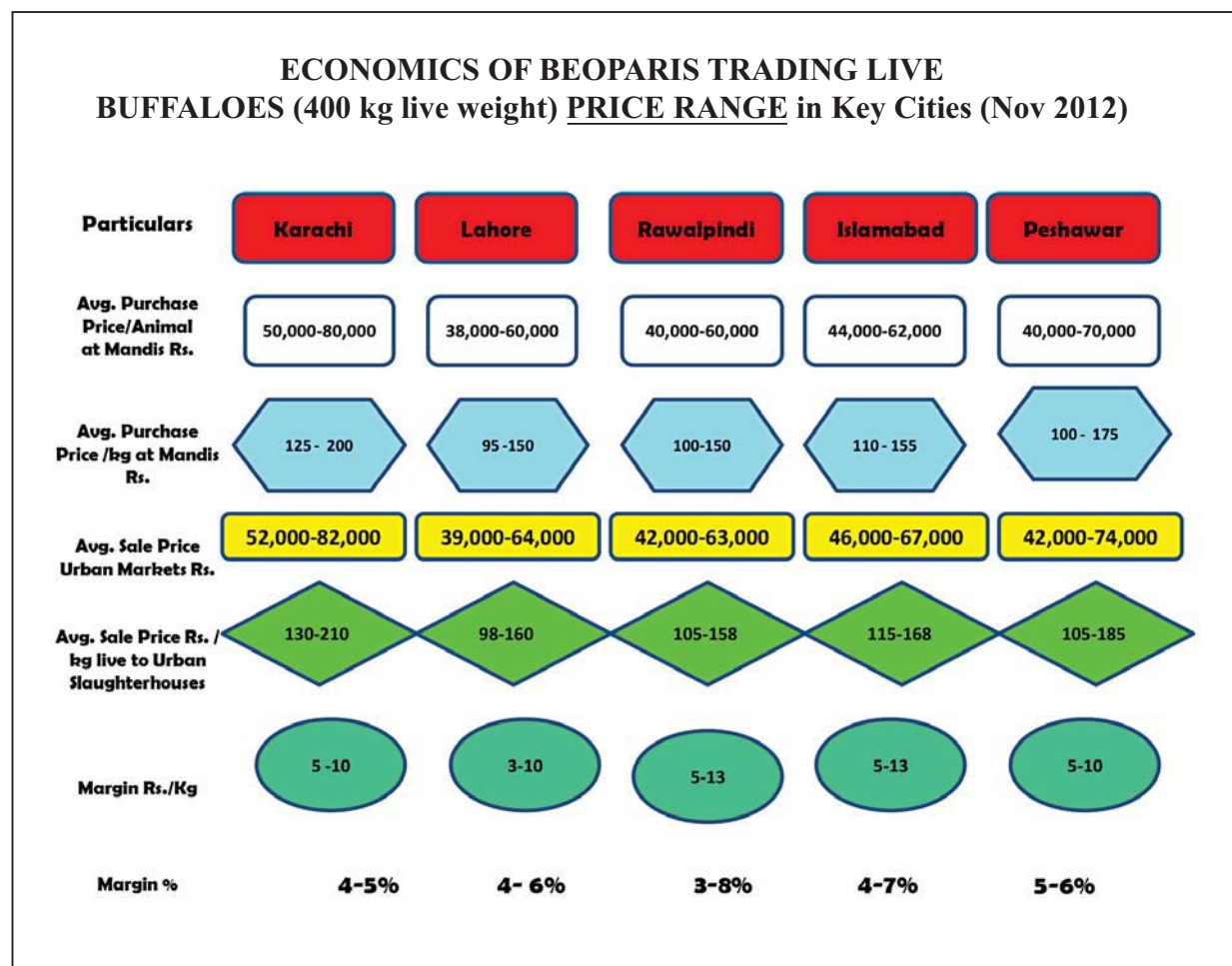


Table 13: FARMER SELLING TO BEOPARIS IN RURAL MARKET

PARTICULARS	Beef (400 kg Live Buffalo)	Beef Export (220 kg)	Goat 22kg	Sheep 22kg
Avg. buying price range Rs. /live animal	35,000-38,000	25,000-27,000	4,500-4,800	4,000-4,200
Avg. buying price Rs. /kg	92.5	118.2	211	186.4
Selling price /live animal. Farmer to Rural Livestock Markets	38,000-40,000	25,000-27,000	4,500-4,800	4,400-4,600
Selling price Rs. / Kg live animal. Farmer to Rural Livestock Market	97.5	132	5060	205
Selling price Rs. / Kg lives to animal. Farmer to Rural Butcher	97.5	132	5390	218
Margin – from Rural Livestock Markets	5	10	95.82	8.9
Margin – from Rural Butcher	5	10	96.08	8.6

Access to Finance

1. Working Capital Requirements

Under prevailing circumstance very large numbers of animals are constantly on the move across the width and breadth of the country from South to South and South to West and North directions of the country both to meet the growing needs of the domestic as well as export markets of Iran and Afghanistan. That translates to massive injection of cash into the value chain where cash rapidly changes hands during the fast paced cash cycle.

Interviews with value chain actors showed that an overwhelming majority of players including livestock farmers, input suppliers, beoparis (traders), meat wholesalers and owners of butcher shops were not availing finances from the formal banking sector. Reasons cited for their aversion to doing business with the formal banking sector include long bureaucratic procedures at banks coupled with requirements of endless visits to banks, time consuming paper work, stringent requirements for collateral, requirement for guarantors etc. The mere fact that the vast majority of value chain actors in the meat and milk value chains get their financing needs met from the informal (non-banking sector) does not augur well for the untapped economic growth prospects offered by the country's huge livestock sector.

Continuation of the status quo in absence of financial instruments targeting the meat and dairy value chains will not help the country's economic growth objectives. While absence of serious financial instruments on part of commercial banks also translates into ignoring the 2nd biggest mutton and fourth largest milk and largest beef producing market in the world not to mention the lost business opportunities for all stakeholders in these vibrant value chains.

2. Sources of Debt Financing and Their Terms and Conditions

There's little or no debt financing available for the larger livestock sector. Trading of live animals is not financed by banks and in absence bank finance, beoparis get their financing requirements met primarily through informal arrangements through various sources within the livestock sector (the meat and dairy value chains). All financing through informal sources involves no collateral and has no documentary requirements.

