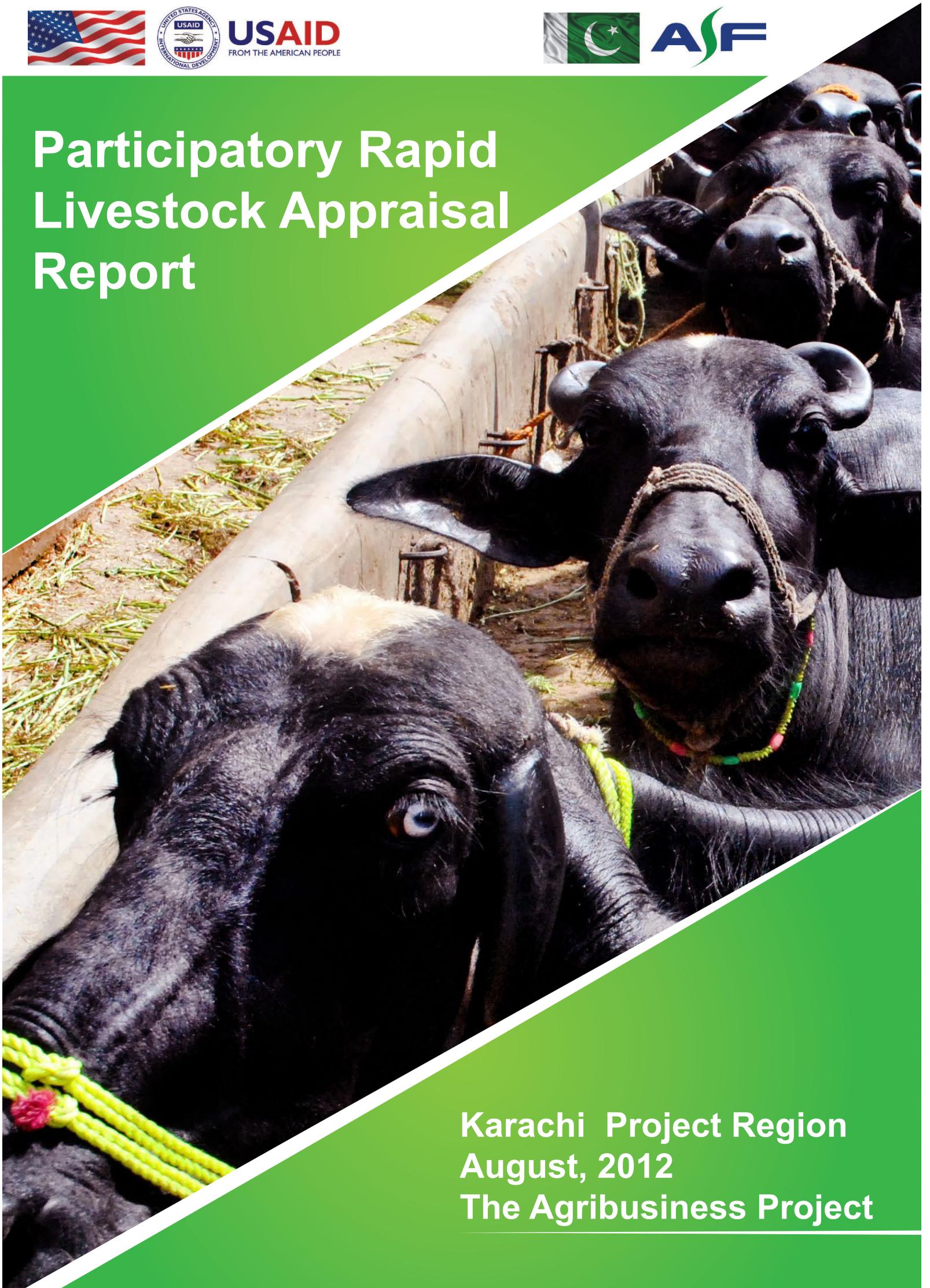




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Participatory Rapid Livestock Appraisal Report



**Karachi Project Region
August, 2012
The Agribusiness Project**



Acronyms

ASF	Agribusiness Support Fund
FAO	Food and Agriculture Organization
FGD	Focused Group Discussion
KPR	Karachi Project Region
L&DDDD	Livestock and Dairy Development Department
PRLA	Participatory Rapid Livestock Appraisal
TAP	The Agribusiness Project
USAID	United States Agency for International Development

Disclaimer: This Participatory Rapid Livestock Appraisal report of Karachi Project Region is made possible by the generous support of the American people through the United States for International Development (USAID). The contents are the responsibility of The Agribusiness Project 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 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. 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 Karachi 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-pronged approach was adopted, first preparation for PRLA exercise in the field and second collection secondary data and develop appropriate tools for quantification of factors to 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 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, byproducts and fisheries value chains. The indicators used for analysis included;

- Growth of the subsector on provincial (Sindh) level in past five years;
- Pakistan share in the world production
- Sindh's share in Pakistan;
- Share of Karachi Project Region in Sindh;
- Productivity Gap;

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, 0.24% in fish, 17.91% in buffalo hide, 1.93% in cattle hide, 4.93% in goat skins and 1.85% in sheep skins.

