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# **Meat Value Chain Assessment of the Livestock Sector in Pakistan**

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## **LISTS OF ACRONYMS**

ADG	Average Daily Gain
AI	Artificial Insemination
Arhti	Agent or trader buying and selling meat
BIC	Business incubation centre, Lahore
BMC	Botswana Meat Commission
FAO	Food and Agricultural Organization
GDP	Gross domestic product
KFS	Kissan Field Schools
LDDB	Pakistan Livestock and Dairy Development Board
LFBA	Livestock Farmers & Breeder Association
Mandi	Pakistani markets where animal are bought and sold
MVCA	Meat Value Chain Assessment
PLDDB	Punjab Livestock and Dairy Development Board
RCCSC	Research Centre for Conservation of Sahiwal Cattle
Red Meat	Meat from animals such as cows, sheep and buffalo
SME	Small to medium business enterprise
UAE	United Arab Emirates
UAP	USAID's Agribusiness Project
USAID	United States Agency for International Development
USDA	Unites States Department of Agriculture
White Meat	Meat from animals such as Chicken and Duck

## **EXECUTIVE SUMMARY**

### **Background**

The meat industry in Pakistan has enormous potential. The demand for Halal meat is very strong and exporters are unable to fulfil the demand. In only the last year exports have increased by 31% from July 2011 to July 2012 and this upward trend has also been experienced over the last decade. The future global outlook is also very positive with meat and milk requirements expected to double by the year 2050. At the same time the Pakistan population is expected to grow from the current 160 Million to 335 Million. Now is undoubtedly the time to expand and invest in the livestock sector.

### **Constraints**

Three weeks were spent examining every facet of the value chain, from smallholder producers to the export sector. At the same time, three well attended stakeholder meetings were held with representatives from all sectors of the chain. From all the various stakeholder meetings and visits throughout Pakistan the main constraints can be summarised as follows:

- The meat industry is simply seen as a by-product of the Dairy Industry and is not taken seriously by the larger role players.
- The meat industry is fragmented and has ineffective umbrella bodies.
- There is no meat grading system.
- The widespread breeding of inferior animals.
- Lack of livestock breeding farms.
- The lack of feeding companies to enhance animal production.
- Improper and unhygienic means of storing meat both domestically and at airports.
- Lack of proper abattoirs for both domestic and export especially in the private sector.
- A Halal certification body exists but it is not properly marketed and supported.
- The fixing of meat prices has not been balanced by the increase in input prices.
- Frequent slaughtering of young calves and a lack of feeding facilities to ensure animals reach a target weight to maximise their production potential through cattle fattening facilities such as feedlots.
- A poor marketing infrastructure based on objective measurements of the production of an animal.
- Lack of training of livestock production methods.
- Lack of a formal meat retail trade that stimulates the demand for value added meat products.

### **Corporate Industry involvement**

Large multinational retailers are keen to enter the Meat Value Chain. The business incubation centre (BIC), an affiliate of the Lahore University of veterinary sciences, has provided a detailed privately funded value chain assessment to one of the largest multinational food companies in Pakistan. The assessment provides a compelling business case for large multinationals to enter the meat value chain. This would undoubtedly be a boon to the industry because it will get the Meat Value Chain moving and simultaneously help create the supplier base required for a viable industry.

## Interventions

The interventions can be divided into five main objectives: 1) the urgent and necessary improvement of the institutional structures, 2) improving the productivity of the livestock sector, 3) improving the local infrastructure, 4) training in all sectors of the value chain, and 5) stimulating demand for meat driven by retailers.

### *Immediate interventions*

ASF needs to conduct an industry workshop where every industry role player is invited and becomes involved. The aim of the workshop will be to create a unified, industry led body that is representative of the whole Meat Value Chain and is split from the dairy sector. ASF should use the very best local and international consultants whom have experience in facilitating such workshops. The livestock sector needs to create its own “Meat Board” and appoint its own General Manager and staff to oversee the interests of its own sector. It will also need to work out self-sustaining funding mechanisms that could initially be matched by USAID grants. Business models similar to those created in other developing countries for example the Namibian Meat board should be used. Meat and Livestock Australia could also be considered a very good model. Whilst this intervention falls outside the support provided by the UAP it is critical that a grant is motivated to implement such an intervention. The reality is that the Meat Value Chain will not grow and be competitive without an umbrella body that oversees all sectors of the Meat sector.

The success of a livestock sector is also dependent on a strong breeding and animal feeding industry. The reality is that the investment in animal genetics and improved feed interventions should be made to the producers with at least 30 or more animals whom would be keen to get involved in the meat value chain that is independent of the dairy industry. The fact that there is a strong demand for meat and associated products would make interventions in this industry viable. The smallholder producers that make up 80% of the industry i.e. the keepers of 1-6 animals will realistically not be the direct beneficiaries of these interventions but would undoubtedly benefit indirectly as a results of the “spill over” that interventions elsewhere in the value chain realizes.

Interventions that have also been considered include the creation of a viable semen distribution network using semen of both local and exotic beef and small stock animals. The creation of new and the strengthening of existing feed companies should be a high priority as well as the creation of maize silage pits. However, it takes a lot of experience to develop the animal breeding and animals feeds industry and we suggest that international breeding and feeding experts be used to assist with both of these interventions.

Smallholder training should happen from inception of the project using the KFS schools. Training should be provided on farm production systems, the need for animal health, differences between breeds and economic returns.

It was also evident from the assessment that an immediate intervention would be to assist in the provision of Chillier facilities in cities. SME's are currently providing their own funding to acquire such facilities.

### *Medium to long term*

The newly established “Meat Board” mentioned above needs to assist in the strengthening of the Pakistan Halal Certification body so that one unified body exists representing the interests of all the different but fragmented entities. It should also assist in implementing a national

grading system for livestock carcasses. Initially this could be a simple roller mark system using purple, blue, green and yellow for example to describe the health and quality status of the carcass.

The creation and support of abattoirs for both local and export are also a high priority. It was evident from our visits that the establishment of private abattoirs makes financial sense and is a good foreign exchange earner for Pakistan. Abattoirs that are of a viable size to benefit from the economies of scale also create a lot of employment for all sectors of society. The creation of abattoirs needs to be supported with the roll out of meat shops in the major cities. As mentioned above national corporates have already expressed interest in creating meat retail shops throughout Pakistan.

The Botswana model of creating private feedlot (cattle fattening) facilities that uses well established scientific practices for smallholder producers is also proposed. Botswana, which has only 3 million cattle and is a developing country, has been able to add Rs 27 billion to the livestock sector and the GDP of that country by creating viable feedlot facilities.

The biggest constraint experienced by the abattoirs and exporters is the poor quality of animals coming through the value chain. For this reason viable livestock breeding farms need to be encouraged and provided with some capital through a challenge grant program. It is necessary that training will be required to all role players throughout the value chain. Finally, a policy document also needs to be created that shows the effect that a free market system will have on the meat industry.

## **OBJECTIVES**

The objectives of this Meat Value Chain Assessment (MVCA) were to obtain a detailed understanding of the role of the various stakeholders, the activities of the various sectors, the costs within the various structures and the market opportunities within the livestock and meat sector of Pakistan.

This assessment has considered the current consumption, the market demand, the challenges faced at every sector and the availability through the commodity chain and come up with tangible recommendations and business models to add to the value chain.



## **ACKNOWLEDGMENTS**

The valuable research in a report titled “Value Chain Mapping of the Meat Sector in Pakistan” done by Dr Asif Idrees in 2000 is acknowledged and some of his findings and recommendations are included. The work done on “Calf Fattening Model” by Suhaib Sarwar also proved invaluable to this Meat Value Chain assessment.

The ASF’s Imran Bashir accompanied me on many of the travels and provided a lot of valuable input. No trip was too demanding. Dr Tanveer Iqbal from the Business Incubation Centre willingly shared his VCA that he had done for the meat sector for some of the corporates in Pakistan. Whilst this report is still considered to be “commercial in confidence”, by working together this research enabled us to not waste time duplicating a lot of the work that had already been done for a period of a year. It will ultimately benefit the role players for which it was intended.

Mr Shamsheer Kahn organized the initial itinerary and ensured that the visit to Pakistan and the arrangements went smoothly. The Stakeholders meetings organised by both Mr Kahn and Bashir were invaluable to identify the constraints and interventions. Separate meetings were conducted with Dr Muhammad Afzal that provided a lot of insight into the Meat sector.

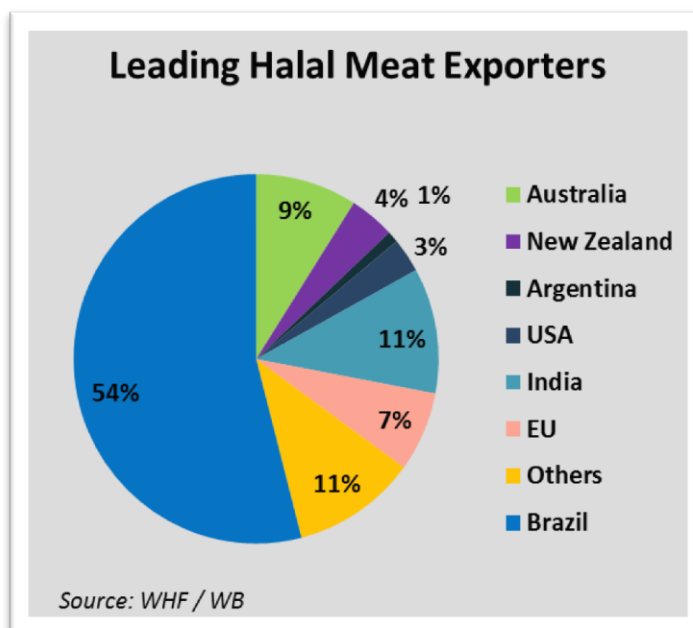
The Stakeholder meetings were attended by representatives from the whole value chain. These included private companies, representatives from the industry (producers, abattoir owners and corporates) and also industry and government officials. Without their valuable input this assessment would not have been possible.

I am grateful to the local consultant, Dr Tahir Ismail for the professional way in which he assisted with the research for this assignment, writing up the Stakeholder Annexures and the valuable contributions in the recommendations.

Finally, the day to day activities, reports and pictures will at some stage be made available on the web using “Ever note”.

## 1. BACKGROUND AND OVERVIEW OF THE INDUSTRY

In the original joint IFPRI/FAO/ILRI Study titled: “Livestock to 2010: The next food revolution”, Delgado and colleagues suggested that the global demand for meat production will rise from 233 million tonnes in 2000 to 300 million tonnes by 2020 and milk from 568 to 700 million tonnes over the same period. Whilst the demand for protein is largely being met by increases in efficiency in the poultry sector, this sector depends heavily of feeds such as grains that are also suitable for human consumption. The further demand from the bio fuels industry for grain will further require that the trade in the livestock industry grows significantly world-wide. Many countries are already benefiting from this increased demand. A shortage of high quality meat products in Europe has enabled developing countries in Sub Saharan Africa such as Botswana and Namibia to export high quality cuts to Europe at a premium of 30-40% more than what they would obtain in their local markets.



At the same time the demand for Halal food is increasing. There are currently over 1.6 billion Muslims in over 112 countries. Islam is the fastest growing religion and it is expected that by 2025 over 30% of the world population will be practicing Muslims. It is further estimated that by 2025 Halal food may account for 20% of the trade in food products. All meat in Pakistan is considered to be Halal.

### Where does this leave Pakistan?

Pakistan has seen an enormous increase in growth in the number of people in the country from 37 million in 1950 to an estimated 173 million people in 2011. Over the same period of time the numbers of Livestock has increased from 30 million to over 160 million. Current (2010) estimates put Pakistan's large-stock (cattle, buffalo and camels) population at approximately 65 million animals and the small-stock (goat and sheep) population at approximately 87 million animals for a total of 152 Million animals.

Not only is livestock the single largest contributor to rural incomes, it is an integral part of the economic activities in the rural areas and is responsible for nearly half the Agricultural Gross Domestic Product (GDP). It also contributes about 12% to the total GDP and 9% of total exports.

The Pakistan livestock industry is complex. More than 80% of all livestock are raised by an estimated 30-40 million small-scale producers with less than 6 animals per household whom use various value chains to get their product to market. At the same time there are a few large corporates whom are working towards integrated production systems from producer, feedlot to slaughter. Whilst small – scale producers dominate the Agricultural sector, the levels of production are poor and there is a very low adoption of productivity enhancing technologies.

Capacity building, new business models and technology are the keys to increasing productivity.

### 1.1. The Outlook for the future of the global livestock sector

For this value chain assessment it is important to get an idea of where the future demand for livestock products will be so that the Pakistan livestock industry can position itself to benefit from a rapidly changing livestock industry. The FAO has done a lot of work attempting to predict the increase in demand for Beef and Mutton products over the next two decades and predict where and how this increase is expected to take place. The world Livestock Industry is expected to grow by at least 85% by the year 2030 (FAO,



2011. *Mapping supply and demand for animal-source foods to 2030*, by T.P. Robinson & F. Pozzi.) The demand for Chicken however is expected to increase by a staggering 750% in the South Asian countries and this demand for protein is largely driven by the growth in urban areas. The structure of the livestock sector will inevitably change and be characterised by a rapid intensification of production in some areas that will be accompanied by value chain development linking production zones with consumption areas.

It should also be noted that the FAO predicts that a positive outcome of the growth expected in the livestock sector in the developing world may not necessary be beneficial to smallholder producers (FAO, 2012. *Livestock sector development for poverty reduction: an economic and policy perspective – Livestock's many virtues*, by J. Otte et al). These producers may be squeezed out of the livestock sector as production intensifies and becomes geographically concentrated. Public health and environmental issues that are likely to be associated with a rapidly growing, poorly regulated sector will also be detrimental to small holder producers.

Furthermore, the FAO suggests that gains in poverty reduction will most likely be gained through focusing interventions at the smallholders whom are mostly likely to be moving up the value chain, i.e. the producer with 10 - 50 animals for example (compared to the producer with 1-5 animals). The “small holder producers” will benefit through the “spill over” that occurs through technology diffusion and increased demand for local goods and services. For smallholder producers (<6 animals), livestock may not necessarily provide growth opportunities but acts as an important safety net. Policy interventions should be directed towards reducing vulnerability by protecting livestock assets for example. We need to keep this in mind when giving recommendations that considers small holder producers in the value chain in Pakistan.