For the majority, financing is almost exclusively arranged via the value chain actors or traditional moneylenders with the exception of export oriented private slaughterhouses and bigger farms.

Beoparis and traders remain the centrifugal forces driving informal finance and doing it quite efficiently. The formal banking sector plays almost no or negligible role in this huge trade taking place almost on a daily basis while the country also observes two meatless days per week. In case of supplies of animals for domestic market consumption, beoparis procure live animal at credit or cash from the supplying agents and supply either live animals or meat carcasses to urban or rural butchers after slaughtering. Normally live animal beoparis deal with financing at the pre slaughter stage while meats beoparis take on responsibility from the post slaughter stage vide live animals

When exports of live animals is involved it is the importers based in Kabul or Tehran who extend finances to Pakistan based agents or big beoparis who receive between Rs. 10,000 – Rs. 12,000 fees per animal for their services in procurement, shipping, payment of bribes to concerned police and customs officials and delivering the animals at an agreed destination at the meat importing country. The actual price of animal is paid separately by the importers. However, legal exports do get financed by banks but animals supply source still remains the beoparis. Within the trade in the informal sector, the relationship

centers on trust and involves no written contract. Cash cycles range from a week to a month for informal while for the formal bank financing terms vary between participating banks.

a) Constraints in Using Existing Financing Products

A sizable number of people cited red tape and length bureaucratic approval process for loans from commercial banks which fend of business and leave them with little choice other than seeking informal sources of finance. Furthermore, a large number of people are also averse to interest based financing and instead would be readily amenable to Sharia compliant financial products. Enterprises preferred doing business with the beoparis claiming that most of their financial products were Sharia compliant.

b) Informal Sources of Finance in the Value Chain

Arthis, beoparis are pekars remain the financiers of the value chain actors both vertically and horizontally within the value chain. However, the informal sector extends working capital and livestock financing where credit cycles varying from one week to as much as two to three months subject to trade volumes involved. Beoparis are further broken down into livestock beoparis as well as meat beoparis. There are no formal contracts signed for business transactions as relationships are based on trust. However, the informal financiers expect customers' loyalty and continued patronage i.e. continued supplies in return for all the cash and non cash services delivered (greater details are given in previous chapters dealing with value chain financing).