Sindh contributes 30.05% to the national milk production. In addition, Sindh shares 29.31% beef, 19.85% mutton, 57.79% fish, 35.878% buffalo hide, 27.07% cattle hide, 20.43% goat skins and 20.84% sheep skins to the total production on national level.

The share of Karachi Project region in Sindh was 18% for milk, 5.64% for beef and 23.53% for mutton. Fisheries contributed 40.41% to the total production on provincial level. Buffalo hide made 39.87%, cattle hide 42.30%, goat skins 36.65% and sheep skins 34.41% of the Sindh production.

Among livestock value chains, cattle hide showed highest growth of 3.70% in Pakistan 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 animals. Buffalo hide, goat skins, mutton meat and sheep skin had a growth rate of 2.99%, 2.67%, 2.13% and 1.17% respectively. Inland fisheries, however, observed a decline in growth by -6% over the past five years in country.

Primary data for Karachi Project region was collected through 10 FGDs in different districts, involving all groups of stakeholders within the value chains. Livestock and fisheries value chains were then analyzed and prioritized using

grid analysis on the basis of seven factors that included percent employment opportunities, percentage commercialization, percentage of small farmer involvement, percent women involvement, percentage of pre and post production losses, growth observed over past five years and percentage of household involvement.

On the basis of PRLA analysis, Meat ranked highest on the priority index with 6.71 points, followed by milk at 5.84 points. Fisheries value chain scored 2.33 on priority index whereas Livestock byproducts had 2 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 pair ranking technique. Breed improvement, better farm management practices and improved technology 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 potential breeds, inadequate financial and technical resources, improper husbandry and poor veterinary care were among the prioritized constraints.

Further, an assessment of the market linkages and service providers and the services provided 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 L&DDD 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 Project's 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 Karachi 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 Karachi. 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.

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 benchmark 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 supporting 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 Karachi region;

- i) Federal bureau of statistics
- ii) Pakistan Livestock census 2006 database
- iii) FAO Database
- iv) Livestock and Dairy Development Board
- v) Economic Survey of Pakistan.
- vi) 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

10 FGDs were organized and facilitated by trained project staff in randomly selected clusters from within 07 districts of Karachi 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 and Fisheries Value Chains based on Secondary data

Data collection and mining

The secondary data for the livestock sector was collected from various sources mentioned above 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 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 seven factored grid analysis (Table1).

Indicators	Milk	Beef Meat	Mutton Meat	Fish	Buffalo Hide	Cattle Hide	Goat Skin	Sheep Skin
Percentage Growth	3.23%	3.33%	2.13%	2.27%	2.99%	3.70%	2.67%	1.18%
Pakistan Share in World	4.82%	2.17%	3.13%	0.2%	17.91%	1.93%	4.93%	1.85%
Sindh share in Pakistan	30.05%	29.31%	19.85%	57.59%	35.87%	28.63%	20.43%	20.84%
Karachi Project Region share in Sindh	18%	5.64%	23.53%	40.41%	39.87%	42.30%	36.65%	34.41%
Productivity Gap	60.92%	80%	89%	99.98%	69.61%	85.30%	83.00%	92.09%

Source:(Estimates based on the data collected through Pakistan Livestock Census 2006)

Four livestock value chains that were analyzed on the basis of secondary data include:

- i) Dairy value chain
- ii) Meat value chain (Inclusive of Beef Meat and Mutton Meat)
- iii) Livestock byproducts value chain (Inclusive of Buffalo hide, cattle hide, goat skin and sheep skin)
- iv) Fisheries value chain (Primarily Inland Fisheries or aquaculture)

The analysis on the basis of secondary data gave a broader and comparative outlook of the livestock value chains at regional and national levels and helped understand the glitches and potential within these value chains. The analysis showed growth of livestock products and by products and inland fisheries in Sindh and Pakistan over the past five years, Pakistan's share in world production, Sindh's share in national production and Karachi Project region's share in province.

Analysis of Milk value chain

Milk is the single most important livestock product. According to FAO statistics production has shown 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. There was an actual decrease in the milk production during the year 2010 because of the losses in livestock population due to natural calamities but it is not shown on the index due to unavailability of the data from disaster management sources. In Sindh meat consumption and production has grown faster than the growth seen in production of milk, comparatively.

Table 2: Subsector wise production in dairy subsector

Province	Average Animal Yield		Total animals in milking				Total Liters Produced			
	Cow	Buffalo	Cow	%	Buffalo	%	Cow	%	Buffalo	%
Sindh	6.61	8.9	2,143,036	24.68	3,051,119	29.86	14,180,469	26.71	27,164,112	33.1
Pakistan	6.04	7.87	8,684,435	100	10,219,673	100	53,093,386	100	82,061,309	100

Source: Federal Bureau of Statistics, GoP P = Provisional

The above Table 2 shows that Sindh region contributes to the total milk yield of Pakistan by 26.71% through cows whereas 33.1% through buffaloes that makes the province's contribution second highest in the country.

Sindh contributes 29.9% to the national milk production. The share of Karachi Project Region in Sindh stands at 18%. Among Karachi region districts, Karachi is the highest milk producing area with an annual milk production of 4,339,590 liters, followed by Thatta and ShaheedBenazirabad (Nawabshah) adding 2,758,788 and 2,494,614 liters to the region's annual milk production. Medium to high yielding districts include Badin, Sangharh, Tharparker, Matiari and MirpurKhas, followed by Hyderabad.

