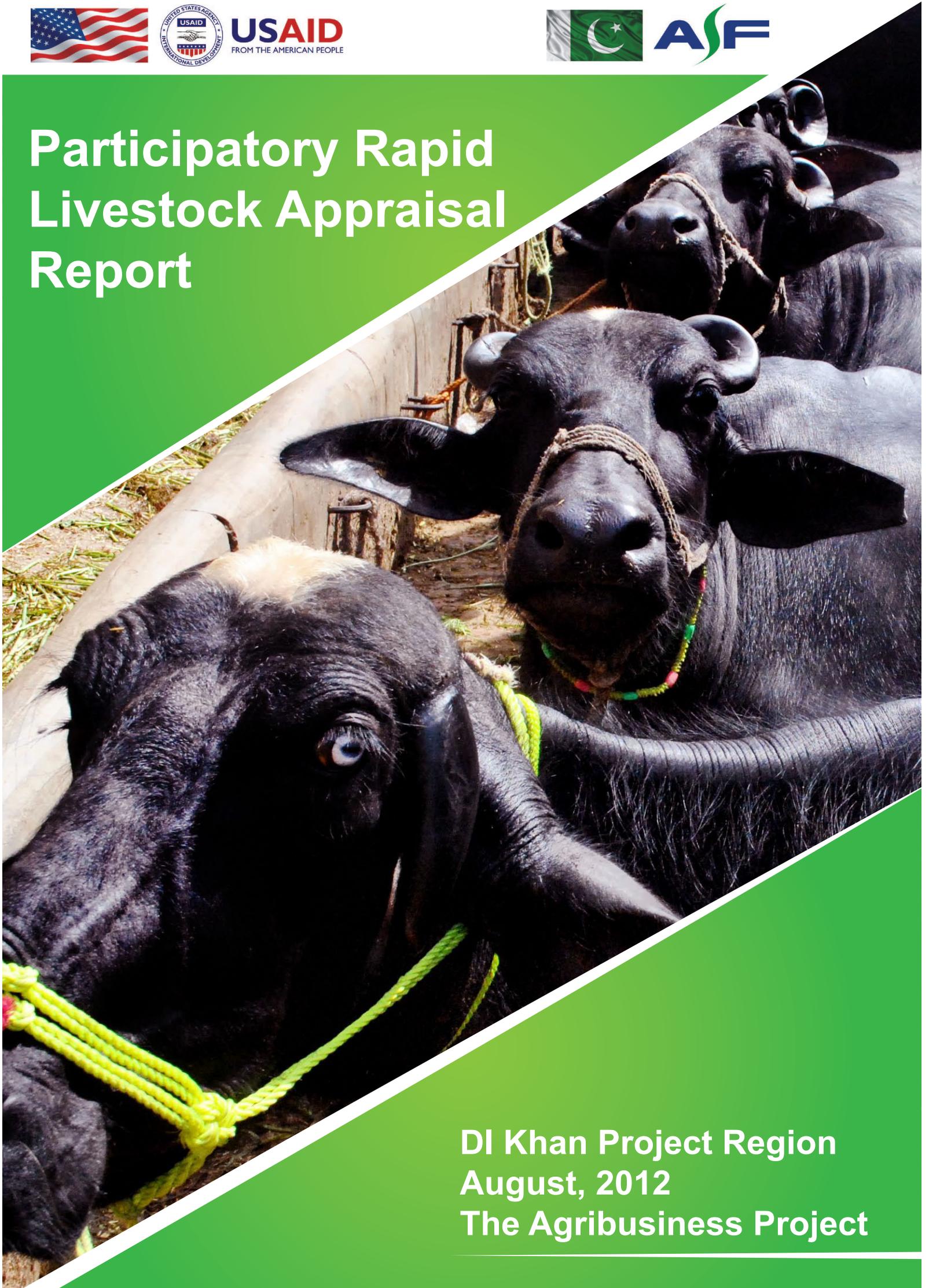




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Participatory Rapid Livestock Appraisal Report



DI Khan Project Region
August, 2012
The Agribusiness Project



Acronyms

ASF	Agribusiness Support Fund
DIK	Dera Ismail Khan
FGD	Focused Group Discussion
FATA	Federally Administrated Tribal Areas
GAP	Good Agriculture Practices
KPK	Khyber Pukhtunkhwa
NPC	National Production Cost
NWA	North Waziristan Agency
PRLA	Participatory Rapid Livestock Appraisal
SWA	South Waziristan Agency
TAP	The Agribusiness Project
USAID	United States Agency for International Development

Disclaimer: This Participatory Rapid Livestock Appraisal report of DI Khan Project Region is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of The Agribusiness Project (TAP) and do not reflect the views of USAID or the United States Government.

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Executive Summary

The Agribusiness Project funded by USAID Pakistan is being implemented by Agribusiness Support Fund (ASF) in collaboration with international and national partner organizations. This five years project, commenced on tenth November, 2011 and aims at increasing competitiveness and productivity of horticulture and livestock sub-sectors in Pakistan. The overall goal of the Project is to support improved conditions for broad-based economic growth, create employment opportunities and contribute to poverty alleviation through increase in competitiveness of horticulture and livestock value chains in partnership with all stakeholders. During the first year of the project, a preparatory program was undertaken to gauge the potential of the sub-sector and to prioritize value chains for various project regions including the DI Khan Project region. Findings from the Participatory Rapid Livestock Appraisal (PRLA) will enable the project to identify and prioritize livestock value chains, opportunities, constraints and state of the business development services to provide required basis for focusing project interventions.

Within the framework of the cluster and value chain approach, a two-prong approach was adopted, first preparation for PRLA exercise in the field and second to collect secondary data and develop appropriate tools for quantification of factors so that it can be measured on a scale for ranking/prioritization. This report pertains to work completed based on both secondary data and primary appraisals of livestock sub-sector.

The PRLA methodology provides for probing, analysis and validation of information as they unfold during the field work. Seven factors were applied for the quick analysis of the sub-sector. These include; (i) extent of employment generation; (ii) commercial worth; (iii) percentage of small farmers associated; (iv) women involvement; (v) households associated with the value chains; (vi) understanding growth potential; and (vii) vulnerability of the concerned value chains. Covering 50% of the districts, the exercise was undertaken in the randomly selected settlements/villages within each cluster/region. Each focus group consisted of 10-15 stakeholders, a representative sample of sub-sector, whereas, 2-3 FGDs were carried out in each district.

Prior to the primary data analysis, an appraisal of the livestock subsectors was conducted based on the secondary data available to develop objective criteria for the prioritization of the subsectors within livestock milk, meat and byproducts value chains. The indicators used for analysis included i) Growth of the subsector on provincial (KPK) level in past five years; ii) Pakistan share in the world production; iii) KPK share in Pakistan; iv) Share of DI Khan Project Region in KPK; v) Productivity Gap; vi) Employment potential or Labor intensity; and vii) National Production Cost (NPC) calculated by comparing the price in national and international markets.