The United Nations estimates that the populations of the least developed 30 countries will at least double between 2010 and 2050. This includes Pakistan which is expected to see an increase in population from 160 million to 335 million by the year 2050. The populations of the more developed regions will change minimally. The growth in demand for meat products has so far largely been from China where the average meat consumption has increased from 9 kg's per person to more than 50 kg's per person in only 30 years. Consumption in the rest of the developing world is a modest 16 kg's per person. The average for Pakistan is 12.2 kg's (2007) and has in fact declined from 14.5 kg's in 1995. The average consumption in industrialized countries is a lot higher at around 90 kg's per person.

Driven largely by the growth in China, meat consumption has grown at over 5 percentage per annum (milk consumption at 4 percentage) internationally. However, except for China and to some extent Brazil, the increased demand for red meat has largely been as a result of the increase in population growth, not necessarily because of a larger expendable income and hence a larger increased demand for meat as was originally envisaged by Delgado and colleagues in the original IFPRI/FAO/ILRI Study.

The global outlook for Halal meat is promising. Historically the sector was not well-structured and was characterized by the Muslim population in most countries slaughtering their own animals in informal areas within their own communities. Many Halal products are now certified and are available in most of the retail stores. This has resulted in the product gaining acceptance in all communities. The product has not only become a symbol for Islam, but has also become a brand that is acceptable by non-Muslims because of its positive association with health.

Exporters within the developed countries have been quick to see the potential in this market and the United States, Brazil, Canada, New Zealand and France are now the biggest exporters of Halal products. Of these, the United States is the largest and more than 80 % of frozen meat is now Halal. France, for example, exports 750 000 metric tons annually to Saudi Arabia, Kuwait, The UAE and Yemen. The Eastern countries that export Halal include the Philippines, Malaysia, Indonesia, Singapore and India. Thus, so far, only developed countries have exploited the potential markets for Halal meat.

The general consensus is also that there is a need for a proper International Certification Standard for Halal. Later in this assessment the constraints and opportunities of this sector will be discussed in more depth.

## 1.2. Livestock Production in Pakistan

### 1.3. Animal numbers

Pakistan has seen an enormous increase in livestock numbers over the last sixty years from 30 million livestock animals to over 150 million animals. The numbers have increased at more or less the same rate as the human population. Animal numbers can be obtained from the Livestock Statistics that are published bi-annually and are available from the <http://finance.gov.pk> website. This website is a very useful source of information and provides updated statistics. The current animal numbers and their distribution per region are given in Table 1 below.

Table 1. Numbers of animals in Pakistan by region: Dr Afzal (Economic Survey; 2009-2010; Million)

	<b>Cattle</b>	<b>Buffalo</b>	<b>Camel</b>	<b>Goat</b>	<b>Sheep</b>	<b>TOTAL</b>
<b>Pakistan</b>	34.3	30.8	1.0	59.9	27.8	<b>153.8</b>
<b>Province</b>						
Punjab	16.8 (49%)	20.0 (65%)	0.22 (22%)	22.10 (37%)	6.67 (24%)	<b>62.33</b>
Sindh	7.89 (23%)	8.32 (27%)	0.30 (30%)	13.77 (23%)	4.17 (15%)	<b>34.45</b>
NWFP	6.86 (20%)	2.16 (7%)	0.07 (7%)	10.80 (18%)	3.36 (13%)	<b>23.25</b>
Balochistan	2.74 (8%)	0.31 (1.0%)	0.41 (41%)	13.18 (22%)	13.34 (48%)	<b>29.98</b>

Whilst the livestock meat sector in Pakistan is large by international standards (at least in the top 10 by animal numbers) it is fragmented and largely a by-product of the dairy sector. The world top milk producing countries by animal numbers are India, China, the USA and Pakistan. Whilst meat production in Europe is also largely a by-product of the dairy sector, it is well organized with numerous high producing beef breeds that are used in cross-breeding programs.

#### 1.4. Livestock Producers

Table 2, adapted from research by Dr. M. Afzal, chairman of the Pakistan Agricultural Research Council Islamabad, lists the number of households whom participated in livestock in the 2006 livestock senses. The table gives the numbers of cattle (dairy and beef as a by-product) and in parenthesis, the percentage of households. As can be seen from the table more than 80% of the households in Pakistan have between 1-6 animals. On the other hand 16% of households/producers have seven or more cattle and are in the position to become even more commercialized as producers.

Table 2. Numbers of households with herd sizes. In parenthesis, the percentages of households represented .Dr M Afzal (2006)

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

#### 1.5. Macro structures supporting the Livestock Sector

##### 1.5.1. Livestock and Dairy Development Board (LDDDB)

The LDDDB is a Section 42 company established in 2005 by the government and announced by the Prime Minister. It had a budget of Rs.54.2 Million (US\$ 570,000) for a period of five years. It now receives no government funding but relies on money in a trust fund. The board of directors includes six government officials whom are ex-officio (i.e. hold another office) and nine members from the private sector in their private capacities. The private members represent all the animal production sectors including dairy, meat, poultry, banking, large ruminant, small ruminant, traders and a research and development expert. The livestock farmers are the members of the company.

From the industry stake holders meetings held in three locations (ANNEXURE 1.1, 1.2 and 1.3) and after consulting all sectors of the value chain (private and public) there is a strong mandate that a new, independent structure should be created that specifically focuses on the Meat Value Chain.

Such a structure should be similar in stature to the Australian Meat and Livestock Commission (MLA) and the British Meat and Livestock Commission (MLC). Many, if not most developing countries such as Namibia (Namibian Meat Board), Zambia (Zambian Beef Association), South Africa (Red Meat forum), or India's (Association of Indian Livestock Industry) have strong, privately run peak bodies that represent the livestock sector and are able to influence government policy and assist their members. Most, if not all these peak industry bodies are largely financially independent and have found innovative ways of raising the much needed funds to be self-sufficient. In many instances they have lobbied their national governments to pass a law that enables them to obtain a levee from each carcass slaughtered.

### **1.5.2. Punjab Livestock and Dairy Development Board (PLDDB)**

More than 60% of Livestock can be found in the Punjab province. It's peak industry body is the PLDDB, a section 42 company. This is a government assisted board headed by the chief minister of Punjab province and a CEO. The PLDDB has a mandate to develop a centre of excellence for the development of Sahiwal and exotic breeds. It is in the process of establishing a state of the art Semen Production Unit, training over a thousand AI technicians and also provides numerous training courses in the livestock production industry.

The PLDDB also has a well-established silage project. The projected target is to produce 65 000 tons and has a rental system for maize choppers.

The one challenge that the PLDDB has is that it is linked to the Punjab government. A change in government could easily scupper the initiatives of the PLDDB. For this reason it seeks to become more independent with private funding initiatives.

### **1.5.3. Agricultural Research and training centers**

Table 2 below, adapted from Dr Asmal (2006 Chairman of Agricultural Research Council report), list's the various production institutions by province. A lot of the effort from the various research and training centres correctly focuses on improving the animal health status in the country. From our visits throughout the country it would appear that not as much research and development work is done in terms of running breed improvement, recording and evaluation programs however. There is also very little published material available in the management and application of pasture science programs that is critical to ensure a sustainable feed base in the country. The natural resources will also need to be protected from over grazing. These latter research actions are essential if the meat and livestock sector is to be properly serviced.

Table 2 Animal training and production centres by province.

Region	Teaching facilities	Research Institutes	Training Institutes	Semen production Centres	Artificial Insemination Centres	Livestock farms	Extension centres
Punjab	6	4	2	6	835	22	-
Sindh	1	1	2	2	76	5	-
KPK	1	1	1	3	331	5	-
Baloch.	1	1	1	1	64	14	-
AJK	1	1	-	-	38	1	184
NA	-	-	-	-	-	1	-
FATA	-	-	-	1	118	-	-
ICT	-	-	-	-	11	-	1
Total	10	8	6	13	1473	48	185

## **1.6. Seed stock Industry**

Annexure 4 lists the main production characteristics of the major cattle breeds in Pakistan. Purebreds make up 43% of the population, crossbreds 13% and the rest are essentially non-descript animals. The most common large stock breed is the Sahiwal followed by the Red Sindh.

One of the major constraints mentioned in all the stakeholder workshops was the under performance of the local breeds compared to exotic breeds in especially the Large stock sector. The Sahiwal for example is considered to be a dual purpose breed but is primarily used for dairy production. In Australia, it is a registered Society with nine members and is used as a Bos Indicus breed for beef production. The advantage of this breed is that is ideally suited to very tough, dry environments. Previously in this assessment we showed that Pakistan essentially needs to split the meat industry from the dairy industry and focus on dairy production as a separate entity from the meat i.e. beef cattle and small stock, industry. The average milk production for Sahiwal cattle is between 1350 and 3000 litres per year. Although this is very low by international standards these animals are not on a high plane of nutrition that is suitable for optimal milk production.

In Punjab province a Research Centre for the Conservation of Sahiwal Cattle (RCCSC) was started in 2003/2004 with the mandate to conserve and develop the Sahiwal breed. A genetic evaluation using modern breeding evaluation methods (BLUP) was conducted and a genetic selection program was started using the best animals from the evaluation. The first embryo calves were also born from this research program. Performance tests were conducted on nearly five hundred cows. Although not all the milestones were achieved the genetic evaluation program conducted is a significant milestone for Pakistan and the breed.

The livestock farmers & breeders Association (LFBA) was established in 2006 to protect the interests of local indigenous breeds. The reality for the Sahiwal breed to survive is that it has to compete with modern animal breeding methods and broaden its recording base. Otherwise it will simply become obsolete over time. At this point in time more interventions are required to ensure that the breed meets modern breeding standards.

Cattle breeds and breed types have in the last few decades been bred to either have enhanced milk production (i.e. have smaller hind-quarters and less muscling) or bred specifically for beef production (i.e. have a large amount of muscling in the fore and hind quarters). Even the Simmentaler breed that is considered a dual purpose breed has essentially either become either a dairy type or beef type of animal. In the tough African environments the Simmental Dairy Breed is distinguished from the Simmental beef breed.

Although many of the breeds have been bred for draught purposes (i.e. pulling a plough or sleigh), the level of mechanisation is such that this practice is becoming out-dated and these breeds are dwindling in popularity.

As is the case with the large stock sector, the small stock sector is represented by numerous indigenous breeds (Annexure 5-6). The challenge faced by this sector is similar to the large stock sector and has very little in the way of breed improvement programs. Without these programs the indigenous breeds will essentially not compete and become even less productive by international standards



### 1.7. Artificial Insemination (AI)

With only 6% of producers (dairy and beef) of the industry using Artificial Insemination (AI) the adoption of AI is extremely low by international standards. This is simply because more than 80% of animals are owned by small holder producers whom cannot afford the investment nor have the logistics to implement AI programs. Although the price of semen is reasonable by international standards (between Rs.300 – Rs. 8000) it is considered to be expensive in Pakistan.

There are government AI schemes in most provinces providing subsidised semen to the industry. However, the perception amongst farmers is that the quality of the semen and animals from local breeds are very poor. The government schemes promote the use of local breeds including the use of buffalo semen. Schemes such as that initiated by the PLLDB have started training nearly a thousand AI technicians and are in the process of expanding their AI facilities.

Table 3 below lists the AI stations, locations, breeds and species, as can be expected, the Punjab province has the most with four stations, Sindh has two stations and NWFP and Balochistan one station each.

<i>Province</i>	<i>Location of SPU</i>	<i>Species</i>	<i>Breed</i>	<i>Donor Bull (No)</i>
<b>Punjab</b>	Qadirabad, Sahiwal	Buffalo	Nili-Ravi	40
		Cattle	Sahiwal	40
			H. Friesian	2-5
			Friesian X-bred	2-5
			Dhamni	2-5
			Red Sindhi	2-5
	Kherimurat, Attock	Cattle	H. Friesian	28
			Jersey	3
	Kallukot, Bhakkar	Buffalo	Nili-Ravi	50
		Cattle	Sahiwal	17
<b>Sindh</b>	Karniwal, Bahawalpur	Buffalo	Nili-Ravi	46
		Cattle	Sahiwal	38
	Rohri	Buffalo	Kundi	38
		Buffalo	Kundi	3-5
	Karachi	Cattle	Red-Sindhi	2-5
		Cattle	Red-Sindhi	2-5
<b>NWFP</b>	Harichand, Charsada	Buffalo	Nili-Ravi	2-5
		Cattle	H. Friesian	5
			Jersey	2
			Sahiwal	1
			Achai	2
<b>Balochistan</b>	Quetta	Cattle	H. Friesian	7

Table 3 AI Stations listed by province including large stock species and breed types

The Main Private AI companies in Pakistan are:

- Altaf & Company
- Profarma (King Farm)
- Real Sear
- K&R
- Sanam Farm
- Ghazi Brother

These are importing 250,000 doses annually as per the PLDDDB. The private companies are slowly gaining ground and making a mark in the industry. They should be supported

by AID projects to gain the momentum required to become large role players in the industry.

The use of AI in small stock is also limited. The reality is that AI is used in the small stock industry in mostly Seed stock herds and not in the commercial herds. Given the lack of Seed stock herds in Pakistan it is not surprising that there is virtually no AI in small stock herds. It would make sense to validate the production of local small stock breeds compared to exotic breeds at a research centre in all the provinces to enable a fair comparison of the production of various small stock breeds to be made.

Embryo transplants in the private sector are virtually non-existent. Given the low levels of AI adoption it would not make sense to pursue embryo programs in the commercial sector at this stage. An aspect that may be considered is to store embryo's for future genetic programs in an International embryo bank.

### 1.8. Veterinary institutions in Pakistan

Pakistan's animal health status is working hard to overcome the constraints places by animal diseases such as brucellosis and Foot and Mouth Disease. In conversations with Dr Afzal, head of an FAO project on Foot and Mouth disease, there were 250 outbreaks of Foot and Mouth in Pakistan in 2011. Foot and mouth as a disease not only costs the local economy approximately 80 million dollars per annum but places large constraint's on the ability of any country to export to many countries in the world, but especially to the more lucrative European markets. There are a lot of efforts being implemented to curb the spread of Foot and Mouth and the disease has to a large extent been restricted to certain areas in the country.

Table 4 below gives the various Veterinary faculties and associated institutions in Pakistan and Shows that Pakistan is reasonably well served in veterinary faculties.