Table 3: District wise Milk Production in Karachi Project Region, 2008

Districts	Production(liters)	Percentage
Karachi	4,339,590	20%
Thatta	2,758,788	13%
ShaheedBenazirabad	2,494,615	12%
Badin	1,774,418	8%
Sanghar	1,696,337	8%
Tharparker	1,517,125	7%
Matiari	1,471,638	7%
Mirpurkhas	1,117,179	5%
Hyderabad	1,056,347	5%
Jamshoro	882,055	4%
TandoAllahyar	825,213	4%
Umerkot	685,542	3%
TandoMohd Khan	518,180	2%
Lasbella	175,952	1%
Total	21,312,977	100%

Source: Livestock Census Report

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 nonexistence 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.

Meat is an ignored and rather underdeveloped sector amongst the livestock value chains in Pakistan primarily due to nonexistence 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.

According to the estimates of Pakistan Meat Processor Exporter Association the annual beef production of the country is 1.549 million ton, mutton 0.587 million ton and poultry production is 0.106 million ton. Beef contributes almost 50 per cent of total meat exports of the country, while mutton's share is around 23 percent and poultry is 17 percent. Exports account for only 1.8 percent of the total production.

According to Pakistan Meat Processor Exporter Association, currently sheep meat is worth more than \$8,000 a ton, beef \$3500 to \$3800 a ton and mutton \$5500 to \$6,000 a ton in global markets. Legally over \$60 million worth of frozen meat is exported to Gulf countries after processing from eight slaughterhouses. Five of these are in Lahore and three in Karachi.

Table 4: Livestock Population in Pakistan (000 Heads)

Species	2006-07	2007-08	2008-09
Cattle	30.7	31.8	33
Buffalo	28.2	29	29.9
Sheep	26.8	27.1	27.4
Goat	55.2	56.7	58.3
Camels	0.9	1	1
Horses	0.3	0.3	0.4
Asses	4.3	4.4	4.5
Mules	0.2	0.2	0.2

Source: Ministry of Livestock and Dairy Development

Table 5: Meat Production in Pakistan (000 Tons)

Species	2006-07	2007-08	2008-09
Beef	1,498	1,549	1,601
Mutton	566	578	590
Poultry Meat	554	601	652
Total Meat (Excluding Edible offals)	2,618	2,727	2,515

Source: Ministry of livestock and Dairy Development

The trend of meat production in Pakistan is illustrated in above Tables showing the overall livestock population and meat production, respectively.

Table 6 below gives a brief overview of aforementioned details regarding the prominent clusters producing milk, meat and fish alongside the total production and percentage share in province:

Table 6: Clusters Producing Milk, Meat and Fish

Priority sub-sectors	Clusters/Districts	Total Production of the Cluster	Percent share in the Sindh Province
Milk	Karachi	4,339,589 liters	9.7%
	Thatta	2,758,788 liters	6.2%
	Dadu	2,618,818 liters	5.9%
Meat	Karachi	195,765 tons	46.7%
	Hyderabad	79,200 tons	18.9%
	Mirpurkhas	30,553 tons	7.2%
Fish	Karachi	78,132 tons	61%
	Thatta	15,228 tons	12%
	Badin	10,647 tons	8.4%

Source: Pakistan Livestock Census 2006

Analysis of Livestock byproducts

Livestock byproducts, especially hide and skins, had always been ignored despite their importance in the international market. Lack of awareness and absolute absence of proper handling and techniques result in high losses, every year. There is huge potential for livestock byproducts in domestic and international markets. Due to limited availability of relevant data on district level in Pakistan, the number of hide 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.

Animals Slaughtered in year 2006				
Province	Buffalo	Cow	Sheep	Goat
Sindh	1106505	964186	968726	2158870
Pakistan	3340432	3561846	4733205	11003045
% share of Sindh in National Production	33%	27%	20%	19%

Source: Pakistan Livestock Census 2006

An overview of the hide and skin's percentage share in Sindh region is also given below in Table 8.

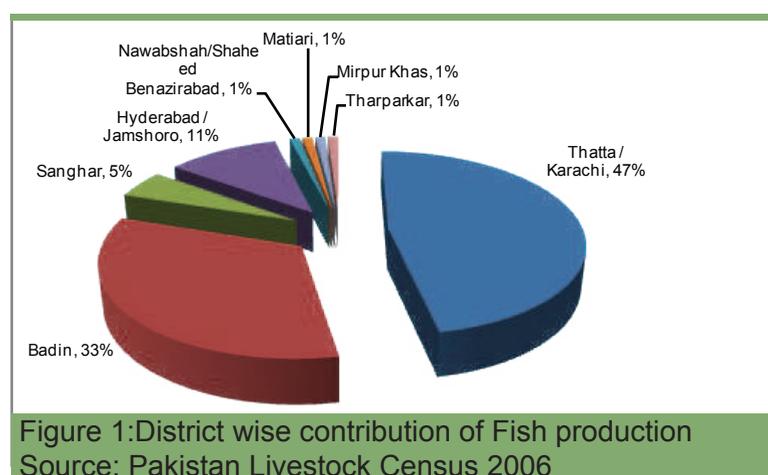
Sindh Region	2006	% share in Sindh
Buffalo Hides	839,543	39.87%
Cattle Hides	731,561	42.30%
Goat Skins	1,638,008	36.65%
Sheep Skins	735,006	34.41%

Source: Pakistan Livestock Census 2006

Analysis of Fisheries value chain

After minerals and agriculture, fishery is the third largest sector in playing a vital role in the economy of Sindh. It provides a significant supply of the fish to Pakistan and also has the potential to play an important role in international fish market. Inland fisheries or aquaculture being considered as an expensive business requiring land, excavation, expensive pumps for oxygenation and formulated fish feed could not gain much popularity and momentum as a viable value chain in Pakistan.