As per analysis on the basis of secondary data, Pakistan's share in world production was 4.82% in milk, 2.17% in beef, 3.13% in mutton meat, 17.91% in buffalo hides, 1.93% in cattle hides, 4.93% in goat skins and 1.85% in sheep skins. KPK contributes 15.68% to the national milk production. In addition, KPK shares 20.32% beef, 10.0% mutton, 15.17% buffalo hides, 20.89% cattle hides, 6.64% goat skins and 8.91% sheep skins to the total production on national level. The share of DI Khan Project Region in KPK was 9.48% for milk, 5.20% for beef and 8.34% for mutton. Buffalo hides made 27.0%, cattle hides 28.65%, goat skins 14.64% and sheep skins 39.51% of the KPK production.

Among livestock value chains, cattle hides showed highest growth of 3.70% in KPK during past five years followed by beef meat with 3.33% growth rate. Milk production had a growth rate of 3.23% but this increase was mainly due to the increase in the number of animals and not increased production per animal. Buffalo hides, goat skins, mutton meat and sheep skin had a growth rate of 2.99%, 2.67%, 2.13% and 1.17% respectively.

Primary data for DI Khan Project Region was collected through FGDs in 07 districts of the region, involving all groups of stakeholders within the value chains. Covering 50% of the districts, the exercise was undertaken in the randomly selected settlement/villages within each cluster/region. Each focus group consisted of 10-15 stakeholders, a representative sample of sub-sector. In each district, 2-3 FGDs were carried out. Meetings were held with individuals including community representatives, progressive farmers and staff of Directorate of Livestock and Dairy Development FATA.

Livestock value chains were then analyzed and prioritized using grid analysis on the basis of seven factors mentioned above. On the basis of the analysis, milk ranked highest on the priority index with 5.87 points, followed by meat at 5.14 points.

As a part of the PRLA exercise the analysis and ranking of potential priorities and constraints, in all value chains, was carried out during FGDs using paired ranking technique. Increasing demand in the national market along with improving productivity of livestock, strengthening of dairy farms through technology transfer, developing cool chain mechanism for milk and meat transport, processing and value addition and feedlot fattening were among the top opportunities that need to be employed in order to enhance the capacity of livestock sector and growth of the value chains. Low productivity of livestock, lack of business development environment and inadequate financial and technical resources were among the prioritized constraints.

Further, an assessment of the market linkages and service providers was also carried out. Strength of the market linkages was determined by the share of produce in that particular market and cost of transportation. The input suppliers, middlemen and market agents were identified as the strongest links among all stakeholders across the value chains. NGOs and farmers' associations providing technical assistance in the form of capacity building and trainings were among the medium strength linkages. Government institutions such as Livestock and Dairy Development (L&DD) department and banks were among the weakest linkages.



Introduction

Background

The Agribusiness Project funded by USAID, is being implemented by Agribusiness Support Fund (ASF) in collaboration with International and national partner organizations. This five years project commenced on 10th November, 2011 and aims at increasing competitiveness and productivity of horticulture and livestock sub-sectors in Pakistan. The overall goal of the Project is to support improved conditions for broad-based economic growth, create employment opportunities and contribute to poverty alleviation through increase in competitiveness of horticulture and livestock value chains in partnership with all stakeholders.

The Agribusiness Projects objective is to: i) To strengthen the capacity in horticulture and livestock value chains to increase sales to domestic and foreign markets; ii) Strengthen capacity of small holder and enterprises to operate autonomously and effectively; and ; iii) increased agriculture/livestock efficiency and productivity through adoption of new farming techniques and technological innovations among targeted beneficiaries. Project activities encompass focused technical and capacity building assistance to upgrade and strengthen capacities in the priority value chains in both livestock and horticulture sectors; and a national cost sharing grants program offering a wide range of customized assistance to key players within the priority value chains.

During the first year of the project, a preparatory program was undertaken to gauge the potential of the sub-sector and to prioritize value chains for various project regions including the DI Khan Project region. PRLA is a short cut yet efficient method for data collection. It is a methodology for action research that uses a range of techniques and plays an important role in probing, developing, analyzing and using indigenous knowledge as a foundation from which to build more productive, valid and sustainable platform for the field work. Findings of the PRLA will enable the project to identify and prioritize livestock value chains, opportunities, constraints and state of the business development services to provide required basis for focusing project interventions.

The Livestock sector is broad and covers highly diverse agro-ecological, social and economic dimensions across countries, regions and continents. In Pakistan, livestock is an integral component and considered as the backbone of the agriculture sector, as in any other agricultural economy. The livestock accounts approximately 55.1% of the agriculture value added and 11.5% to the Gross Domestic Product (GDP). Almost 35-40 million rural households are dependent on livestock for their livelihood, deriving 30-40% of their income from livestock. The primitive state of infrastructure and technology catalyzed by the limited availability and high cost of inputs has halted the growth of a polymorphic, high value livestock sub sector that, if driven in the right direction, can contribute towards food security, import substitution, export led growth and poverty alleviation through employment generation. Pakistan has immensely large livestock resources and there is need to exploit and utilize these resources for the substantial growth of the sector. There is a need to focus on understanding productivity gaps, factors blocking development and expansion of livestock value chains, to identify hurdles causing bottlenecks, uncertainties and inefficiencies that hinder competitiveness. Interventions are required across all nodes of the livestock value chains, especially value addition, processing and marketing in order to increase the competitiveness and enhance capabilities of value chain operators to respond to domestic, regional and international markets.

The reports articulate for each region separately to enable better targeting and focusing project interventions. This report covers the project region of DI Khan covering southern part of the Khyber Pukhtunkhwa province, adjacent two districts of the Punjab and south FATA. Within the framework of the cluster and value chain approach, a two-prong approach was adopted, first preparation for PRLA exercise in the field and second to collect secondary data and develop appropriate tools for quantification of factors so that it can be measured on a scale for ranking/prioritization. This report pertains to work completed based on both secondary data and primary appraisals of Livestock sub-sector.

The Region

Dera Ismail Khan (DI Khan) Project Region under the project consists of 18* districts/Agencies/Frontier Regions and stretches from central to south of the province. DI Khan Project Region covers part of KPK, two districts of southern Punjab and south FATA. Short description of each part is:

South KPK

Historically milk and meat have had significant potential in the Southern Districts of Khyber Pukhtunkhwa (KPK) where this sub-sector represents a major potential for economic growth and development. A brief overview and district wise profile of milk production in KPK (Figure1) reveals that, during the year 2011, DI Khan is ranked as the top milk producing district in the province while share of south KPK (part of DI Khan Project Region) is 20 %.

