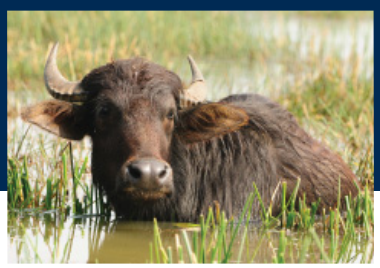
ENHANCING LIVESTOCK SECTOR EXPORT COMPETITIVENESS

TRADE RELATED TECHNICAL ASSISTANCE PROGRAMME





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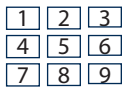

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Nauman Aslam, Director, Trade Development Authority of Pakistan, wrote this paper. He is entirely responsible for the views expressed in the study. Ms. Asmma Kamal, Assistant Director, Trade Development Authority of Pakistan, assisted the author in completing this study and Mr. Raheel Rao and Mr. Mustansar Mehmood assisted in gathering statistics and carrying out field visits. Alan Matthews,Professor Emeritus of European Agricultural Policy, Trinity College, peer reviewed this study. The study was conducted under the direct guidance of Mohammad Owais Khan, Programme Officer, Trade Policy, ITC, TRTA II, Islamabad, together with Andrew Huelin, Consultant, Business and Trade Policy, ITC. Jean-Sébastien Roure, Senior Officer, Business and Trade Policy, ITC, was the overall supervisor.

Andrew Huelin was the editor and managed the production of the final version, and Isabelle Jouve, Associate Programme Adviser, Business and Trade Policy, ITC, carried out formatting including designing of the cover page and desktop publishing.

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PREFACE

The development of the livestock sector and its vertical integration to produce value added products is important to enhance trade opportunities for Pakistan in the global market place.

Livestock is an important sub-sector of the agriculture mix of Pakistan. It holds much value in the rural socioeconomic system. More than eight million rural small and landless farmers raise livestock, making it an ideal sector for attacking rural poverty in the country. Livestock makes up almost 55.1% of the agriculture value added and contributes up to 11.6% of the GDP thus the future high growth in agriculture is expected to be led by the livestock sector.

This study attempts to describe the importance of the livestock in development of rural socio-economic system and also highlights issues in the sector that hinder its upward growth that also affect its trade with existing as well as potential partner countries of Pakistan. The study also contains an assessment of regulatory regime and its effectiveness in the development of livestock sector and products procured from livestock.

To make an objective assessment of the performance of the livestock sector, consultations with stakeholders in the public and private sector were made that have largely helped in listing issues on both ends as well as suggesting policy, regulatory and marketing initiatives which can be helpful in ensuring growth on supply side and on the trade fronts.

Table of content

ACRONYMS

GDP	Gross Domestic Product
UHT	Ultra High Temperature
KPK	Khyber Pakhtunkhwa
SMEDA	Small and Medium Enterprises Development Authority
HF	Holstein Friesian
Swl	Sahiwal Cattle
AI	Artificial Insemination
SPU	Semon Production Unit
LDDD	Livestock and Dairy Development Department
PDA	Pakistan Dairy Association
LBDFA	Livestock Breeders and Dairy Farmers Association
LFBA	Livestock Farmers and Breeders Association
FAP	Farmers Association of Pakistan
VMC	Village Milk Collectors
FMD	Foot Mouth Disease
HS	Hemorrhagic Septicemia
PPR	Peste des Petits Ruminants
FAO	Food and Agriculture Organization
PLDDD	Punjab Livestock and Dairy Development Department
SME	Small and Medium Enterprises
TPC	Total Plate Count
EU	European Union
GCC	Gulf Cooperation Council
HS Code	Harmonized System Code
MFN	Most-Favoured Nation
SPS	Sanitary and Phyto-Sanitary
TBT	Technical Barriers to Trade
REGS	Rapid Exported Growth Strategy
WTO	World Trade Organization
PDDC	Pakistan Dairy Development Company
LDDB	Livestock and Dairy Development Board
NAPHIS	National Animal and Plant Health Inspection Services
MINFAL	Ministry of Food Agriculture and Livestock
MoIP	Ministry of Industries and Production
UVAS	University of Veterinary and Animal Sciences
PSQCA	Pakistan Standards and Quality Control Authority
ISO	International Organization for Standardization
PPQ	Plant Protection and Quarantine
PCSIR	Pakistan Council of Scientific and Industrial Research
NIH	National Institute of Health
PARC	Pakistan Agriculture Research Council
PCRWR	Pakistan Council for Research in Water Resources
PFA	Punjab Food Authority
PFL	Pure Food Laws
FDA	Food and Drug Administration

CAC	Codex Alimentarius Commission
WHO	World Health Organization
RASFF	EU Rapid Alert System for Food and Feed
AVA	Agri-Food and Veterinary Authority of Singapore
FEHD	Food and Environmental Hygiene Department
BFAD	Bureau for Food and Drugs
LTO	License to Operate
MoPH	Ministry of Public Health
NAFDAC	Nigerian Agency for Food and Drug Administration Control
GSO	Gulf Standards Organization
UCL	Unified Customs Laws
UAE	United Arab Emirates
IEE	Initial Environmental Examination
EIA	Environmental Impact Assessment
PDBP	Pakistan Domestic Biogas Program
EPA	Environment Protection Agency
TS	Total Solids
ROI	Return on Investment
LUMS	Lahore University of Management and Sciences
CEDSEB	Centre of Excellence for Development of Sahiwaland Exotic Breeds
PLDDB	Punjab Livestock and Dairy Development Board
DRAP	Drugs Regulating Authority of Pakistan
TMR	Total Mixed Ration
STPF	Strategic Trade Policy Framework
TDAP	Trade Development Authority of Pakistan
PSDP	Public Sector Development Project
UNIDO	United Nation Industrial Development Organization
BBCF	Belgium Blue Cattle Farmers
RSPP	Rural Services Provider Program
PAMCO	Punjab Agriculture and Meat Company
CDGL	City District Government Lahore
PDA	Pakistan Dairy Association
PFO	Pure Food Ordinance
GAP	Good Agricultural Practices

EXECUTIVE SUMMARY

The socio-economic significance of the livestock sector in Pakistan cannot be ignored. In the domestic scenario, the livestock sector is significantly interlinked with the dairy sector, i.e. meat and other livestock products are essentially considered to be by-products of the dairy sector in Pakistan. It is therefore imperative to understand that the uplift of the livestock sector is largely dependent on the pace of development undertaken in the dairy sector.

It is evident from trade statistics that the sector has shown impressive growth during the past decade especially in the categories of meat and meat preparations and animal casings. However, the overall performance of the sector on the export front remains below the mark due to various supply side and regulatory constraints. Lack of awareness in farmer communities regarding modern farming practices, lower productivity per capita, limited outreach of governmental resources and development initiatives, lack of integration between livestock value chain and supply chain and weak farm-to-market linkages are the major issues facing the sector on the supply side. The domestic regulatory framework is weak in the areas of import/export policies, food safety and quality, sanitary and health standards, investment, pricing and environmental regulations.

The Pakistani livestock exports find their way mainly in the Gulf market, especially in meat and meat preparations. Although increased demand in the region is a positive aspect for the country, however, a cautionary approach is recommended in terms of over-relying on this market in the long term. It may be noted that countries in the Gulf region are currently facing a domestic shortage and have therefore relaxed health and safety standards for Pakistani exporters temporarily. To enhance the competitiveness of Pakistani livestock products in this and other potential export markets, it is imperative that international health and safety standards be met by the local exporters.

The study recommends that the livestock sector may also be developed along the lines of clustering the dairy sector, i.e. an integrated developmental approach with the dairy sector on basis of the ‘One Farm’ concept. It is further recommended that the fattening of male animals for slaughtering and processing purposes should be encouraged as profitable business enterprise amongst the dairy farmers and they should be incentivized with economic gains for doing the same.

SECTION 1: LIVESTOCK SECTOR OF PAKISTAN

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Introduction

Pakistan is blessed with a large population of livestock that is well adapted to the local environmental conditions. Livestock breeding has remained a hallmark of South Asian society. Historically the livestock sector has remained a subsistent sector where small holders have been raising animals for getting meat and milk products mainly for their own consumption and to get cash income through small scale sales. There is a limited number of large ruminants in Pakistan who have the capacity to supply livestock and meat products for the domestic consumption of the country along with the capacity to cater to nearly half of supply of red meat. Beef is usually treated as by product of animals as the animals are mainly raised for getting milk production.

Livestock is an important sector of Pakistan's agricultural mix and holds much value in the rural socioeconomic system. More than eight million rural small and landless farmers raise livestock, making it an ideal sector for attacking rural poverty in the country[1]. Furthermore, as livestock makes up almost 55.1% of the agriculture value added and contributes up to 11.6% of the GDP[2], the future high growth in agriculture is expected to be led by the livestock sector.

Growing population, increase in income levels, and potential for export of livestock products is putting continuous pressure on the livestock sector and requires it to keep pace with the anticipated high demand in the future. In the wake of hard conditions that Pakistan has been facing very recently, including the unprecedented floods and the informal nature of the sector, livestock is growing at an annual average rate of 4% since 2007 [Pakistan (2011)]. This growth rate is comparatively higher than the crop sector which increased by only 3.2% in major crop sector and by -1.3% in minor crop subsector during 2011-12. The livestock sector has greater potential to grow even at a higher rate provided appropriate measures are taken for its development.[3]

A number of products are obtained from the livestock including meat and meat preparations, guts and casings, blood and bones, fur and skins besides milk, *ghee*, cheese and butter and butter oil etc. These products also serve as raw materials for value added industry such as leather, processed food and textiles etc. The main source of these products is from daily slaughtering of the animals (sheep, goats, bulls etc.) for supply to the consumers to meet their nutritional requirements. A large number of animals are also slaughtered on the eve of *Eid-ul-Adha* (an annual Islamic ritual celebrated by Muslims all over the world) where meat products besides hides and skins are obtained.

Livestock products are also exported to various international markets. These products besides live animals include edible offal, meat (red meat, fresh, chilled and frozen), meat preparations, bovine, poultry, casings, hides and skins etc. Out of these export products, meat and meat preparations (HS 0201 to 0210 and 1602) are on the top with export value of US$ 167.27 million in 2011 mainly to the Gulf region. The major importing countries include United Arab Emirates (UAE), Saudi Arabia, Kuwait, Bahrain, Oman and Iran. The second largest export product is animal casings (HS 0504) with export value of US$ 51.56 million exported mainly to the European Union (EU) markets during the same period. Meat preparations have registered a consistent growth with an average annual increase of approximately 38.5% during the last three years (2009-11). Animal casing has registered an average annual increase of 40.3% during the same period.[4]This shows that there is growing demand for Pakistani meat products in the gulf region which is mainly dominated by *Halal* food products and also due to the fact that Pakistan has a protocol agreement with these countries for trade in livestock products.

Interestingly, as evident from statistics, the growth in the herd population is lower than the demand for livestock products it would be a challenging situation in the future to cope with the supply-demand gap that could occur due to increased exports of meat and meat preparations. In contrast to the dairy products, there is a rise in the number of animal farms and meat processing units in the organized sector but not at desirable pace. One of the reasons for such an increase is growing demand for *Halal* meat products in the

[1] Livestock and Dairy Development Board of Pakistan
[2] Economic Survey of Pakistan 2011-12, Chapter 2, Agriculture (Islamabad: Official Printer, 2011), 29
[3] In 2011-12 gross value added of the livestock sector at constant factor cost has increased from Rs 672 bn. (2010-11) to Rs 700 bn. (2011-12) registering an increase of 4% over the previous year.
[4]Author's own calculations based on UN COMTRADE statistics

Gulf Region and the ability of Pakistani firms to supply due to geographical proximity and taste for Pakistani products in these markets.

The present strategy of the government is to encourage the private sector to invest into the livestock business. It aims at providing an enabling environment for its "private sector-led development" initiative. The government also aims at enhancing productivity of livestock through institutional support and policy interventions. The private sector has been allowed to freely import high yield animals and high quality semen for an improved animal husbandry system. The overall objective is to convert subsistent farming into market oriented and finally to commercial livestock farming and to ensure ample supply to the domestic as well as to the international markets. After the devolution through 18th amendment, provinces have been assigned greater role for the development of agriculture sector including dairy and livestock. The provincial governments have to take initiatives to provide extension services to maximum number of farmers, especially those on subsistent farming, in order to achieve growth targets. However this is a time taking job and would require measures for medium and long term periods.

The federal government has to oversee the national policy issues and should be able to look after initiatives such as investment promotion for livestock sector, liaising with international organizations to launch initiatives with the help of the private sector enterprises, and coordination with the provincial government through the Inter-Provincial Coordination Committee. Further initiatives are required to restrict the smuggling of live animals to neighbouring markets which not only affect the overall supply of processed products but also limits access of ancillary industry to raw materials (hides and skins for the leather industry) procured from livestock.

The private sector shall have to adopt a proactive strategy and it should help the government through regional chambers of commerce, trade and farmer's associations and consortia of businessmen in the agribusiness. Governments are always constrained with financial issues while the private sector is usually resource rich. Sharing of competence by both can lead to better outcome and fetch maximum yield for the stakeholders.

In a nutshell, the livestock sector offers greater opportunities to the investors and market players to undertake farming projects and tap opportunities to earn mark-ups on their investments. Plentiful opportunities are available in the farming business and the ancillary industries to integrate and produce high value-added products that would not only cater to domestic needs of a large customer base but may also provide enhanced opportunities for exporting them to the international markets where food security is a rising concern. The forthcoming sections of the study analyse the issues in the livestock sector's development and growth vis-à-vis government's policy and initiatives. These would further underline the impediments that hinder sector's growth and restrict orderly execution of the government policies and initiatives. An assessment of the trade potential of livestock products originating from Pakistan will also be carried out along with policy options that could foster growth of supply of livestock products and exports thereof.

Geographical Concentration of Major Livestock

Pakistan is located in resource rich Asia with total area of 796,095 sq. km divided into 770,875 sq. km of land and 25,220 sq. km of water5. It shares its borders with India on the east, China on the north and with Iran and Afghanistan in the west. The country is geographically divided into five main provinces namely Punjab, Sindh, Baluchistan, Khyber Pakhtunkhwa (KPK), and Northern Areas. The population size is over 190 million with an annual growth rate of 1.55%.6 In terms of area, Baluchistan is the largest amongst the provinces whereas Punjab is the largest province in terms of population.

Over 64% of the inhabitants live in the rural areas and are mainly involved in agricultural activities which include raising animals for domestic and commercial purposes. The farmers are connected with markets for supply of dairy and livestock through organized and unorganized market mechanism. Animals are raised in various parts of Pakistan. As per the census conducted in 2006.Table 1 reflects the province-wise composition of livestock.

[5] CIA World Fact Book, Geography, https://www.cia.gov/library/publications/the-world-factbook/geos/pk.html
[6] CIA World Fact Book, People and Society, https://www.cia.gov/library/publications/the-world-factbook/geos/pk.html

Table 1 also reflects that major part of the livestock population is located in the Punjab Province and that too mainly consist of cows, buffalos, sheep and goats which are mainly raised in the rural or semi urban areas. Sindh is the second largest owner of livestock population followed by KPK province.