Statistical analysis on the basis of secondary data showed that the growth rate of fish production declined by 6% in Pakistan over past decade. However, Within Sindh, Karachi Project region's share is at 40.41%, comparatively lower than other half of the province. With these statistics it is obvious that with proper interventions, there is high potential of inland fisheries in this particular region. Figure 1 shows the district wise contribution of fish production in Karachi Project Region, where Thatta district takes lead followed by Badin:



Appraisal of Livestock and Fisheries Value Chains 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 and fisheries 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 2 below, separately for livestock as well as fisheries value chains.

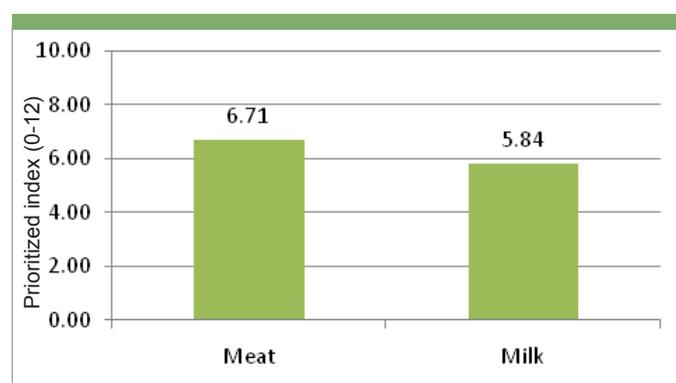


Figure 2: Overall ranking of the value chains
Source: PRLA activity August, 2012

As is evident from the prioritization index, meat has the highest priority index of 6.71 points followed by milk with a priority index of 5.84 points. Fisheries value chain with 0.3 points on index ranked third. The FGDs conducted within Karachi Project region showed that Karachi is the major milk shed area among all districts where maximum growth of 3.31% in milk production was observed during the past five years. Thatta, Nawabshah and Badin also showed medium to high potential for dairy value chain. Matiari and Sanghar districts also had remarkable increase in milk production. Milk value chain involves maximum percentage (55.38%) of the small scale farmers, generating highest percentage (75%) of households benefitted among all livestock value chains.

The highest growth in meat value chain was also observed in Karachi where the growth rate for past five years was 6.67%, ranking it as the high potential zone for meat, followed by Hyderabad, Mirpurkhas, Badin and Sanghar. Meat sector provides the maximum share of employment in livestock sector (86.67%) whereas 80% commercialization has been observed during the survey in meat sector of selected FGDs conducted. However, there was 0% losses witnessed in meat sector as compared to milk sector with 2.5% losses.

Inland Fisheries is practiced extensively across Karachi Project Region that contributes to the 40.41% of the overall Sindh. FGDs conducted showed that Thatta and Badin had the maximum growth in fisheries value chain over the past five years. Commercialization is 90% in this sector, highest in all livestock subsectors. However the percentage is too high in fisheries subsector i.e. 50% and it only contributes to 1% of employment which is not a positive figure.

Factor wise prioritization of the value chains

Ranking of the livestock and fisheries value chains 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 livestock value chains, meat has the higher potential of 86.67% for employment generation while milk value chain has the ability to create 78.75% employments, followed by fisheries value chain with a very low percentage of slightly above 1%. 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. Despite of this fact, meat subsector is showing a higher percentage of employment hence showing the population of animals bred for meat purpose.

Prioritization of different livestock and fisheries value chains with regard to their ability to create employment is shown in Figure 3.

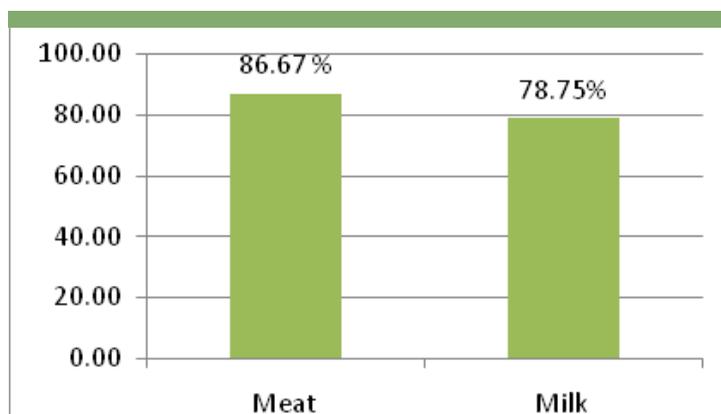


Figure 3: Prioritization on the basis of % employment potential
Source: PRLA activity August, 2012

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 inland fisheries is practiced as an enterprise and is 90% commercialized, highest in all livestock subsectors of Karachi Project Region. Meat showed 80% commercialization, the reason being that animals raised for meat purpose or culled are 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 i.e. 71.25%. Figure 4 below shows the prioritization on the basis of percentage commercialization.