Table 4, Veterinary faculties in Pakistan:

Region	Veterinary faculty	Research Faculty	Hospital	Dispensary	Veterinary centre	Laboratory
Punjab	6	1	530	1213	1713	28
Sindh	1	2	119	60	608	7
NWFP	2	1	98	363	218	7
Baloch	1	1	116	783		15
AJK	1	-	59	66	129	6
NA	-	-	12	165	-	7
FATA	-	-	25	212	207	1
ICT	-	1	4	7	-	1
TOTAL	11	6	963	2869	2875	72

### 1.9. Pasture/Grazing systems.

As mentioned previously, Pakistan has seen an enormous increase in population growth and this has been followed by an almost linear increase in animal numbers. The goat population of 60 million makes up nearly 40% of the total animal numbers. Goats can be very destructive to the environment when compared to the larger bovine species and needs to be very carefully managed. It is a known fact that there are already many areas that are over utilised. To run livestock in a sustainable way requires proper livestock management practices regarding grazing management.

As far as we could ascertain Pakistan has no effective rangeland policy and although there has been some attempts at validating the carrying capacity across the country, its implementation has been poorly implemented (Sardar M, 2006, *Dryland Management; A perspective for livelihood Improvement in rural areas. Experiences from Pakistan*).

Livestock producers also lack the proper knowledge of pasture use. Rangeland grass management systems require properties to be divided into specific areas where grass is allowed to recover and reseed once grazed. This is hardly ever done in Pastoral based systems of agriculture that are practised in most developing countries including Pakistan.

#### **1.10. Laws governing pricing**

At all the stakeholder workshops government fixing the price of meat was seen as one of the major impediments to add value throughout the Meat Value Chain. The two major laws governing the price control are i) The Balochistan/NWFP/Punjab/Sindh Foodstuff (Control) Act – 1958, and ii) The Price Control and Prevention of Profiteering and Hoarding Act, 1977. Conversely, the prices of meat production inputs such as feed, live animals, and veterinary care are uncontrolled and escalating with the growing inflation. Although the government has essentially put in place the law governing the price of meat to protect the consumer, the general perception from the private sector is that it does exactly the opposite for what it is intended.

## 2.The Meat Value Chain

As mentioned previously in this document over 80% of the producers are smallholder producers with six or less animals whilst the other twenty percent make up the producers whom can be described as commercialised farmers.

The word Mandi is the Pakistani word for describing the buying and selling of livestock at markets whilst the Arhti can be described as the agent or trader buying and selling meat. The schematic below (adapted from Dr Hamid Jalil) describes a generalised view of the value chain using the city of Lahore as an example. The left hand side of the schematic has the owner of animals first selling them in the local village to the “investor” whom goes on to sell these animals to a local, usually informal slaughterhouse. The right hand side has the owner of animals from the village selling livestock to the Middleman whom transports the livestock to the “Mandi” in the city. The livestock are then sold to the respective abattoirs.

Figure 1 A Generalised Schematic illustration of the Meat Value Chain (Adapted from Dr Hamid Jalil)

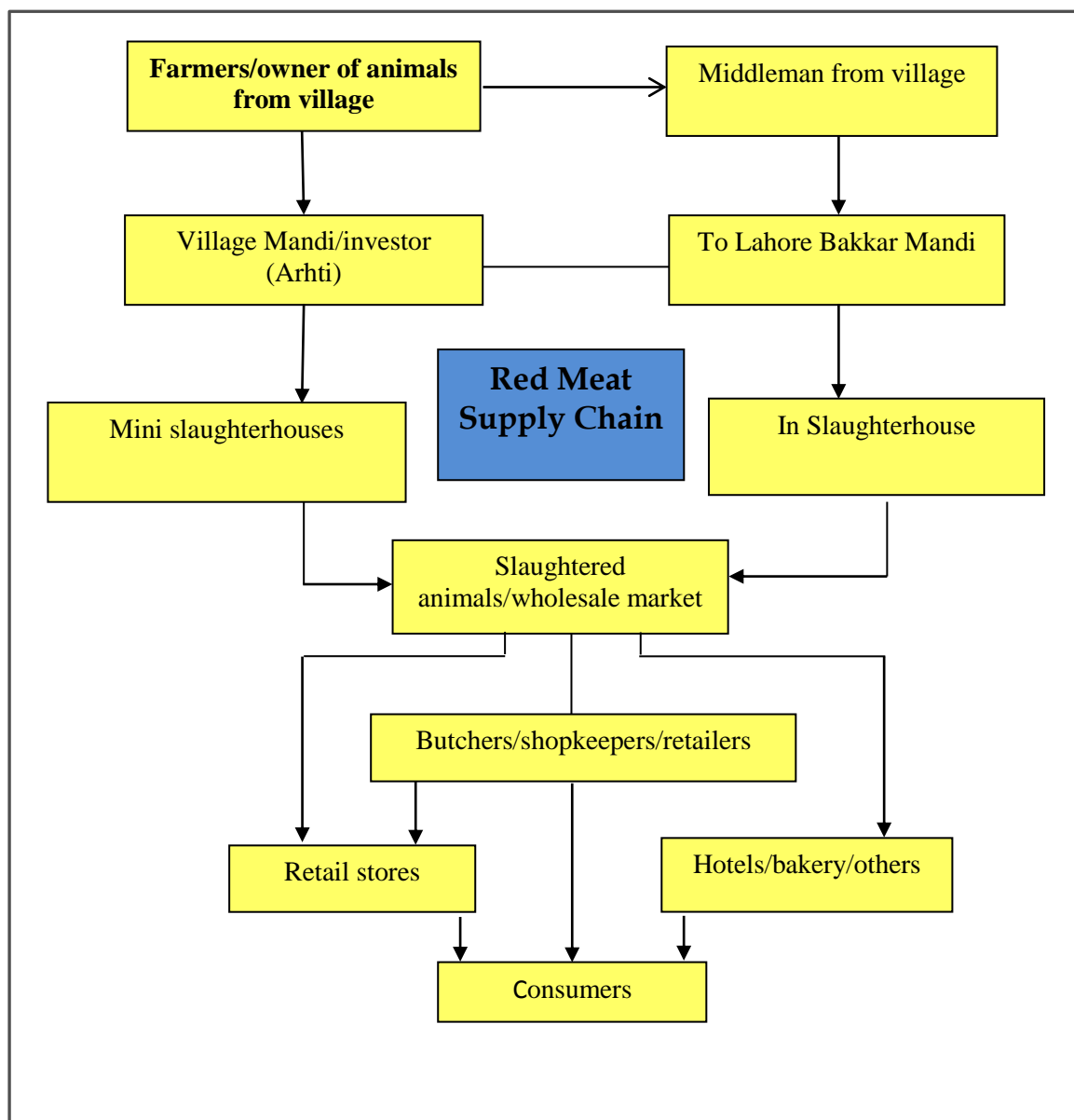


Figure 2 below gives the total numbers of livestock animals traded per annum and the value of the products to the industry (Dr.Asif Idrees; Values are for 2008/2009 season). A total of 24.5 Million animals are traded with a total value of US\$2.8 billion.

Large stock	Total	Small stock
<b>Producers</b> 7.6 Million Animals Rs173 (\$1.8) Billion 4 Million Cattle- Rs.173 (\$1.8) Billion 3.6 Million Buffalo- Rs 76 (\$.8) Billion	<b>Producers</b> 24.5 Million Animals Rs.266 (\$2.8) Billion	<b>Producers</b> 16.8 Million Animals Rs 93 (\$.97) Billion 16.8 Million Sheep Rs 93 (\$1.0) Billion 11.9 Million Goats Rs 57 (\$Billion)

Because of the lack of organized structures in the industry there is little information of an “average” price in the industry for the price of livestock per kilogram and as a result there is a large variation of the prices paid at the various markets, this despite the price fixing that occurs as a result of government legislation. From our visits to various stakeholders it was clear that industry itself does not know what the average price is per animal. In most developed countries and many developing countries there is a day to day “average price” paid in industry that is available in the Agricultural media for a kilogram of live weight.

Table 5 below, adapted from the Meat Value Chain assessment by Dr Hamid Jalil, gives an average price paid for beef and mutton on the open market (Mandi’s) after a comprehensive survey was done at different markets for the Lahore district . The different categories refers to the perceived quality of the meat with Category A meat being sold in upmarket stores and Category C meat usually having some undesirable health status.

Table: 5. Prices paid for various categories of livestock paid in Pakistan

Meat Type	Category A			Category B			Category C		
	Retail rates			Retail rates			Retail rates		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Beef	150	160	155	100	120	110	85	95	90
Mutton	275	300	287.5	250	260	255	230	240	235

Table 6. Details of the often hidden expenses paid by the Buyers of Livestock that is part of the Value Chain

Tax paid to toll tax and police check post	Rs. 1500-2000 per truck
Entrance fee to Mandi for small animal	Rs. 20 per animal
Entrance fee to Mandi for large animal	Rs. 90 per animal
Slaughterhouse fee for small animal	Rs. 10 per animal
Slaughterhouse fee for large animal	Rs. 20 per animal
Slaughtering fee for small animal	Rs. 10 per animal
Slaughtering fee for large animal	Rs. 20 per animal

It is worth noticing that the price paid per kilogram live weight per animal (Rs. 110- Rs. 150) to producers is similar than that currently being paid for livestock in Sub Saharan Africa (where a livestock enterprise is a profitable business).

### **3.Halal Meat Potential**

A few years ago Pakistan had only three recognized abattoirs. Today there are eleven slaughter houses that meet the requirements for international standards. Five of these are in Karachi, five in Lahore and one in Peshawar. In the Public sector there are approximately 350 slaughter houses and in the private sector approximately 40 slaughterhouses. Processed meat makes up less than 5% of the market.

The claim is made that the International Halal industry is worth 3 trillion dollars and the meat sector 440 billion dollars. We know that Pakistan's share of the global meat market is worth 114 million dollars i.e. less than 0.26 percent. According to projections by ASI partners the value could surpass \$500 million in the next five years. Throughout the VCA assessment it is very clear that although there is no effective business plan put in place by the exporters to capitalise on the predicted future growth the reality is that the demand continues to grow.

Countries that import Halal meat include the United Kingdom, France, Malaysia, Saudi Arabia, Egypt, Iran, Afghanistan, Turkey, the Gulf States and some countries in Africa.

As mentioned previously the industry is very fragmented and we have suggested that a "Meat Board" be established. One of the requirements would be to lobby the various Halal accreditation bodies into one umbrella body. Interventions are also required to assist the Halal industry market itself internationally by attending congresses and assisting with developing the Halal brand.

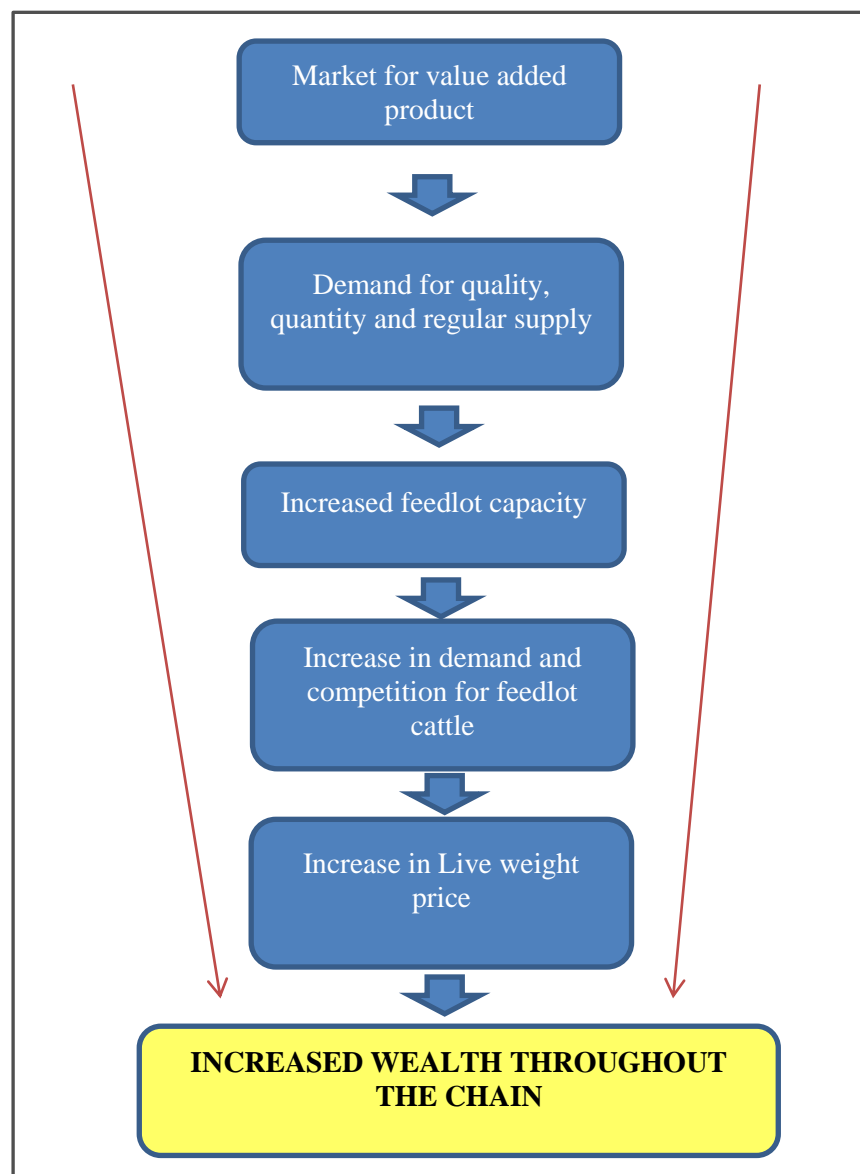
Halal has a very deep rooted history and significance to the Muslim population. Halal means "permissible" in Arabic. The significance is further extended to mean wholesome, as compared to unwholesome, foul or 'haram' meaning that it is prohibited. All pure and clean foods are permitted for Muslims except, · dead animals, blood, swine including all its by-products, alcohol and animals slaughtered without pronouncing the name of God on them.

## 4. Specific Meat Value Chain Models

### 4.1. Creating feedlots (cattle fattening) in developing countries: The Botswana

#### Model

Cattle production is critical to the Botswana GDP and especially to rural people and similar to Pakistan, more than 80% of producers are considered smallholder producers i.e. have less than 10 animals. The Botswana government, through the Botswana Meat Commission (BMC), has come up with very successful initiative to increase the value of livestock and at the same time increase the production per animal. Firstly, the BMC started with identifying the market and worked backwards. They believed that the market would pay a premium for that which is required by the consumer. Exporters and butcher's will add value if the market dictates a certain product. Growers (feedlots) will purchase and feed cattle that maximise their profits when sold to the butcher and finally, the producer should produce a product that best fits the requirement of the finisher. The below illustration, adapted from an illustration given recently by Clive Marshall, procurement officer for the BMC, at the Zimbabwean beef school (Sept 2012), shows how wealth was created throughout the value chain creating feedlots in Botswana.