Table 1: Province-wise Allocation of Livestock

(000'heads)

PROVINCE	1960	1972	1976	1986	1996	2006
PAKISTAN						
Cow/Cattle	16,624	14,674	14,855	17,541	20,424	29,559
Buffalo	8,161	9,751	10,611	15,705	20,272	27,335
Sheep	12,378	13,667	18,937	22,655	23,544	26,488
Goat	10,046	15,581	21,693	28,647	41,166	53,787
Camels	490	731	789	958	816	921
Others	1,821	2,347	2,657	3,455	4,025	4,768
PUNJAB						
Cow/Cattle	9,673	8,226	8,108	8,817	9,382	14,412
Buffalo	6,129	7,413	7,979	11,150	13,101	17,747
Sheep	5,583	6,280	8,037	6,686	6,142	6,362
Goat	2,973	5,943	7,767	10,755	15,301	19,831
Camels	266	365	338	321	187	199
Others	1,146	1,347	1,454	1,938	2,186	2,458
SINDH						
Cow/Cattle	2,936	2,800	2,854	3,874	5,464	6,925
Buffalo	1,353	1,522	1,834	3,220	5,615	7,340
Sheep	1,590	840	1,829	2,616	3,710	3,959
Goat	2,201	2,275	4,237	6,755	9,734	12,572
Camels	62	80	144	218	225	278
Others	261	393	611	794	769	1,069
KPK						
Cow/Cattle	3,206	2,962	3,000	3,285	4,237	5,968
Buffalo	651	791	762	1,271	1,395	1,928
Sheep	2,432	2,455	3,675	1,599	2,821	3,363
Goat	5,035	3,737	4,686	2,899	6,764	9,599
Camels	76	101	95	70	65	64
Others	348	471	438	503	641	703
BALUCHISTAN						
Cow/Cattle	643	482	684	1,157	1,341	2,254
Buffalo	26	22	33	63	161	320
Sheep	2,564	3,859	5,075	11,111	10,841	12,804
Goat	1,596	3,238	4,441	7,299	9,369	11,785
Camels	86	185	212	349	339	380
Others	109	191	268	403	432	538
NORTHERN AREAS						
Cow/Cattle	236	204	209	408	N/A	N/A
Buffalo	2	3	3	1	N/A	N/A
Sheep	208	233	321	643	N/A	N/A
Goat	241	388	562	939	N/A	N/A
Camels	N/A	N/A	N/A	N/A	N/A	N/A
Others	18	23	27	30	N/A	N/A

Source: 1) Economic Survey of Pakistan 2011-12 (Table 120), and2) Livestock Census 2006

Note: Other livestock includes horses, asses, mules (excluding poultry)

Statistical Analysis of Supply Side

Herd Population

The total herd population consists of 35.57 million cattle (average growth of over 3% per annum), 31.73 million buffaloes (average growth of 3.7% per annum), 28.09 million sheep and 61.5 million goats (with annual growth of approximately 2%) besides 10 million camels and 3.5 million horses.7 Out of these, 10.5 million cows are in milk and 5.3 million in dairy production aged over three years. Buffaloes have approximately the same figure in milk and dairy production.

Table 2: Livestock Population

(Million heads)

Species	2009-10	2010-11	*(Change %)*	2011-12	*(Change %)*
Cattle	34.3	35.6	*3.79%*	36.9	*3.65%*
Buffalo	30.8	31.7	*2.92%*	32.7	*3.58%*
Sheep	27.8	28.1	*1.08%*	28.4	*1.06%*
Goat	59.9	61.5	*2.67%*	63.1	*2.60%*
Camels	1.0	1.0	*0%*	1.0	*0%*
Horses	0.4	0.4	*0%*	0.4	*0%*
Asses	4.6	4.7	*2.17%*	4.8	*2.17%*
Mules	0.2	0.2	*0%*	0.2	*0%*

(Figures are estimated based on inter census growth rate of Livestock Census 1996 and 2006)

Source: 1) Economic Survey of Pakistan 2011-12
2) Ministry of National Food Security

The herd population data in the selected categories is provided in table 2.The data is calculated on the basis of the last census conducted in the year 2006 taking an average growth rate in each category based on historical trends.[8] Livestock population's breakup is given in Table 3.

Table 3: Livestock Population (Species-Wise Breakup)

(000' heads)

SPECIES	2003-4	2004-5	2005-6	2006-7	2007-8	2008-9	2009-10	2010-11
CATTLE								
Bulls 3 years and above								
a) For breeding	327	333	1574	1633	1694	1758	1824	2747
b) For work	3942	4018	2574	2671	2772	2876	2985	2243
c) Others	0	0	0	0	0	0	0	0
Cows 3 years and above								
a) In milk	7359	7504	8721	9049	*3*0	9744	10112	10493
b) In dairy	2770	2824	4470	4638	4812	4994	5182	5378
c) Others	1528	1557	1968	2041	2118	2198	2281	2367
Bulls less than 3 yrs	4150	4230	5375	5577	5787	6005	6232	6467
Cows less than 3 yrs	3681	3752	4882	5065	5256	5454	5669	5873
Total Cattle	23575	24218	29564	30674	31829	33029	34285	35568
BUFFALOES								
Bulls 3 years and above								
a) For breeding	249	256	331	340	350	361	372	383
b) For work	205	211	280	288	297	306	315	325
c) Others								

[7] Economic Survey of Pakistan 2011-12 and based on inter census growth rate of livestock census 1996 and 2006.

[8] The figures reported in the tables reflecting herd population are calculated by the authors of Economic Survey of Pakistan 2011-12 on the basis of average yearly increase keeping historical trends in focus. Therefore, the real data as of today might differ from the above determined data but not substantially.

Buffaloes 3 years and above								
a) In milk	9820	10130	10223	10526	10845	11175	11514	11864
b) In dairy	3062	3156	3382	3481	3587	3696	3808	3924
c) Others	2477	2553	1960	2017	2078	2142	2207	2274
Bulls less than 3 yrs	4136	4264	4705	4845	4993	5144	5301	5462
Buffaloes less than 3 yr	5555	5725	6457	6649	6851	7059	5896	7494
Total Buffaloes	25513	26295	27339	28146	29001	29883	29413	31726
SHEEP								
Male 1 year and above	3585	3611	4365	4415	4468	4521	4574	4628
Female 1 year and above	13967	14068	13756	13914	14078	14242	14414	14585
Young stock less than 1 year	7192	7244	8369	8465	8565	8666	8769	8873
Total Sheep	24744	24923	26490	26794	27111	27432	27757	28086
GOATS								
Male 1 year and above	6929	7181	6617	6796	6980	7169	7364	7563
Female 1 year and above	29694	30773	31172	32014	32882	33773	34688	35628
Young stock less than 1 year	18056	18711	16000	16434	16879	17337	17806	18289
Total Goats	54679	56665	53789	55244	56741	58279	59858	61480
CAMELS								
3 years and above	571	566	698	707	716	726	735	745
Less than 3 yrs	172	170	223	226	229	232	235	238
Total Camels	743	736	921	933	945	958	970	983
HORSES								
3 years and above	263	261	290	291	292	294	296	297
Less than 3 yrs	52	52	55	55	56	56	57	57
Total Camels	315	313	345	347	348	350	353	354

Source: Ministry of National Food Security and Research (Pakistan)

Production Data of Meat and Other Livestock Products

Production data of meat and other products procured from the livestock is presented at Table 4 and Table 5.[9]

Table4
Meat Production

(000' tons)

SPECIES	2009-10	2010-11	2010-12*
Beef	1,655	1,711	1,769
Mutton	603	616	629
Poultry*	707	767	629
Total	2,965	3,094	3,027

Source: Ministry of National Food Security and Research (Pakistan)[10]
* Provisional

[9] Ministry of Food Security and Research, Government of Pakistan.
[10] The figures are based on available national statistics through the federal ministry of National Food Security and Research. However during the course of preparing this study it was observed that a discrepancy exists between the national and international production data. Case in point is of the FAOSTAT figures on Pakistan's Livestock Commodity Balances. It is recommended that the government of Pakistan may take up the issue of removal of this discrepancy with the agency.

Table 5
Estimate Livestock Products Production Data

SPECIES	UNIT	2009-10*	2010-11*	2010-12*
SKINS				
Sheep Skins	000' Nos.	47,402	48,478	49,582
Goat Skin	000' Nos.	10,495	10,620	10,745
FANCY SKIN				
Lamb Skin	000' Nos.	3,117	3,154	3,192
Kid Skin	000' Nos.	10,728	11,019	11,318
OTHER PRODUCTS				
Wool	000' Tons	42	42.5	43
Hair	000' Tons	22.6	23.2	23.8
Edible Offal's	000' Tons	334	344	353
Blood	000' Tons	56.8	58.3	59.8
Guts	000' Nos.	47,886	48,974	50,089
Casings	000' Nos.	13,879	14,347	14,832
Horns and Hooves	000' Tons	48.1	49.5	50.9
Bones	000' Tons	713.4	735.1	757.5
Fats	000' Tons	228.1	234.8	241.7
Dung	000' Tons	1008	1,039	1,071
Urine	000' Tons	311	320	329
Head and Trotters	000' Tons	208.2	214	220.1

Source: Ministry of National Food Security and Research (Pakistan)
* Provisional
- The figures for livestock products for the indicated years are calculated by applying production parameters to the projected population of respective years.

The growing size of population, economy and increased demand of livestock products in the domestic as well as international market put pressure on the domestic supply of livestock and its products. Conducive environments for raising livestock, farming of animals holds comparative advantage for production. This advantage is prominent in the farms located near urban centres which are able to establish better value chains as compared to the ones in the rural areas of Pakistan. There is a consensus amongst the livestock stakeholders that serious efforts are needed on part of the government as well as the private sector to take policy, its implementation and related initiatives which would enable both the rural and urban centres to enjoy better prospects for their growth of livestock and livestock products through establishing an organized and well-coordinated value chain.

SECTION 2: THE LIVESTOCK VALUE CHAIN AND SUPPLY SIDE CONSTRAINTS

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As mentioned in the preceding section, livestock sector in Pakistan currently offers greater trade opportunities to two main sub sectors, hat being. Meat and its preparations and animal casings. The main reason is the existing of a comparatively well-coordinated value chain as compared to other products obtained from livestock. The trade of these two products have registered impressive growth during the past few years which reflects that further specialization in these product sectors may enhance trade opportunities for Pakistan in existing and new potential markets provided appropriate measures are adopted to address issues in the value chain system of livestock products.

This section analyses the value chain structure of meat and meat preparations as well as animal casings and also attempts to determine supply chain constraints that impede upward growth at a desirable pace.

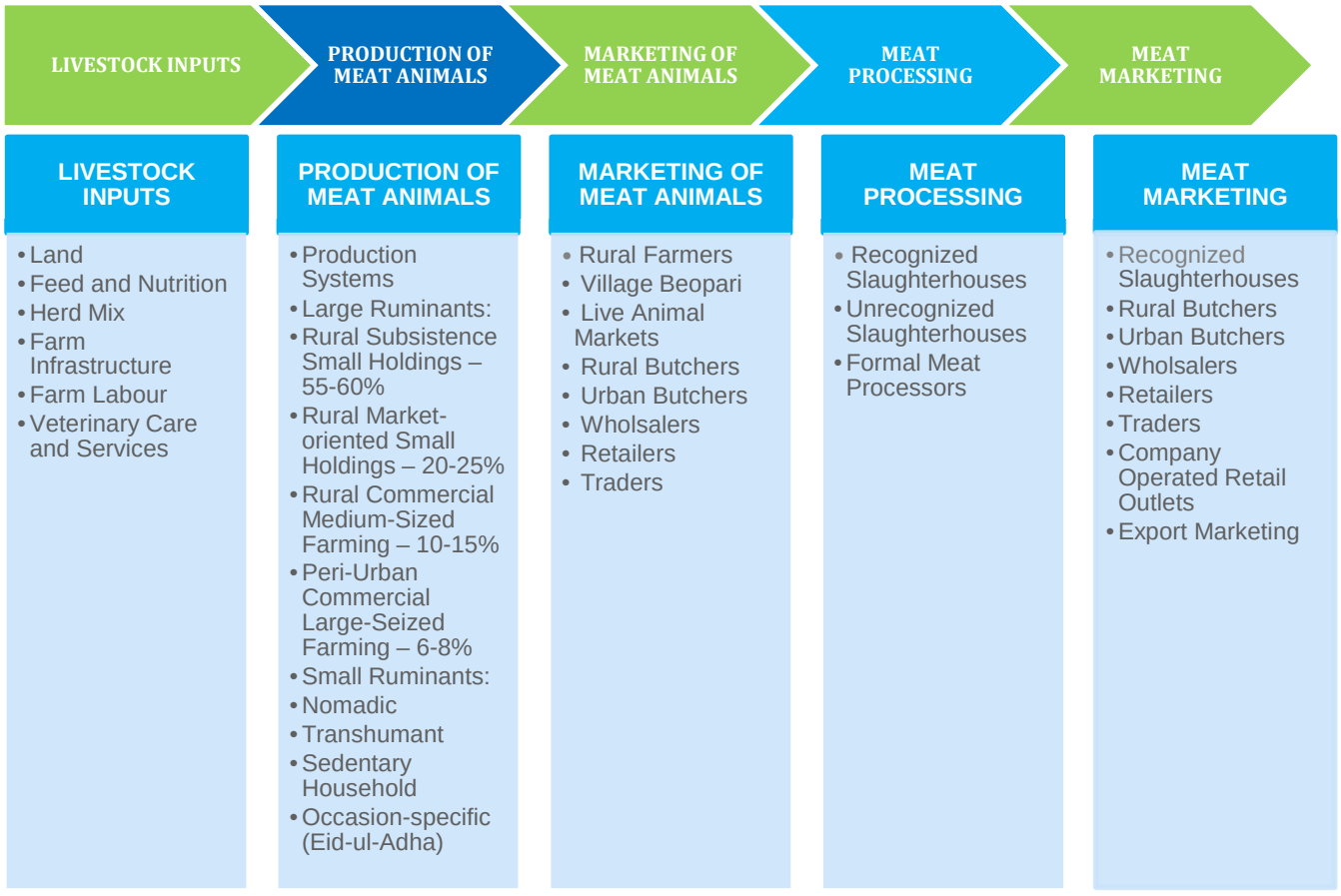
The Meat Value Chain

The meat value chain in Pakistan may be divided into five segments namely;

a. Inputs used in breeding of the livestock
b. Breeding of live animals meant for procuring meat and meat products
c. Marketing of animals bred for obtaining meat and meat products
d. Processing of meat products and value addition
e. Marketing of meat in
    - Domestic market
    - International markets

The value chain is explained in Figure 1 below.

Figure 1: The Meat Value Chain



Livestock Inputs

Land

The livestock sector in Pakistan consists of three types of producers: (i) small farmers, (ii) medium-sized farmers/producers, and (iii) large-scale producers. This categorization is mainly done on the basis of milch animal (mainly cows and buffalos) holding capacity of these farmers and producers. Here, it may be noted that milk is the main product derived from livestock as it has the highest domestic demand, while the rearing of animals for production of meat (beef and mutton) is a secondary activity in the sector.[11]Table 2 above gives a complete break-up of the population of meat animals (Cattle, buffaloes, sheep and goats) in the country.

About 80% of the farmers in Pakistan are categorized as small holders. They raise more than 50% of total animals with a herd size of less than five animals. The medium-sized farmers who make 14% of farm holders raise 29% of total animals in Pakistan with a holding capacity of 5-10 animals. Lastly there are 3% large-scale producers sharing 21% of herd holding which raise more than 10 animals.[12]

Almost one-fifth of the total agricultural land in Pakistan, covering an area of 263,000 sq. km, is being used by these producers as pasture land to raise milk and meat livestock.[13] The small scale subsistent farmers mainly raise animals on lands which are not proper farmlands and lack many facilities such as access to fodder and grazing grass, availability of water etc. Medium and large-scale producers are mostly located near the urban and peri-urban areas. They have relatively better access to the above stated facilities. Besides, due to their close proximity with the consumer markets, they enjoy a better supply chain and a much more organized distribution system.

Feed and Nutrition

The feed that is available for the livestock in Pakistan includes fodder (dry and green crops/roughage), concentrate feeds, silage and mineral mixtures. The animals require a balanced diet to keep good health and be productive for obtaining meat products after the slaughtering operation. However since the majority of these animals are bred by the subsistent farmers, their nutritional requirements are not fully met. The main reasons are lower levels of awareness on feed requirements and the low economic conditions of the farmers who have limited access to proper feed. The feed provided to these animals includes fodder mainly grown in limited quantities by these farmers or procured from the local markets.

On the other hand, increase in the overall demand for appropriate fodder has stimulated the growth of better crops such as *oats*, *berseem*, *lucerne*, *sorghum-sudangrass*, *mott grass*, *sorghum, maize* and *millet*. The popular types of dry roughage/ fodder include *wheat straw, rice straw, oats straw, maize-sorghum stubble, sugarcane bagasse, cotton seed hulls* and *corn cobs.*[14]

Concentrate feed ideally make up about one third of the animals' daily dietary intake along with two thirds of crop *silage.*[15] The concentrates include blends of various raw materials and additives that are made for specific dietary requirements (protein, energy, vitamins or minerals) of the animal. In Pakistan, mostly the *silage*[16]is produced from corn crop whereas this can be prepared by using any crop which helps in increasing the productivity of the animals. To reduce input costs for the farmers, the Government of Pakistan has introduced duty-free import of certain feed ingredients, growth promoters and vitamin premixes into the country.[17]

[11] In the year 2011-12, the gross production of milk stood at about 48 million tonnes, while meat (beef and mutton) production came to about 2.4 million tonnes only (Economic Survey, 2011-12).
[12]Dairy Development in Pakistan, Umm e Zia, T. Mahmood and M.R. Ali, Food and Agriculture Organization (FAO), 2011
[13]FAO Statistics, 2009
[14]SMEDA
[15]Ibid
[16]Silage is a fermented fodder, containing high levels of moisture that can be fed to cud-chewing animals like cows, buffaloes, sheep etc. The fodder is made by cutting the green plants and storing then in a silo, making a huge heap and covering it in a plastic sheet or by wrapping large bales of the same in plastic film.
[17]Economic Survey of Pakistan 2011-12, Chapter 2, Agriculture

Herd Mix

Large Ruminants

Figure 2 below contains a list of the important breeds of large ruminants i.e. buffaloes and cattle, raised and bred in the various parts of Pakistan. It may, however, be noted that as milk is produced as the primary livestock product in Pakistan, breeds for the purpose of acquiring beef specifically are rarely developed in the country. Hence the categorization of the cattle and buffalo breeds is normally based upon the milk and draught[18] purposes as presented in Figure 2.