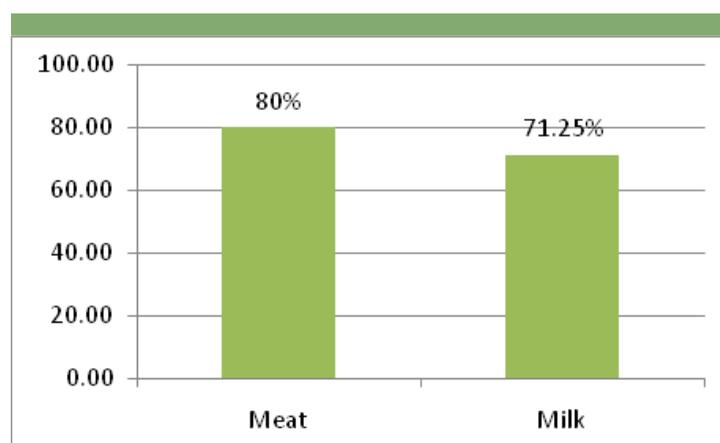
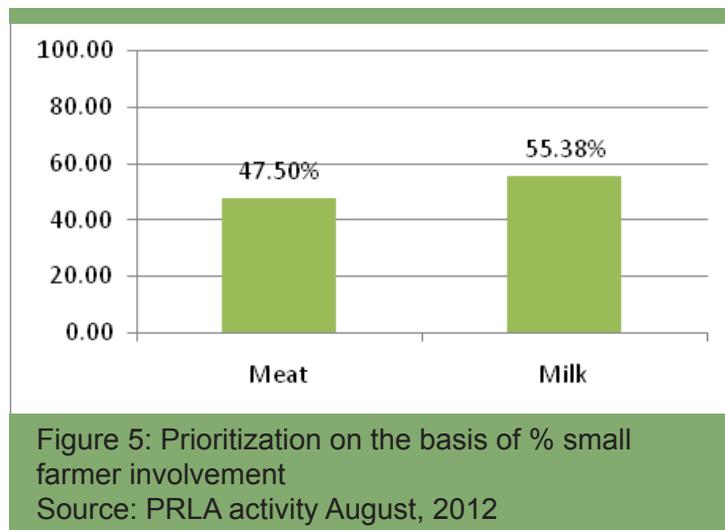


Figure 4: Prioritization on the basis of % commercialization
Source: PRLA activity August, 2012

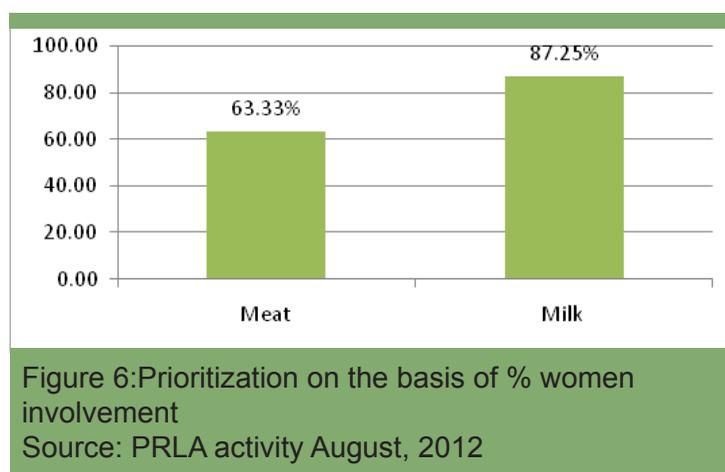
Prioritization on the basis of percentage small farmer involvement

The assessment of livestock value chains on the basis of percentage small farmer involvement in Karachi Project region revealed that milk value chain has the highest percentage (55.38%) of small farmer's involvement. This is easily explained by the fact that 70-80% of milking animals belong to small holders with 1-4 animals. Whereas 47.5% 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. With regard to fisheries value chain, it showed none of small farmers involved because of huge cost involved in producing inland fisheries. A graphical presentation of above data is shown in Figure 5.



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 (87.25%) with regard to the percentage of women involved. Figure 6 below shows that the percentage women involvement was 63.33% for meat value chain and none in fisheries value chains. 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 chain.



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 and fisheries value chains were assessed on the basis of their growth observed during the past five years in Karachi Project Region. Figure 7 reflects 6.67% and -1.25% growth rates for meat and milk value chains respectively during the past five years.