The Botswana government through the BMC was also able to put together and negotiate a trade agreement with the European Union for the provision of meat carcasses at very favourable rates. Secondly, the BMC was able to incentivise the creation of private feedlots that would pay producers more money for their cattle per kilogram if they met certain weight requirements. Thirdly, producers are able to share in the value being added in all sectors of the value chain by being trained to understand beef production principles.



Similar to Pakistan, Botswana has a long-weaner production system i.e. animals are sold for slaughter at approximately 12 months of age. The BMC incentivises producers to produce animals that are over 240 kilograms live weight and the pricing system applies severe penalties if animals weigh less than 240kg's.

Botswana has recognized that to be profitable the industry has to maximise the amount of kilograms produced over the shortest period of time at the least cost. The factors that affect maximum kilograms produced are herd management, the use of nutrition and proper handling and marketing of animals.

Critical to the whole enterprise was the establishment of a number of private feedlots. To run a feedlot business takes a very high level of management. One serious disease outbreak or problem with feed, for example, can result in enormous losses and the feedlot going bankrupt. The Feed master feedlot in Botswana is owned by John and Greg Smith. They believe that in a long-weaner system such as that in Botswana a feedlot needs at least between 1500- 3000 cattle per intake three times per year to be profitable. Most of the smaller feedlot owners have gone out of business. Getting the financial model correct is critical as smaller feedlots can simply not build up the reserves that are required to ensure that the feedlot is economically viable in times when the prices are low or feed is scarce and expensive.

The Botswana Meat Commission pricing system (2012), in USA Dollars paid for Male feedlot animals (live weight) is given below. A text message is sent to producers with the latest prices every week.

Table 7. Example of the pricing system in Botswana favours cattle suited to the feedlot sector (US dollar)

Live weight	Dentition (no. of teeth) category					Average Live weight
	0&1	2	3&4	5&6	Full Mouth	
<240 kg	1.17	0.65	0.65	0.65	-	220
240.5-280	1.29	1.21	1.03	0.65	-	260
280.5-320	1.27	1.18	1.01	1.00	-	300
320.5-360	1.20	1.12	0.95	0.94	-	340
360.5-390	1.16	1.08	0.92	0.91	-	375



#### **4.2. Feedlots (cattle fattening) from dairy male calves: The western USA (California) model**

In the California region of the USA approximately 500 000 – 600 000 Holstein calves are now being fed in feedlots. Although the perception has been that it is unprofitable to feed animals from the dairy industry, because of some new innovations, an increased ability to control the health status, and the increased demand for meat, this is now changing.

Differences between dairy calves and beef animals are that dairy animals typically require 10-15% more energy for maintenance. Dairy cattle thus require very high energy diets so that the proportion of energy used for maintenance is reduced. Dairy cattle generally tend to not deposit fat as easily as beef steers and require 8-10% more feed per animal than smaller framed beef breeds. Dairy cattle also tend to consume more dry matter than beef animals, have less muscling and adaptable to environmental stresses. For optimal performance dairy cattle should have covering to protect them from the elements.

There are a number of different strategies used to feed dairy male calves. Some producers sell 2-3 day old calves and these are put onto various milk replacer systems. Others take weaner calves at 6 months of age, background them and feed them in a feedlot environment for up to 12-16 months of age. A dairy male calf operation depends on the available resources. The critical factor is the cost of feed. Most feedlot owners will grow their own corn.

The pre-weaning phase is the most critical phase and the overhead costs are high. Mortality can be high and the ideal would be to keep them in isolated pens. Co-mingling calves from different sources increases the health risk. Once settled, calves will go on to a milk replacer diet after the third feed. By 4-5 weeks calves are weaned and put on full feed. The next step is to get the calves ready for the feedlot phase i.e. weaning to approximately 200 kg's. Good performance is achieved feeding calves on a diet of corn (maize) with a protein supplement (usually with a 3:1 ration). The next phase would be the growing and finishing phase, at this stage they would essentially move to a 9:1 (concentrate to roughage) diet and feed the steers to nearly 270-300kg's. What is important is to maintain consistent feed intakes.

It is clear that there are a number of models/strategies that can be adopted for Pakistan. Suhaib Sarwar gave a compelling case for Pakistan to adopt a Feedlot system in a document titled "Calves feedlot System- Milk Replacer". The financial model, given for 3000 animals showed that it is profitable to put male calves through a feedlot in Pakistan, even if capital expenses are budgeted for in the business plan.

#### **4.3. Meat Value Retail: The Southern African Experience**

In the last decade there has been a very strong move by the especially the South African retailers into the developing markets of Botswana, Angola, Zambia, Mozambique, Mauritius, Congo, Kenya and Namibia. Initially the new burgeoning middle class markets in these countries were targeted. This is now changing with poorer communities appreciating the value that retailers can bring because of improved hygiene, a better value of product and an increase in the economy of scale. The United States Walmart company has also seen the opportunities that developing countries can offer and have bought the majority share in a South African retailer called Massmart (that also owns Macro).

The move in South Africa itself has been remarkable with the four largest retailers now selling over 60% of all meat and meat products in this country. Previously this domain was that of the very small local butcher shop. However, when a retailer such as Pick n Pay purchases meat they are able to do so in bulk (60 000 tonnes per annum). At the same time they are able to negotiate that they get the first choice of carcasses from the large abattoirs. Added to this is the fact that they can insure that all 800 of their retail butcheries are of a hygienically high standard with a variety of product offerings. The retail meat industry has become extremely competitive because of these changes and this has been to the benefit of all consumers.

Pakistan has a lot that it can learn from the developing countries in Sub Saharan Africa. Similar to Pakistan more than 80% of producers have less than 10 animals. Botswana and Namibia is a good model to follow with its development Botswana Meat Commission (BMC) and Namibian Meat Board.

Now is an opportune time for Pakistani retailers to get involved in the retail side of the value chain. Websites that may be of interest:

<http://www.trademarksa.org/news/retailing-north-sa-takes-escalator>

<http://www.howwemadeitinafrica.com/southern-africa%e2%80%99s-retail-potential-still-largely-untapped-says-pick-n-pay/8863/>

<http://farmersweekly.co.za/article.aspx?id=10856&h=Supermarkets-cut-out-private-butcherries>

#### **4.4. Applying good management practices at the production level**

It is clear from all the literature that one of the major constraints is the lack of quality animals at slaughter. This issue was raised at all stakeholder meetings and visits to abattoirs.

A profitable production system starts with a live calf or lamb being born. It is thus very important that the training initiatives should focus at the production system. The Pakistan livestock herd/flock should aim at producing as many animals from the same number of cows/sheep as possible. Reproduction efficiency in a cattle long weaner system for example (i.e. selling animals at approximately 12 months of age) is five to six times more important than any other trait. Yet in Pakistan, more that 30% of animals do not make it to one year of age. Diseases and deficiencies that inhibit efficiency must be controlled.

Economically important deficiencies (i.e. mineral and trace elements) must be identified and included into production licks and/or feedstuffs. Trace elements help give adequate response to vaccines, assist with the growth, muscle development and bone formation and have a positive effect on reproduction. These are all very important aspects in a weaner production system.

It is a truism that nutrition will have a significant impact on overall productivity of the production system. It is essential that the production process should be aligned to the fodder flow of the area. Calving and lambing must be timed to make the best use of the available natural resources. The condition of the breeding cow or ewe has a huge influence on the profitability of the livestock sector.

The importance of the bull (or ram) in the livestock sector is enormous. Within three generations, 85.7% of the genetics in the herd represent the genetics of the bull or ram. It is

thus critical for the livestock sector to invest as many resources as possible in AI companies and to improve the genetic potential of bull and ram herds.

In the Botswana rural management system, the following costs per cow to producers is advocated (prices in US\$):

(Adapted from a speech by Mr Clive Marshal, Procurement officer of the BMC)

Pregnancy test	0.11
Bull fertility test	2.35
Multimin x 2 shots	0.58
Vit A x 2 shots	0.24
Titanium BVD x 2	0.24
Multivax	0.24
Winter lick 112 kg	5.89
Protein supplement x 215 days	2.94
Total Cost per cow	<b>12.59</b>

The additional production that can be expected from the above can be calculated over a 100 cow production unit. If the natural production is 50 calves per 100 cows, the above should realise an additional improvement in reproduction of at least 30%. Include the additional production of 30 kg's on a 220kg calf at an additional 0.23c per animal, and the producer now realizes an additional US \$294.00 plus the additional saleable heifers from higher pregnancy rates. It is thus clear that the small additional expense per animal on animal health will realize much higher returns.

## **5.Constraints experienced in the Meat Value Chain**

Stakeholder meetings assessing the constraints and interventions of the Meat value chain were held in Islamabad, Karachi and Lahore. The meetings were well attended by between 15-30 people from all sectors of the Value Chain. The outcome of the Stakeholder meeting in each city is given in Annexes 1-3.

The main constraints from the three stakeholder meetings can be summarised as follows:

- The meat industry is simply seen as a by-product of the Dairy Industry and is not taken seriously by the larger role players.
- The meat industry is fragmented and has ineffective umbrella bodies.
- There is no meat grading system.
- The widespread breeding of inferior animals.
- Lack of livestock breeding farms.
- The lack of feeding companies to enhance animal production.
- Improper and unhygienic means of storing meat both domestically and at airports.
- Lack of proper abattoirs for both domestic and export especially in the private sector.
- A Halal certification body exists but it is not properly marketed and supported.
- The fixing of meat prices has not been balanced by the increase in input prices.
- Frequent slaughtering of young calves and a lack of feeding facilities to ensure animals reach a target weight to maximise their production potential through cattle fattening facilities such as feedlots.
- A poor marketing infrastructure based on objective measurements of the production of an animal.
- Lack of training of livestock production methods.
- Lack of a formal meat retail trade that stimulates the demand for value added meat products.

## **6.Recommendations and Interventions**

The interventions provided are as a result of the outcome of the Stakeholder meeting and personal observations. These can be divided into five main objectives: 1) the urgent and necessary improvement of the institutional structures, 2) improving the productivity of the livestock sector, 3) improving the local infrastructure, 4) training in all sectors of the value chain, and 5) stimulating the demand for meat in the sector driven from the retail side as the catalyst.

As mentioned throughout the document, the meat sector is very much a by-product of the dairy sector. A separate study is being conducted on the Interventions required in the dairy sector. I have thus deliberately avoided duplicating areas where interventions in the dairy sector will directly affect the meat sector but have rather treated the meat sector as an entity on its own.

Interventions required in the dairy sector that should be addressed as part of the findings of this VCA assessment include:

- Support of local AI stations
- Support of local feed companies
- Support of the RCCSC doing genetic evaluations for the Sawhil and local breeds

### **6.1. Objective Urgent and necessary improvement of the institutional structures**

*Constraint:*

- *The meat industry is simply seen as a by-product of the Dairy Industry and is not taken seriously by the larger role players.*
- *The meat industry is fragmented and has ineffective umbrella bodies.*
- *There is no meat grading system.*

#### **6.1.1. Activity Establish a Peak Industry body for the Meat Industry**

No industry can succeed without a peak industry body that looks after the interests of all the sectors of the value chain, including being a facilitator for the export sector. Without a functional peak industry body, many of the interventions implemented by ASF will ultimately lose the impetus that is required to keep private industry bodies functioning.

As a start, ASF should conduct an industry workshop where every industry role player is invited and be encouraged to be involved. The aim of the workshop will be to create a unified, industry led body that is representative of the whole Meat Value Chain and is independent of the dairy sector. ASF should use the very best local and international consultant(s) whom has experience in facilitating such workshops. Given the divisiveness in this sector of the industry at this point in time, it would also require someone with some experience in conflict management.

The livestock sector will then need to create its own “Meat board” and appoint its own General Manager to oversee the interests of its own sector. The General Manager should be someone whom is completely independent and has no vested interests or bias towards any of the current role players. It may even be that the meeting decides that a highly experienced foreign person whom has previously worked in a meat board environment should be in the position for the first few years.

Although the Livestock Dairy Development Board (LDDDB) has had the mandate to be the peak industry body for both the livestock and dairy sectors in the past, the reality is that a separate body is required to represent just the meat industry.

The new “Meat board” will need to work out self-sustaining funding mechanisms over time. Australia for example charges a levee per animal slaughtered, which is matched by the government. The Namibian Meat board, like Pakistan also a developing country, is a totally independently body funded from its own producers though slaughtering’s per animal. The Namibian Meat board charges a 0.6% of the value of a slaughtered carcass for both small stock and large stock. This amount has been reduced from 0.8% as it was shown that sufficient funding has been accumulated for their Meat Board to conduct its business.

With only 2 million cattle and 4.5 million smallstock, the Namibian Meat Board has a turnover of over US\$ 3 million per annum ([www.nammic.com.na](http://www.nammic.com.na)). The Pakistan industry has 25 million animals slaughtered per annum. Using the Namibian model, (that is similar to other international models of between US\$ 2-3) and assuming a 10kg slaughter weight for small stock and 200 kg weight for large stock, this would raise approximately US\$ 62.5 million per annum for the livestock industry.

The mandate of the meat board will be to:

- Be the peak industry body for the Meat sector
- Implement sound regulatory systems
- Be the facilitator of the various segments in the Meat Value Chain
- Increase productivity across the value chain
- Improve market access for exports (Halal)
- Implement and underpin the animal health status
- Assist research bodies fulfil their mandates
- Regular consultations with stakeholders from all provinces
- Implement a meat grading system
- Be an advisory body to government

The planned five year approach can be as follows:

Year 1:

- Conduct Industry Workshop with all Stakeholders
- Appoint a General manager, office assistant and health officer
- Appoint a board that is representative of all sectors of the Meat value chain
- Visit the Australian Meat and Livestock commission (MLC) and Namibian Meat Board (Nammic)
- Hold one meeting per year in each province including an AGM in one of the provinces. Punjab would be a good starting point.

Year 2

- Work at implementing a Meat grading system
  - Conduct appropriate marketing and research
  - Consider the Personnel required to initially regulate the grading system (in the government and private abattoirs)

- Attend 2-3 International Meat expo's and congresses to develop relationships with other peak bodies and consider export opportunities
- Conduct Meetings with the Halal certification bodies to facilitate the formation of a peak body that falls under the auspices of the Meat board.
- Facilitate a Pakistan Halal accreditation for meat products
- Assist with the implementation of a prototype Feedlot operation (Intervention 3.6)
- Work at the legislative framework for an industry funded levee system.