Amongst the common breeds of buffaloes in Pakistan, ***Nili-Ravi*** and ***Kundi*** are the best breeds for milk, draught and beef purposes. ***Nili-Ravi***is mostly found in Punjab's districts of Lahore, Sheikhupura, Faisalabad, Sahiwal, Multan and Bahawalnagar. These black colour breeds attain an average weight of 800 kg at maturity in males and 525 kg for the females [Small and Medium Enterprise Development Authority (SMEDA) (2011)]. They have a wedge shape, massive frame, small curly horns, and wall eyes. They often have white markings on the forehead, face, muzzle and legs and white switch of tail (buffaloes with such markings highly desired and popularly called "Panj Kalian"). They have a large, strong udder and are generally docile.[19]

Figure 2: Important Cattle and Buffalo Breeds in Pakistan

Species	Milk purpose	Dual purpose	Draught purpose
Buffaloes	Nili Ravi		
	Kundi		
Cattle	Sahiwal (Swl)	Tharparkar	BhagnariandDajal (Heavy)
	Red Sindhi	Kankrej	Dhanni (Medium)
			RojhanandLohani (Light)
Cross bred cattle	Swl x Holstein Friesian (HF)		
	Swl x Jersey		

Source: Authority (SMEDA)

Nili Ravi

Kundi

Red Sindhi

Sahiwal (SWL)

[18]Draught Animals (Alternative Form: Draft Animals) are also known as animals of burden. They are used for drawing a load, for example, plowing of agricultural land, as opposed to be mounted upon

[19]SMEDA

Source:) SMEDA. The ***Kundi*** breed is mostly found in the districts of Dadu, Hyderabad, Karachi, Larkana, Nawabshah, Sanghar and Thatta located in the Sindh province. They have solid black colour while attaining an average weight of 600 kg at maturity for the male buffaloes and 375 kg for the female ones.

The price of an animal in Pakistan depends upon its physical condition, previous production and historical yield of its ancestors. In summers and the monsoon season, the price of a buffalo is higher as compared to its lower value in winters, due to a higher rate of fertility and better adaptability to hot and humid conditions than the cow.

In crossbred cattle, crosses of ***Sahiwal x Jersey***[20]***andSahiwal x Holstein***[21]***Fresien*** (HF)[22] are preferred whereas in the local breeds, Sahiwal cattle are considered to be suitable for the production of milk and meat. Sahiwal (Swl) is one of the best dairy breeds in Pakistan. It is tick-resistant[23], heat-tolerant and is known for its high resistance to internal and external parasites. These cows have a much higher yield. Due to their heat-tolerance capability and high milk production, they are also exported to some of the Asian countries besides their exports to Africa and the Caribbean. These cross-bred cattle have better milk and beef yield than the indigenous breeds as in the case of buffaloes. The process has also given rise to the population of the cross-bred cattle in the country.

The ***Red Sindhi*** originates from the province of Sindh. However, due to its hardiness, heat resistance and high milk yields, it has found its place in many other parts of the country. ***Red Sindhi*** is also compatible to hard environmental conditions and it is found in at least 33 countries of Asia, Africa and Americas. It has a basic deep rich red colour which may vary between yellowish brown to dark brown.

The ***Tharparkar*** breed is used for both for the milk production and draught power. These cows are found in the vicinity of Umarkot, Naukot, DhoroNaro, Chhor, Mithi, Islamkot, KhariGhulam Shah and Kachh. The cows have an average weight of 408 kg.

Small Ruminants

Small ruminants include sheep and goats, which are mainly kept by millions of landless, small farmers for the production of mutton. Currently 37 breeds of goats found in different parts of the country. Some of the significant breeds include Beetal, Dera Din Panah (DDP), Naachi, Kamori, Kaghani and Damani.[24] These breeds are primarily used for mutton production but can also have dual purposes as they can be used for milk as well. Goats usually breed more than once a year and multiple birthsare very common (Twinning Rate: 49%) in the above breeds.[25]

28 breeds of sheep are found in Pakistan. Out of these, 12 are fat-tailed while the rest are thin-tailed. Thin-tailed sheep are mainly found in the irrigated areas of the country while the fat-tailed breeds are found in arid rangelands and mountainous regions of Sindh, KPK and Azad Kashmir. Some famous breeds in the former type include Bakkarwal, BuchiCholistani, Katchi, Kajli, Kaghani etc. In the latter type, breeds such as Balkhi, Bibrik, Dumbi, Gojal, Harnai, Hashtnagri.are included. These breeds are primarily used for the production of mutton and wool which is course in quality but is a valuable raw material to the local carpet industry. Sheep breed once a year and have a lambing rate of 80%, but which rarely results in multiple births.[26]

[20]Jersey cows are a small cattle breed that was originally bred on the British Channel of Jersey, located off the coast of France. The breed is popular for the high content of butterfat in its milk, coupled with the its low maintenance costs

[21]The Holstein cow originated from Europe. The major historical development of this breed occurred in Netherland and more specifically in the two northern provinces of North Holland. Holsteins are distinctly recognized for their unique colour markings and outstanding milk production.

[22]Australian Friesian Sahiwal breed is being developed in Australia by the Queensland Government for use in the tropical areas. The breed evolved after cross breeding the Sahiwal from Pakistan and Holstein-Friesian from Australia. This breed has now extensively been tested in the tropical and sub-tropical areas of Australia. This cow produces good quality milk with 3.4% proteins and 4% butter fat.

[23]Tick is a parasite that is found in the animal farms especially in the rain season. They infect the animal's fur/ skin and mostly feed on them.

[24] Pakistan Agricultural Research Council (PARC), Islamabad

[25]University of Agriculture, Faisalabad

[26]Ibid

Farm Infrastructure

Due to their low economic conditions and high cost of technology, the small farmers mostly remain unable to adopt modern methods of rearing animals. They are also unable to provide for proper housing and shelter including sheds and paddocks to the different categories of livestock. Non availability of purpose-built farms, inaccessibility to water and feed-resources are other areas of concern.

Medium to large scale producers mainly with commercial interests often make use of the farm machinery and equipment such as fodder choppers, milk utensils, water pumps, freezers for cold storage, and calf feeders etc. However, if compared with international standards, most of these equipment's do not conform to the required standards. Therefore, in order to support the farmers, the government has allowed duty free import of livestock machinery and equipment.

Farm Labour

Small farmer families are mainly involved in raising livestock. In rural areas, mainly the women are involved in managing feeding, watering, housing and cleaning of the animals. Men are usually involved in the marketing aspect, besides seeking medical treatment for these animals from the available sources as and when required.

Medium and large scale producers are more likely to employ farm workers and professionally qualified staff to look after the management of their farm and animals on the basis of the number of animals they keep and on flexible income levels in contrast with the small farmers.

Veterinary Care and Services

Vaccination and medication is required to prevent outbreak of disease in the animal herd. Each new animal is usually required to be vaccinated before entering the farm. The approximate cost of vaccination per animal is Rs 550 or US$ 6 per animal per year. Mostly these vaccines are provided by the local governments from government-run veterinary hospitals against payment. Besides, these vaccines are also available under the prescribed schedule of vaccination from the vaccine institutes located in various parts of the provinces. The farmers are also provided these facilities through various field veterinary centres.

Artificial Insemination (AI) services are charged at a rate of Rs 2000 per animal for both cow and buffalo. There are four Semen Production Units (SPUs) in Punjab which are placed under the Directorate of Breed Improvement, Livestock and Dairy Development Department.[27]

Rearing and Breeding of Meat Animals

As mentioned earlier, more than 80% of the livestock farmers in Pakistan are subsistence-level, owning less than five animals in their herd for the primary purpose of producing milk. These may include two-three cattle/buffalo and/or three-four goats/ sheep per herd, which contributes to more than 40% of the smallholder household' income.[28]

The milk acquired is mainly used for own consumption and any surplus is usually sold in the market or to the traditional milk collection agents *(Dodhis).* As per traditional practise in the country, only male breeds of buffalo, cattle, sheep and goats are raised for further marketing as "meat animals". The females are primarily used for the production of milk and source of herd build-up or replacement. The male sheep and goats are generally sold within one year from birth for slaughtering as the meat of the young animals is better in terms of taste and quality as compared to that of the older animals.

As farm practises in Pakistan have become more mechanized, there has been a general decline in the population of buffaloes which were previously used as draught animals. Most of the buffalo meat available in Pakistan is produced from animals that have completed their useful productive time period and are usually in the last stages of maturity. For this reason, buffalo meat is sold at much lower prices in the

[27] SMEDA
[28] Pakistan Agricultural Research Council (PARC)

country. A sizable portion of the meat production consists of dairy meat and mutton which comes from in-milking, female cows, buffaloes, sheep and goats that are culled for mature age from the herd or do not have any further reproductive capabilities.

Production Systems – Large Ruminants

Most research studies on the livestock sector tend to classify the sector on the basis of location and herd-seize. Except for rearing of small, nomadic ruminants and some peri-urban farming units, most of the livestock farming in the country is integrated with the agricultural crop production activity.

There are four types of livestock production systems in Pakistan which along with their specific holding percentages are as under:[29]

1. Rural subsistence small holdings 55-60%
2. Rural market-oriented small holdings 20-25%
3. Rural commercial medium-sized farming 10-15%
4. Peri-urban commercial large-size farming6-8%

The first type of production system, although the largest one, is however also the least effective in terms of producing a consistent supply of meat animals. The rural subsistent small holders keep an average of three animals with the purpose of acquiring milk for the household. These animals are considered as a secondary income support alternative when the primary source i.e. crop fails due to drought or natural calamities.

The second type of production system which maintains an average of five animals, carries better linkages with the consumer market due to the fact that the farmers are able to produce a saleable surplus. Accordingly, they are also able to raise relatively better animals due to provision of improved quality of fodder to the animals meant for milk and meat production. The dry animals and mature animals are grazed only. The male calves produced are disposed of after lactation and the females are retained for milk and reproductive purposes.

The third type of animal breeding/raring system consists of farming with more than forty animals. These farms are more organized and have better market access. The work force employed is better trained in handling the animals. Some of these farms produce fodder on their farmlands while others procure it from the market. Most of these farms are aware of health and nutritional requirements of the animals. Most of these adopt appropriate breeding techniques including artificial insemination and mating with bulls of appropriate weight and age. As the contribution of these farms in total production system is between 10-15%, the overall sourcing of milk and meat from these farms remains relatively low as compared to the above two systems. There are issues of awareness and productivity with these units as although these are better equipped than the ones in rural subsistent levels but these farms still need to be upgraded in terms of technology and breeding practices.

The fourth type of livestock breeding system is mainly located in the suburbs of large cities. These farms are very small in number and may keep up to 2,500 animals in their herd each. As compared to smaller farms, these farms maintain effective market linkages and breed the animals on modern lines. They are better equipped with technological requirements and maintain trained work force including veterinary staff for immediate and appropriate care of the farm animals. This results into high productivity for *milch* and meat animals. Due to higher management costs, only high-yielding animals are retained while calves and dry females are sold, generally for slaughtering.

Production Systems – Small Ruminants

The majority of small ruminants' flock owners are generally small-scale rural farmers. At times these farmers are also landless.[30] The practice of maintaining a mixed flock containing small ruminants of

[29]Food and Agriculture Organization, 2006
[30] Some farmers lead a nomadic life, while others do not own specific land for raising animals and maintain them within their houses.

different breeds is common in Pakistan, but it also the case that farmers maintain separate flocks of sheep and goats also. The production system of small ruminants is divided into following types:[31]

1. Nomadic
2. Transhumant
3. Sedentary household
4. Occasion-specific (Eid-ul-Adha)[32]

The first type of livestock breeding system consists of nomads having small herds of sheep and goats that travel from one place to another in search of work, food and temporary shelter. One of the purposes of the movement from one place to another is to utilize freely available grazing grounds for breeding of the accompanying animals. These nomads are mostly found mainly in the provinces of Sindh and Baluchistan mainly. These herds range from very few animals to more than hundred in some cases. The male animals are sold in the market for meat purposes once they attain a certain age (usually one year) while the female animals are retained for reproduction and obtaining milk mostly for own consumption.

The second type of production system implies a fixed base for the flock-owners but includes movement with their families to other grazing areas for a major time period during the year. This production system can be observed in the Northern Areas of Pakistan, along with parts of KPK, Sindh and Baluchistan. The flock, consisting of less than 100 animals, is free to graze on rangelands or crop residue and sometimes on rented areas. The access to market for the flock owners is much more effective and results in the sale of the male progeny, which are often under-weight. The milk from the flock is consumed by the family and the surplus is sold in the market as well.

The sedentary households own flocks consisting of 20-40 animals that mainly remain in the same locality. During the day time, these flocks are taken to nearby areas to graze and are brought back in the evening. The sources of their feeding include grass stubble, roadsides, rangelands and household food scraps etc.

Before the eve of Eid-ul-Adha[33], some entrepreneurs procure about 50-100 male goats and sheep which they sell for premium prices after fattening through fodder and concentrates.

Marketing of Meat Animals

The Pakistan Agricultural Research Council (PARC) has identified five channels, currently present in Pakistan, through which meat animals are marketed. The channels are defined on the basis of identification of various stakeholders that play their role in the marketing of meat animals in Pakistan and their relative quantitative significance. The stakeholders and flows involved in each of these channels are described below:

Channel – I

The first channel involves the rural farmer selling80% of the meat animals to the *village beopari,*[34]5% to the live animal market and 15% to the rural butchers.

Channel – II

The second channels deals with the *beopari*selling 98% of the meat animals in the live animals market and 2% to the rural butchers.

[31]Afzal, M., 1998; Pakistan Country Paper.In: Thomson, E.F., R. von Kaufmann, H. L. Pun, T. Treacher and H. von Houton (Eds.) Global Agenda for Livestock Research.
[32]Animal Sciences Division, Pakistan Agricultural Research Council, Islamabad
[33]An Islamic ritual at the end of the annual Muslim pilgrimage called Hajj, which involves the slaughtering of animals such as sheep, goats, cattle, buffaloes and camels to feed the poor.
[34]Middleman

Channel – III

In the third channel, 52% of the meat animals are purchased by the contractors, 15% by the traders/ wholesalers, 31% by the urban butchers and only 2% by the rural butchers.

Channel – IV

In the fourth channel, the contractor sells 27% of the meat animals to traders/wholesalers, 1% to the exporters and 72% to the urban butchers.

Channel – V

In the fifth channel, 16% of the meat animals are purchased by the slaughterhouses from the traders/ wholesalers, while 84% are purchased by the urban butchers.

In Pakistan livestock markets have been established by the local municipal authorities but the market is primarily managed by the private sector mainly consisting of contractors. These markets lack basic facilities that are needed for animal welfare including water, shelter and feed/fodder etc. In this system the collection of the contracting fee (3-5% per animal) takes precedence over provision of services and amenities such as loading/unloading, veterinary care and weighing of animals etc. Unfortunately the amount collected through these charges is not invested back to upgrade the market facilities. Additionally, the sale of these animals is based on per head basis rather than the live weight.

Meat Processing

The slaughtering of meat animals is part of the processing stage in the meat value chain. This is carried out both in recognized and unrecognized slaughterhouses[35] and also on private premises throughout the country. However, slaughtering of animals in unrecognized slaughterhouses[36] is considered to be illegal in Pakistan under the West Pakistan Slaughter Control Act 1963. This act specifies that slaughtering of the large and small ruminants should strictly take place at recognized places with ante and post-mortem veterinary inspection. In Pakistan, there are currently more than 300 slaughterhouses established by the public sector and a few more established by the private sector.[37] Unrecognized slaughterhouses usually sell unhygienic meat (mutton and beef) which is dangerous for the health of the consumers.[38] Many recognized slaughterhouses lack basic facilities like water supply and electricity and adopt slaughtering methods that are unhygienic. These slaughterhouses are mostly polluted with blood, intestinal contents and dirty effluents and these conditions coupled with the lack of inspection by the authorities pose serious threats to public health and welfare.