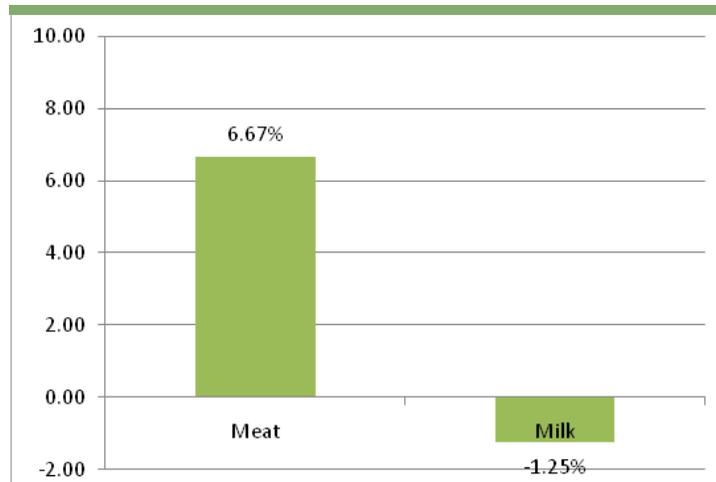


Figure 7: Prioritization on the basis of % growth during past five years
Source: PRLA activity August, 2012

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. Fisheries value chain showed highest percentage of losses (50%) among all livestock value chains. Milk value chain had 9% losses and meat value chains had comparatively low percentage losses at 2.50%. An illustration of prioritization of value chains on the basis of percentage losses is portrayed in Figure 8 below:

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 bacteria propagation. Losses in meat value chain usually attribute to pre-production losses. Fisheries value chain experience more post production losses due to the perishable nature and lack of proper mode of transportation to the market.

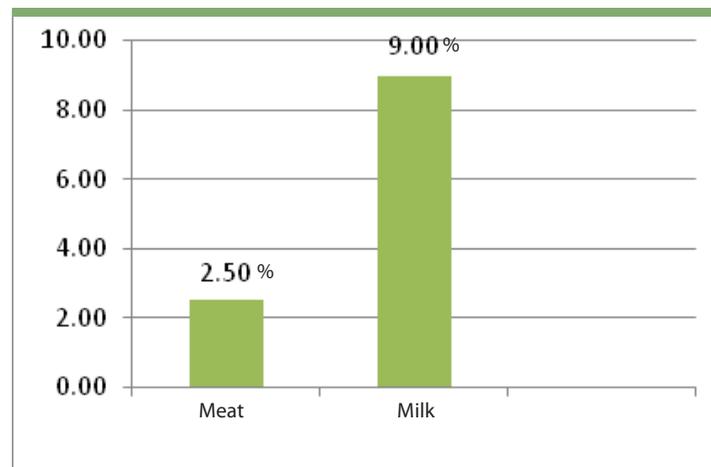
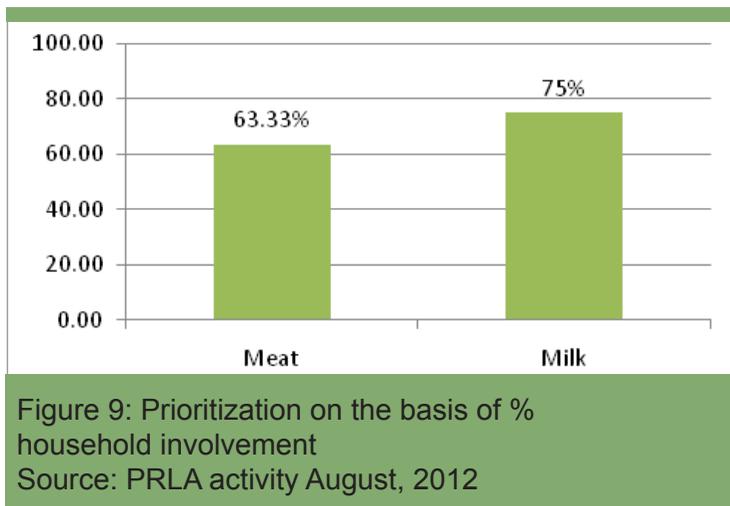


Figure 8: Prioritization on the basis of % losses
Source: PRLA activity August, 2012

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 in Figure 9, milk value chain had the highest index of 75% 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 63.3% household. Fisheries scored lowest on the index with only 0.3% household involvement.



Prioritized Opportunities and Constraints in Livestock and Fisheries Value Chains

Prioritized opportunities and constraints in milk and fisheries value chains

Paired ranking tool was used for prioritization of the opportunities. The participants of FGDs ranked the list of opportunities as explained in Table 9 below. On the basis of FGDs data analysis for milk value chain, the animal sheds for proper animal housing and management besides artificial insemination kits and availability of improved breeds were highest potential opportunities followed by availability of the improved quality fodder, establishment of milk collection points and feed mills.

Table 9: Priority opportunities in milk		
Priority opportunities	Score	Rank
Proper animal housing and management (animal sheds)	9	1
Artificial Insemination kits	9	1
Availability of improved breed animals	9	1
Availability of improved quality fodder crops	9	1
Establishment of milk collection points	7	2
Feed mills and grinder mixers	7	2
Milk chillers	7	2
Pasteurization units	6	3
Vaccination and veterinarian availability	6	3
Improved Infrastructure	6	3
Milking machines	6	3
Capacity building and awareness of farmers	5	4
Market linkages	5	4
Comparative market price	4	5
Butter making unit	4	5
Mava unit	3	6
Commercialization	2	7
Transportation to the market	2	7

Source: PRLA activity August, 2012

Lack of improved breed animals, high labor and input cost, lack of animal sheds and proper environment for animals, lack of resources for milk chillers and inadequate veterinary services were high intensity constraints hampering the growth of milk value chain in Karachi Project Region. Lack of proper milk transportation system along with poor market linkages were ranked as medium intensity constraints.