#### Year 3 -5

- Create strong structures within the Meat Value Chain
- Lobby industry and government to implement a levee system
- Improve the animal health status
- Improve market access for all sectors of the value chain
- Give case studies that show the viability for a privatised feedlot sector
- Create mechanisms to improve the health status with the abattoirs.

#### Costs

Setting up a Meat Board structure with a General Manager will cost approximately US\$3 Million per annum i.e. US\$15 million will be required over a five year period. It is clear that industry will need to lobby the various stakeholders to start a program where a levee is paid per slaughtered animals so that the Meat board structure is sustainable in future. There is currently no specific grant mechanism that specifically addresses the funding of such a structure. It is possible that USAID could fund it through another project

#### Products

- Conduct an Industry Workshop with all Stakeholders to formalize an umbrella body that represents the meat industry and to decide the way forward
- Write a business plan for the formulation of a peak industry body and its various roles.

### 6.2. Objective Improving the productivity of the livestock sector

#### *Constraint*

- The widespread breeding of inferior animals.
- Lack of livestock breeding farms
- The lack of feeding companies to enhance animal production

The reality is that the investment in animal genetics and improved feed interventions should be made to the producers with at least 30 or more cattle whom would be keen to get involved in the meat value chain that is independent of the dairy industry. The fact that there is a strong demand for meat and associated products would make interventions in this industry viable. The smallholder producers that make up 80% of the industry i.e. the keepers of 1-6 animals would undoubtedly benefit indirectly as a results of the “spill over” that interventions elsewhere in the value chain realizes.

### 6.2.1. Activity Support of the existing AI stations

It was very clear from the stake holder meetings and visits to industry role players that the heart of the problem facing the meat industry is a lack of production of the local breeds and that meat is simply a by-product of the dairy industry. ASF must assist the larger private AI companies to become a strong force that has capacity to market their products properly. The existing private AI companies already have some capacity and do some of the training required to assist AI technicians in the field. Rather than creating small but struggling AI companies, the intervention required should be to assist those that have already shown the potential to become established in this tough market. Semen for beef and smallstock animals should be subsidised for the use in grading up programs on local breeds using properly performance recorded composite breeds. For example, in beef breeding Santa Gertrudis, Drought master, Simbrah, Braford and Brangus should be used and in smallstock the Dorper and Boer goat. These composites are able to withstand dry, benign environments but have enhanced production capacity. Semen of these bulls and small stock animals should be made available to producers whom are willing to engage in beef and smallstock meat production enterprises.



Year 1:

- Identify AI companies that require interventions
- Assist with the training of AI technicians
- Assist with marketing material for beef and small stock semen
- Assist with the importation of beef and small stock semen
- Subsidise the use of beef and small stock semen

Year 2:

- Assist with the expansion of existing AI facilities as part of a combined dairy and beef intervention.

#### Costs:

Six AI private companies should be targeted for assistance in this intervention.

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Marketing and training material	6	\$10 000	\$5 000	\$60 000	\$30 000	Private sector Extension
Training AI technicians	6	\$50 000	\$25 000	\$ 350 000	\$175000	Private sector Extension
Subsidized semen	6	\$50 000	\$25 000	\$ 300 000	\$150 000	Challenge grant
Expand AI facilities	6	\$300 000	\$75 000	\$1 800 000	\$450 000	Lead Grant



## Products

- Assist with training material
- Assist training of AI technicians
- Assist with marketing material
- Subsidize semen
- Expand facilities

### 6.2.2. Activity Expansion of feed companies

The strengthening of existing feed companies should be a high priority for ASF. However, it takes a lot of experience to develop the animal feeds industry and we suggest that international feeding experts be used to assist with this intervention.

Year 1:

- Identify Animal Feed companies that require interventions.
- Hold one workshop for a week once a year and assist with the training of the senior staff in the management, financial planning and day to day running of Animal Feed Companies using an International Consultant.
- Assist with marketing material for feed companies.

Year 2:

- Assist with the expansion of existing feed company facilities as part of a combined dairy and beef intervention.

## Costs:

- The six private feed companies should be targeted for assistance in this intervention.

Intervention	Number of companies	Target per company	USAID share	Total cost	Total cost USAID	Grant Mechanism
Marketing and training material	6	\$10 000	\$5 000	\$60 000	\$30 000	Private sector Extension
Training of feed companies and related industries (Consultant)	6	\$10 000 *5 (training over five years)	\$25 000	\$ 300 000	\$150 000	Private sector Extension
Expand facilities	6	\$300 000	\$75 000	\$1 800,000	\$450 000	Lead Grant

## Products

- Assist with training material
- Assist with marketing material
- Expand facilities

### 6.2.3. Activity Assist producers with 10-30 animals run viable livestock breeding units

In the introduction to this assessment we alluded to the fact that it would be more sensible if larger producers were assisted to improve the livestock sector i.e. producers whom have already showed some initiative or had the means to grow their enterprises to become more

than just subsistence farmers. For Pakistan to lift its production of meat we have also recommended that the meat livestock sector becomes an entity of its own and not simply be a by-product of the dairy sector. The Botswana example showed that by addressing the market at the end point and working backwards the “pull through” effect will assist the industry to get moving in all sectors of the value chain. However, arguably the biggest constraint from the market (sellers of meat) was the poor quality of cattle, sheep and goats.

What is required to address this constraint is the establishment of viable livestock breeding units starting in the four provinces (Punjab, Sindh, KP and Gilgit-Baltistan). Based on the ASF participatory rapid livestock appraisal an intervention in Gilgit-Baltistan would be worthwhile to establish a viable livestock breeding unit in this district. A livestock breeding unit is considered to be a minimum of 50 adult females and 150 small stock units. The recipients of these animals will either be a co-operative or even a single entity (producer) whom is able to supply ASF with a viable business plan. The livestock unit will be able to sell superior livestock to the district and animals are to be used as breeding material. These producers/entities will need to require sufficient training to realize that these animals are not simply for slaughter value. Ideally, they will need to sell “seedstock” material to the farmer enterprise groups whom themselves will require sufficient training to realize the importance of imported genetics for creating value. We essentially need to identify entrepreneurs whom are willing to buy into the concept of starting their own breeding units.

#### Year 1:

- Identify eight producers or a business enterprise from the provinces of Punjab, Sindh, KP and three from Gilgit-Baltistan willing to start a livestock breeding unit.
- Hold one workshop for a week once a year for five years and assist with the training of animal production and breeding principles.
- Assist with marketing material for selling seed stock animals.

#### Year 2:

- Increase the number of large stock animals from 10 to 50 and small stock from 30 to 150 animals by assisting with the purchasing of high quality livestock
- Expand the current facilities including animal yards

#### Costs

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Marketing and training material	27	\$20 000	\$10 000	\$540 000	\$135 000	Private sector Extension
Training on animal production principles (Consultant)	1	\$50 000 (combined into workshops)	\$25 000	\$ 50 000	\$25 000	Private sector Extension
Purchase of 40 Large stock animals per producer	27	\$95 000	\$47 500	\$ 2 560 000	\$641 250	Challenge grant
Purchase of 120 Small stock animals	27	\$84 000	\$42 000	\$2 268 000	\$567 000	Challenge grant
Transport and clearance to Lahore	27	\$85 000	\$42 500	\$ 2 295 000	\$573 750	Challenge grant

Expand facilities	27	\$50 000	\$ 12 500	\$ 1 350 000	\$ 337 500	Lead Grant
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## Products

- Training on animal production principles
- Assist with training material
- Assist with marketing material
- Expand facilities
- Import livestock

### 6.2.4. Activity Genetic evaluation and performance for Sahiwal cattle

ASF, with a dairy consultant, needs to further investigate the Breeding policy and action plan by Sajjad Kahn that was compiled in 2008 and the comprehensive report by the directorate General, Monitoring and Evaluation, by the government of the Punjab on a genetic evaluation and performance program of Sahiwal. In the report Rs110 million was allocated to the genetic evaluation program. It may be that further interventions are required after a careful analysis of the current project is conducted.

## 6.3. Objective Improving the local infrastructure

### *Constraint*

- Improper and unhygienic means of storing meat.
- Lack of proper abattoirs especially in the private sector.
- A Halal certification body exists but it is not properly marketed and supported.
- The fixing of meat prices has not been balanced by the increase in input prices.
- Frequent slaughtering of young calves and a lack of feeding facilities to ensure animals reach a target weight to maximise their production potential through cattle fattening facilities such as feedlots.
- A poor marketing infrastructure based on objective measurements of the production of an animal.

### 6.3.1. Activity Provision of cold storage facilities

It was evident from the assessment that an immediate intervention would be to assist in the provision of cold storage (Chiller) facilities in towns. These do not have to be elaborate or large facilities. Most of the meat sold is into the informal “fresh” meat market. Because no cold storage facilities exist the majority of animals in the country are slaughtered in completely unsuitable environments. The few cold storage facilities that we visited were making good margins and were significantly contributing to the health and well-being of the populations that they were serving. At the same time the populace of the country needs to be educated on the advantages of cold meat compared to fresh meat.

Small enterprises visited are currently providing their own funding to acquire cold storage facilities.

- Identify small business units from four major cities willing to invest in cold storage facilities.
- Provide training, using the business units, to consumers on the benefits of frozen meat

Intervention	Number of companies	Target per company	USAID share	Total cost	Total cost USAID	Grant Mechanism
Provide training to consumers on the benefits of frozen meat	200	\$1 000	\$1 000	\$200 000	\$200 000	Awards to partner NGO's
Provide Cold storage facilities for any entity that applies	200	\$20 000	\$5 000	\$4 000 000	\$1 000 000	Challenge grant.

## Products

- Assist with training material
- Assist with marketing material
- Provide chillers

### 6.3.2. Activity Build at least two new private abattoirs

This value chain assessment has shown that there is a big demand for animal proteins both domestically and for export and that this demand is expected to continue to grow at the rate of at least 3-4% per annum. Pakistan has many informal abattoirs that are not considered to be of an international standard. A visit to an Export facility called Alshaheer in Karachi for example showed that there was tremendous value in developing abattoirs in the country for both the local and export market. Alshaheer, now slaughtering 200 large stock and 2000 small stock per day has been in existence since only 2008 and already has a turnover of over US\$ 35 million. The facility has also employed over 400 staff. Investing in abattoirs will also assist to start to create a “pull through” effect for a demand for meat and meat products further up the value chain.

A comprehensive assessment conducted by the Sindh Board of Investment in 2010 showed that the costs of establishing an abattoir in Pakistan that can slaughter over 200 largestock and 2000 smallstock head per day is US\$ 2.0 Million for the fixed capital costs. This is probably a slight underestimate of the real costs. The assessment showed that a profit margin of 35% on return of investment can be expected. This may sound high but the abattoirs that we visited are undoubtedly making good profit margins.

Establish at least one private abattoir that can slaughter over 200 carcasses per day

- Year 1:
  - Send out expression of interest documents
  - Create the necessary business plans
  - Secure markets for large stock and small stock
  - Procure second hand large stock/small stock lines from developed countries
  - Access the availability of land, electricity and water requirements and ensure that abattoirs meet the required environmental laws
  - Ensure the correct location is found for setting up such a facility
  - Do an environmental impact study
  - Access distribution centres

- Year 2:
  - Building phase
  - Procure Abattoir equipment
  - Start with staff interviews
  - Procure transport vehicles

**Costs:-**

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Provide training to new abattoir staff	2	\$50 000	\$25 000	\$100 000	\$50 000	Challenge grants
Acquire transport vehicles	2	\$50 000	\$25 000	\$100 000	\$50 000	Challenge grants
Build new abattoir	2	\$3 000 000	\$750 000	\$6 000 000	\$1 500 000	Lead grant

**Product**

- Assist with business model for new abattoirs
- Assist with location, environmental impact study, distribution centres
- Procure equipment

**6.3.3. Activity the support of current export abattoirs**

As mentioned above, export abattoirs such as Alshaheer have added enormous value to the earning of foreign exchange. At the same time they have built Retail stores within the city of Karachi, have employed a lot of staff and created a lot of value throughout the Value Chain. By international standards however Alshaheer is a very small facility. Yet they have shown that they have the capacity to be competitive within Pakistan and more importantly, within the region. It is worth supporting the private slaughter facilities such as Alshaheer to ensure that they continue to grow in size so that they can acquire the economy of scale to be competitive in the region.

- Year 1:
  - Send out expression of interest document
  - Create the necessary business plans
- Year 2 - 5
  - Building phase
  - Procure new Abattoir equipment
  - Procure additional transport vehicles.

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Provide training to abattoir staff	10	\$20 000	\$10 000	\$200 000	\$100 000	Challenge grants
Acquire additional transport vehicles	10	\$20 000	\$10 000	\$200 000	\$100 000	Challenge grants
Expand existing abattoir	10	\$50 000	\$ 25 000	\$500 000	\$250 000	Challenge grants

## Products

- Assist with a business plan
- Assist with getting abattoirs to ISO International standard
- Assist with marketing material and visits to international shows
- Assist with training

### 6.3.4. Activity strengthening of the Pakistan Halal Certification body

It was made clear in the Stakeholder workshops that there is a number of certification bodies representing foreign interests and that an intervention should be made to strengthen Halal Certification for Pakistan. Ideally this would be a function of the newly formed Meat Board.

## Cost

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Assist with the creation of Halal Certification	1	\$20 000	\$20 000	\$20 000	\$20 000	Cooperatives& FEG clusters

## Products

- Assist with Branding and Marketing Material
- Assist staff to attend international workshop
- Create umbrella body

### 6.3.5. Activity Policy document that shows the affect that a free market system will have on the meat industry.

Government legislation has put a ceiling of the price of meat, especially during EAD and other high days. Although this legislation is intended to protect the consumer, the overwhelming opinion is that it has done exactly the opposite and simply stifled market forces in the value chain. The chicken industry has no such constraints and is growing at a rapid pace. The only way to address this problem is to conduct a proper study of the affect that this law has on the market and to present this to government legislators.

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Assist with a policy document regarding free market system	1	\$20 000	\$20 000	\$20 000	\$20 000	Cooperatives &FEG clusters

## Products

- Examine success in chicken Industry
- Draft white paper for government

### **6.3.6. Activity Developing a prototype Feedlot facility that can handle at least 3000 animals for both long weaners (Botswana model) and the feeding of male calves (California model).**

It is clear from the research and assessment that has been done that there is a need to develop a private/public feedlot facility that can raise at least 1500 long weaners using the Botswana model. At the same time this facility can raise at least 1500 male dairy calves from 2-3 days old through the whole feedlot cycle. The Botswana model, amongst others, shows that small feedlots (less than 3000 animals) do not have the economy of scale that is required to run a viable enterprise. Access to land is also required to be able to provide sufficient fodder to the animals.