The processed meat industry consists of many operations ranging from simple slaughtering of the meat animals to processing meat into cooked, fermented and preserved forms that serve the needs of different consumers, while the slaughterhouses are only engaged in the butchering of meat animals which is then supplied to processors and meat retail shops in the country. Some of the major players in the processed meat industry and leading exporters of meat products of Pakistan include Zenith Associates, Syed Traders, PK Livestock, Al-Shaheer Corp, Abedin International, KATCO International, Tazij Meat and Foods, Akmal Traders, Al-Mairaj International, Al-Aein Group and Zainab Enterprises.[39]

The comprehensive slaughtering process involves: (i) delivery of meat animal to the slaughterhouses, (ii) slaughtering, (iii) hide removal, (iv) emptying the stomach cavity (evisceration) including the stomach and intestines, (v) trimming and carcass washing, (vi) de-boning, (vii) chilling, (viii) packaging and (ix) cold storage. Each process adds value to the meat products.

[35] These are the slaughter houses that are registered or unregistered with the municipal authorities.
[36] According to the City District Government Lahore (CDGL) Sources, roughly 200 illegal/ unrecognized slaughterhouses are functioning in the city of Lahore and its suburbs.
[37] FAO, 2008
[38] There are incidents that some unrecognized meat shops sell meat of dead animals. There are many others that enhance the weight of animals through pouring water in their veins that eventually flatten the meat thereby increasing its weight and incurring losses to the consumers.
[39] All Pakistan Meat Exporters and Processors Association (APMEPA)

Marketing of Meat Products

Similar to the marketing channels identified by the PARC for the meat animals, eight marketing channels have been identified by PARC for the meat products, based upon the same criteria as the marketing of meat animals. These can currently be observed in the formal meat processing industry in Pakistan. These are as under:

Channel – I

In this channel, 30% of the meat is sold by recognized slaughterhouses to the wholesalers, and 70% to retailers.

Channel – II

In the second marketing channel, the wholesalers sell 90% of the meat to retailers, 5% to hotel and restaurants, 3% to food servicer and suppliers and 2% to super markets in the country.

Channel – III

In this marketing channel 100% of the meat is sold by retailers to the final consumers.

Channel – IV

The fourth marketing channel deals with the urban butchers selling 93% of the meat to final consumers, 3% to food suppliers and 4% to hotels and restaurants.

Channel – V

In this channel, the offal retailers procure 50% of the offal[40] acquired from the slaughtering of meat animals from the contractors and are sold in totality to the final consumers.

Channel – VI

The fifth channel deals with the rural butchers selling 100% of the meat to final consumers based in rural areas of the country.

Channel – VII

The hotels and restaurants, food suppliers and super markets sell 100% of the meat procured in the form of various meat products to the final consumer.

Channel – VIII

The last marketing channel deals with the offal processors procuring 50% of the total material from the contractors and selling it all the offal exporters.

Some of the processors in the formal sector like Zenith Associates own company-operated retail outlets besides having their own integrated processing facilities and they are successfully marketing their products to the local consumers. Other formal processors are selling their meat products under different brand names through various retail stores and super markets.

[40]Internal organs and entrails of the butchered animal

Meat Prices in Pakistan

At the outset, it may be noted that mutton (goat meat) is considered to be the premium meat in Pakistan and has the highest consumer demand in the country. Beef is considered to be secondary meat product for its perceived nutrition, quality and taste. According to the United States Department of Agriculture (USDA) Statistics 2012, Pakistan ranks amongst the top three countries in mutton consumption at 779,000 tons in 2011-12, and ninth in beef consumption at 1.7 million tons in the same year.

Although livestock population and meat production have steadily increased since 2009-10 as evident from Table 2 in Section 1, meat prices (mutton and beef) have shown a sharp increase in the recent past. According to industry sources, in 2010 mutton was being sold at around PKR 380/ kg (USD[41] 4), while it increased to PKR 500/ kg (USD 5.2) on average in 2011 and is currently priced at around PKR 650 (USD 6.8). Similarly, beef prices rose from PKR 250/kg (USD 2.6) in 2010 to PKR 350/kg (USD 3.6) in 2012. The majority of stakeholders who were interviewed during the consultative process for this study, have cited that an increase in the smuggling of live animals to Afghanistan and Iran and the increase in exports to the Gulf Region countries in the recent past have created a shortage of meat animals in the domestic market which has driven up the mutton and beef prices in the country. Other than this, there has been a general increase in the cost of meat production in terms of increase in prices of animal feed and fodder, utilities and transportation costs.

Meat production in Pakistan entails huge levels of investment to ensure a consistent supply of quality meat. Since an animal becomes suitable for slaughtering at the age of 1.5 years, there are large costs associated with its breeding and rearing. Additionally, as the sector is largely informal with weak farm-to-market linkages and an over dependence on the middlemen, the producers face unpredictability in selling/ receiving lower profits due to weak negotiating power. The domestic meat processors are also largely dependent on indigenous sourcing of meat animals in view of the prohibition on import of live animals and meat from major meat producing countries such as Brazil.[42]The issue of and recommendations for investment in meat production will be further discussed in Section 5.

In Pakistan, the regulation of meat prices is the mandate of the provincial and district governments through “Price Control Committees” and Magistrates. However the implementation of their control measures has been largely unsuccessful due to poor enforcement mechanisms.

Animals Casings Value Chain

Animal Casings[43] are the small intestinal tracts obtained from the alimentary tract of sheep and goats. Internationally, the casings of the sheep and goats are known as “Sheep Casings” and the term can be generically used for the small intestinal tracts of both animals. Sheep casings are used for many purposes including surgical sutures, as collagen sheets for burn dressing, in sports goods as strings of rackets and for casing of human food. Internationally, there is a huge demand for sheep casings especially for making sausage covering.[44]

It may be noted that the world demand for sheep casings was recorded at USD 4 Billion in 2011. Pakistan’s exports of sheep casings registered a figure of USD 51 Million only[45].Although the product carries the second highest value in the livestock export portfolio of the country; it only contributes to 0.001% of the total world demand of the same product. The reasons for analysing the value chain of animal casings are two-fold; firstly the local demand for animal casings in Pakistan is relatively non-

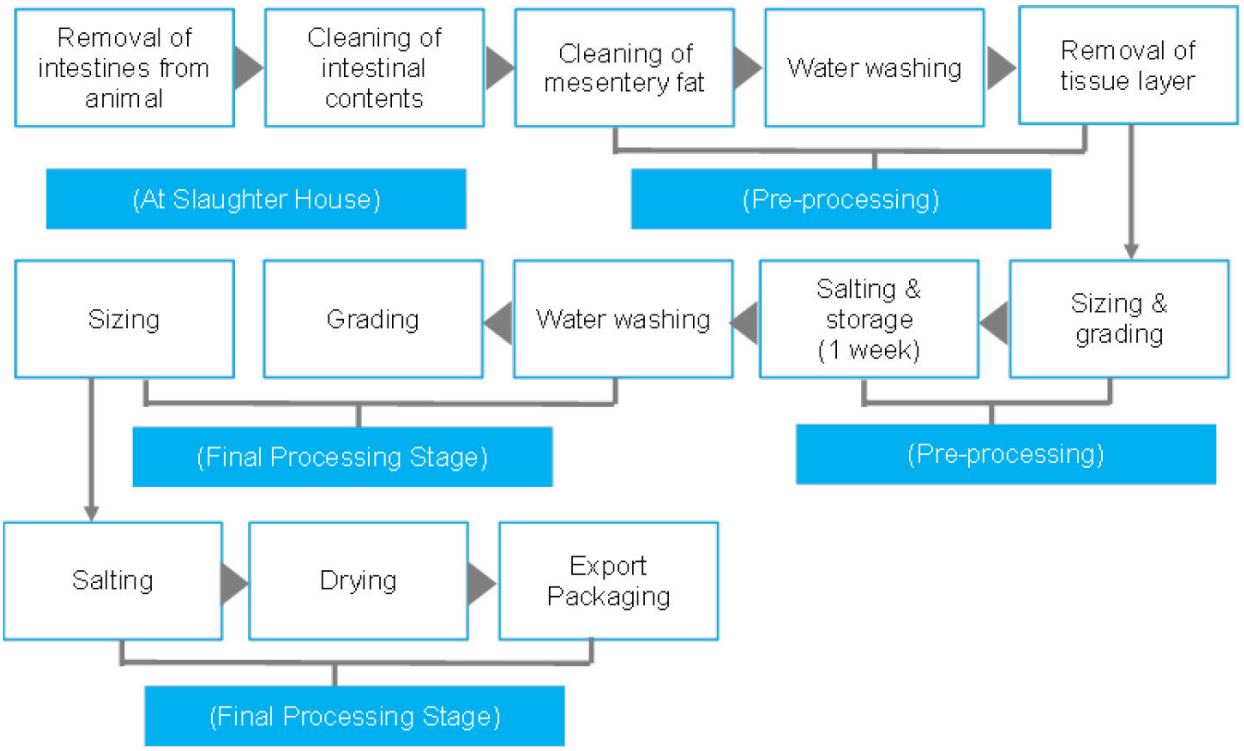
[41]Based on current exchange rate of USD 1 = PKR 95[
[42]Import Policy Order, 2009, Ministry of Commerce, Government of Pakistan. Clause 5 (A-iii) reads as “Live animals i.e. cattle, buffalo, sheep and goats, meat and bone meal, tallow containing protein and feed ingredients from Bovine Spongiform Encephalopathy (BSE) infected countries, such as U.K, Ireland, Belgium, Denmark, Falkland, France, Germany, Italy, Luxembourg, Holland, Spain, Brazil, Czech. Republic, Austria, Poland, Slovakia, Slovenia, USA and Alberta Region of Canada,; import of meat and meat products from other parts of Canada shall however be allowed subject to certifying additional animal quarantine requirements. This ban shall however not apply on the import of feed ingredients, namely-milk enhancers, concentrates, growth promoters, enzymes, fish meal replacers, transmuted into premixes and growth promoters, feather meal and poultry meal which have originated from vegetable, poultry, mineral and sea sources from the aforesaid BSE infected countries.”
[43]The international standard of measurement for small intestines is called a “hank”, which is between 90-02 meters long.
[44]SMEDA
[45]ITC Trade Map

existent. This means that the total production can be used as exportable surplus. Secondly, there is more demand for casings of small ruminants in the world market but the world production patterns are tilted towards breeding of large animals (beef, pork and veal). Their casings are less preferred due to difference in quality and certain characteristics.[46] Figure 3 shows value addition process of sheep casings at each incremental stage.

Figure 3: The Animal Casings Value Chain

The value chain for casings can be divided into three major activities that are performed by (i) slaughterhouses, (ii) processors and (iii) exporters (see figure 4).

Figure 4: The Activity Flow of Processing Animal Casings



Source: SMEDA

The above activities are performed by three identified producers/ processors. These are briefly described below.

The Slaughterhouses

Slaughterhouses established in various parts of the country serve as a primary source of obtaining sheep casings. Initial preparation of the sheep casings is done in these slaughterhouses after which further processing is done by the pre-processors and then by the exporters. At this stage, the intestines and internal organs of the sheep are removed during the slaughtering process. The intestine is then separated from other organs with the attached mesentery fats. The intestinal contents are squeezed out through hand

[46] SMEDA

operation after which the emptied intestines are washed and cooled in water at 50°F.[47]The average length of small intestine from a good quality goat or sheep is about 28-30 meters. The average good quality intestine usually is preferred in diameter of 20 to 22 mm. Procurement cost of this length and breadth ranges between Rs 100-150 paid by the processor to the butchers and slaughterhouses from where these casings are procured. Usually the processors make prior arrangements with the butcheries against a floating advance payment which ensures consistent supply of casings to them with least interruption.[48]

Pre-Processors

After the intestines have arrived at the processing unit/facility of the pre-processor, the undesirable leftover intestinal contents are removed with hand operation and remaining tissue and mucosal membrane are separated through the manual use of a bunt knife or the oyster shell. A machine called “Mucosa Stripper” may also be used for this purpose. This is labour intensive operation with requirement of large water supply at 108°F to keep the operations hygienic. After the cleaning process, the casings are applied with salt, graded and sized into hanks according to the required quality and length and are again salted through a process called curing. After this, the casings are placed in a cold storage for up to one week after which these are packed for the purpose of putting them in the final processing.

The inputs required by the pre-processors are (i) land, (ii) labour, (iii) utilities including water and electricity, (iv) raw materials mainly the salt, (v) certain cleaning and processing equipment and (vi) packaging containers. The average cost per hank includes its purchase price of PKR 300-450 and processing costs of upto PKR 250. Therefore the average total cost of processing one hank comes to about PKR 550-600. Each processed hank is sold by the pre-processors to the exporters/final processors at PKR 1,000-1,200 which results in a potential profit margin of more than 150% each.

The Final Processors/ Exporters

The final processors or exporters remove the casings from the cure and wash them to remove the salts. The casing is then graded with A, B and C quality as per the quality standards demanded by various international customers. The intestines are again sized into hanks on the basis of their diameters and are rechecked and cured with rubbing of fine salt. The salted hanks are dried so as to remove excess water and salt. These are then packed in the plastic drums carrying capacity to accommodate upto250,000 pieces of hanks each. The average weight of each drum comes to 40 kilograms. These drums are placed in cold storage before the shipment is effected after receipt of an export order.[49]

According to customer requirements in the EU, each hank is required with a length of approximately 92 meters with maximum seven piece attachment. None of the piece should be shorter than two meters. The other standard is the measurement of the diameter of the intestinal tube in the calibre sizes of 16/18 mm, 20/22 mm, 20/22 mm, 22/24 mm and 24/ 26 mm.[50]

Constraints in Domestic Livestock Supply and Value Chain

Meat Production as a Secondary Livestock Activity

As explained earlier, the main issue in the meat supply and value chain is that the production of meat (beef and mutton) has traditionally been treated as a secondary product after milk which holds primary importance in the farmers’ community. Due to this reason there exists a large gap in milk and meat production.

[47]Ibid
[48]Industry Sources
[49]SMEDA
[50]Industry Sources

Presently, there are no large or small ruminant breeds that are developed specifically for meat production purpose. The non availability of these breeds makes the farmer community indifferent on focusing their attention to raise animals for meat production exclusively. Further, the meat prices in the domestic markets are generally regulated by the government that leave little margins for the small and medium butcheries and selling shops. However, interestingly, the processed meat industry does not faces such regulatory price restrictions and therefore fix their own competitive pricing.

In Pakistan, beef is sold at lower prices as compared with mutton. The main reason is that in the international markets, beef fetches a premium price due to feedlot fattening of animals that ensures high quality yields while in Pakistan, due to lack of interest of stakeholders in the fattening of large ruminants and absence of investment initiatives, beef cannot fetch higher value as compared with mutton. The feedlot fattening issue will be discussed in details in the discussion part on feed and nutrition constraints.[51]

Low Productivity per Animal

The major factors contributing to low meat productivity per animal include (i) limited focus on proper breed management and health for meat production which results in weak and unhealthy livestock, (ii) inefficient livestock farming practices as meat production is traditionally considered to be an unprofitable business as against milk business, and (iii) shortage of slaughter animals since priority is given to the milk production which results in low population of male animals and culling of female animals in the last stages of maturity.

The current supply rate in the meat production in the country stands at 1.8%, while demand is up to 5-6% that has resulted in a huge demand-supply gap. Hence the demand and supply gap is estimated to grow at the rate of around 4.1% per annum.52It is anticipated that with rising income levels in the country, the demand for meat products will continue to expand at an even higher rate.53Rising exports of live animals and their uncontrolled smuggling across national borders into Afghanistan and Iran has also resulted in less availability of meat animals for the local industry and market. Furthermore, it is estimated that meat content in the local animals is about 50% of the gross weight as against 60% in many other countries which shows that there are productivity issues that have not yet been properly addressed.[54]

Inefficient Breed Management

There is a general lack of awareness in the farmers on development of separate breeds for milk and meat production. There is no practice of maintaining or raising a certain percentage of animals for meat production as against a common practice in countries such as the United Kingdom, France and Ireland where 10-15% of the total livestock is bred for meat purposes. Most part of the meat produced in the country is procured from end-of-career animals and male calves that are slaughtered at a very early age to conserve milk resources. It is a common experience in Pakistan that rearing male animals for meat production (also known as fattening) is an unprofitable business due to longer investment and maintenance requirements and the subsequent unsatisfactory sale price that the farmer receives in most cases. Considering the above, it is more likely that farmers in Pakistan will continue breeding animals primarily for dairy rather than for meat production. [55]

It is also observed that government's initiatives are not focused on developing breeds specifically for meat production as in the case of milk. Currently only one breed improvement project is operational under the Pakistan Livestock and Dairy Development Board (PLDDB) and that too is focused on better dairy breed development. The imported semen doses become very expensive for the private sector. Their market price charged for the imported semen dose ranges between Pak Rupees 10,000-12,000 (US$ 100-120) which is beyond affordability of the farmers. There is absence of appropriate regulation due to which production of

[51]Pakistan Agricultural Research Council (PARC)
[52]Punjab Board of Investment and Trade (PBIT)
[53]Planning and Development Division, Government of Pakistan
[54] All Pakistan Meat Exporters and Processors Association (APMEPA)
[55]PLDDD

substandard semen is on the rise.[56] There is also shortage of manpower in artificial insemination services due to which the outreach of government's initiatives in this area remains limited.