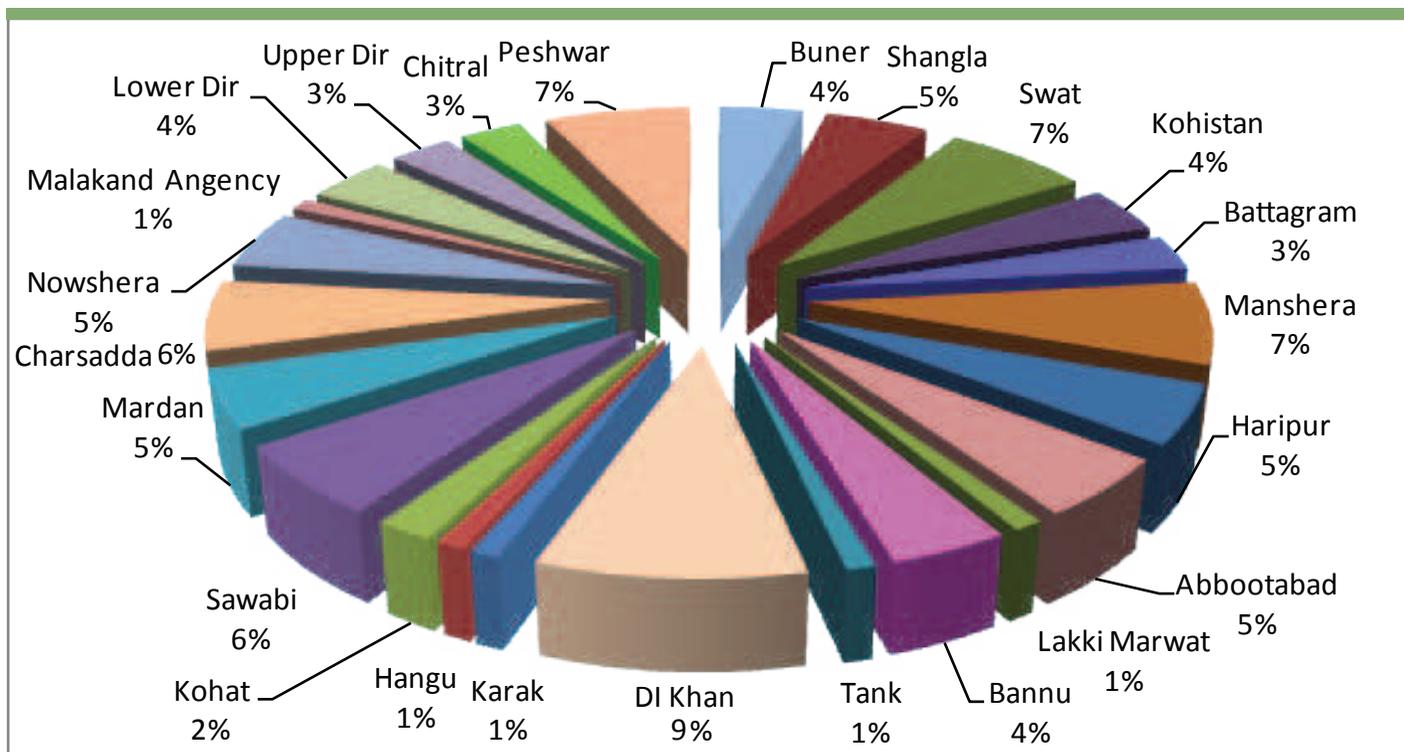


Figure 1: District wise milk production in KPK, 2011
Source: Directorate of livestock and dairy development, KPK

* DI Khan, Tank, Lakki Marwat, Karak, Bannu, Kohat, Hangu, (7 districts of KP) North and South Waziristan, Kurram, Orakzai, (FATA-4) FR Kohat, FR Bannu, FR Lakki Marwat, FR Tank and FR DI Khan (5-FR) Bhakkar and Mianwali (South Punjab-2)

South Punjab

Bhakkar and Mianwali districts in Punjab province situated close to DI Khan district are covered in the DI Khan Project Region. As per Pakistan Livestock Census, 2006, in Bhakkar and Mianwali, large ruminants are 0.8 and 0.65 million while small ruminants are 1.1 and 0.75 million respectively. In Bhakkar 3.2 million liters while in Mianwali, 2.4 million liter is produced annually. Meat production in both districts is also in competitive status in southern region of Punjab.

South FATA

Project area of DI Khan Project Region includes four agencies i.e. North and South Waziristan, Kurram and Orakzai agencies, and 5-FRs i.e. FR-Kohat, FR-Bannu, FR-LakkiMarwat, FR-Tank and FR-DI Khan. According to the Pakistan Livestock Census, 2006 milk producing animals are in medium to high quantity in South and North Waziristan agencies. Small ruminants as sheep and goat are reared by tribal people for meat and wool purpose.

Objectives

The objectives of PRLA exercise were to a) identify and prioritize the key livestock value chains in terms of growth potential and capability to benefit as many stakeholders across the value chains b) Identify relevant constraints impeding the realization of opportunities c) assess current state of the extension services to the livestock farmers and d) explore linkages of key livestock stakeholders with the local and national markets.

The PRLA was conducted with a view to prepare the stage for focusing project intervention as well as for the project baseline and value chains benchmarking studies. The PRLA results will enable the project to prioritize value chains (validating the cluster approach), set benchmarks, and support establishment of a database to generate primary data on key indicators to be maintained and updated during the course of project implementation and afterwards support in the planning, monitoring, evaluation and communication functions of the project.

Methodology and Approach

The consultant(s) assisted the project staff through a strategic exercise for identification and prioritization of the value chains to prepare a stage for the baseline study and in close consultation with the project management adopted the following methodology to implement the PRLA.

Desk Review and Study Matrix

The PRLA team, within the framework of the cluster and value chain approach, reviewed the existing data, including the secondary data on the livestock sector, published reports and developed objective criteria for prioritization of value chains within the livestock subsectors i-e, Dairy, Meat, Livestock by products value chains. Following sources were used to collect secondary livestock data for DI Khan region;

- i) Federal bureau of statistics
- iii) Pakistan Livestock census 2006 database
- iii) FAO Database
- iv) Livestock and Dairy Development Board
- v) Directorate of Livestock and Dairy Development, Government. of KPK
- vi) Economic Survey of Pakistan.
- vii) Information from past research papers and reports from various sources.

The PRLA team, prior to inception of the field work, developed approach and methodology for the study based on international best practices. The methodology focused on quantification of factors, by assigning appropriate weights and scales, so as to contribute to ranking and selection of the priority value chains based on a seven factored grid analysis that included (i) extent of employment generation; (ii) commercial worth; (iii) percentage of small farmers associated; (iv) women involvement; (v) households associated with the value chains; (vi) understanding growth potential; and (vii) vulnerability of the concerned value chains.

Data Collection Tools and Techniques

The PRLA team developed and pre-tested tools for undertaking the rapid appraisal exercise in project regions. These tools included;

- i) A five factored grid analysis matrix
- ii) Paired ranking matrix for opportunities and constraints
- iii) Venn-diagrams for mapping market linkages and service providers:

These tools were pre-tested in the field before being applied to collect primary data by holding Focus Group Discussions (FGDs) with selected groups of relevant stakeholders such as livestock farmers, inputs suppliers, processors, traders, retailers and service providers. Later the data collected through FGDs was verified through validation workshops.