Our visit to the LDDDB in Islamabad for example showed that there are adequate facilities that can possibly be rented at very favourable rates from these institutes. The facility should be run as a private facility. We believe that developing the financial business model for such a facility will be a project on its own and will probably take about three months. The access to facilities, availability and costs of producing enough feed, capital requirements for expenses such as yards, scales, bunkers for silage, a feed mill and vehicles needs to be properly assessed. The location must be adequate and should be close to markets and abattoirs but put of cities. A business model then needs to be built around these variables. The feasibility study on feedlots conducted by Suhaid Sarwar would be a good starting point for developing such a business model. In our opinion the development of feedlots should initially be restricted to the large stock sector.

## Cost

A ball park figure of between US \$500 000 and US 1 Million can be budgeted for this type of activity. It will require a significant level of support to ensure that it becomes profitable.

## Products

- Should be its own project
- Will require a proper business plan
- Budget for a Lead Grant of \$500 000 (i.e. 2million dollars)
- Start with 1500-3000 cattle due to economy of scale

### 6.3.7. Intervention Pricing and Provision of livestock scales at markets (mandies)

Pakistan should implement an open and transparent pricing system that is made available to the whole industry via the media. Prices should be obtained weekly directly from the abattoirs for the different grades. Once established, the Feedlot should make known its pricing mechanism. Again, both these pricing structures should be a service provided by the Meat Board. To address the issue of smallholder producers not getting value for money and buyers feeling that they often get overcharged livestock scales should be provided at the markets (mundies). It is clear from this VCA that Pakistan needs to move to paying on a kilogram basis for meat rather than a subjective assessment of the animal. To get acceptance using scales will require some level of training. The provision of scales should first be piloted at some of the markets for at least a year before a general roll-out can be done.

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Assist with the training of moving to a weight based market	10	\$2 000	\$2 000	\$20 000	\$20 000	RSP's
Purchase of Livestock scales	10	\$2 000	\$2 000	\$20 000	\$20 000	RSP's

### Products

- Identify pilot sites
- Provide training and training material
- Purchase Scales

## 6.4. Objective Training at producer level

### *Constraint*

- *Lack of training of livestock production methods.*

### 6.4.1. Intervention providing training to livestock producers at KFS schools

In the above interventions we provided for training initiatives in the affected value chains. A significant level of training on animal production systems and good management practices will be required at the producer level. This will require training material, training the trainers and providing the necessary infrastructure for such training to occur. The ideal vehicle for such an intervention is start at the Kissan field schools (KFS).

The first year work plan that has been put together will form 500 KFS's. The newly formed farmer groups will learn about new techniques, efficient farming practices, the differences between the various livestock breeds, animal breeding techniques, animal health, pasture



management, feeding management, financial management and how to add value in the Meat Value Chain.

Each KFS will work at the village level with 25-30 local producers linked to a particular aspect of the value chain.

- Year 1
- Identify at least 5-6 local animal production experts that can provide the necessary training for each discipline. Although some discipline's may overlap it is advisable to use different experts for different discipline's. Discipline's could be categorized into categories for example: Production experts will be required for
  - Training of various livestock breeds, animal breeding techniques, animal health, feeding and Pasture management
  - Financial management
- Provide a tailor made, animal production training manual in a book form. The training manual will need to be translated into Urdu. Video material is also very useful. When training the experts on each discipline in animal production techniques, start with the basic understanding of each discipline mentioned above and then working through the value chain. The initial training provided to the experts will ensure that everyone is on the same page.
- Year 2 -5
- Continue with training sessions at least once a year for each KFS

Intervention	Number of Experts/Producers	Time frame	USAID share	Total cost	Grant Mechanism
Collating and providing training material	2	One month	\$5 000	\$5 000	Farmer enterprise groups (FEG)
Training the trainers	3	Three weeks	\$10 000	\$10 000	FEG
Providing video <sup>1</sup> material	1	One month	\$15 000	\$15 000	FEG
Translating video material with subscripts	1	One month	\$10 000	\$ 10 000	FEG
Training at KFS's	3	Two years (500 x 5 sessions <sup>2</sup> )	\$4 000 000	\$4 000 000	FEG
Printing of training material	1	1 month	\$ 8 000	\$ 8 000	FEG

<sup>1</sup> Video material on breeding, feeding and animal health is available from a South African Television producing company called Agri – Culture. It was developed specifically for new entrants into Livestock production (essentially smallholder producers) and it would need to have subtitles in Urdu. The video material is being expanded to include sessions on financial planning and pasture science.

<sup>2</sup> Training Sessions include:

- Animal health
- Breed and breed types, genotypes suited to environments, production.

- Genetic improvement; value of a bull
- Pasture management
- Feed management
- Financial management

## Products

- Provide training material (book)
- Video material
- Train the trainers
  - Training of various livestock breeds, animal breeding techniques, animal health, feeding and Pasture management
  - Financial management.

### 6.5. Objective stimulating demand for meat driven by retailers

#### *Constraint*

- *Lack of a formal meat retail trade that stimulates the demand for value added meat products.*

#### 6.5.1. Activity the support of meat distribution retail stores

The establishment of a Meat Board (Activity 1.1) will ensure that all sectors of the Meat Value Chain are positively influenced to produce a higher quality of product. Together with the establishment of new abattoirs (Activity 3.2), and the assistance of current abattoirs, the private sector needs to be strongly encouraged to establish Meat Retail Stores. This will help create the “pull through” effect that is required down the value chain. Viable retail stores demand good product from the chain below i.e. from the abattoirs who in turn demand a good product from the suppliers of livestock products. Metro and Alshaheer are examples of two companies whom have started the process of establishing professional Meat Retail Stores.

In our visits to the various companies wanting to enter the market we identified a large multinational who also is considering making the required investment to build a very large number of meat stores. This venture should be supported by the project.

Intervention	Number of companies	Target per company	USAID share	Total cost	Total Cost USAID	Grant Mechanism
Provide training to staff	5	\$20 000	\$10 000	\$100 000	\$50 000	Challenge grants
Build new Retail stores	5	\$3 000 000	\$750 000	\$15 000 000	\$3 750 000	Lead Grant
Target a multinational	1	\$6 000 000	\$1 500 000	\$6 000 000	\$1 500 000	Lead Grant

## Products

- Assist companies with a business plan
- Send a delegation to a developing country that has already created retail butcheries.

## **7.Future Interventions/collaboration**

The above interventions addresses the current needs in the Meat Value Chain as identified in the Stakeholder workshops.

Future interventions that should be considered during the lifetime of this project is the establishment of a relationship between ASF and International Agribusiness units.

The Agricultural Business Research Institute (ABRI) in Armidale provides recording, traceability and livestock management services to over twenty countries. The animal production services provided by this unit are at a very advanced level. The ABRI databases for example keeps complete pedigree records for over 100 dairy, beef and small stock societies in all the major livestock companies in the world.

Agricultural Business South Africa (AgriBSA), in collaboration with ABRI provides consultancy, registry and recording systems in Africa.

The United States Department of Agriculture (USDA) would be a good collaborator on various livestock projects.

The Namibian Meat Board (Nammic) and Botswana Meat Commission (BMC) are livestock boards that have become very successful in developing countries and should be used as models for Pakistan.

Retailers in Southern Africa have successfully entered the Meat Value Chain with retail shops and are rapidly expanding into Africa. This expansion has created a lot of value for consumers in Africa.

Engaging with international business units would give the Pakistan Livestock sector and role players in the value chain the required exposure to international markets and provide the platform to run viable businesses without having to re-invent the wheel.

## **Annexes and references**

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## **ANNEXURE 1 Stakeholders meeting in Islamabad**

Stakeholders meeting held on the 16<sup>th</sup> August 2012 at the Islamabad Serena Hotel

### **Representatives:**

Approximately twenty people attended whom were representative of smallholder producers (6), Traders (2), Butchers, (2) Exporters (1) and Livestock specialists

Two breakaway groups were formed with representatives from each sector.

Facilitators of the two groups were Dr Mubashara (ASF) and Asim Ijaz (ASF). The meeting was assisted by the local consultant Dr Tahir Ismail whom also prepared the final summary.

### **Topics for discussion within the break-away groups**

- There are basically three livestock production systems

Each group was asked to define the current production systems

- The traditional system that is representative of more than 80% of the industry
  - (Smallholder farmers → Traders → Butchers → Public)
- The cattle feedlotting system
  - (Smallholder and corporate Farmers → Feedlotters → Butchers → Public and retailers)
- The Halal export system (a combination of the above)
- Each group were asked to give their vision of an ideal meat sector within each of the current production systems

After giving feedback each group were then:

- Asked to give the constraints within the value chain, consequences and at least two solutions for each constraint

**CONSTRAINTS IN THE TRADITIONAL MEAT SUBSECTOR, CONSEQUENCES AND SUGGESTIONS TO IMPROVE THE MEAT VALUE CHAIN IN PAKISTAN**

Summary of a stakeholders workshop held in Islamabad on Aug 16, 2012, organized by USAID's Agribusiness Project related to a meat value chain study

	Constraints	Consequences	Suggested Solutions
1	Lack of financial recourses to improve meat production activities by small land / livestock holders.	No bank in Pakistan -- including Agriculture Development Bank (ADB) -- has a scheme for offering soft loans to small land/livestock holders for rearing of meat animals. These soft loans/support exists in most other sectors.	<ul style="list-style-type: none"> <li>• Formation of effective farmer's associations.</li> <li>• These associations need to follow up with the government to a) introduce credits and b) create an enabling business environment.</li> <li>• Soft loans by the financial institutions and its utilization to enhance the livestock meat production.</li> <li>• Provision of state lands on a lease basis to the farmers for corporate farming.</li> </ul>
2	Lack of awareness among the farmers for livestock management to get maximum income from their existing livestock herds through meat production.	Most livestock is raised on smallholdings by poor, landless farmers, who are not organized and have no political voice. In many areas, keeping livestock is a matter of prestige rather than an economic activity.	<ul style="list-style-type: none"> <li>• Extension services by the government and NGOs for the farmer's associations.</li> <li>• Establishing Livestock services centers at farmer's association levels to disseminate improved production techniques</li> </ul>
3	Lack of disease control activities/technical expertise to improve health conditions to overcome inadequate veterinary services.	Infectious diseases - vaccination against infectious diseases ranges from 0.5% to 10% and the quality of available vaccines needs to be improved. The animal disease surveillance and diagnostic facilities are inadequate, which affects the indigenous and export market.	<ul style="list-style-type: none"> <li>• Training of trainers of personnel involved in extension services</li> <li>• Disease awareness campaigns</li> <li>• Improved disease control facilities should be systemized and provided at the door steps against contagious/important diseases for example HS, FMD enterotoxaemia and deworming.</li> </ul>
4	Frequent slaughtering of young calves at an	It is a common practice for farmers to slaughter	<ul style="list-style-type: none"> <li>• Acknowledging the potential of rearing the</li> </ul>

	early age without realizing the economic benefits of feeding and fattening these animals.	the male calves. Rearing these calves is not considered to be profitable. Farmers also only give a restricted amount of milk to calves.	<p>male calves and obtaining an improved price for the producer could develop a market for these animals.</p> <ul style="list-style-type: none"> <li>• Farmers associations or feedlotters could arrange the purchase of young calves and rear them for 4-6 months to a specific age.</li> </ul>
5	Beef is very much a by-product of the dairy sector. There is thus a lack of formal rearing of beef animals using good animal husbandry practices.	Most farmers only keep those animals for fattening which are required to be slaughtered on the occasion of Eid-ul-Azha (big Eid). Animals not used or diseased are slaughtered for beef as a by-product of the dairy sector.	<ul style="list-style-type: none"> <li>• Breed improvement in existing animals is required. The development of indigenous breeds by focusing on small land and livestock holders will ensure better returns.</li> <li>• The regular fattening of large and small ruminants, and introducing sale of animals on a weight bases.</li> </ul>
6	Fixed government prices for both beef and mutton.	With no price premiums for quality meat, the viability of the commercial meat industry is questionable.	<ul style="list-style-type: none"> <li>• Have an open price policy similar to the chicken and fish industries and allow market forces to dictate the actual price.</li> </ul>
7	Unnecessary fees charged on livestock “mandies” to collect taxes.	Limited investment in markets and other infrastructure.	<ul style="list-style-type: none"> <li>• An open and transparent system is required</li> <li>• Market collaborators (mafia) must be controlled.</li> </ul>
8	Halal certification exists but is not properly marketed and supported.	<p>a) Government has announced a Halal certification committee under the ministry of science and technology. The committee is hardly functional.</p> <p>b) Halal certification that can make Pakistan a word leader through active roles of the already announced committee.</p>	<ul style="list-style-type: none"> <li>• Importance of certification to be realized to stakeholders.</li> <li>• To make Halal certification function affectively.</li> </ul>
9	The Illegal and Informal export of livestock to neighbouring countries including Afghanistan, Iran and India.	Mostly large animals are informally exported to Afghanistan, Iran and India.	<ul style="list-style-type: none"> <li>• Strict enforcement of regulations with close coordination of organized communities.</li> </ul>