Inappropriate Feed and Nutritional Management

Low meat productivity in large and small ruminants is mainly due to limited availability of high quality fodder and sufficient quantity of water. There is also lack of awareness in the farmers' community on feed control and balanced diet which is required to maintain health and desirable yield levels. The dietary decisions are taken on the basis of decades old traditional practices particularly in the rural areas. Animals are fed with the fodder that grows as an agriculture residue and with other crops that are not preferred for human consumption.

As mentioned above, fattening of animals for meat production is a crucial aspect of animal productivity and a condition for enhancing supply and therefore needs proper attention. Farmers are unaware of the international concept of the Total Mixed Ration (TMR) in which the animal must be fed 3-3.5% of its body weight to attain the desired fattening for meat production.[57] Apart from awareness issue, a major constraint in feedlot fattening of meat animals is the limited availability of appropriate fodder. This is due to rapid decrease in the cultivable land each year owing to the insufficient supply of water and shrinking resources in the farm community. This has also resulted into an increase in the prices of livestock feed that has gone beyond the reach of majority of farmers due to limited financial income.

Insufficient Veterinary Services

Major diseases present in small and large ruminants in Pakistan are the Foot and Mouth Disease (FMD), Hemorrhagic Septicemia (HS), and Mastitis in large ruminants. In small ruminants, diseases such as Entero Toximia, CaprinePleuro Pneumonia and *Peste des Petits* Ruminants (PPR) is common.[58] These need to be treated through the available veterinary institutions located in most parts of the country.

After the devolution of powers through the 18thConstitutional Amendment, responsibilities of providing veterinary services are assigned to the provinces. Under the new scenario, the federal government is responsible for (i) planning and implementing of the national policies, (ii) coordination with provincial, national and international agencies on research and development, sectoral development, and(iii) trade development, standardization and compliance, quarantine and foreign assistance programmes etc. Table 5 reflects veterinary services provided by the provinces to the livestock sector.

[56] Availability of semen doses in Punjab is a big issue. Punjab's annual requirement of semen doses is 8 million, whereas only 2 million doses are being produced and there exists a deficiency of 75%. (PLDDB)
[57] Punjab Meat Company (PAMCO)
[58F]AO Pakistan, 2010

Table 5: Veterinary Service Institutions in Pakistan

Region	Research/vaccine production institutes	Veterinary Hospitals*	Veterinary dispensaries	Veterinary centres	Diagnostic labs
Punjab	**1**	**530**	**1213**	**1713**	**28**
Sindh	**2**	**119**	**60**	**608**	**7**
NWFP	**1**	**98**	**363**	**218**	**7**
Balochistan	**1**	**116**	**783**	**.**	**15**
Northern Areas	**.**	**12**	**165**	**.**	**7**
Federally Administrated Tribal Areas	**.**	**25**	**212**	**207**	**1**
Islamabad Capital Territory	**1**	**4**	**7**	**.**	**1**
Azad Jammu and Kashmir	**.**	**59**	**66**	**129**	**6**
Total	**6**	**963**	**2869**	**2875**	**72**

* Veterinary hospital is an institution where at least one veterinarian is posted along with other paraprofessional staff and there are facilities for artificial insemination also. Each veterinary dispensary is mostly headed by a veterinarian and a veterinary centre is headed by a veterinarian paraprofessional.

Source: Pakistan Agricultural Research Council, Islamabad, Pakistan, 2009

It is worth mentioning that after the devolution of powers, there still exist ambiguity in the federal and provincial levels as to the management of retained and devolved functions in federal and provincial governments. This has created accessibility issues for the stakeholders on the veterinary services, particularly in the informal sector. Further, the livestock sector is encountering health and medical treatment issues including disease diagnosis and monitoring and reporting. Other issues include lack of national policies on eradication and control of animal diseases, informal inward trade of inappropriate livestock, poor quality assurance and control in vaccine and veterinary drugs that are available in the public sector. Insufficient availability of vaccines is also a major issue which increases mortality in the farm animals.[59]

Issues in Meat Processing

As mentioned earlier, the unrecognized and illegal slaughterhouses are potential threat to the overall meat processing sector of Pakistan. Even the organized slaughterhouses have many issues pertaining to their maintenance and processing methods that might not fully cater to the desirable requirements. Limited participation by the private sector and artificial price fixing mechanisms by the government are other major constraints in the development of the meat processing industry.[60]

Illegal Trade of Live Animals

Besides formal export of live animals, a large number of animals are smuggled across the national borders illegally. These animals, mostly *milch* animals, are smuggled to some neighbouring markets mainly Afghanistan and Iran. Ineffective border enforcement measures have resulted in the daily smuggling of upto 1,000 live animals to Afghanistan through conventional and nonconventional routes. This eventually creates shortage of live animals in the domestic market and thus leads to shortage of meat supplies to the consumers. Smuggling also gives rise to unhealthy and low yield animals into the country that poses a threat to adulteration of animal breeds besides posing a challenge for the public health.

Stakeholders' Awareness and Training

As the farmer community attach secondary importance to the meat sector and raise livestock mainly for the purpose of milk production, there exists a large awareness gap in the community on farming of meat animals. There is lack of knowledge on fattening of animals for procuring meat and meat products. This is

[59] PLDDD
[60] PLDDD

followed by limited knowledge of feed and nutrition, hygiene, marketing structure and profitability that can be enhanced through appropriate knowledge.

The butchers in the meat processing industry are not equipped with the proper knowledge to maintain purpose-built slaughterhouses, ensuring hygienic and quality control in slaughtering and inspection of meat animal and final products to ensure public health. This is one of the main impediments in growth of the industry to meet the domestic requirements and also ensure appropriate supplies for the exports. Due to inefficient slaughterhouse operations, other by products such as offal and casings are damaged and therefore are not found fit for exports.

It may be emphasized here that building a knowledge base regarding all aspects and operations relevant to livestock needs to be based on sound Research and Development (R&D) efforts. This is significant in improving the per capita animal productivity. However, with spending just 0.22% of the agricultural GDP on agriculture and livestock research, Pakistan is much behind its regional partners such as India, Sri Lanka and Bangladesh and is obvious; a comparison with the United States of America (USA) and EU cannot even be considered.[61]

International Standards, Compliance and Traceability Issues

Pakistan is obliged to comply with the established health and safety standards being applied by the importing countries in order to ensure market access for its products. For this, the country has to have domestic regulations of its own which could ensure production of appropriate goods that are compliant to international standards.

Presently three food safety laws are available in Pakistan at the federal level which are explained in Section 3. Analysis of these laws reveals that they are not in full conformance with the required international standards and further, these are not implemented appropriately. Besides hygiene, the traceability requirements are also not observed fully. Traceability is a requirement to be fulfilled while exporting to various high end destinations including the EU. In Pakistan, there is lack of maintaining pedigree record and tagging of the farm animal followed by weak regulatory framework and limited awareness on the use of healthy semen that results into loss of traceability tracks of farm and meat animals.[62]

[61]Pakistan Agricultural Research Council (PARC)
[62]Dairy farmers in Punjab

SECTION 3: TRADE POTENTIAL OF LIVESTOCK PRODUCTS

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Performance of Livestock Sector in Exports

In contrast to the dairy sector where there are supply constraints and value addition issues, the livestock sector has shown a better performance on the export side. Two major categories of livestock products are main performers. These include meat and meat preparations (HS 0201 to 0210 and 1602) and animal casings (HS 0504). The export performance of meat and meat preparations has been registering a high average growth of approximately 35.5% (period 2009-11) with gulf region as major export destination. The total value of exports in this category was US$ 167.27 million (2011). The top importing countries for this category include UAE, Saudi Arabia, Kuwait, Bahrain, Oman and Iran. Animal Casings (HS 0504) is the second major export product of the livestock sector. The value of its exports during 2011 was recorded at US$ 51.56 million with an average annual increase of 40.3% (period 2009-11), mainly to the EU.

It is worth mentioning that the livestock sector also provides precious raw material to the ancillary industry including animal feed, bio gas, detergent, and edible oil etc. besides providing valuable inputs to the leather and leather products industry. The breakup of livestock products that are exported is provided in table.

Table 6: Export of Livestock Products from Pakistan

(Export value in 000' US Dollars)

Product Category	2007	2008	2009	2010	2011	Destinations
LIVESTOCK PRODUCTS	63,815	84,735	123,653	178,718	241,260	
Live Animals (HS 0101-0106 excl swine and poultry)	105	115	14,059	24,599	19,346	Afghanistan (76%), Iran (10%), UAE (6%)
Meat and Meat Preparations (HS 0201-0210 and 1602 mainly)	46,614	61,518	80,949	123,524	167,271	UAE (29%), Saudi Arabia (27%), Iran (14%), Kuwait (10%),Bahrain (7%), Oman (6%), Afghanistan (4%), Qatar (2%)
Animal Casings (HS 0504)	14,244	20,765	26,070	27,385	51,562	Germany (35%), Romania (17%), Spain (12%), Italy (8%), Poland (9%), Turkey (3%), France (3%)
Crude Animal Material *(bones, horns, hair, feather, others)*	2,852	2,337	2,575	3,210	3,081	N.A

Source: Author's calculations based on UN COMTRADE Statistics

Table 6 also reflects geographical mix of exports of three major categories of livestock products to various international markets. Live animals are exported mainly to Afghanistan and Iran. Live animals are also transported under informal or illegal trade in large quantities which are not possible to quantify in the absence of empirical data. The meat processing industry and other auxiliary industries including tanneries, leather and leather products and footwear also complain about this issue and often try to pressurize the government to ban the export of live animals and to restrict their smuggling to the neighbouring markets, to ensure ample supplies of raw materials to the domestic industry.

Table 6 further reflects product mix of four major categories mainly including meat and meat preparations and animal casings which are exported to various markets. Meat and meat preparations are exported to Gulf Region and Iran while animal casings are exported to countries located in the EU including Germany, Romania, Spain, Poland, Turkey and Italy mainly. The export figures of these two product categories show an impressive annual growth which reflects increasing demand for Pakistani products in these markets.

Table 7: Product Mix of Meat and Meat Preparations Exported from Pakistan

(Export value in 000' US Dollars)

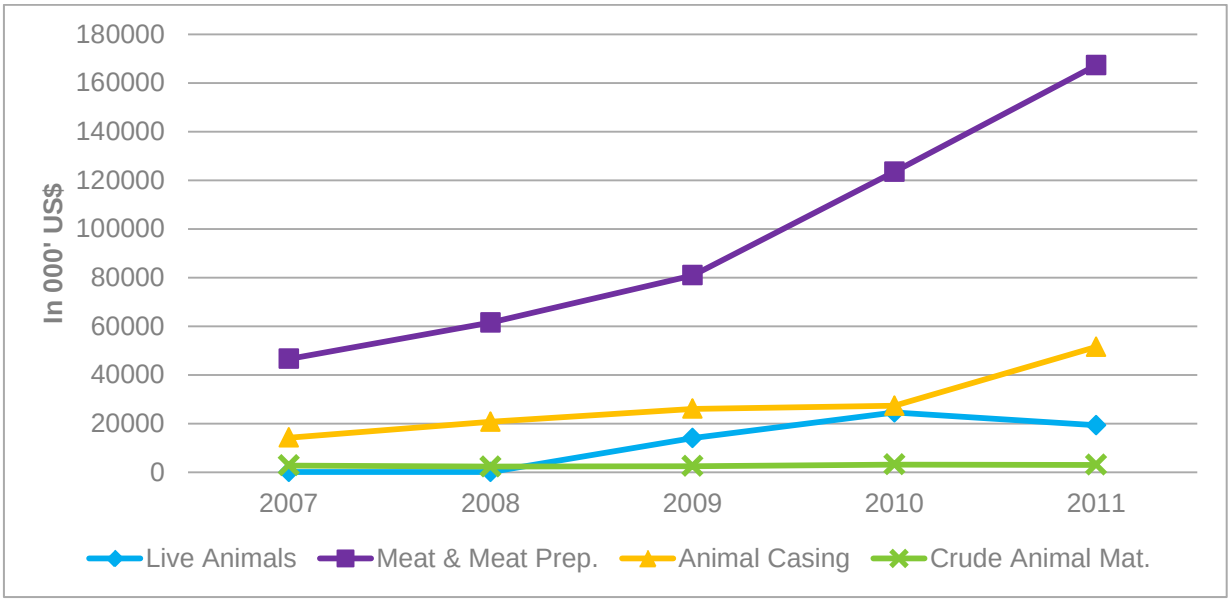
Product Category	HS Code	2007	2008	2009	2010	2011
Meat and Meat Preparations	0201-0210 1602	46,614	61,518	80,949	123,524	167,271
Bovine carcasses and half carcasses, fresh or chilled	020110	14,668	22,342	41,275	60,917	65,805
Sheep carcasses and half carcasses, fresh or chilled	020421	8,558	12,131	19,305	23,657	27,822
Goat meat, fresh, chilled or frozen	020450	10,325	10,273	11,061	19,410	24,091
Lamb carcasses and half carcasses, fresh or chilled	020410	3,808	2,034	3,452	3,193	13,022
Bovine edible offal, frozen nes.	020629	197	-	12	981	8,811
Bovine edible offal, fresh or chilled	020610	2	-	3	4,044	5,626
Sheep, goats, asses, mules or hinnies edible offal, fresh/chilled	020680	70	42	-	2,183	5,263
Sheep cuts, bone in, fresh or chilled	020422	204	1,255	674	1,936	4,816
Bovine cuts bone in, fresh or chilled	020120	3,955	10,396	1,857	2,440	3,450
Others		4,827	3,045	3,310	4,763	8,565

Source: Author's calculations based on UN COMTRADE Statistics

Table 7 highlights product mix of meat and meat preparations exported to various destinations mainly in products such as carcasses of bovine and sheep, goat meat, lamb meat, and edible offal. This table also provides statistical data of exportable items in the meat preparations category. It can be seen that the major products exported are carcasses of bovine and sheep followed by meat of goat and lamb mainly to the Gulf Region.

Export trends of major livestock product categories are shown in figure 5.

Figure 5: Export Trends of Livestock Products

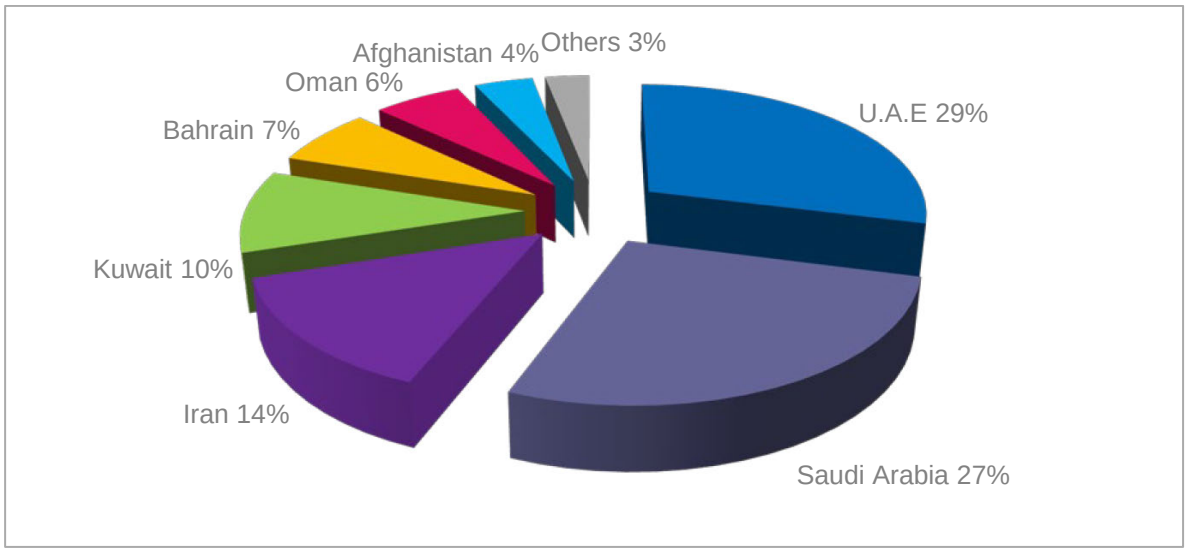


Source: Author's calculations based on export figures for year 2011 as reported in UN COMTRADE Statistics

The main speciality of Pakistan is in export of chilled meat. Due to closer geographic proximity, the chilled products, after keeping them in refrigeration for approximately 14 hours under five degrees Celsius is transported in temperature controlled air cargo and despatched to the export markets that are located at an aerial distance of approximately two hours from the Lahore or Karachi airports. The meat is transported to the meat shops in these markets immediately; therefore the total lead time of meat reaching the consumers from the production centres is less than 12 hours which gives Pakistani meat products a comparative advantage besides its taste being a major reason of its demand in the gulf markets.