3. Financing of Fixed Capital

Fixed asset finance within the meat value chain has predominantly remained the province of commercial banks since the informal sector in the meat value chain shies away from long term commitments required in fixed asset financing.

4. Opportunities for Value Chain Development Finance

Incremental access to finance would particularly benefit those nodes where large volumes are involved i.e. procurement and transport of live animals from rural areas all the way to the meat retail shops and end consumers. Particularly the impact would be highest at the feedlot fattening farm level since the returns in modern feedlot fattening have very high potential.

Livestock and meat beoparis because of their extensive linkages across the length and breadth of the value chain could play a vital role in supporting the value chain that result in greater efficiencies.

Price fluctuations in addition to non tariff barriers in the countries importing meat from Pakistan could potential threaten profit margins besides new entrants with competitive products. DG Livestock Government of Punjab was supportive of extending loans to small holders owing to their low default rates.

Table 14: FLOW OF FUNDS WITHIN MEAT VALUE CHAIN

(Includes Formal & Informal Sources of Finance) SOURCE: INTERVIEWS WITH VALUE CHAIN ACTORS		
Particular	Informal Sources	Formal Sources
1. Input Supply (Green fodder, roughages, feed concentrates, nutritional supplements, fodder seeds, veterinary medicine, fertilizers, chemicals etc).	Big holders (farmers) growing their own fodder either self finance or get loans from commercial banks. Alternately, peri-urban & in some cases rural farmers get their green fodder, roughages & feed concentrates & veterinary medicine etc from wholesalers & retailers near their farm localities on cash or credit. Since more than 90% production is based in rural areas between 5-10% farmers get their green fodder supplies from retailers & wholesalers and amongst them less than 5% get it on credit to be usually repaid by end of week or month.	ZTBL others Commercial Banks & MFI's including Khushhali Bank, First Micro Finance Bank, NRSP, Kashf, Islamic Aid & Others.
2. Live Animal Supply (buffaloes, cows, calves, goats & sheep, camels)	Between 95-99% of live animal trade is financed by beoparis, arthis or Pekars or other informal sources of finance within the value chain. All activities from animal procurement at rural mandis, semi wholesaling & wholesaling, transportation to urban cattle mandis is financed by the informal sources.	None of the value chain actors approached was meeting their live animal financing needs through commercial banks.
3. Transport	For domestic consumption more than 90-% of transport is paid for by informal sources i.e. beoparis, pekars and arthis	Transportation costs for exports to Middle East are financed by commercial banks through LC. While Iran & Afghan bound logistics are paid for by importers based in those countries. Leasing of Transport Trucks and vans is available with many banks at between 15-22% interest rates.
4. Slaughtering / Processing	Retail value of annual meat production in Pakistan is estimated at around 800 billion rupees (US\$ 8 billion at 100 Rs /US\$ January 17th 2012 exchange rate). Live animal beoparis, meat beoparis, meat wholesalers, retailers & money lenders including butcher shops finance the informal sector.	Private Slaughter House Owners pay for their animal supplies in cash at time of procurement. While carcasses are exported on credit to Middle Eastern & other meat importing countries' supermarket & wholesale chains with payment periods of one week up to a month.