Sample Size

The PRLA exercise was undertaken in all project regions to validate production clusters and establish priority value chains on a regional level. 2-3 FGDs were facilitated and conducted in randomly selected settlements/villages within each cluster/region, covering approximately 50% of the districts in each region. A group of 10-15 stakeholders related to the livestock value chains participated in each FGD.

Staff Orientation and Pre-testing of Tools

The PRLA team designed and co-facilitated a two-step training workshop comprising the orientation of the project staff regarding the use of pre designed tools, FGD facilitation & data collection techniques to be used in the field; and a real pre-testing field exercise followed by a debriefing session to help understand and discuss the constraints faced during the exercise in order to revise and improve the tools and techniques.

Primary Data Collection

11 FGDs were organized and facilitated by trained project staff in randomly selected clusters from within 07 districts of DI Khan Project Region. The participants of FGDs that represented stakeholders from each node across the livestock value chains selected and prioritized value chains through mutual consensus during group discussions that were held and facilitated by the project teams.

Backstopping and Monitoring

The consultants provided a continued coaching and backstopping support to the project staff during orientation, pre-testing and PRLA exercise in project target regions.

Data analysis and Reporting

The primary data gathered via the field investigations through observations and FGDs was recorded using pre designed tools and later reproduced in tabulated form using MS Excel sheets. The final analysis was done by applying statistical tools to the primary data and shown in the form of bar graphs and tables to provide a highlighted outlook on the weaknesses and strengths of the livestock value chains.

Appraisal of Livestock Value Chain based on Secondary Data

Data collection and mining

The secondary data for the livestock sector was collected from various sources mentioned in the desk review and study matrix. The USAID's Pakistan livestock database 2006 and Pakistan livestock Census 2006 data were used as prime source (since these were the only two providing livestock data on district level for all the four provinces) and using projections a timeline data was obtained.

Overall analysis of value chains

The projected data was analyzed using tabulation and basic statistical tools such as linear regression to come up with final scoring on the basis of grid analysis shown in Table1 below.

Indicators	Milk	Beef Meat	Mutton Meat	Buffalo Hides	Cattle Hides	Goat Skins	Sheep Skins
Growth percentage	3.23%	3.33%	2.13%	2.99%	3.70%	2.67%	1.18%
Pakistan Share in World	4.82%	2.17%	3.13%	17.91%	1.93%	4.93%	1.85%
KP share in Pakistan	15.68%	20.32%	10.00%	15.17%	20.89%	6.64%	8.91%
DI Khan Region share in KP	9.48%	5.20%	8.34%	27.00%	28.65%	14.64%	39.51%
Productivity Gap *	60.92%	80%	89%	69.61%	85.30%	83.00%	92.09%

Analysis of Milk value chain

According to FAO statistics milk production in KPK showed a steady growth over the past few years but this increase is attributed to the increase in number of milking animals and not due to increase in yield per animal.

Data provided by department of Livestock and Dairy Development, KPK reveals that DI Khan remains the major milk producing district of KPK during fiscal year 2010 -11. Although, dairy stock is mostly low productive but produced quantity of milk can achieve the demand of consumers and allied dairy business in D.I. Khan district ;if milk produced by small holders in rural areas is linked to market. Moreover, production of milk is exceeding to local consumption leaving a considerable surplus of milk in the region. The surplus milk is sold by milk producers on a very small scale, at cheap rate or converted into low quality products like yogurt and cheese. These small-scale milk producers do not possess proper milk collection and storage equipment, or adequate access to market centers, resulting in selling of milk at very low prices. A large quantity of milk is also wasted due to inadequate storage, resulting in additional loss to the farmers. As mentioned in previous chapter, DI Khan is the leading district in milk production and a good portion of the production is used in the production of SohanHalwa. In other districts of the region, milk production is incompatible to its demand. As per Pakistan Livestock Census 2006.

The reason behind decreasing in the productivity of dairy animals is lack of improved milch breeds particularly due to limited access to artificial insemination services and semen of exotic dairy breeds to the local farmers. Limited veterinary curative and preventive services due to which seasonal vaccination against diseases i.e. Foot and Mouth disease, Hemorrhagic Septicemia can't be ensured resulting decreasing the productivity of livestock and unavailability of balanced feed, high nutritive value fodder due to which animals became underfed resultantly decreasing production. Lack of improved husbandry practices and inadequate financial and technical resources are other constraints towards increasing milk production in the region. Comparative potential of milk production among all districts of DI Khan Project Region during 2006-12 is depicted in Figure 2.

* Pakistan's yeild versus average World yeild.

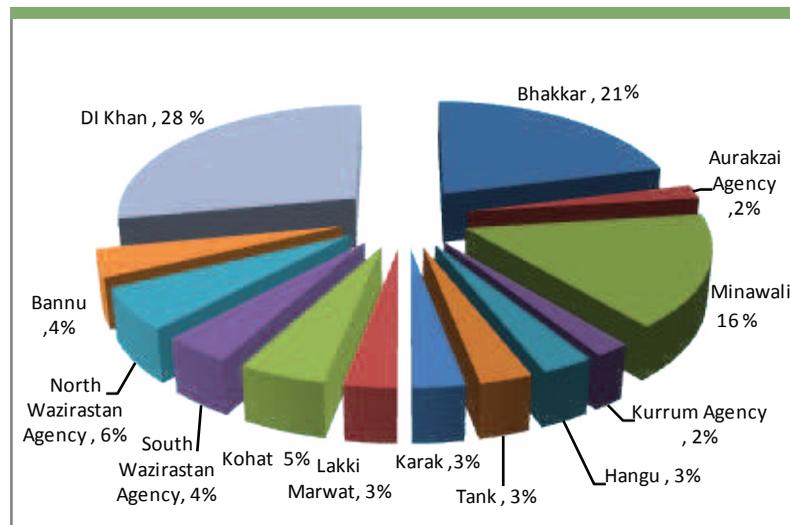


Figure 2: Comparative potential of milk production among districts
Source: Pakistan Livestock Census 2006

The Figure depicts a leading position of DI Khan district among regional competitors sharing 28% in total production of the project region following by Bhakkar and Mianwali producing 21% and 16 % respectively. Among FATA region areas North Waziristan is producing 6 % of the total production.

Based on the analysis of both secondary and primary information, the priority value chains of milk in the region of DI Khan with cluster are given below in Table 02.

Priority sub-sectors	Clusters/Districts	Total Production of the Cluster(Liters)	Percent share in the Province/FATA
Milk	DI Khan, Bannu and Kohat	2,309,609	15
	North and South Waziristan	647,927	--
	Bhakkar and Mianwali	2332,011	0.01

Sources: FAO Database, Pakistan Livestock Census 2006, KPK LDDP Statistics

Analysis of Meat value chain

Meat industry in Pakistan is developing these days. The export of meat (beef, mutton, and camel) has increased from \$ 108.54 million (2010-11) to \$123.61 million in 2011-12 showing an increase of 13.9 per cent. Dairy animals are also being used as beef animals after completion of its productive years. Male calves of dairy animals and dairy bulls when no further required for breeding purposes are also utilized for beef purposes.