The constraints in milk value chain were identified and prioritized by the participants in FGDs. Table 10 below is a ranking index for the constraints.

Table 10: Priority constraints in milk	
Priority constraints	Intensity
Lack of improved breed animals	High
High labor and input cost	High
Lack of animal sheds and proper environment for animals	High
Lack of resources for milk chillers	High
Inadequate veterinary services	Medium
No proper milk transportation system	Medium
Poor market linkages	Medium
Absence of policy for price control	Low
No proper farm management practices	Low

PRLA activity August, 2012

These constraints can be addressed through breed improvement (either by introducing high yielding animals or cross breeding with high producing breeds), improved farm management practices, timely and efficient availability of veterinary health services, establishment of integrated milk collection and transportation system. Easy access to soft loans can help resolve financial issues hampering the growth of milk value chain.

Prioritized opportunities and constraints in meat and byproducts value chains

The highest ranking opportunities in meat value chains as identified by participants in FGDs were increasing demand in national and international markets, provision of improved breed animals, availability of improved feed fodder and

Table 11: Priority opportunities in meat and byproducts		
Priority opportunities	Score	Rank
Increased demand in the market	11	1
Availability of improved breed animals	11	1
Availability of improved feed/fodder	9	2
Improved farm management practices	9	2
Export and halal meat certification	9	2
Post slaughter meat processing machinery	8	3
Capacity building and awareness	6	4
Cold storage and meat chillers	6	4
Improved veterinary health services	6	4
Packing and packaging of meat	5	5

Source: PRLA activity August, 2012

better farm management practices. Provision of export certification and halal certification, meat processing units, meat chillers and improved veterinarian services were ranked as medium grade opportunities in meat value chain. The table below shows the lists of constraints for both meat and livestock byproducts value chains as per ranking done through FGDs data analysis. The prioritized opportunities, in meat and livestock byproducts value chains, scored and ranked by the participants of FGDs in Sindh region are listed in Table 11 and 12, respectively.

The major constraints in both meat and byproducts value chains were lack of improved breed animals and technical and financial resources; absence of cold storages for meat, skin and hide; lack of awareness and training in better farm management practices, calf rearing and feedlot fattening and poor veterinary services.

A strategic approach to exploit opportunities and address constraints is required for meat and byproducts value chains to flourish as viable agribusiness in order to address food security issues and export led growth.

Table12: Priority constraints in meat and byproducts	
Priority constraints	Intensity
Lack of improved breed animals	High
Limited of technical and financial resources	High
Little awareness/availability of improved feed/fodder	High
Absence of cold storages for meat and by-products	High
No proper training in calf rearing	High
Hardly any awareness/training in skin/hide handling	High
No proper livestock management	Medium
Inadequate veterinary services	Medium
Little awareness/training in feed lot fattening	Medium

Source: PRLA activity August, 2012

Prioritized Opportunities and Constraints in Fisheries Value Chain

The participants of FGDs in Karachi Project Region identified provision of quality fish seed/fingerlings as the highest potential opportunity followed by availability of fish hatchery refer containers and value added/ packaged fish as shown in Table 13 below.

Priority opportunities	Score	Rank
Provision of quality fish seeds/fingerlings	10	1
Availability of fish hatchery	10	1
Refer containers	6	2
Value added / packaged fish	6	2

Source: PRLA activity August, 2012

Highlighted constraints in fisheries were lack of technical and financial resources, unavailability of quality fish seed, lack of awareness and capacity building about fish farming, packing and packaging and poor market linkages, followed by losses in fish farming. The priority constraints can be seen in Table 14 below.

Priority constraints	Intensity
Lack of technical and financial resources	High
Unavailability of quality fish seed/fingerlings	High
Lack of awareness about fish farming	High
Packing and packaging of fish	High
Poor market linkages	High
Losses in fish farming	High

Source: PRLA activity August, 2012

State of the Service Providers

Service providers are of prime importance in all value chains. These include Government bodies, private sector, NGOs and associations, middlemen, buyers, market agents and exporters. A detailed assessment of the service

Service Provider	District	Strength	Paid/Free	Services Provided
Livestock and Dairy Development Department/Fisheries Department	Karachi	Weak	Free	Training and technical assistance
	Hyderabad	Weak	Free	
	Tando Allahyar	Weak	Free	
	Nawabshah	Weak	Free	
	Matari	Strong	Free	
Input suppliers	Karachi	Strong	Credit	Input Supplies
	Hyderabad	Strong	Credit	
District administration	Hyderabad	Weak	Free	Fix and regulate prices
	Matari	Weak	Free	
Banks and Co-operatives	Karachi	Strong	Cash	Credit on mark up
	Hyderabad	Medium	Credit	
	Nawabshah	Weak	Credit	
NGOs	Tando Allahyar	Strong	Free	Training and technical assistance
	Matari	Medium	Free	
	Nawabshah	Medium	Free	
	Sanghar	Strong	Free	
Dairy Association	Karachi	Strong	Free	Training and technical assistance
	Hyderabad	Strong	Free	
Private companies/BDSPs	Karachi	medium	Free	Technical assistance
Producer's Associations	Matari	Weak	Free	Training and information
Private Agri chemical supplies	Hyderabad	Strong	Cash	Supply pesticides
Market agents	Hyderabad	Strong	Cash	Supply inputs and animals from other districts
	Matari	Strong	Credit	
Veterinary medicine companies	Karachi	Strong	Cash	Supply vet medicines, vaccines etc
	Hyderabad	Weak	Cash	