<p>5. Fixed Asset (including animal sheds, plant & property)</p>	<p>No informal sources of finance available for fixed assets since this area requires long term commitments with cash flows spread over at least 2-3 years. The financing needs run into billions of rupees and could not be determined from public or industry sources. No livestock insurance exists.</p>	<p>Term loan available from Banks.</p> <p>Commercial Banks do provide loans for cold chain & establishment of buildings and commercial property.</p> <p>No Livestock Insurance exists in the country currently. Interest rates vary between 15-22% for banks.</p>
<p>6. Primary Production</p>	<p>Like fixed assets there were no formal sources of available for fixed primary production for the same reasons stated above.</p>	
<p>7. Exports (Slaughtering undertaken at private slaughter houses accounts for 1% of meat trade in Pakistan).</p>	<p>Exporters mostly make payments in cash to animal beoparis. All slaughtering of export animals is done at Export Oriented Private Slaughterhouses.</p> <p>Live-animal exports were estimated at US\$ 13.5 million in 2009-10. However the actual size of the live animal trade is several times the government's stated value owing to rampant smuggling. While industry sources spoke of four times more animals smuggled thereby total exports of live animals stood at an estimated US\$ 50 million in 2010. While meat exports were US\$ 108.54 million in 2011 and US\$ 123.61 million by June 2012. Even export oriented slaughterhouses source their animals from beoparis. Therefore put together export of meat and live animals is estimated anywhere between US\$200-250 million in 2012 (inclusive of smuggled live animals and meat to Afghanistan & Iran).</p>	<p>Export financing & LC available from Commercial Banks.</p> <p>Alternately financing for live animal or meat exports to Iran & Afghanistan is provided to their local agents by their importers.</p>

Enabling Environment

Following the passage of the 18th Constitutional Amendment Livestock has primarily become a provincial subject. Punjab is taking the lead in introducing necessary legislation to promote growth of the Livestock Sector. It has already established a state of the art slaughter house HACCP, Global GAP and endeavors to improve hygiene and quality standards. Between 16- 20% farmers have their own land and the remaining 60% remain by and large un-bankable. Absence of livestock insurance puts investments at high risk as during transportation animals prone to high accidental risks. The Quarantine Department of the Federal Ministry of Food Security & Research provides certification for meat exporters.

Through their extension departments provincial government provide services where veterinary hospitals, diagnostic labs, vaccine manufacturers exists in selected areas within each district. Capacity building and farm management support is barely available to small farmers while large farmers have well trained workforce. For transportation an elaborate system of farm to market roads exists albeit which occasionally remain in dire need repair particularly in the rural areas. The devastating monsoon floods between 2010 and 2012 had taken a heavy toll on entire farming systems including livestock, standing crop and more importantly standing crops and feeding systems and rural road infrastructure. On the positive side wide scale availability of cellular services created an efficient communication infrastructure.

The meat yields per animal for an average cow or buffalo raised on the traditional outdated farming system is estimated to be 45-50% lower than in modern feedlot farms thereby leaving Pakistani meat producers at a competitive disadvantage in terms of time as well as money.

The biggest challenge in financing of dairy and feedlot fattening farms is the absence of land by 80% livestock farmers and with no collateral they cannot avail formal banking finance and are left to depend upon the informal sources. Due to lack of livestock insurance animals are not accepted as collateral as is the case in advanced countries, a situation that hinders the growth within the value chain.

According to the Punjab Agriculture and Meat Company (PAMCO) an estimated 8 million calves die or are slaughtered each year because the farmer prefer to use the milk rather than feeding the calves. This mass slaughter or mortality of the calf translates into massive losses to the national economy given the fact that an average farmer earns 40% of income from livestock which also accounts for 11% of the national GDP. DG Livestock⁶ said the Punjab Government is mulling the idea of passing a number of livestock related legislations related to livestock breeding, semen quality, food safety, cattle markets , animal welfare, animal slaughter besides establishment of Milk and Meat Control Authority.

⁶ Mohammad Nawaz Saeed –DG Livestock Extension Department Government of Punjab.