Meat sector hasn't achieved its potential amongst the livestock value chains in Pakistan primarily due to non-existence of breeds specific to meat production. Further, there is no trend of fattening animals for meat purpose. However, analysis on the basis of secondary data showed that over the past few years there had been an increase in the meat production due to the ever increasing demand in the regional and national markets for the protein from animal origin.

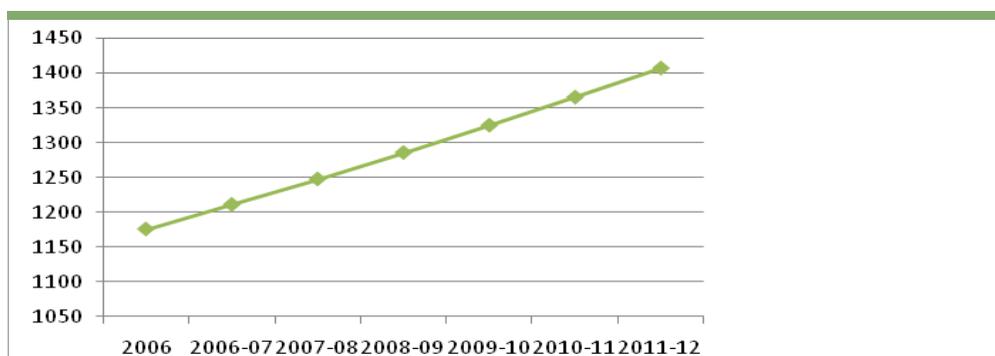


Figure 3: Trend of meat production (000 Tons)
Source: Source: Pakistan Livestock Census 2006

The increase in demand for meat could be due to increasing human population resultantly increase in meat demand for human consumption and for religious purpose during Eid-ul-Azha. However, quality and productivity of animals could not improve.

The KPK contributes 20.32% to Pakistan's annual beef production and 9.48% to total mutton production. Among DI Khan region districts, Mianwali is the highest meat producing area sharing 31% followed by Bhakkar and DI Khan adding 14 % each to the region's annual meat production. Medium yielding districts include Kohat and Karak sharing 10% and 7 % respectively.

Existing potential livestock meat resources i.e. 1.4 million male beef calves / male young sheep/goat lambs are annually present in the region. They are raised on conventional methods resultantly low carcass weight (per unit meat productivity of animals) and encounter high mortality rate thus depleting animal meat resources. Project approach of livestock value chain can train farmer community for adopting highly researched practice feed lot fattening of male population of small and large ruminants for high quality meat production on early weaning and fattening diets will result in substantial increase in beef and mutton production with value addition by actively involving all the stakeholders. Table 03 shows the possible production of meat value chains in the Project Region.

Table 3: Possible production clusters of meat value chains

Priority sub-sectors	Clusters/Districts	Total Production of the Cluster (heads)	Percent share in the Province/FATA
Meat	DI Khan, Kohat and Karak	362,602	16
	South and North Waziristan	72,000	--
	Mianwali and Bhakkar	566,000	4.45

Sources: FAO Database, Pakistan Livestock Census 2006, KPK LDDP Statistics

Analysis of Livestock byproducts value chain

Livestock byproducts, especially hides and skins, had always been ignored despite their importance in the national and international market. The lack of awareness and absolute absence of proper handling equipments and techniques result in high losses every year. Presently about 1.4 million heads of large and small ruminants are being slaughtered annually in DI Khan Project Region but major portion of the byproducts is going in to waste due to lack of modern meat/ byproducts processing facilities.

Table 4 depicts huge losses of byproducts in the region which are not properly entrepreneur handled and optimally utilized cause economic losses to the trade. These byproducts are the major ingredients in the surgical, cosmetic, pharmaceutical, leather industries and feed formulation but due to lack of business development environment and limited access of private sector, these are going in wastage thus causing huge losses.

Table 4: List of Livestock byproducts

Byproduct	Usage
Blood	Rich source of animal protein for poultry feeding. Estimated about 10% is being utilized.
Gut and stomach	Export item for cat gut. Sports. and sausages etc.6% is being utilized.
Glands	Used in pharmaceutical, leather industries. 95% wastage
Fat	Byproduct of more than 10 grades is available. Annually tallow/oil worth of billions rupees is being imported in the region for cosmetics/soap industry, despite slaughtering of about 1.4 million small and large animals per annum.
Meat Meal	Protein source for poultry feeding. In efficient utilization.
Skin and Hide	Indigenous leather industries and export item, 40% value is damaged due to poor processing system.
Bones (Allied business)	Dicalcium Phosphate and gelatin

Source: Meat development program, LDDDB, Islamabad

Skin and hides are of commercial value in domestic and international markets. Due to limited availability of relevant data on district level, the number of hides and skins were calculated against the number of animals slaughtered every year and hence the actual losses during handling are not evident in this analysis. An overview of the growth of livestock byproducts in DI Khan Project Region is shown in Table 5 below.

Table 5: Animal's hides and skins in Year 2006

Districts	Buffalo	Cow	Sheep	Goat	Total
D.I Khan	32359.23	48646.73	28629.29	48537.74	158173.00
Bannu	12880.03	19362.98	11395.39	19319.60	62958.00
N.Waziristan Agency	5246.69	7887.53	4641.92	7869.86	25646.00
S. Waziristan Agency	8235.42	12380.58	7286.15	12352.85	40255.00
Kohat	24627.90	37023.96	21789.12	36941.01	120382.00
LakiMarwat	7914.23	11897.72	7001.98	11871.07	38685.00
Karak	17194.44	25848.99	15212.49	25791.08	84047.00
Tank	12875.94	19356.83	11391.77	19313.46	62938.00
Hangu	9495.03	14274.19	8400.57	14242.21	46412.00
Kurram Agency	1781.49	2678.18	1576.15	2672.18	8708.00
Aurakzai Agency	1940.45	2917.15	1716.78	2910.61	9485.00
Mianwali	73499.10	110493.68	65027.09	110246.13	359266.00
Bhakkar	32400.56	48708.86	28665.85	48599.73	158375.00

Source: Pakistan Livestock Census, 2006

Table 6: Possible clusters of byproducts value chains

Priority sub-sectors	Clusters/Districts	Total Production of the Cluster (heads)	Percent share in the Province/FATA
Byproducts	DI Khan, Kohat, Karak and Bannu	425,560	9.4
	Noth and South Waziristan	65,901	--
	Bhakkar and Mianwali	517,641	2