Figure 6 shows geographical mix of meat and meat preparations (HS 0201 to 0210 and 1602).

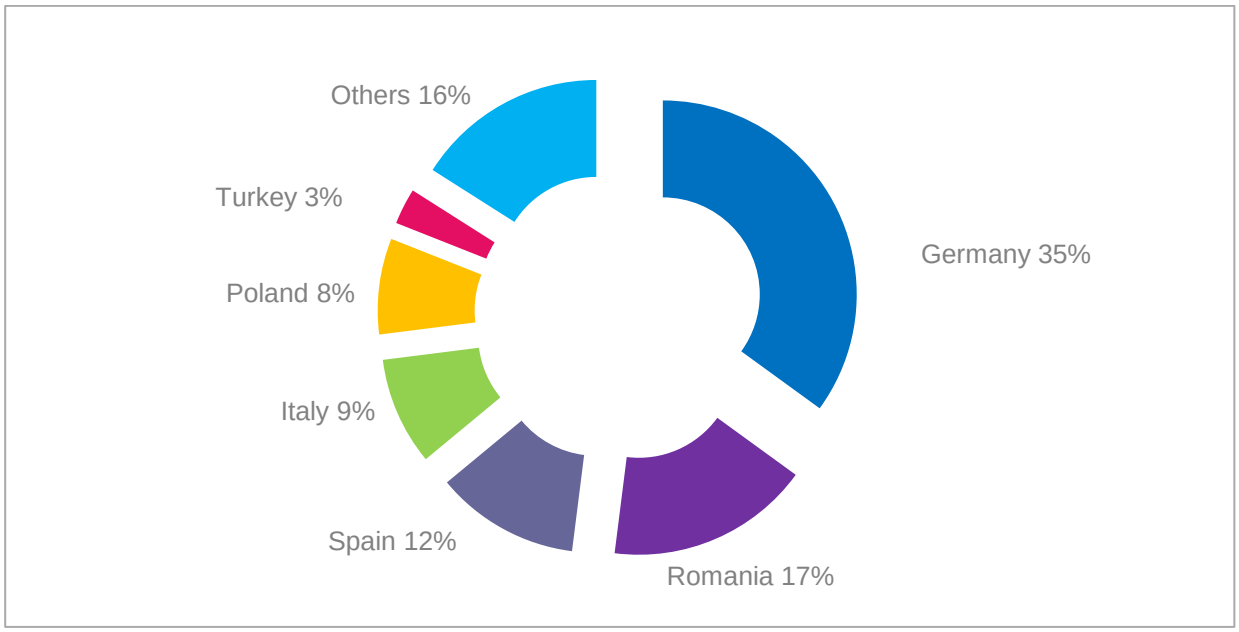
Figure 6: Geographical Mix of Meat and Meat Preparations



Source: Author's calculations based on export figures for year 2011 as reported in UN COMTRADE statistics

Figure 7 reflects geographical mix of animal casings (HS 0504) which are mainly exported to the European markets.

Figure 7: Geographical Mix of Animal Casings



Source: Author's calculations based on export figures for year 2011 as reported in UN COMTRADE Statistics

As mentioned above, in the chilled meat sector, having a comparative edge in supplying to the traditional markets in the Gulf Region, the scales can be increased in this area. The meat export strategy should go further by preparing for the EU market by reducing costs of production and enhance knowledge of EU import requirements such as traceability requirement besides meeting other standards and following regulations on import of meat products into these markets.

There are certain constraints on supply as well as on the regulatory side while exporting these products. Particularly in the animal casing sector due to limited preparedness on part of stakeholders, tough sanitary standards abroad and packaging requirements, Pakistani products have remained in the tight watch list of the European import markets. These standards not only obligated Pakistan to export quality products but also required adoption of appropriate production measures to ensure hygiene and maintain environmental protection. Besides above, animal casings worth millions of dollars goes to waste due to inapt knowledge about the value of these products and lack of facilities that can ensure compliance with international standards.

Correcting such practices in a prudent and diligent manner would help the sector to fast grow and cater to the requirements of the existing markets in a frictionless manner. This will also help the sector to make inroads into the new markets with larger variety of casing products. As a result of better awareness and adoption of standardized production and processing practices, Pakistan can generate exportable surplus at competitive prices.

Meat Sector's Export Basket Analysis of Pakistan

Pakistan export basket for meat sector is dominated by three major categories of products, namely:

a. Meat and meat preparation, which includes:
   i. Meat of bovine animals, fresh or chilled (HS Code 0201)
   ii. Meat of bovine animals, frozen (HS Code 0202)
   iii. Meat of sheep or goats - fresh, chilled or frozen (HS Code 0204)
   iv. Edible offal of red meat (HS Code 0206)
   v. Meat and edible meat offal nes (HS Code 0208)
   vi. Meat and edible meat offal nes (HS Code 0210)
   vii. Prepared or preserved meat, meat offal or blood, nes (HS Code 1602)

b. Animal casing, which includes:
   i. Guts, bladders and stomach of animals except fish whole or in pieces (HS 0504)

c. Live animals, which includes:
   i. Live horses, asses, mules and hinnies (HS Code 0101)
   ii. Live bovine animals (HS Code 0102)
   iii. Live sheep and goats (HS Code 0104)
   iv. Live animals, nes (HS Code 0106)

These three categories constitute 99% of Pakistan's livestock sector exports, while the first two categories, which are comparatively value added products vis-à-vis live animals, constitute almost 91% share in export basket.

Meat and Meat Preparation

Meat and meat preparation constitutes 69% of Pakistan's export basket of livestock sector. Pakistan's export of meat and meat preparation is predominantly directed to Gulf Cooperation Council (GCC; Saudi Arab, UAE, Bahrain, Kuwait, Oman, and Qatar), which constitutes more than 81% share of meat and meat products, while 14% to Iran and 4% to Afghanistan. In 2011, Pakistan's exports of meat and meat preparation stood at US$ 167.271 million out of which US$ 130.630 million was directed to GCC. Moreover, GCC's total import in 2011 stood at US$ 1,845 million out of which Pakistan got the share of 0.07%. Other export markets in 2011 of Pakistan were Viet Nam, Hong Kong, Malaysia, Thailand and Jordan, however, time series analysis of these markets reflects inconsistent export trends.

Potential Markets for Pakistan

Due to stringent requirement of traceability, Pakistan is unable to export to EU countries, which are major consumer of meat and meat products with annual import value of US$ 31,262 million in 2011, which is almost 45% of world total import.

The potential market analysis for export of meat and meat preparation from Pakistan to GCC (six countries) reflects that Pakistan's existing share in these markets is negligible which can be enhanced by formulation of doable penetration strategy after consultation with stakeholders. The GCC countries are currently not imposing restrictive standards due to their current domestic insufficiency and the low cost of Pakistani live animals and meat imports. However, these standards can be imposed in an unpredictable manner in future which makes the Gulf Region an unreliable export market in the long-term.

For short and medium term, Pakistan's must focus on the market penetration of existing trading countries along with development of new potential markets. For market penetration and development, countries of GCC, Commonwealth of Independent States (CIS), Association of Southeast Asian Nations (ASEAN) and Organization of Islamic Conference (OIC) must be targeted keeping in view the acceptability of products. To start with, we can focus on Russia, Viet Nam, Egypt, Malaysia, Turkey, Singapore, Indonesia, Philippines and Jordan.

Following tables reflect time series export value, quantity and unit value of meat and meat preparation by these countries from 2007 to 2011:

Table 8: Meat and Meat Preparations Exported from Pakistan

Countries	Value 2007	Value 2008	Value 2009	Value 2010	Value 2011
			Value in 000' US$		
Russia	2,263,109	3,313,536	2,922,435	2,764,074	3,109,257
Viet Nam	16,544	39,526	29,940	34,097	1,217,297
Egypt	N/A	602,675	513,317	864,121	804,174
Turkey	554	1,577	433	250,070	512,957
Singapore	207,475	261,271	252,565	311,102	396,257
Indonesia	160,088	208,273	276,725	405,371	335,833
Philippines	167,099	243,646	191,432	261,954	302,093
Jordan	102,570	134,551	173,681	221,147	252,814
			Volume in Tons		
	Quantity	Quantity	Quantity	Quantity	Quantity
Russia	1,099,668	1,197,555	1,002,264	963,698	946,601
Viet Nam	N/A	N/A	7,613	N/A	526,233
Egypt	N/A	215,806	130,936	957882	N/A
Turkey	177	383	161	50,906	111,012
Singapore	66,478	67,719	126,335	76,441	83,121
Indonesia	88,019	95,484	114,090	142,378	105,783
Philippines	169282	185,854	164,776	224,670	201,535
Jordan	48,763	50,295	N/A	61,737	61,576
	Unit Price US$/Ton	Unit Price US$/Ton	Unit Price US$/Ton	Unit Price US$/Ton	Unit Price US$/Ton
Russia	2,058	2,767	2,916	2,868	3,285
Viet Nam	2,884	2,639	3,933	3,943	2,313

Egypt	N/A	2,793	3,920	902	4,102
Turkey	3,130	4,117	2,689	4,912	4,621
Singapore	3,121	3,858	1,999	4,070	4,767
Indonesia	1,819	2,181	2,425	2,847	3,175
Philippines	987	1,311	1,162	1,166	1,499

Source: International Trade Centre (ITC)

As per above trade statistics, all targeted/ potential markets provide desired profitability, which can be compared with the prices offered in GCC countries, which also may also be penetrated.

Russia applies 19.06% ad valorem tariff (estimated, based on the data from 2012 using Harmonised System Nomenclature Rev. 12, to products originating from Pakistan). Viet Nam applies 15.17% ad valorem tariff (estimated, based on the data from 2010 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan). Egypt applies 3.34% ad valorem tariff (estimated, based on the data from 2009 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan). Turkey applies 189.71% ad valorem tariff (estimated, based on the data from 2011 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan). Singapore applies zero ad valorem tariff (estimated, based on the data from 2010 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan). Indonesia applies 5% ad valorem tariff (estimated, based on the data from 2011 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan). Philippines applies 15.45% ad valorem tariff (estimated, based on the data from 2007 using Harmonised System Nomenclature Rev. 02, to products originating from Pakistan). Jordan applies 5% ad valorem tariff (estimated, based on the data from 2011 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan). Table 9 shows leading suppliers or competitors of Pakistan in potential markets.

Table 9: Potential Export Markets for Meatand Meat Preparations

Potential Markets	Supplying Countries in 2011
Russia	Brazil, Uruguay, Australia, USA and Paraguay.
Viet Nam	India, Australia, USA, New Zealand and Denmark.
Egypt	Brazil, India, USA, Australia and Colombia.
Turkey	Poland, Germany, France, Italy and Austria.
Singapore	Australia, New Zealand, Thailand, Brazil and USA.
Indonesia	Australia, New Zealand, USA, France and Canada.
Philippines	India, Australia, New Zealand, USA and Brazil.
Jordan	Australia, India, Brazil, New Zealand and Sudan.

Source : Author's calculations based on UN COMTRADE statistics

Animal Casings

Animal casing constitutes 22% of Pakistan's export basket of livestock sector with export value of US$ 51.562 million in 2011. Pakistan's export of animal casing was predominantly directed to Germany (value US$ 18 million - recorded share of 35% in 2011), Romania (value US$ 8.8 million- recorded share 17% in 2011), Spain (value US$ 6 million- recorded share 12% in 2011), Italy (value US$ 4.2 million- recorded share 8% in 2011), Poland (value US$ 4 million- recorded share 8% in 2011), Turkey (value US$ 1.6 million- recorded share 3% in 2011) and France (value US$ 1.3 million- recorded share 2.5% in 2011). These markets characteristically comprise of more than 85% share of animal casing exports from Pakistan.

Potential Markets for Pakistan

The potential market analysis for export of animal casing from Pakistan to EU (27 countries) reflects that despite directing 87% of animal casing exports to said market, Pakistan has only 1.86% share of EU, which stresses need for penetration into these existing export destination. For short and medium term, Pakistan's potential exports markets for animal casing can be Netherlands, Japan and China.

Following tables reflect time series export value, quantity and unit value of animal casing imported by these countries from 2007 to 2011:

Table 10: Animal Casings Exported from Pakistan

Countries	Value 2007	Value 2008	Value 2009	Value 2010	Value 2011
			Value in 000' US$		
The Netherlands	158,588	217,603	311,410	278,610	390,816
Japan	171,768	242,595	236,414	232,845	317,023
China	107,672	136,435	164,917	272,210	237,133
			Volume in Tons		
	Quantity	Quantity	Quantity	Quantity	Quantity
The Netherlands	51,043	57,413	45,319	62,060	70,640
Japan	24,354	28,504	23,608	25,983	27,542
China	94,003	96,323	98,893	141,987	121,752
Jordan	48,763	50,295	N/A	61,737	61,576
	Unit Price US$/Ton	Unit Price US$/Ton	Unit Price US$/Ton	Unit Price US$/Ton	Unit Price US$/Ton
The Netherlands	3,107	3,790	6,872	4,489	5,533
Japan	7,053	8,511	10,014	8,961	11,511
China	1,145	1,416	1,668	1,917	1,948

Source: ITC

As per above trade statistics, all targeted/ potential markets provide desired profitability. The Netherlands applies zero ad valorem tariff (estimated, based on the data from 2012 using Harmonised System Nomenclature Rev. 12, to products originating from Pakistan). Japan applies zero ad valorem tariff (estimated, based on the data from 2008 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan). China applies 5.65% ad valorem tariff (estimated, based on the data from 2011 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan).

The following table shows the leading suppliers or competitors of Pakistan in potential markets.

Table 11: Potential Export Markets for Pakistan's Animal Casings

Potential Markets	Supplying Countries in 2011
The Netherlands	China, Germany, Lebanon, UK and Poland.
Japan	China, Australia, New Zealand, USA and Mexico.
China	USA, Netherlands, Spain, Australia and New Zealand.

Source: Author's calculations based on UN COMTRADE statistics

Live Animals

Live animals constitute 8% of Pakistan's export basket of livestock sector with export value of US$ 19.345 million in 2011. Pakistan's recorded export of live animals is predominantly directed to Afghanistan (US$ 15 million- export share 76% in 2011), Iran (US$ 2 million – export share 10%) and UAE (US$ 1 million – export share 6%). These markets characteristically comprise of more than 92% share of live animals. In order to strengthen supply of live animals for first two categories of exportable products, which are comparatively value added, Pakistan must not focus on export of live animals.

Factors Affecting Export of Livestock Products

On the basis of issues summarized above, key issues impeding export growth are explained below:

Historical Factors

At the time of independence, most of the farm animals were either taken away by the evacuees or indiscriminately slaughtered by refugees to meet their immediate food requirements. This was followed by slaughtering of the dry animals that were initially brought to the urban centres for milking purpose and, after end of lactation period, were slaughtered [(Barki, et al. (2006)]. The herd population had a narrow mix with issues such as productivity, growth and value addition.

Surplus Generation

The annual increase in herd population is recorded at 4% in the yearly statistics contained in the economic surveys The growth of sheep and goats, which are mainly consumed for meat production, is even lower than the annual growth rate of cows and buffalos which are partly used for meat production and mainly for the milk production. In addition to this, as livestock production has remained closely integrated with crop production therefore there is heavy dependence of raising animals on the crop rotation cycle.[63]In addition to this, the livestock is considered to be a secondary support instrument to the crop system for the farmers' community. Mainly, the livestock farms located near urban centres enjoy better value chain and price for these products and therefore have better growth prospects.