Services

Breeding Services: Pakistan has a few recognized dairy breeds particularly, Neeli Ravi and Kundi buffaloes besides Sahiwal, Red Sindhi and a few other names. There are very few dedicated breeding facilities in the public sector while progressive farmers keep breeding bulls within their farms and at times extend the facility to local farmers at charges. Breeding facilities including AI services are commonplace for cows. While owing to the silent heat issue of buffaloes providing these services requires lots of expertise. Besides, male buffaloes are slaughtered within weeks of their birth thereby creating an unhealthy balance of males required to maintain desired herd sizes. The government makes available breeding bulls to farmers via its line extension departments. However, huge gaps exist between demand and supply.

Provincial Government Livestock Extension Services: Provincial Livestock Extension Departments provide preventive and curative extension services to farmers at the Tehsil and Union Council levels. However the outreach and quality of the government extension arms is limited and doesn't encompass the whole ambit of requirements within the livestock sector. Government departments also provide AI services but again the outreach is limited creating wide gaps in service provision that is filled by the private sector. The Punjab Livestock & Dairy Development Board (PLDDB) is at the forefront followed by Sindh while the KPK and Baluchistan remain far behind. Private practitioners play a key role in meeting the overall needs of the sector as at times they provide services at doorsteps.

Marketing of Products: Meat marketing services are again dominated by the meat beoparis who along with the animal traders meet the needs of the industry from the stage of procurement up to delivery at butcher shops.

Financial Services: Zarai Tareeqati Bank Limited (ZTBL) leads the pack followed by a few notable banks in extending financial services to the farming sector to big landowners and well connected people.

Business Development Services: A few private firms provide such services in addition to Small & Medium Enterprise Development Authority (SMEDA).

Conclusions and Recommendations

Table 15 : FINANCING NEEDS & CORRESPONDING FINANCING OPPORTUNITIES IN MEAT VALUE CHAIN

	Need /Purpose	Type of Finance
Input Supply	Working Capital including credit to big customers	<ul style="list-style-type: none"> • Overdraft • Revolving credit line / Sharia Compliant Interest Free Loans • Asset based finance factoring accounts receivable, inventories etc.
Fixed Assets	Fixed Assets, including animal sheds, plant & property	<ul style="list-style-type: none"> • Term loan • Loans -Export Oriented Slaughter Houses/ Cold Chain at Govt. Abattoirs • Livestock Insurance
	Other Assets including meat /dairy animals credit line to value chain actors	<ul style="list-style-type: none"> • Revolving credit line • Running finance
Primary Production	Inputs / Land preparation for feedlot / dairy farmers	<ul style="list-style-type: none"> • Short term agricultural production loan / running finance • Revolving credit line / Sharia Compliant Interest Free Loans • Supplier credit (from input industry) • Advance payments (from processors / aggregators) • Livestock Insurance
	Operating Expenses	<ul style="list-style-type: none"> • Short term farm production loans /running finance • Revolving credit line / Sharia Compliant Interest Free Loans • Supplier credit • Advance payments
	Equipment	<ul style="list-style-type: none"> • Term loan • Vehicle & asset finance, (leasing, rentals & installment sales)
1st /2nd Level Processing	Working Capital (including advance payments to suppliers)	<ul style="list-style-type: none"> • Overdraft • Revolving credit line / Sharia Compliant Interest Free Loans • Assets based finance- factoring accounts receivables / inventories etc.
	Fixed Assets (plant, property)	<ul style="list-style-type: none"> • Assets finance / • Commercial property finance (warehouse, factories, and industrial premises).
	Equipment	<ul style="list-style-type: none"> • Machinery / Capital Equipment

Wholesale Retailing & Marketing	Working Capital	<ul style="list-style-type: none"> • Overdraft / Establishment of Meat Wholesale & High End Retail Shops • Revolving credit line / Sharia Compliant Interest Free Loans Livestock Insurance
	Fixed Assets including wholesale warehouses , transport vehicles i.e. mini vans and trucks)	<ul style="list-style-type: none"> • Term loan • Commercial property finance • Vehicles and asset finance
Export	Working Capital (pre & post shipment)	<ul style="list-style-type: none"> • Export credit line / LC • Letter of Credit / Forfeiting • Bills of exchange / Factoring • Livestock Insurance / Loans for Export Oriented Slaughter Houses
Cold Storage Facilities	Working Capital	<ul style="list-style-type: none"> • Overdraft • Revolving credit line / Sharia Compliant Interest Free Loans Asset based finance (factoring accounts receivable, inventories etc)
	Fixed Assets	<ul style="list-style-type: none"> • Commercial property loan / Refrigerated Truck & Van Transport • Term loan
Trading	Working Capital	<ul style="list-style-type: none"> • Overdraft • Revolving credit line / Running finance / working capital