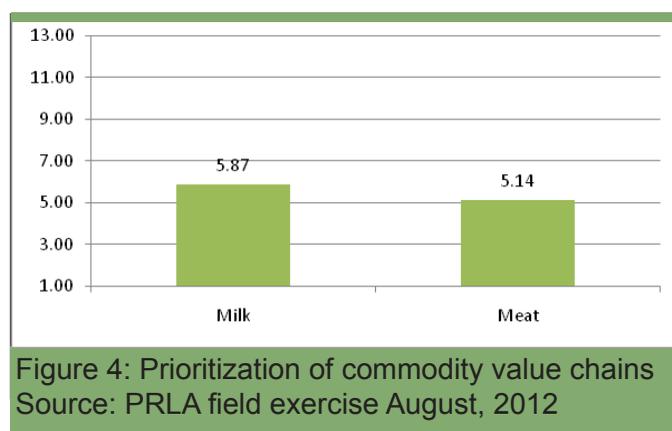
Sources: FAO Database, Pakistan Livestock Census 2006, KPK LDDP Statistics



Appraisal of Livestock Value Chain based on Primary Data

Selection and prioritization of the value chains

This process was carried out to identify the value chains that offer most promising prospect for economic growth and poverty alleviation through employment generation. It was based on the review of the key issues that have an impact on the development of the livestock value chains and the capacity of a given region to produce and market livestock products and byproducts in the domestic and international markets. The choice of the value chains was further refined by applying priority criteria, weighting their relative importance and ranking on score sheet based on the composite index that was calculated on the basis of seven factors used in the grid analysis. A graphical illustration of the summarized overview of prioritization is shown in Figure 4.



As is evident from the prioritization index, Milk with the highest priority index of 5.87 points scored to the top, followed by meat with a priority index of 5.14 points.

The FGDs conducted within DI Khan region showed that Bhakkar is the major milk shed area among all districts where maximum growth of 50% in milk production was observed during the past five years. Bannu and Kohat showed medium to high potential for dairy value chain where the growth in milk production over past five years was 30% for the former and 25% for the latter district. D.I.Khan and Mianwali had 10% and 05% increase in milk production respectively. Dairy value chain involves maximum percentage (50.43%) of the households, generating highest percentage (52.57%) of employment among all livestock value chains.

The highest growth in meat value chain was also observed in Bhakkar where the growth rate for past five years was 40%, ranking it as the high potential zone. Bannu and Kohat showed 30% and 25% growth in meat with a medium to high potential for meat value chains. Karak observed a 20% growth followed by DI Khan at 10%. Mianwali had a 5% growth in meat production over the past five years. Livestock meat value chain provides 25% employment opportunities and involves 25.17% of the households in the region.

Factor wise prioritization of the value chains

Ranking of the livestock value chain was carried out on the basis of following seven factors used in the grid analysis matrix;

Prioritization on the basis of percentage employment potential

Among all livestock value chains, milk has the highest potential of 52.57% for employment generation. Meat value chain has the ability to create 25% employments. It is important to note that milk value chain involves more labor force due to the efforts required for feeding, management and milking of the animals and post production handling of the milk as compared to any other livestock value chain.

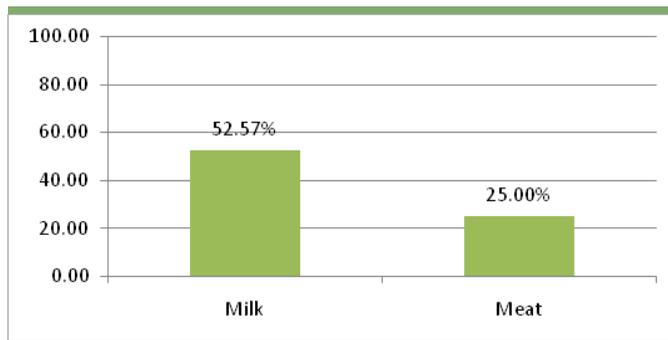


Figure 5: Prioritization on the basis of % employment potential in livestock
Source: PRLA field exercise August, 2012

Prioritization on the basis of percentage commercialization

Commercialization can be described as the percentage of the product that is marketed. The data collected from FGDs showed that meat is 96% commercialized, the reason being that animals raised for meat purpose are culled or sold in the market and slaughtered. Milk, due to its perishable nature and traditional use in different hot and cold beverages, is used for domestic consumption and therefore showed a lower percentage as regard to commercialization in comparison to other livestock value chain. In DI Khan Project Region milk scored 65% on the index of commercialization. Depicted below is an overview of livestock value chains with reference to percentage commercialization.

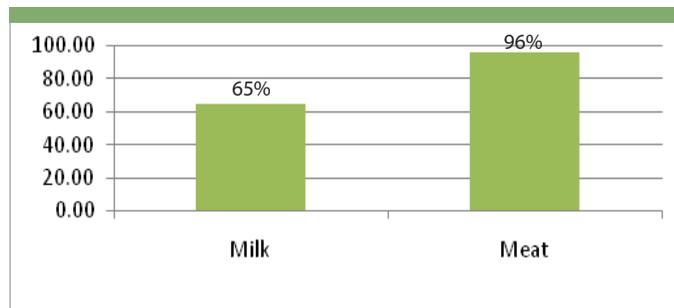


Figure 6: Prioritization on the basis of % commercialization in livestock
Source: PRLA field exercise August, 2012

Prioritization on the basis of percentage small farmer involvement

The assessment of livestock value chains on the basis of %small farmer involvement in DI Khan Project Region revealed that milk value chain has the highest percentage (77.86%) of small farmers involvement. This is easily explained by the fact that 70-80% of milking animals belong to small holders with 1-4 animals. Whereas 73.57% of small farmers are involved in meat business. Since there are no or very small number of animals raised for meat purpose, usually the animals that are dry, or have low production and male calves are sold in the market or to butchers for slaughtering and 80% of these animals belong to the small holders.

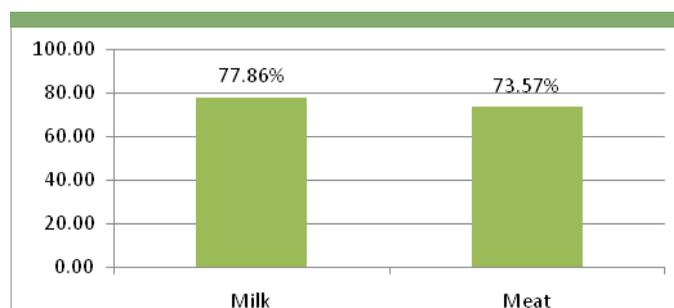
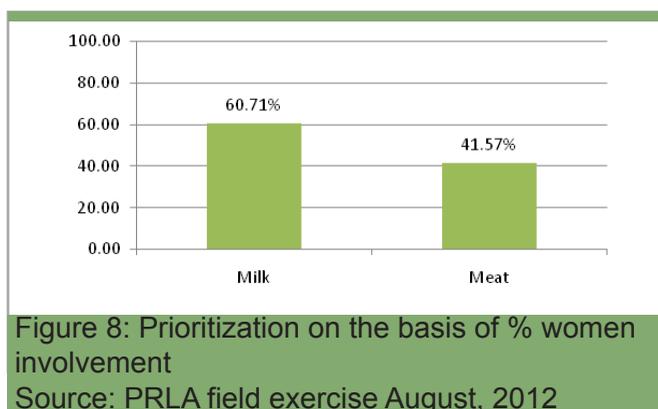