10	Lack of proper abattoirs especially in the private sector.	<p>a) There is a lack of well-documented, site-specific management guidelines for different livestock operations.</p> <p>b) Due to lack of proper abattoirs diseased and low grade meat is sold into markets</p> <p>c) Abattoir fee per animal are</p> <ul style="list-style-type: none"> <li>* Small ruminants Pr 10-20 per animal</li> <li>* Large ruminants Pr 30-40 per animal</li> </ul> <p>Slaughter Fee</p> <ul style="list-style-type: none"> <li>* Small ruminants Pr 30-50 per animal</li> <li>* Large ruminants Pr 100-300 per animal</li> </ul>	<ul style="list-style-type: none"> <li>• Industry to work on the allocation and specifications for private slaughter houses and work toward the disbanding of Government slaughter houses.</li> <li>• Vigilant inspection of meat quality at slaughter house and before its selling to the consumer.</li> <li>• Encourage private investment and awareness for modernizing facilities and mitigation measures for adverse environmental affects due to improper slaughtering</li> </ul>
11	Improper and unhygienic means of transportation to carry meat to the market.	During unhygienic transportation meat may be infected and its quality will also be affected.	<ul style="list-style-type: none"> <li>• Credit be made available for hygienic transportation.</li> </ul>
12	Unavailability of meat chilling facilities throughout the chain.	<p>No proper systems exist for chilling meat throughout the value chain. This hampers the export market as well.</p> <p>Very little competition in the export market</p>	<ul style="list-style-type: none"> <li>• Industry should work to facilitate the meat exporter industry by securing containers and special terminals for containers</li> </ul>
13	Lack of interest by the various authorities to improve the meat industry and increase the production of export quality meat	There is a lack of government investment in the industry. The total allocation for livestock in most of the five-year development plans has not exceeded 1% and is less than 8% of the agriculture sector allocation.	<ul style="list-style-type: none"> <li>• It is possible to change the situation through advocacy and political commitment and by organizing the community around certified meat production.</li> </ul>
14	Insufficient green fodder and feed availability for fattening of beef animals	<p>a) Estimated feed and fodder resources only meets 70% of the total feed requirements.</p> <p>b) The quality of feed for fattening is questionable.</p>	<ul style="list-style-type: none"> <li>• Introduction of fodder preservation schemes such as silage and hay making.</li> <li>• Training producers to prepare balanced rations of feed.</li> </ul>
15	Absence of a meat grading system.	<p>a) In Pakistan only one percent of the total meat production is exported to high value countries in the Gulf and South East Asia</p> <p>ii) There are only eleven slaughter houses that meat requirements for international standards.</p>	<ul style="list-style-type: none"> <li>• A Meat grading system in Pakistan should be introduced.</li> <li>• Quality of meat can also be measured by technical experts.</li> </ul>



## ANNEXURE 2 Stakeholders meeting in Karachi

CONSTRAINTS IN THE TRADITIONAL MEAT SUBSECTOR AND SUGGESTIONS TO IMPROVE MEAT VALUE CHAIN IN PAKISTAN			
Summary of a stakeholders workshop held in Karachi on Aug 24, 2012, organized by ASF, USAID's Agribusiness Project related to Meat value chain analysis			
	Constraints	Consequences/Discussions	Suggested Solutions
	<b>Producers/Farmers</b>		
1	Smallholder farmers lack knowledge of proper animal production methods	Smallholder farmers rear their animals as dairy animals for their immediate family and to sell surplus milk in the local market. Meat is seen as a by-product. Smallholders only sell their animals when they need financial support; animals are diseased and are dried off after completion of their lactation. Young calves are sold to reduce feeding expenses Keeping livestock is a matter of prestige rather than an economic activity.	<ul style="list-style-type: none"> <li>• Formation of effective farmer's associations.</li> <li>• Establishing Livestock services centres at farmer's association level to disseminate improved production techniques and responsible for providing extension services</li> <li>• Change in livestock farming from small livestock herds (less than 6 animals) to at least a medium scale livestock holding (herd size 30-60 animals).</li> </ul>
2	Lack of financial recourses and insurance policies to improve meat production activities by livestock holders	No banks in Pakistan including the Agriculture Development Bank (ADB) have a scheme for offering soft loans to small livestock holders for rearing of meat animals. These loans/support exists in most other sectors. It is also worth mentioning that there is no insurance policy exists in favour of livestock production	<ul style="list-style-type: none"> <li>• Farmers associations' needs to pressurise the banks and insurance companies to introduce credit and insurance policies that create an enabling business environment.</li> <li>• Soft loans by the financial institutions and its proper utilization to enhance the livestock meat production should be provided.</li> <li>• Provision of state lands on lease to the landless or small farmers for corporate farming</li> </ul>

3	Lack of breed improvement programs/facilities	Raising meat animals using traditional systems is not a profitable enterprise. The overall productivity is low. The introduction of exotic beef breeds which can adapt to the Pakistan environment is required. Good quality beef semen should be provided to the progressive formers	<ul style="list-style-type: none"> <li>• Formation of effective AI stations.</li> <li>• Identification of progressive farmers to start beef and small stock breeding units.</li> <li>• Identification and selection of good potential breeds and cross breeding of local potential breeds with exotic semen with close coordination of farmers associations</li> <li>• Trainings on beef production techniques and provision of extension services</li> </ul>
4	Lack of disease control activities/technical expertise to improve health conditions to overcome inadequate veterinary services	Infectious diseases: vaccination against infectious diseases ranges from 0.5% to 10% and the quality of available vaccines needs to be improved. The animal disease surveillance and diagnostic facilities are inadequate, which affects the indigenous and export market. Producers believe that veterinary medicines are also very expensive	<ul style="list-style-type: none"> <li>• Training personnel involved in extension services.</li> <li>• Disease awareness campaigns by involving farmers associations and local communities by arranging regular meetings with technical experts.</li> <li>• Improved disease control and provision of local support against diseases such as HS, FMD and enterotoxaemia.</li> </ul>
5	Lack of proper livestock marketing facilities (markets/ mandies)	<p>Despite having the second largest herd of buffalo, eighth largest herd of cattle and the third largest herd of goats in the world, Pakistan's animal population is very scattered, which makes procurement of the animals for the abattoir expensive.</p> <p>Markets are used to collect unnecessary taxes. There is limited investment in markets in terms of basic infrastructure and taxes collected are not reinvested into market infrastructure.</p>	<ul style="list-style-type: none"> <li>• Zoning and compartmentalization is need of the day to control and systemize these markets.</li> <li>• Market mafia may be controlled. Government can intervene by doing legislation and strict implementation</li> <li>• The Mandies/livestock market may be taken over by effective livestock associations</li> </ul>
6	Lack of availability of rangelands per animal for open grazing	Rangeland per adult animal unit – small ruminants is 4.76 ha/annum – This low productivity of rangeland is due to over grazing and exploitation Large and small ruminants are performing below their genetic potential due to poor and inadequate nutrition. This is compounded by the low genetic merit of livestock.	<ul style="list-style-type: none"> <li>• Where rangelands are available these may be improved through controlled grazing</li> <li>• Over grazing can be solved through awareness programs regarding the importance of controlled grazing to the particular beneficiaries/farmers</li> </ul>
	<b>Feedlotters</b>		
7	Frequent slaughtering of young calves at an	It is a common practice to slaughter the male calves. Rearing these	<ul style="list-style-type: none"> <li>• A save the calve type scheme may be</li> </ul>

	early age without realizing the economic benefits of feeding and fattening these animals.	calves is not considered to be profitable. Farmers also give restricted milk to calves.	<ul style="list-style-type: none"> <li>introduced by educating livestock holders</li> <li>Acknowledging the potential of rearing the calves and obtaining an improved price for the producer could develop a market for these animals.</li> <li>Farmers associations or feedlotters could arrange the purchase of young calves and rear them to a specific age.</li> </ul>
8	Lack of formal rearing of beef animals or proper feedlotting practices	Most farmers only keep those animals for fattening which are required to be slaughtered on occasions such as Eid-ul-Azha (big Eid). Only leftover dairy /diseased animals are slaughtered for beef	<ul style="list-style-type: none"> <li>Breed improvement in existing animals</li> <li>Regular fattening of large and small ruminants</li> <li>Introducing the sale of this stock on a weight bases</li> </ul>
9	Fixed Prices by Government for both beef and mutton	With no price premiums for quality meat, the viability of the commercial meat farming/feedlotting sector is questionable	<ul style="list-style-type: none"> <li>Have an open price policy similar to the chicken and fish industry and allow market forces to dictate the actual price</li> </ul>
10	Unavailability of basic facilities like water and infrastructure	In some areas of Karachi and Sind Province, there is an acute water shortage Small livestock holders/landholders have no sufficient infrastructure to keep beef animals	<ul style="list-style-type: none"> <li>Effective associations solve the problem of water shortage through provision of water pumps.</li> <li>Low cost livestock rearing infrastructure introduced</li> </ul>
11	Per head basis sale of beef animals	A crucial aspect of the marketing system constraining meat development is the sale of animal on per head basis and not on their live weight basis	<ul style="list-style-type: none"> <li>Promotion of beef animals on a live weight basis</li> <li>Provision of Weighing facilities at livestock markets/mandies</li> </ul>
	<b>Butcher/Processor</b>		
12	Lack of proper slaughter houses/abattoirs especially in private sector	i)-There is a lack of well-documented, site-specific management guidelines for different livestock operations ii)Due to lack of proper slaughter houses diseased and low grade animals slaughtered and meat sold in markets iii) illegal slaughtering leads to poor quality meat	<ul style="list-style-type: none"> <li>Govt. to announce/legislate allocation and specifications for private slaughter houses.</li> <li>Vigilant inspection of meat quality at slaughter houses</li> <li>Encourage private investment and awareness for modernizing facilities</li> </ul>
13	Lack of Medical examination facilities at butchers/processors	At any level of value chain no medical facilities are available to the personnel involved in meat handling activities	<ul style="list-style-type: none"> <li>Proper medical examination of staff involved in meat handling on an annual basis</li> </ul>
14	Improper animal handling facilities	Small-holder producers do not have the means to acquire animal handling facilities	<ul style="list-style-type: none"> <li>Work through groups such as the FEG's to assist with facilities</li> </ul>

15	Improper and unhygienic means of transportation to carry meat to the market	During unhygienic transportation meat may be infected and its quality effected. There is a lack of specialized skills in meat handling and unhygienic meat transportation are serious concerns in the meat production chain	<ul style="list-style-type: none"> <li>Means of transportation can also be checked properly by experts.</li> <li>Soft loans for hygienic transportation/vehicles/instruments and carriers</li> </ul>
	<b>Exporters</b>		
16	There are very few companies exporting meat	<p>Pakistan has a big advantage compared to other export countries due to proximity. Several companies from Pakistan have entered the red meat export business. The oldest and one of the most successful of these is PK Livestock, a Karachi-based abattoir which has been exporting red meat to the Middle East for over two decades.</p> <p>Zenith, a Lahore-based exporter, became the first Pakistani company to sell beef to Malaysia, after the Malaysian government relaxed its regulatory requirements for Pakistani exporters.</p> <p>Others, such as OMC and the Al Shaheer Corporation, have also successfully begun exporting to the Middle East and are aggressively seeking regulatory approvals for markets further afield in Southeast Asia.</p>	<ul style="list-style-type: none"> <li>With the advent of more and more new players, Pakistan is on the verge of becoming one of the largest players in the meat trade to the Middle East and Southeast Asia</li> <li>Simplification of Exporting procedure needs to happen</li> </ul>
17	Halal certification exists but has not reached its full potential	<p>There is no unified umbrella halal certification body that is recognized in the other meat importing countries. Although the Government has announced a halal certification committee under the ministry of science and technology, it is not considered to be adequate.</p> <p>Pakistan's share of the world trade is negligible and they are currently ranked at number 19 despite having one of the largest livestock populations.</p>	<ul style="list-style-type: none"> <li>A certification body is required that represents the whole industry</li> <li>A marketing plan is required</li> <li>Halal certification standards to make Pakistan a word leader through active participation of the certification body</li> </ul>
18	Lack of awareness in exporting offals	There is a need to create awareness at local level for export of offals.	<ul style="list-style-type: none"> <li>Awareness is required by the international bodies</li> <li>Explore the potential markets by exporters</li> </ul>
19	The illegal and informal export of livestock to neighbouring countries such as Afghanistan, Iran and India	These are mostly large animals that are informally exported to Afghanistan, Iran and India. This illegal smuggling reduces foreign resources and also exploits the local consumers.	<ul style="list-style-type: none"> <li>Strict enforcement of regulations by government with close coordination of all stakeholders</li> </ul>

20	The improper and unhygienic means of transportation to distribute meat to the market Unavailability of shipment and meat chilling facilities throughout the chain Lengthy procedure accessibility of documentation	During unhygienic transportation meat may be infected and its quality is affected. No proper system exists in Pakistan to export meat and its inspection and certification. There is a risk factor of spoiling of meat, due to the late air freight and cancellation of flights. Sometimes storage space is unavailable at airports.	<ul style="list-style-type: none"> <li>• Soft loans for hygienic transportation vehicles and carriers</li> <li>• Strong association industry structures can negotiate with Governments to provide facilities to the meat exporters by providing containers and cargo services and special terminals for containers</li> <li>• Simplification of documentation for meat export at all levels</li> <li>• Introduction of Insurance policies</li> </ul>
21	Health status and lack of a traceability system	The single largest challenge is regulation: Meat importing nations have strict health codes for the safety of the meat. Many also have a requirement to be able to trace meat to source of origin.	<ul style="list-style-type: none"> <li>• The first step is to improve the health status of the country. Incidences of foot and mouth for example are not conducive to an export industry</li> </ul>
	<b>Retail</b>		
24	Absence of a meat grading and pricing system to describe quality	Only 1% of total meat production exported to other countries in the Gulf and Southeast Asia  Total of 11 slaughter houses as per international standards in Pakistan.	<ul style="list-style-type: none"> <li>• A meat grading system in Pakistan should be introduced.</li> </ul>
	<b>Consumers</b>		
25	No awareness regarding the value of quality meat as there is no proper marketing system	Consumers are uninformed about good quality meat. Consumer preference is skewed towards cheaper prices rather than quality	<ul style="list-style-type: none"> <li>• Importance of quality meat advertised in media by meat industry</li> <li>• Cut based sale of meat promoted</li> </ul>
26	Lack of decent outlet environments	The traditional way of selling meat is not up to standard.	<ul style="list-style-type: none"> <li>• Good quality and hygienic outlets will promote the business</li> </ul>

### ANNEXURE 3 Stakeholders meeting in Lahore

<b>CONSTRAINTS IN THE TRADITIONAL MEAT SUBSECTOR AND SUGGESTIONS TO IMPROVE THE MEAT VALUE CHAIN IN PAKISTAN</b>			
Summary of a stakeholders workshop held in Lahore on Aug 27, 2012, organized by ASF, USAID's Agribusiness Project related to Meat value chain analysis			
	<b>Constraints</b>	<b>Consequences/Discussions</b>	<b>Suggested Solutions</b>
1	Lake of awareness regarding rearing of meat animals on a commercial basis	A strong organization umbrella body does not exist that promotes meat production.	<ul style="list-style-type: none"> <li>• An umbrella body is required that promotes the meat industry</li> <li>• Technical support with the required level of education of small farmers is required to minimize the on-farm losses</li> <li>• Training programs on livestock management and marketing is required</li> </ul>
2	Too small land and Livestock holding	Small livestock holding (1-6 animals) is about 80% of the total livestock sector. These herd sizes are not financially viable and do not generate the required economy of scale. Small land holding also makes them unable to produce abundant fodder to their animals.	<ul style="list-style-type: none"> <li>• Support of the large producers that will inevitable move small holder producer up the value chain</li> <li>• Provision of state land on lease to the landless or small farmers for corporate farming</li> </ul>
3	Unavailability of specific meat breeds	Raising meat animal with the traditional systems is not a profitable enterprise The overall productivity of all the species in terms of meat is low Provide good quality beef breed semen to the progressive formers Identification of local beef breeds and animals with potential.	<ul style="list-style-type: none"> <li>• Encouragement of progressive farmers to keep a good size herd specifically for beef.</li> <li>• Identification and selection of good potential breeds and cross breeding of local breeds with exotic semen</li> <li>• Awareness campaigns on beef production techniques and provision of extension services</li> </ul>
4	Poor livestock management practices and skills	The traditional way of livestock keeping is inadequate. The animal disease surveillance and diagnostic facilities are inadequate, which affects the indigenous and export market. Veterinary medicines are also very expensive.	<ul style="list-style-type: none"> <li>• Training on livestock management practices to labour and owners handling livestock at farm</li> </ul>