Generating exportable surplus from the available supplies has always remained a challenge due to two factors. One being the priority of farmers (mainly subsistent) to raise livestock mainly for selling them for slaughtering on Eid-ul-Adha (an annual Islamic ritual celebrated religiously by Muslim Community of the world) and other for selling to local slaughter houses for meeting domestic demand. In both cases the factors of appropriate feed and disease control is generally not handled properly which results into low immunity and under-weight animals. Thus the priority to raise animals from export perspective is not given much prominence in the rural community. If the farmer community is educated to raise livestock on modern lines where they can breed various varieties by providing appropriate feed and controlled environment, higher quantities and quality can be ensured through better farm management.

Another issue that restricts supply of precious raw material for value added industry such as leather products manufacturing industry is the export and informal trade of live animals. As evident from discussion above, the main beneficiary of live animal trade from Pakistan is Afghanistan followed by Iran. Such trade not only increases prices of livestock and its products in the domestic market but also restricts value added industry from access to precious raw material. The Government of Pakistan often imposes partial restrictions on export of live animals but has not been able to take effective measures to curb the smuggling of live animals to the neighbouring countries.

[63]Iqbal, Muzafar (1999), An Assessment of Livestock Production Potential in Pakistan: Implications for Livestock Sector Policy, page 2

Local Market Factor and Export Supply Chain

The export supply chain is a mix of intermediaries involved in production, transportation and export of meat products to the international markets. As reflected in the Table 7 above, the product mix in the main category "meat and meat preparations" consists of carcasses of bovine and sheep, goat meat, lamb meat, and edible offal mainly. These products are procured through meat processing facilities. These facilities have to get approval from the importing country's health department, which, on the basis of compliance to the production and processing standards as well as after meeting quality benchmarks valid for the import markets, can export them to the partner countries. For example, there are at least eight meat processing companies, five based in Lahore and three in Karachi, whose facilities have been approved by GCC health authorities for import into the region.[64]

The exports of livestock products are subject to creating balance between exports and local demand. Price stability is required to ensure the supply of meat and meat products to the domestic population for meeting their dietary and nutritional requirements. The illegal trade of live animals and poor animal handling at subsistent levels restrict high growth of livestock sector and therefore indirectly put restraints on the export supplies.

There are number of other products obtained from processing of livestock. Besides meat and meat preparations, valuable by products such as skins, wool and hair, edible offal, casings, horns and hooves, bones and animal fats are obtained which are used as inputs in producing various products. All of these livestock by-products have export potential but as evident from the data presented in Section 1, the growth in production and export of these products is not aligned with export of meat and meat preparations and animal casings. A major reason is the loss of most parts of these products due to poor handling and lack of knowledge about the utility and worth of these products. Another reason is weak connectivity between the meat processing companies and suppliers of meat products. As major part of animals is slaughtered for the purpose of home consumption while a big chunk of livestock is slaughtered on Eid-ul-Adha, most part of the remains other than meat is not handled properly which results in wastages of these materials and therefore real benefits cannot be obtained due to weak integration and communication in the export supply chain. Moreover, the export supply chain of these products is not very well integrated and therefore restricts opportunities for these products which could fetch higher values in the export markets.

Investment in Value Added Export Sector

The value added meat processing industry is highly desirable to foster growth of exports from Pakistan. According to the records available with All Pakistan Meat Exporters and Processors Association (APMEPA), there are currently 23 registered meat processing units in Pakistan with 14 in the province of Punjab and 9 in Sindh. The growth in the number of meat processing units during last ten years has shown consistent rise. However the number of livestock farms has registered better increase during the same period. The major reason is rising demand and pricing structure in the domestic market as well as attractive mark up on investment and last but not least the hidden potential of the sector which has mostly remained untapped during the past.

This has made convenient the availability of livestock animals for the meat processing industry. However growth in the size and number of internationally compliant meat processing units is not consistent. Increase in the number and size of these units would facilitate the growth of whole value chain. This would largely be possible if these units set up additional facilities to process other parts of animals such as casings and other closely associated animal parts with meat preparation process. This will also help in reducing the average unit cost of products due to enhanced facilities and increase in efficiencies. As a result, the basket of value added products will also expand in size and would be able to bring valuable foreign exchange for the country. It will also help in formation of small but structured processing units of other products obtained from livestock that can also be exported into international markets.

[64] All Pakistan Meat Exporters and Processors Association (APMEPA)

Geographical Diversification

Next step after having addressed the issues of supply chain, quality and standardization is approaching target markets for livestock products of Pakistan. Pakistan adopted a "Rapid Export Led Growth Strategy" (REGS) as its trade policy initiative in the year 2005. One of the major objectives of the policy was to exploit potential of Pakistani products in the non-traditional markets.[65]

The policy of the provincial government in Punjab province is to foster growth of livestock through taking developmental initiatives and maximizing outreach through extension work programme. Punjab is enjoying a historical and competitive edge over the other provinces due to major concentration of livestock in its geographic proximities. In contrast, Sindh, being a second major province in terms of livestock, started initiatives on various livestock and dairy development schemes very lately and as a result the outreach and extension services are not very active in major parts of the province.

An efficient supply base ensures better integration in the value chain and therefore results in diversifying products as well as geographic boundaries. Moving forward from traditional markets to more sophisticated markets such as European Union requires development of internal competitiveness. This requires a two-end strategy where on the one side Pakistan has to make efforts in the new markets through conducting market studies and assess their regulatory and procedural requirements while on the other, the domestic processing industry is to be upgraded through information, human capital and technology to enhance potential to export in the more sophisticated markets.

The system of transportation and air shipments will also have to be evaluated and planned. Considering the current level of supply, production and exports, it is recommended that in the short term, the strategy should be focused in enhancing competitiveness in the existing markets and increasing the size of share of meat products. Efforts are also required to be made to export high value added processed *Halal* food products made from meat and poultry that comply with the import country regulatory requirements since these have huge potential for exports to the niche markets of middle east. The long run strategy would be required to target the European markets that are considered to be high end markets with tough regulatory and certification requirements. For this the government as well as private sector should formulate a viable work plan.

Market Orientation

Apart from major exporters in the livestock product category, others have limited orientation of the international markets. The Pakistani embassies abroad and their commercial sections are not much responsive in identifying trade opportunities in various countries. A proactive approach on part of the Pakistani embassies would be required to educate the large farmers and potential investors of opportunities and benefits available in the existing as well as potential high end markets. This would be beneficial for the industry to adopt *export led growth strategy* where the farming and production side would be tuned to produce high quality livestock and value added products that could not only increase existing export supplies substantially but also make inroads into the new markets.

Compliance to Standards

Each country has its standards that are established to ensure that any goods coming into these markets are safe for human consumption and are not harmful for the health of plants and animals besides the health of the humans. WTO agreement on Sanitary and Phyto-sanitary Standards (SPS Agreement) contains provision for the member countries to apply standards on imported products and therefore the food and some other products are subjected to the hygiene standards in the country of import. There is growing awareness in the meat processing industry as against dairy industry of international standards and

[65]Here non-traditional markets refer to the markets where Pakistan has no or very limited commercial presence. Historically, Pakistan has been exporting its products, especially leather, textiles, sports goods, surgical goods etc. to the European, US and Canadian markets. These markets, for most of Pakistani products, have become saturated, highly competitive and the profits have declined due to entry of new players into these markets and fierce competition from competitors, especially the regional competitors. Therefore need was felt to explore potential of markets located in Africa, Middle East, Oceana, Far East and Central Asian markets which are referred to as non-traditional markets in the trade policy language.

some of the meat processing firms are registering themselves with the concerned departments in the export markets. However, due to several factors mainly relating to weak implementation of domestic standards and limited awareness in the producers, there is less proliferation of registered meat companies in Pakistan.

Costs and requirement to fulfil procedural formalities associated with compliance are among other issues. The government, through its subordinate organizations such as the Quarantine Department and Trade Development Authority of Pakistan (TDAP) manages visits of the import countries' inspection teams to slaughter houses in Pakistan who apply for registration with the foreign import authorities. The registered slaughter houses are supposed to fully comply with the requirements of the importing countries and such requirements should be clearly known to the exporting firms. There are many slaughter houses in the country which do not conform to the international standards due to the reason that; (i) majority of them are in unorganized sector, (ii) there is less awareness among the meat processing companies of standardization and certification requirement, or (iii) the domestic regulations are not backed by appropriate implementation mechanism which could ensure proper compliance to the domestic as well as international standards

SECTION 4: POLICY MEASURES AND REGULATORY FRAMEWORK FOR THE DEVELOPMENT OF LIVESTOCK SECTOR IN PAKISTAN

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An Assessment of Governmental Policies

Agriculture Policy

Traditionally, the agriculture sector has played a central role in the economy of the Pakistan. It accounts for over 21% of the GDP and employs over 45% of the total labour force of the country. The agriculture sector remains a significant supplier of raw materials to the industrial sector as well as is a major contributor in the exports of Pakistan. Despite the fact that Pakistan is an agrarian economy, a comprehensive and focused agriculture policy has not been formulated in the country.

After the 18th constitutional amendment, agriculture and livestock have been transferred from the federal list to the provincial subjects. The Ministry of Food and Agriculture and the Ministry of Livestock and Dairy Development have been devolved and their functions have been transferred to the provinces. Since livestock holds major importance in the agriculture economy of Pakistan, the national policy and planning, international and provincial coordination on animal diseases, import/ export of livestock and livestock products, research on livestock diseases and animal quarantine are retained by the federal government. A new ministry called the Ministry of National Food Security and Research has been established and assigned the above functions.

To evaluate governmental policies on agriculture, particularly the livestock and dairy, two national planning documents can be referred to. These are the "Annual Report 2011-12" and the "Vision 2030", both prepared by the Planning Commission of Pakistan. The thrust of the framework remains on *"growth in agriculture by enhanced agricultural productivity, improved sector governance, sustainability of the system, reduction of volatility and augmenting competitiveness in agricultural marketing and trade, and improvement of the investment climate in the sector."*

According to the Annual Report 2011-12, livestock sector remained resilient despite heavy losses in the face of the unprecedented floods of 2010 and 2011 and was able to consistently achieve average growth target of 4% during 2010-11and 2011-12. The livestock sector's contribution in the agricultural mix of Pakistan has shown a relatively consistent increase during the past few years. This is due to the fact that due to the unprecedented floods and shortage of water this secondary source of income for the farmers has gained more importance to replace the crop losses.

Effects of Devolution

Although the main objective of devolution of certain federal subjects including agriculture was to empower the provincial governments to take strategic measures for the development of these subjects, disruption in the progress of livestock sector has been observed. At least 15 development programmes were being implemented for the livestock sector prior to the devolution under the Public Sector Development Program (PSDP). The pace and progress of these initiatives has been affected due to weak coordination between federal and provincial ministries and departments and it will take some time before the pace of progress is restored to its previous levels. A "Livestock Wing"[66]was created under the under the Ministry of National Food Security and Research which has been delegated the role of coordinating foreign aid and technical assistance, management of animal quarantine departments in the country, import/export and procurement of veterinary drugs, vaccines and animal feed additives through imports and also the import/export and grading of the livestock and livestock products.

However, despite the apparent lag in livestock development after the devolution in the year 2010, the production of meat (excluding poultry meat) increased by 10% in the year 2011-12 against the target of 5.76%. Around 2.4 million tonnes of beef and mutton was produced against the target of 2.2 million tonnes.[67]

[66]Economic Survey of Pakistan, 2011-12
[67]Ministry of National Food Security and Research, 2011-12

Livestock Development Initiatives- 2012-13

Several initiatives have been taken by the federal government under the PSDP 2012-13. These include allocation of an amount of Rs. 495 million for on-going and new projects by the Ministry of National Food Security and Research. These include:

- Research for Agriculture Development Program including animal sciences;
- "Special Programme for Strengthening SPS Facilities and Quality Inspection Services in Compliance with WTO-Establishment of integrated National Animal and Plant Health Inspection Services (NAPHIS)". Under this initiative, a federal level bill has been drafted called the "Food Safety and Plant Health Regulatory Authority" in consultation with the relevant ministries/departments and is awaiting enactment by the parliament;
- Up-gradation and establishment of animal quarantine stations in Pakistan. These facilities will provide certifications of animal and animal products needed to meet the international requirements.

The government of Punjab has allocated an amount of Rs. 2.6 billion for the year 2012-13 for the livestock under the Medium Term Development Framework 2011-14.

Sindh has allocated Rs. 2.3 billion for 16 programs relating to livestock while the rest of the provinces and territories have also increased their funding and program portfolio for the sector.

The federal government in collaboration with the Food and Agricultural Organization(FAO) has executed a project to progressively control Foot and Mouth Disease (FMD) in three year time period of 2011-13. The program is being funded by the United States Agriculture Department. The USAID has initiated a project in Khyber Pakhtunkhwa (KPK), Punjab and Sindh that includes sustaining the survival of livestock through the provision of feed, fodder and medicine under the Flood Recovery Agriculture Programs.

The Vision 2030

The Vision 2030 explains that the lack of essential development of the livestock sector has been due to poor quality of feed and health coverage, indiscriminate breeding of genetically inferior livestock that results in lower productivity, outdated and limited marketing facilities, lack of investment in R&D and market infrastructure. On the other hand, the sector has remained resilient by showing a sustained growth rate of approximately 4-5% during the past decade without involving any major investment. The government's vision is to develop an efficient and competitive sustainable agriculture sector ensuring food security and having the ability to contribute to the economic development of Pakistan.

The Livestock and Dairy Development Policy

Government of Pakistan launched its first ever Livestock and Dairy Development Policy in 2007 which formally identified the livestock sector as a major source of economic growth and poverty alleviation in the rural areas of the country. The policy aimed to bring significant positive changes in the livestock and dairy sectors of Pakistan. Contrary to making livestock as part of the overall agricultural policy as per previous practice, the sector was given significance to provide an independent policy framework for accelerating its development.

The policy recognized that the demand for livestock and dairy products in Pakistan would rise primarily due to an increase in population over the years and the rise in the income levels. It was also made clear that this demand could be met only through increasing the productivity per animal as the number of animals was already touching the maximum in terms of land and resources. The policy identified milk as the main product and beef and mutton as the by-products in livestock. It also identified the immense export potential of the livestock and dairy sectors.

Displaying the competitiveness of the livestock and dairy sectors, the policy contained a study in which a comparison of cost of milk production in 31 countries reflected that the Pakistani rural farmers produce milk at just US$ 11 per 100 kg and were found to be the second most competitive after Argentina. In fact the country's rural farms were also found to be more competitive than India, Bangladesh, Western Europe,

North America and even Oceania. The policy also identified constraints faced by the livestock and dairy sectors including: (i) non-availability of superior germ-plasm, (ii) inadequate feed resources, (iii) epidemics of infectious diseases, (iv) poor marketing infrastructure, (v) low public sector investment, (vi) poor institutional infrastructure, (vii) outdated regulatory framework and (viii) limited availability and access to the farm credit.

To address the above described constraints, the policy provided for a "Private sector-led development with the public sector providing the enabling environment and building capacity." The strategy included the following four elements:

a. Private sector-led livestock growth

b. Productivity enhancement of existing livestock resources

c. Moving away from subsistence farming to market-oriented commercial farming

d. Targeting entire value chain to enhance productivity and profitability

Keeping in view the above strategic elements, following key policy and institutional development measures were identified for the livestock sector:

1. Review and updating of the existing legal and regulatory framework

2. De-regulation of meat prices

3. Rationalization of Taxes/Tariffs at the government level

4. Easy access to affordable credit

5. Level playing field for local meat industry

6. Establishment of Livestock and Dairy Development Board (LDDB) and Pakistan Dairy Development Company (PDDC)

7. Re-orientation of public sector institutions including the usage of government farms for superior male production, phased privatization of slaughter houses, public-private partnerships for vaccine production and improvement in research and development infrastructure and funding.