Figure 7: Prioritization on the basis of % small farmer's involvement in livestock
Source: PRLA field exercise August, 2012

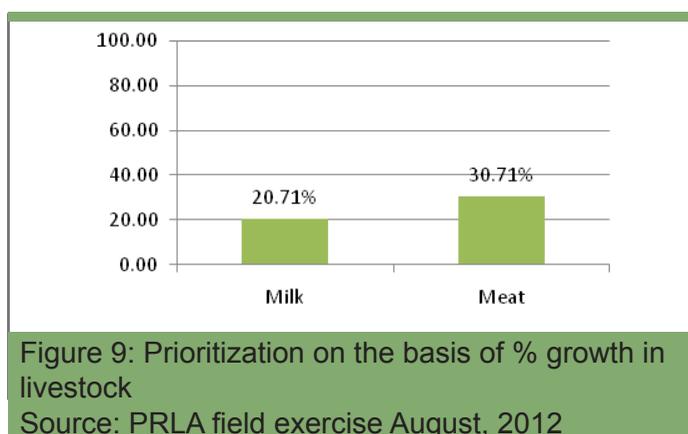
Prioritization on the basis of percentage women involvement

Women involvement is considered to be an important factor for prioritization of the value chains. As per conclusion from the FGDs data, it was found that milk value chain has the highest priority index (60.71%) with regard to the percentage of women involved. The graph shows that the percentage women involvement was 41.57% for meat value chain. However, the high indices of percentage women involvement in milk and meat value chain is limited to the production phase only since women have very limited or no role in marketing of the milk and meat value chains.



Prioritization on the basis of percentage growth during past five years

Growth is the most important factor for prioritization of a value chain as it gives a clear idea of the potential of subsector in a particular region. The livestock value chains were assessed on the basis of their growth observed during the past five years in DI Khan Project Region. Figure 9 below reflects 20.71% and 30.71% growth rates for milk and meat value chain respectively during the past five years.



Prioritization on the basis of percentage losses

Pre and post-production losses have a high impact on the selection and prioritization of a particular commodity or value chain. Milk value chain showed highest percentage of losses (8.43%) among all livestock value chains. Meat value chain had 3.71% losses. An illustration of prioritization of value chains on the basis of percentage losses is portrayed in Figure 11. The losses in milk, meat and byproducts include both pre and post production losses. Pre-production losses mean mortality or inability of animal to produce due to various reasons whereas post production losses occur usually during handling and transportation and are highest in milk value chain due to spillage and microbial growth. Losses in meat value chain usually attribute to pre-production losses.

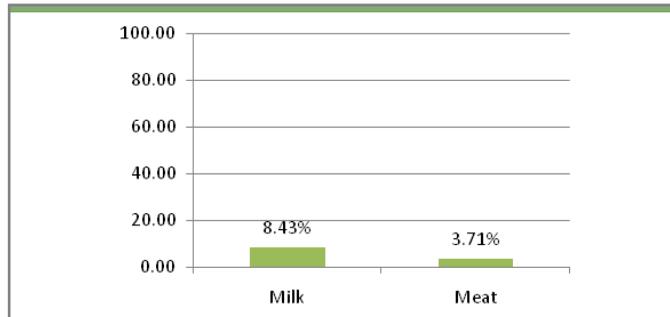


Figure 10: Prioritization on the basis of % losses in livestock

Source: PRLA field exercise August, 2012

Prioritization on the basis of percentage household involvement

Percentage of households involved is another important factor in the process of prioritization a particular value chain. The data collected through FGDs and analyzed for the percentage household involvement in livestock value chains showed results that are interpreted in graphical presentation.

As illustrated below, milk value chain had the highest index of 50.43% household involvement since majority of the rural population is engaged either directly or indirectly in milk value chain. Second on the priority index was the meat value chain involving 25.17% household.

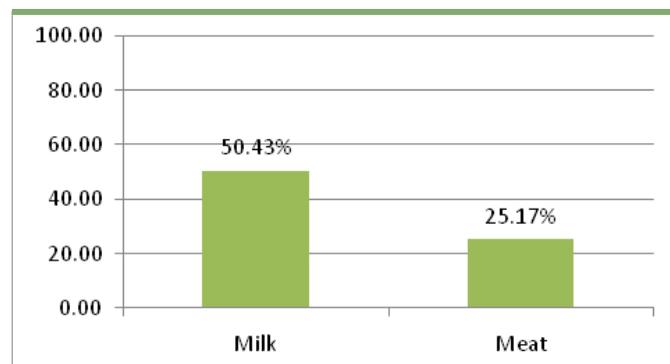


Figure 11: Prioritization on the basis of % household involvement

Source: PRLA field exercise August, 2012

Prioritized Opportunities and Constraints in Livestock Value Chain

Prioritized opportunities in Milk value chain

Paired ranking tool was used for prioritization of the opportunities. The participants of FGDs ranked the list of opportunities as explained in the Table 7 below. On the basis of FGDs data analysis for milk value chain, the improvign productivity of dairy value addition and processing were highest potential opportunities followed by development of cool chains for milk cretification and marketing of dairy ranked second on the priority index.

Priority opportunities	Score	Rank
Improving productivity of dairy animals	15	1
Dairy Value addition and processing	15	1
Development of cool chains for milk	10	2
Certification and marketing of dairy	10	2
Capacity building and awareness of farmers	9	3
Proper animal housing and management	6	4
Introduction of improved quality fodder	6	4
Introduction of GAP	6	4
Milking machines	5	5
Formation of FEGs	4	6
Linkages with financial institutions	2	7

Source: PRLA field exercise August, 2012

Prioritized constraints in Milk value chain

The constraints in the milk value chains were identified and prioritized by the participants in FGDs canbe seen in Table 8 below.

Priority constraints	Intensity
Lack of business environment	High
High cost of inputs	High
Low productivity of dairy animals	High
Poor market linkages	High
Lack of community based dairy associations	High
Lack of proper milk transportation system	High
Lack of awareness about fodder preservation technologies	High
Inadequate veterinary services	Medium
Lack of proper farm management practices	Medium
Lack of investment resources	Medium
Absence of policy for price control	Low

Source: PRLA field exercise August, 2012

Prioritized Opportunities in Meat and byproducts

The prioritized opportunities, in meat and livestock byproducts value chains, scored and ranked by the participants of FGDs in DI Khan Project Region are listed in Table 9 below.