Recommendations for effective contract farming (out-grower) financing schemes

- At the farm production level financing of establishment of modern feedlot fattening farms of varying sizes for new start-ups with animal sizes of 50 -100 animals /farms.
- Financing of dedicated livestock breeding farms to develop progenies for milk and beef production or dual purpose animals as this step will help Pakistan become an efficient producer. Improved genetics with high yielding animals is recognized as the way forward.
- Seriously exploring avenues to extend financing to the 80% farmers who possess 2-5 animals and in turn account for 80% of meat and milk production. This can be done by financing the main financiers (pekars, beoparis, gawallas, and arthis) as the 80% of meat and milk producing farmers currently don't avail conventional bank credit and term loans. As the stakes of indefinitely ignoring the majority of producers will reduce Pakistan's competitive position at the global stage. Neighboring India has quite successfully used intermediaries (aggregators i.e. arthis and other middlemen) to extend their much needed input supply band other services. It is a fact that for the foreseeable future the formal sector won't grow beyond the current 4% to reach for instance 10% through direct lending. That's why policy makers and the State Bank of Pakistan need to devise ways of reaching the 80% producers via the middlemen to ensure greater efficiencies and continued economic growth.
- Simultaneously, given the high demand for Sharia compliant financial instruments products in the value chain; financial products need to be introduced to cater to the growing needs of such category of enterprises.

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Contact List of Key Stakeholders

	Company / Organization	Name	Designation	Address	Contact Number	Email Address
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	Slaughter House / Meat Exporter Hamza Halal Foods	Fayaz Ahmed		Slaughter House / Meat Exporter Village Bodhni Najoy	0300-8509255 091-2568411 091-2568442	
	City Abbatoirs Landhi Cattle Colony Landhi Karachi	Usman Hassan / Faisal Shah	Director Projects	Landhi Cattle Colony Karachi	021-35085745 021-350085745 0312-2681771 0300-8599255 0300-5973663	multixdp@gmail.com
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	METRO	Qazi Adeel Javaid	Senior Manager Buying Fresh Meat	Metro Cash & Carry Pakistan Pvt Ltd. Thokar Niaz Baig, Multan Road Lahore 53700	042-37509647 0324-5000252	adeel.javed@metro.com
Transporter	Super Peshawar Karachi Goods Transport Co.	Riaz Ali Shah	Owner	National Highway Opposite Magsi Kanta Babar Lo More	0243-558367 0300-3733240	
	Super Pindi Swat Goods Forwarding Agency	Waqar		Hamilton Road Rawalpindi	051-2577808 /576093 0302-80441148	
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Aggregators / Beoparis	Rozaana Mal Mandi Mowaishian	Saeed Khan / Asghar Khan	Proprietor	Near GT Road Overhead Bridge, Hidayat Khan Ghari Ring Road Opposite PSO Pump Petrol Peshawar	091-2263199 0321-900-1795 0321-900-1795 0321-904-1095	
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	Meat Wholesaler Beopari	Mohd Asif	Meat Beopari	Old Bakra Mandi Lahore	0300-846-5534	
	Offal's Beopari	Musafar	Offal's Beopari	Government Abattoir Town I-Peshawar KPK	0345-917-1467	
	Government Owned Privately Slaughter House	Nauman Khan / Maqsood Khan	Private Contractors Operating Government Abattoir	Near Madaris Al Islamia Rahatabad Peshawar	0334-702-8227 0333-909-0647	
	Private Slaughter House			Private Slaughter House cum Mall Mandi Near Ring Road Peshawar KPK		
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