Source: PRLA activity August, 2012

providers, services offered and their strength (determined by their availability, efficiency of services and if those are free, on cash or credit) in Karachi Project region, was carried out using the information provided by the participants of FGDs during PRLA exercise. The role of Govt organizations such as agriculture extension, Livestock and Dairy Development Department and Fisheries Department is to provide technical information and assistance, on farm and off farm trainings and creating awareness about technological innovations relevant to a particular sub sector where as the local administration defines and regulate prices. Although the services provided by Govt agencies were free, their ranking was weak in all districts of Karachi Project region except Matiari where livestock extension and LDDB have strong linkages.

The participants of FGDs provided information about the service providers and related livestock and fisheries value chains and ranked them as shown in Table 15.

Private sector encompassed all input suppliers and facilitators within the value chain. The services provided by them were paid and on cash basis. However, they ranked strong to medium on the index in almost all districts because of their demand, easy availability and efficiency. NGOs and fellow enterprises had strong linkages in Tando Allahyar and Sanghar whereas medium in Matiari and Nawabshah. Karachi Dairy Farmers Associations, were found mainly in Karachi cattle colony (KDFA) and Hyderabad and showed strong links. Banks were also mentioned as moderate links as they are strong in Karachi but medium to low in Hyderabad and Nawabshah, besides no linkages in other smaller districts. Middle man and market agents were the strongest link among all service providers in dairy and meat value chains because they are the sole source of readily available credit facility for majority of the small holders.

State of the 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 Karachi Project region due to easy access, less cost of transportation and less losses except for Ghanghra Mori (Hyderabad) and Fulladi (Sanghar) where the strength of local market is weak as compared to Strong link to Karachi market due to higher market share, low cost of transportation and better market price.

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 Karachi Project region and is depicted in Table 16 below.

Subsector	District	Market linked	Strength
Milk and meat	Karachi Project	Landhi Cattle Colony	Strong
Milk and meat		Bhains Colony	Strong
Milk and meat		Lee Market	Strong
Milk andmeat		Empress market	Medium
Milk andmeat		Dehli Colony	Medium
Milk and meat	Hyderabad	Latifabad 6 no.	Strong
Milk and meat		Heerabad	Strong
Milk and meat		Ghanghra Mori Market	Weak
Milk	Nawabshah	Goal Market	Medium
Milk and meat	Matiari	New Saeedabad	Medium
Milk and meat		Matiari	Medium
Milk and meat	Sanghar	Shehdadpur	Medium
Milk and meat		Fulladi	Weak

Source: PRLA activity August, 2012

Conclusion

On the basis of the PRLA analysis, Meat was ranked highest on the priority index with 6.71 points, followed by milk at 5.84 points. Fisheries value chain scored 2.33 on priority index whereas Livestock by-products had 2 points on priority index.

Under The Agribusiness Project, Karachi region selected meat and dairy value chains for the program related activities / interventions in the year 2 work plan while the remaining value chains may be considered in future.

The key constraints in the meat value chain identified during the PRLA activity were; Insufficient green fodder and feed availability for fattening of beef animals; Lack of formal meat retail trade that stimulates the demand for value added meat products; Frequent slaughtering of young calves at an early age; Lack of export certifications which are required for export; The illegal and informal export of livestock to neighbouring countries; Lack of proper abattoirs especially in the private sector, Unavailability of meat chilling facilities throughout the chain and Lack of participation in trade fairs, symposiums, agriculture conferences. TAP will be designing products/interventions based on the constraints mentioned above, which may bring an overall improvement and up-gradation in the meat value chain.

As far as Dairy sector is concerned, it has great potential to grow in Karachi region. Among Karachi Project region, Karachi is the highest milk producing area with an annual milk production of 4,339,589 liters, followed by Thatta and Shaheed Benazir Abad (Nawabshah) adding 2,758,788 and 2,494,614 liters to the region respectively. Medium to high yielding districts include Badin, Sanghar, Tharparker, Matiari and MirpurKhas, followed by Hyderabad. There are five main dairy colonies in the Karachi peripheral urban area, which are: Landhi, Al-Momin, Nagori, Surjani and Bilal with Karachi Dairy Farmers Association (KDFA) as the largest association of cattle farmers in Pakistan. Karachi region has big milk processing factories, which are: Dairy Land, Millac, Dr. Dairy and Jari Milk. Engro Food's head office is also located in Karachi region.

The major constraints in dairy sector are limited expertise in genetics and artificial insemination, low yield of milk production, imperfect skills in feed resources & feed management, poor farm management practices, poor veterinary services, unhealthy milking practices and use of unhygienic utensils, limited cooling chain and inadequate processing for value added services.

The Agribusiness Project will consider these issues as opportunities and by addressing and resolving these constraints, we believe that an effective, successful and measurable change may occur in the dairy sector.



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