Table 9: Priority opportunities in meat		
Priority opportunities in meat	Score	Rank
Opportunity of meat export in international halal market	15	1
Introduction of feedlot fattening technology for meat production	15	1
Training and in kind support for humane slaughtering and meat cutting	10	2
Introduction of SOPs for meat processing and value addition	10	2
Cold storage/meat chillers	10	2
Cost effective input supply for meat producers	6	3
Capacity building and awareness	5	4
Farmer enterprise group formation	4	5
Improved veterinary health services	3	6
Packing and packaging of meat	2	7

Source: PRLA field exercise August, 2012

Shown below in Table 10 is the list of prioritized opportunities in livestock byproducts value chain.

Table 10: Priority opportunities in byproducts		
Priority opportunities in by-products	Score	Rank
Training on handling and processing of by products	10	1
Linkages development with industrial sector	10	1
Improved farm management practices	6	2
Introduction of wool shearers to producers	5	3
Awareness raising on marketing of byproducts	4	4
FEGs formation	3	3

Source: PRLA field exercise August, 2012

Prioritized Constraints in Meat and byproducts

Shown below in Table 11 is the list of prioritized constraints in meat and byproducts.

Table 11: Priority constraints in meat and byproducts	
Priority constraints in meat and by-products	Intensity
Lack of awareness about feedlot fattening	High
Lack of meat breed	High
Lack of technical and financial resources	High
Lack of awareness/availability of improved feed/fodder	High
Absence of cold storages for meat and by-products	High
Lack of business development environment	High
Lack of training in calf rearing	High
Lack of awareness/training in skin/hide handling	High
Lack of proper livestock management	Medium
Lack of veterinary services	Medium

Source: PRLA field exercise August, 2012

State of the Service Providers

The availability and quality of business development services is important for the overall development of any sub-sector. The situation with regard to services provision for both milk and meat was appraised together with focus groups. Public sector institutes in the region as Department of Livestock and Dairy Development have major function of providing veterinary curative and preventive services and extension services as artificial insemination but these have very weak linkages with the farmers and limited role in value chain. Private sector companies are mostly involved in the supply of feed and services but due to lack of business development environment and law and order situation, their role is also limited. NGOs and RSPs have the medium to strong role in awareness rising on improved husbandry practices, trainings and skill development of stakeholders. In most cases the linkages between service providers and users were termed as weak to medium. To be effective in enhancing profitability of livestock growers, there is a need to build confidence and develop strong linkages of agribusiness with service providers. Table 12 below shows the state of the service providers in DI Khan Region.

Table 12: State of the service providers			
Service Providers	Linkages	Paid/Free	Services Provided
Livestock and dairy development Department	Weak	Free	Training and technical assistance
Banks and Cooperatives	Weak	Paid	Credit on mark up
Exporters	Weak		Collect the produce from the farm for local market (<i>mandi</i>)
Input suppliers	Medium	Cash	Input supplies
Middlemen	Strong	Credit	Intermediate link between producers and market.
Local Confectioners	Medium	Free	Buy milk
District Administration	Weak	Free	Fix and regulate prices
Food inspection department	Weak	Free	Quality control
Dairy Association	Medium	Free	Training and technical assistance
Farm Service Center	Weak	Free	Training and information on improved farm practices
NGOs	Medium to Strong	Free	Trainings and technical assistance, information
Private companies/BDSPs	Weak	Free	Feed supply , Technical assistance
Producer's Associations	Weak	Free	Training and information
Project/Firms/PARRSA	Weak	Free	Training and information
Gomel vet college	Weak	Free	Research and information on improved husbandry practices
Private Agri chemical supplies	Weak	Cash	Supply pesticides
Fellow enterprises	Strong	Free	Experience sharing
Market agents	Weak	Cash	Supply inputs and animals from other districts
	Strong	Credit	
Veterinary medicine companies	Weak	Cash	Supply vet medicines, vaccines etc

Source: PRLA field exercise August, 2012

State of Market Linkages

Market linkage plays an important role in prioritizing value chains in a particular region. It also helps determine the price of a particular produce and profitability. Market linkages were assessed and ranked as strong, medium or weak depending on the basis of share of the produce in that particular market, distance from the production site and the cost of transportation. With regard to dairy and meat value chains, local markets had the strongest links in almost all districts of DI Khan Project Region due to easy access and less cost of transportation however district Bhakkar and Mianwali are linked to national market through providing meat animals during eid-ul-azha.

To understand the marketing of livestock and products an assessment with regard to the strength of market linkages was also done through data that was collected during FGDs in DI Khan Project Region and is depicted in the Table 13 below.

Table 13: State of market linkages

Subsector	District	Market linked	Strength
Milk and Meat	DI Khan	DI Khan (Local)	Strong
Milk and Meat		Kark	Medium
Milk and Meat		Peshawar	Medium
Milk and Meat		Islamabad	Weak
Milk and Meat		Lahore	Weak
Milk and Meat	Bakkar	Bakkar (Local)	Strong
Milk and Meat		Islamabad	Weak
Milk and Meat		Lahore	Medium
Milk and Meat		Sargodha	Weak
Milk and Meat	Mianwali	Mianwali(Local)	Strong
		Khushab	Medium
Milk and Meat	Bannu	Bannu (Local)	Strong
Milk and Meat		FATA	Weak
Milk and Meat	Kohat	Kohat	Strong
Meat		FATA	Weak
Milk and Meat	North and South Waziristan	FATA agencies (North and South)	Medium
Milk and Meat		Peshawar	Weak

Source: PRLA field exercise August, 2012

Conclusion

The region represents a special case for opportunity and constraints to expand dairy and meat exports. The key constraints which are hampering the abilities of the sector include are low productivity of dairy and meat animals due to breed, insufficient feeding and poor veterinary health services, low input supplies due to inflation, poor market linkages and lack of business development environment in livestock value chain. Moreover, quality of the produce often failing to meet market standards; perishability of produce, low level of value addition and processing and marketing requires interventions focusing on cool chain development and certified processing . On the other hand DI Khan Region offers a varied climatic zones, close proximity to growing markets (national and international), lower production cost due to cheap labor which provide good opportunities to grow a variety of products year round and to capture larger share of niche markets.

Based on the PRLA, the following summary conclusions can be drawn;

1. Improvement of breed through Artificial Insemination (AI), training of AI technicians and attracting semen producing companies for supply of the liquid nitrogen and semen of improved genetic animals and establishment of Model Dairy Farms .
2. Establishment of Milk Collection Centers and installation of Milk Chillers (Training of producers/collectors in hygienic handling of milk) / establishing partnership Lead companies (based on analysis of merits and demerits)
3. Establishment of Kissan Field Schools in milk and meat producing areas
4. Establishment of a network of linkages with Livestock Department, Market Traders (Milk, Halwa etc), Fodder Seed and Medicine Dealers .
5. Development of feedlot fattening among farmer community to maximize bio economic and sustainable meat production and its value addition through meat processing and quality control.
6. Establishment of modern slaughter houses and butcheries through matching grant partnership with private sector.
7. Development of market for purchase and sale of meat animals through linkages among meat producers and processors and introduction of value added products in other market chain i.e Halwa.
8. Capacity building of stakeholders for meat production, processing and quality control.





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