5	Balanced feed and fodder shortage	The lack of availability of green and dry fodders and concentrates over time has led to poor and inadequate nutrition which results in low animal productivity. Large and small ruminants are performing below their genetic potential due to poor and inadequate nutrition.	<ul style="list-style-type: none"> <li>• Development of society based pasture management systems by organizing the communities and creating awareness</li> <li>• Awareness in farmers regarding importance of balanced ration and its financial benefits</li> <li>• Encourage investors to invest in feed industry (Small and medium)</li> <li>• Where range lands are available these may be systemized through controlled grazing</li> </ul>
6	Poor marketing system (involvement of middlemen)	In the traditional way of selling animals the middle man makes most of the profit	<ul style="list-style-type: none"> <li>• Easy access of livestock producers to the markets by providing infrastructure and facilities</li> </ul>
7	No appreciation of frozen meat	Traditionally local people prefer fresh meat rather than stored or frozen good quality meat	<ul style="list-style-type: none"> <li>• Campaigns and advertising the benefits of quality meat is required.</li> <li>• A Meat grading system in Pakistan must be introduced.</li> <li>• Fattening of large and small ruminants</li> </ul>
8	Animals sold on a per head basis rather than a per weight basis	The live animal marketing system is on per head basis so weight is not considered. The local community is not aware of the harmful effects of unhealthy and diseased meat	<ul style="list-style-type: none"> <li>• Education of farmers and promotion of beef animals on a live weight basis</li> <li>• Provision of weighing facilities at livestock markets/mandies</li> </ul>
9	Fixed Prices by Government for both beef and mutton	With no price premiums for quality meat, the viability of the commercial Feed lot fattening is questionable	<ul style="list-style-type: none"> <li>• Have an open price policy similar to chicken and fish industry and allow market forces to dictate the actual price</li> </ul>
10	Unavailability of basic facilities in the supply chain (absence of water for example)	In some areas of Karachi and Sind Province there is an acute water shortage Small livestock holders/landholders do not have sufficient infrastructure to keep beef animals	<ul style="list-style-type: none"> <li>• Provision of cold chains from rural markets to large cities/markets</li> <li>• Establishment of market linkages at regional level to big markets</li> </ul>
11	Lack of proper slaughter houses/abattoirs especially in the private sector	Due to lack of proper slaughter houses diseased and low grade animals are slaughtered and meat sold in markets Illegal slaughtering leads to poor quality meat	<ul style="list-style-type: none"> <li>• Promotion of beef animals using live weight</li> <li>• Provision of Weighing facilities at livestock markets/mandies</li> </ul>
12	Lack of value addition and brands in meat market	The main purpose of value addition is to produce value added products, provide variety of meat products, increase the demand, marketability and meat life style requirements and to utilize different carcasses and by products beneficially.	<ul style="list-style-type: none"> <li>• Raise awareness in consumers regarding value added meat products</li> <li>• Introduction of variety of value added products keeping in mind the market requirements</li> </ul>

			<ul style="list-style-type: none"> <li>• Research and development by the meat marketing companies</li> </ul>
13	Improper and unhygienic means of transportation	Because of unhygienic transportation, meat may be infected and its quality effected	<ul style="list-style-type: none"> <li>• Means of transportation should be improved.</li> </ul>
15	Informal export of livestock to the neighbouring countries	Large animals are informally exported to Afghanistan, Iran and India directly affecting the meat market	<ul style="list-style-type: none"> <li>• Strict enforcement of regulations by government. with close coordination of all stakeholders</li> </ul>



#### ANNEXURE 4. The main production characteristics of the major livestock breeds in Pakistan

Breed	Type	Main Locations	Adult weight		Age at maturity (days)	Milk Yield/305 days	Lactation length
			Male	Female			
Red Sindh	Dual	Western Sindh and Lasbela in Balochistan	530	325	852	1350-3000	270
Sahiwal	Dual	Sahiwal, Okara, Multan and	544	408	861	1852	283
Bhagnari (Kachhi)	Draught	Bhag Territory in Kalat and Northern Sindh	650	480	966	950-2000	262
Dhanni	Draught	Attock, Rawalpindi, Chawal and Jhelum	412	285	910	800	204
Lohani	Draught	Loralai and D.I Khan	315	253	900	613	163
Rojhan	Draught	Suleman range, D.G. Khan, D.I. Khan, Kohat and Bannu	370	267	-	735	192
Tharparkar	Dual	Thatparkar and surrounding areas	470	285	891	1584	277
Cholistani	Dual	Cholistan area	470	341	609	1471	285
Kankreg	Dual	South west Tharparkar	591	432	-	1200	-
Dajjal	Draught	Dajal area of D.G. Khan	587	400	-	900	257

## ANNEXURE 5 Main characteristics of Goat-Breeds of Pakistan

Main Characteristics of Goat-Breeds of Pakistan						
Sheep Breed	Type	Areas of Concentration	Adult Weight (Kg)		Daily Milk Yield (Lit)	Hair Production (Kg/Year)
			Male	Female		
Chappar or (Kohistani or Jabli)	Meat	Dadu, Jacobabad, Naw abshah, Tharparkar, Karachi and Lasbela	27	23	0.65 - 9	
Kamori	Milk and Meat	Hyderabad, Naw abshah, Larkana	60	50	1.8-2.2	
Sindh Desi	Milk and Meat	Dadu, Shikarpur, Sukkur Naw abshah	27.2	22.2	0.9-1.8	
Beetal	Milk and meat	Multan, Sahiwal, Lahore, Faisalabad, Sargodha, Jhang, Okara, Jhelum, Gujranwala, Gujrat and Sialkot.	55	45	1.8-2.7	
Nachi (Bikaneri)	Meat and hair	Bhaw alpur, Multan, Sahiwal	38	32	0.60-0.90	0.81
Dera Din Panah	Milk, meat and hair	Muzaffargarh, Leiah and Multan	55	50	1.3-2.2	1.2
Teddy	Meat	Gujrat, Jhelum, Sargodha and Rawalpindi	34	23		
Kaghani	Hair and meat	Kaghan Valley (Abbottabad, Mansehra, Kohistan and Swat)	37	32	0.4-0.7	1
Khurassani	Milk and meat	Quetta, Loralai, Zhob, Chagai in Balochistan	30	25	0.9-1.3	
Damani	Milk, meat and hair	Dera Ismail Khan and Peshawar	35	30	1.1-1.4	0.7
Gaddi	Milk, Meat and Hair	Kaghan Valley	50	41	0.4-0.7	1.4
Lehri	Hair and Meat	Lehri Town in Kachi area of Sibi	33	30	-	1.8
Kajli (Pahari)	Meat, Hair and Milk	Loralai in Balochistan and D.G. Khan in Punjab	30	25	0.9-1.3	0.8 to 1.0

Baltistani	Milk and Meat	Baltistan in Northern Areas	28.8	25.6	1.1	
Bari	Meat	Hyderabad, Dadu, Larkana, Khairpur, Naw abshah and Jacobabad	29	24	0.8-1	
Beiari	Meat	Kotli and Mirpur	25	20	0.9	
Buchi	Meat and Hair	Neelam Valley and Muzzafarabad	30	22	0.6	
Bugi Toori	Meat and Hair	Eastern part of Hyderabad and Tando Allah Yar Taluka	33	25	0.5-0.75	
Bujri	Milk meat and hair	Badin and Thatta	45	35.5	1-1.25	
Jarakheil	Milk and Meat	Chilas in Diamir district	51.5	42	1.39	
Jattal	Milk, Meat and Hair	Kotli and Maripur	23	19	0.53	
Jattan	Milk and Meat	Mirpurkhas	78	50	1.5-3	
Kacchan	Milk and Meat	Hyderabad and Parts of Badin	68	45	03-Feb	
Kail	Meat and Hair	Azad Kashmir	28.12	23.58	0.62	
Koh-I-Ghizer	Meat	Strip along Kohi-Ghizer from Gilgit to Yasin, Gupis and Imit	41	35.6	0.97	
Kooti	Milk and Meat	Neelam Valley	20	15	0.71	
Kurri	Milk and Meat	Kandhkot, Jacobabad, Sukhur, Naw abshah & Kashmore	50	35	1	
Labri	Milk and Meat	Muzaffarabad & Poonch	45	35	1.12	
Kooti	Milk and Meat	Neelam Valley	20	15	0.71	
Kurri	Milk and Meat	Kandhkot, Jacobabad, Sukhur, Naw abshah & Kashmore	50	35	1	
Labri	Milk and Meat	Muzaffarabad & Poonch	45	35	1.12	
Lohri	Meat	Kacha area of river Indus, Dadu, Larkana, Khairpur, Sakkur	58	45	0.75	
Lehri	Meat and Hair	Lehri Town of Karachi, Sibi and surroundings	32.8	30.5	0.9	1.8

Pamiri	Meat	Hunza near Khunjrab and adjoining Pamir region.	40.5	36	0.8	
Pateri	Milk and Meat	Sanghar, Tando Adam and Shahadpur	70	45	1.0-2.0	
Potohari	Meat	Potohar area in Punjab and Poonch	28	22	0.73	
Shurri	Meat and Hair	Muzafarabad and poonch	38	30	0.9	
Tapri or Lappi	Milk and Meat	Hyderabad, Mirpurkhas to Khipro and Khairpur districts of Sindh	33	25	0.5-1.0	
Tharki or Tharri	Meat	Semi arid and arid parts of Thar	32	24	0.5-0.75	

Milk type = Milk >1 lit/day  
 Hair type = Hair production >0.7 kg/year

# ANNEXURE 6 Main characteristics of Sheep-Breeds of Pakistan

Main Characteristics of Sheep-Breeds of Pakistan						
Sheep Breed	Type	Areas of Concentration	Adult Weight (Kg)		Daily Milk Yield (Lit)	Fleece Weight (Kg/Year)
			Male	Female		
Dumbi	Mutton	Dadu, Shahdad kot, Jacobabad in Sindhand Sibi in Balochistan	36	30	0.4-0.7	1.38
Kachhi	Mutton, Milk and Wool	Dadu, Shahdadkot, Jacobabad,Hyderabad Larkara & Naw abshah	40	29	1.09	2.03
Kooka	Mutton and wool	Dadu, Shahdadkot, Jacobabad,Hyderabad, Larkana, Naw abshah	26	23	0.4	2.13
Buchi (Bahaw alpuri)	Wool and Mutton	Bahaw alpur, Bahaw alnagar, Rahim YarKhan, Multan and Muzaffarabad	26	23	0.3	3.12
Kajli	Wool and Mutton	Sargodha, Khushab, Mianw ali and Gujrat	46	34	0.1-0.25	2.49
Balki	Meat	Tribal areas and adjoining areas in NWFP	54.6	38	0.4	1.28
Balochi	Meat and Wool	Kalat division and suburb of Quetta down to Sibi	38	32	0.1-0.9	2.25
Baltistani	Meat and Wool	Baltisan in Northern areas	30	24.8	0.87	1.5
Bibrik	Meat & Wool	Marri-Bugti tract of Sibi and Loralai	37	32	0.23-0.68	1.55
Cholistani	Meat and Wool	Cholistan and adjoining areas of Rahim Yar Khan, Khanpur and	36	30	-	3.2

		Bhaw alpur				
Dumbi	Mutton	Dadu, Shahdad kot, Jacobabad in Sindh and Sibi in Balochistan	36	30	0.4-0.7	1.38
Kachhi	Mutton, Milk and Wool	Dadu, Shahdadkot, Jacobabad, Hyderabad Larkara & Naw abshah	40	29	1.09	2.03
Kooka	Mutton and wool	Dadu, Shahdadkot, Jacobabad, Hyderabad, Larkana, Naw abshah	26	23	0.4	2.13
Buchi (Bahaw alpuri)	Wool and Mutton	Bahaw alpur, Bahaw alnagar, Rahim YarKhan, Multan and Muzaffarabad	26	23	0.3	3.12
Kajli	Wool and Mutton	Sargodha, Khushab, Mianw ali and Gujrat	46	34	0.1-0.25	2.49
Balki	Meat	Tribal areas and adjoining areas in NWFP	54.6	38	0.4	1.28
Balochi	Meat and Wool	Kalat division and suburb of Quetta down to Sibi	38	32	0.1-0.9	2.25
Baltistani	Meat and Wool	Baltisan in Northern areas	30	24.8	0.87	1.5
Bibrik	Meat & Wool	Marri-Bugti tract of Sibi and Loralai	37	32	0.23-0.68	1.55
Cholistani	Meat and Wool	Cholistani and adjoining areas of Rahim Yar Khan, Khanpur and Bhaw alpur	36	30	-	3.2

Rakhshani	Meat	Rakhshan valley including Jangal, Jang Kharan, Makran and Kalat	32	28	0.5-0.7	0.93
Salt Range or Latti	Meat and Wool	Jhelum, Rawalpindi, Attock, Mianwali and Sargodha	35	30	0.25-0.5	1.9
Sipli	Meat and Wool	Bahawalpur and Bahawalnagar	32.8	29	0.2-0.4	5.6
Thalli	Meat and Wool	Bahawalpur, Bahawalnagar, Rahim Yar Khan, Multan and Muzafargarh	35	30	0.3	1.8
Tirahi or Afridi	Meat and Wool	Tribal areas of Tirah and Kurran valley	37	33	0.7	1.9
Waziri	Meat	Waziristan and Bannu	40	30	0.7	1.38

Wool type= Fleece weight >1.5 kg/year  
Milk type= Milk production >1.0 lit/day