Fiscal Policy and Farm Credits

A present, 26 commercial and microfinance banks through a network of 3,900 "agriculture designated" branches are providing agriculture credit throughout the country. These include Allied Bank Limited (ABL), Habib Bank Limited (HBL), Muslim Commercial Bank (MCB), United Bank Limited (UBL), two specialized banks –Zarai Taraqiati Bank Limited (ZTBL), Punjab Provincial Corporative Bank Limited (PCBL), and 14 private domestic banks. Furthermore, five microfinance banks (MFBs) are also providing financing to the farmers. Among other agricultural activities, livestock farming is also being extended a significant portion of the total credit.[68]

Investment Regime and Policy

With a current growth rate of around 4% and widening demand and supply gap in the livestock sector and due to the fact that Pakistan is one of the low cost meat producing country in the world, its livestock sector offers attractive opportunities to the investors. It also offers high returns on investment as against other businesses and thus has a strong pull for the new businessmen. Livestock and dairy development policy

[68]The Economic Survey of Pakistan 2011-12

encourages private-sector led growth and the government has taken initiatives such as (i) ensuring credit availability, (ii) setting up of private sector-led companies such as the LDDB and (iii) duty free import of veterinary and dairy machinery/equipment, feed inputs and vaccines etc. Moreover, in order to increase investment in the livestock sector and reduce input costs in livestock production, the import of certain feed ingredients, growth promoters and feed premixes have been zero-rated. Since 2010 more than 9,500 exotic animals, 318,768 semen doses and 4,300 embryos of high yielding animals have been imported. New slaughterhouses and meat processing facilities have also been established in the country and the export of meat has increased from USD 108 million in 2010-11 to USD 123.6 million in 2011-12.[69]

The future growth of the livestock sector is envisaged to be 5% annually in the meat production by shifting focus from subsistence level to market-oriented livestock farming and also by promoting high yielding animals cross-bred through better provision of Artificial Insemination (AI) services in the country. At present the investment opportunities in the livestock sector lie in the establishment of corporate meat breeding farms, vertical integration of meat production and processing activities, production of vaccines and veterinary pharmaceutical products, and cattle feed mills etc.[70] The particular areas of support needed by the SMEs in the meat sector include setting up of model breeding farms, provision of business consultancy services, setting up of semen production units, and establishing meat processing zones in each district etc.[71]

Trade Policy Specific to Livestock Sector

The Ministry of Commerce's *Strategic Trade Policy Framework 2009-12*envisaged Pakistan becoming a globally competitive dairy exporter.. It identified that China, with its rising annual demand for dairy products (14% per annum) along with South East Asia and the Middle East is likely to become the future demand hub for livestock products. No specific trade policy initiatives on the livestock sector were contained in the framework. However it may be noted that Pakistan faces huge competition from other meat and dairy exporting nations due to provision of heavy subsidies to their farmers and Pakistan's inability to comply with international sanitary and phyto-sanitary standards for its livestock products.

Nevertheless if the local supply chain management issues are addressed and international standards are complied with, Pakistan has a huge opportunity to increase its meagre share in the huge US$ 3 trillion global *Halal* food market. Another very important initiative required to be implemented is the curbing of illegal trans-border trade of live animals with neighbouring countries which will help in reducing the incidence of diseases in the country's livestock.[72]

Institutional Setup of the Public Sector

Livestock development is mainly concentrated in the public sector including government ministries and attached departments, universities and public sector companies. However, valuable contribution by the private sector has also been witnessed, especially in the development of supply and value chains.

Until 2008, the livestock development initiative was managed by the Ministry of Food, Agriculture and Livestock (MINFAL) at the federal level. However, a separate ministry under the title "Ministry of Livestock and Dairy Development" has been formed which is mainly responsible for preparing and implementing national policy planning and coordination with attached specialized departments in all provinces. The ministry is headed by a Federal Minister (an elected representative) while the provincial departments are headed by a Provincial Secretary and assisted by a Director General.

The Ministry of Industries and Production (MoIP) has also supported the local industry by managing key projects in the livestock sector. The University of Veterinary and Animal Sciences (UVAS) is the only vocational institute which is dedicated to provide education on the animals besides performing research and training activities. Amongst the departments providing indirect support to the dairy development

[69]Economic survey of Pakistan, 2011-12
[70]Livestock and Dairy Development Board (LDDB) and Punjab Board of Investment and Trade (PBIT)
[71]SMEDA
[72]Economic survey of Pakistan, 2011-12

initiative, Pakistan Standards and Quality Control Authority (PSQCA) is responsible to regulate food safety standards including those for livestock and livestock products.

Under the Companies Ordinance 1984, several public sector companies have been formed to contribute to the development of the livestock sector. These were formed under the financial support from the government and donor agencies. These include the PDDC formed in 2006, LDDB formed in 2007, and nine rural development programs. The main objectives of the LDDB are to plan and promote accelerated growth of investment in livestock and related industries, improve livestock and dairy research to identify and rectify bottlenecks in the development of the sectors, promote marketing of livestock products, conduct capacity building of stakeholders and develop and disseminate improved technology and extension services in the sector.

The federal and provincial governments play a significant role in the development of the livestock sector through policy formulation and implementation and provision of support services including veterinary care and trainings through a nationwide coverage. However, the public sector fails to deliver the required results due to financial and human resources constraints. Further, due to a lack of coordination between related agencies and heavy reliance on donor funding which is usually provided to target short term achievements rather than long term development initiatives, the public sector has not been able to perform satisfactorily. On the contrary, although the private sector possesses an organized value chain, yet it has paid little attention in providing consumers with more affordable livestock products, through investment in low-cost technologies.

Regulatory Framework in the Livestock Sector

This section provides an overview of the regulatory framework that is relevant to the livestock sector in Pakistan. These include the livestock: (i) food safety laws, (ii) trade regulations and (iii) price regulations.

Food Safety Laws

The Pure Food Ordinance, 1960

This ordinance aims to consolidate and amend available laws on marketing of food. All provinces including some northern territories have adopted this law with a few amendments as per their suitability. The main objective of the law is to counter adultery in the food supplied in the market and to ensure its purity.

The law prohibits any person to mix, colour, and to stain or powder any food. The mixing would therefore be considered a violation of prescribed rules or would likely to make the food injurious for the health. The prescribed rules set out standards for colouring, preservatives, flavouring compounds, antioxidants, stabilizers, anti-caking agents, non-nutritive constituents, and metals. The law also prohibits the sale, preparation, manufacturing and import or export of food that is not suitable for human consumption and is treated as injurious to human health.

The law also sets out rules for the labelling of pre-packaged food and precautionary measures to be taken during storage, stocking and packing. Four criteria are adopted by the law to ensure purity of food; (i) it prohibits manufacturing/preparation or processing of food that is likely to be unsafe for human consumption, e.g., any food that can cause food poisoning; (ii) it prohibits import, export or sale of unsafe food; (iii) it sets out hygiene standards; and (iv) it provides for inspection and laboratory analysis of food samples according to set criteria.

The local authorities are designated by the government for enforcement of the ordinance within their jurisdictions. The law is not uniform in all areas and even the penalties for the same offense vary from province to province. The law also does not provide for compensation standards or payment of damages to aggrieved consumers.

The West Pakistan Animal Slaughter Control Act, 1963

The West Pakistan Animals Slaughter Control Act, 1963 is a federal legislation governing the regulations regarding slaughtering practises and slaughterhouses in the country. It prohibits the slaughtering of 'useful'[73] animals and aims to regulate the slaughtering of other animals. It also imposes meat holidays on particular days, such as Tuesdays and Wednesdays, when no slaughtering of animals is to be carried out.

The suitable animal as per rules shall not be slaughtered unless first examined by an approved Veterinary Officer and would then be slaughtered within the premises of the slaughterhouse. It defines the slaughterhouse as "any building or premises used for slaughtering and approved by the local authority." The local authorities in Pakistan, such as the Town Municipal Authority (TMA) or the City District Governments, have been delegated to adopt relevant regulations for the opening of slaughterhouses within their jurisdictions under the Local Government Ordinance, 2001.However, this leads to differences in enforced regulations throughout the country which subsequently causes a lack of standardization. There is an emergent need to formulate and adopt federal level regulations regarding slaughterhouses under the umbrella of one body, to be enforced by the provincial and district authorities, in ensuring the supply of safe and quality meat to the domestic consumers.

Pakistan Hotels and Restaurant Act, 1976

This law applies to all hotels and restaurants in Pakistan and seeks to control and regulate rates charged and standard of service(s) provided by the hotels and restaurants. In addition to other provisions, under section 22(2), the sale of food or beverages that are contaminated and not prepared hygienically or served in utensils which are not hygienic or clean is an offense. This law does not specifically mention consumers' right to lodge a complaint. However, this does not prevent any person from addressing a complaint to the controller appointed by the Federal Government for enforcement of the act. Consideration of the complaint is a matter of jurisdiction of the controller. Moreover, as in other food laws, the act does not provide for compensation to consumers in case of damage.

The Pakistan Standards and Quality Control Authority (PSQCA) Act, 1996

This act has not been notified as a food law, despite its relevance. The PSQCA Act provides for establishment of an authority PSQCA, which is the body for formulating standards or adopting international standards. It is also responsible for the enforcement of standards in the whole of Pakistan and has the mandate to inspect and test products and services including food items for their quality, specification and characteristics during use and for import and export purposes. The PSQCA also provides for a *Halal* Food Management System under the Pakistan Standards (PS 3733: 2010) which are to be followed by meat slaughterhouses and meat processing facilities. These standards include the (i) definition of a *Halal* animal, (ii) holding it under humane conditions, (iii) manually slaughtering with a sharp knife only, (iv) slaughtering from the neck in the front cutting all passages, (v) post-slaying treatment, (vi) carcass handling, (vii) deboning, (viii) meat cuts and (ix) packaging and labelling requirements.[74]

Government Agencies Involved in Food Safety

At the federal level, Ministry of Food Security and Research has been created after the 18thConstitutional Amendment to ensure food security and growth in the agricultural sector of Pakistan. The ministry also has the mandate to improve food safety at the national level through policy making and implementation of an integrated system of sanitary and phyto-sanitary controls at the federal and provincial levels. This project is being undertaken by the NAPHIS under the administrative control of the ministry. One of the main outputs is to implement the National Food Safety, Animal and Plant Health Regulatory Authority Bill at the federal

[73] Section 3 (k) "Useful animal" means—
(i) a female sheep below the age of one year and six months;
(ii) a female sheep of the age exceeding one year and six months but not exceeding four years, which is pregnant or fit for breeding purposes;
iii) any female animal, other than sheep, below three years of age;
(iv) any female animal, other than sheep, which is pregnant or in milk or fit for breeding purposes;
[74] Pakistan Standards and Quality Control Authority (PSQCA)

level through enactment by the parliament at the earliest. However, the ministry is facing problems in implementation of the initiatives as it is newly created.

PSQCA, working under the administrative control of Ministry of Industry and Production is the national standard making organization. It is involved in managing food safety through being one of its objectives aimed towards ensuring health and safety of the public and protecting the consumers of Pakistan. The authority is a member of the International Organization for Standardization (ISO) in Geneva, Switzerland. It aims to ensure the food safety through testing and assessment of raw materials and finished products relating to food items through its testing facilities in all provinces. The authority is established under the PSQCA Act that was enacted in 1996 and is generally not considered a food safety law in the country. To encourage better performance of PSQCA in the field of safety and health, the law should be directly linked to food safety and the organization needs to be given the required manpower and facilities.

The Customs Department, Plant Protection and Quarantine (PPQ) Department, Pakistan Council of Scientific and Industrial Research (PCSIR), National Institute of Health (NIH), Pakistan Agriculture Research Council (PARC) and Pakistan Council for Research in Water Resources (PCRWR) are also contributing towards food safety in the country in accordance with their limited organizational mandates.

At the provincial level, the Punjab Government has recently established Punjab Food Authority (PFA) under the Punjab Food Safety and Standards Act that which has taken up food safety functions of the district governments as per previous practise relating to food manufacturing, storage, distribution, sale and imports in the province. The impact of this authority cannot be judged as it was established just a few months ago. However, it is a positive effort of the provincial government towards ensuring a holistic food safety regime. Other provinces are also in the process of establishing such authorities and drafting the relevant legislations.

It can be safely said that Pakistan currently lacks an integrated food safety framework and the three laws as mentioned earlier fail to create an impact due absence of their understanding and lack of effective implementation. Some of the key constraints in the working of the system is the fundamental differences in the relevant agencies objectives and approaches to its implementation, non-availability of skilled personnel and lack of facilities and technology and lack of optimum use of financial resources.

Livestock Trade Regulations

Import Regulations and Standards

The legislative framework for trade-related food quality and safety in Pakistan is embedded in the Pakistan Pure Food Laws (PFL) of 1963 that covers 104 food items falling in over nine broad categories, including meat and meat products.[75] The regulations aim to address purity issues related to raw food and deal with subjects relating to food additives, preservatives, food and synthetic colours, antioxidants and heavy metals. The Harmonized Coding System for the classification of goods is employed and food labelling and packaging requirements are also enforced.

In general, the food import regulations of Pakistan at the federal level require that if the product is being sold in the domestic market of the exporting country or country of origin of the product, it must meet the Pakistani food standards as well. Generally the Codex standards and guidelines are used for imported food products. The USA Food and Drug Administration (FDA) standards are also employed for certain products. Products relating to animals, especially dairy and meat products may only be imported unless these are certified to be "*Halal*", i.e. slaughtered in accordance with the Islamic laws.

The Customs and the Plant Protection and Quarantine (PPQ) Departments are the two main agencies involved in the regulation of imported food products. The main function of the Customs department is to ensure that the shelf-life and labelling of imported food products are according to the federal government's requirements. The basic requirement remains that the imported food product should have at least 50% of the remaining original shelf life at the time of importation. This standard is met through correct labelling

[75] Pakistan, Food and Agricultural Import Regulations and Standards – Narrative, USDA FAIRS Country Annual Report 2009,

containing the production and expiration dates. Certain livestock products containing pork or pork products are prohibited to be imported on religious grounds. The above products along with other banned products are included in the "Negative List" maintained by the federal government. The PPQ's main function is to ensure that shipments containing live animals meet the phyto-sanitary import requirements.

Import and Export Policy Orders (2009)

According to Clause 5 of the Import Policy Order, 2009, the import of live animals, including sheep, goats, cattle and buffaloes, meat, bone meal and tallow containing protein and feed ingredients are prohibited from BSE[76]-infected countries such as the UK, Ireland, Belgium, Denmark, Falkland, France, Germany, Italy, Luxembourg, Holland, Spain, Brazil, Czech Republic, Austria, Poland, Slovakia, Slovenia, USA and the Alberta Region of Canada.[77] The ban is however not applicable to import of feed ingredients such as growth promoters, concentrates, milk enhancers, enzymes and fish meal replacers that have originated from vegetable, poultry, mineral and sea sources from the abovementioned BSE-infected countries.

On the other hand, although the Export Policy Order, 2009 allows export of live animals, the same can be restricted by the federal government as and when needed. Live animals have been included in Schedule II, which is a list of products that can be exported from Pakistan subject to given conditions. These conditions and the required export procedures were implemented by the Ministry of Livestock and Dairy Development but after devolution, the same has been assigned to the Ministry of Commerce.

Both policy orders were formulated and are enforced by the Ministry of Commerce in Pakistan.

Price Regulations

Drawing authority from a federal legislation called the Price Control and Prevention of Profiteering and Hoarding Act, 1977 (PCPPHA), the federal government controls prices of daily life commodities, including meat, through the National Price Control Committees for welfare of the general public, There are sub-committees working under this national level committee operating on district levels that ensure price control in their particular regions.

The domestic meat market is currently facing a dilemma in which price of meat produced in the informal sector is being regulated by local authorities in the urban markets, whereas no such regulations are applied to prices of packaged meat products in the formal sector. In case of informal meat production, the designated officials of the local authorities carry out a market survey and then in consultation with the relevant stakeholders the committees fix a selling price of meat in the domestic market. The practice seems to be against the spirit of business competition as laid down in the Competition Act, 2010 and has been facing criticism from concerned stakeholders recently.

Other than this, live animals for production of meat are sold in the domestic markets on the apparent health and quality of the animal, rather than on live-weight basis. This causes a huge revenue loss for the livestock producers.

The International Food Safety Regime and Domestic Compliance

With increased globalization resulting due to a significant rise in international trade in the 1990s, a major trend emerged in which consumers around the world became more conscious about the origin of their food supplies and the associated risks related to food safety. For this, the process of developing international rules on food safety was accelerated to shape them as multilateral agreements and standards. At present, the Codex Alimentarius Commission (CAC) and the World Trade Organization (WTO) are the two most important organizations covering rules on food safety. The two organizations have presented comprehensive food safety strategies that influence domestic regimes of the countries around the world.

[76] Bovine Spongiform Encephalopathy

[77] Import of meat and meat products from other parts of Canada shall however be allowed subject to certifying additional animal quarantine requirements

In the forthcoming paragraphs, the role and functions of the Codex Alimentarius and the two multilateral agreements of the WTO on Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) will be discussed to analyse impact of international rules on food safety. The standards for international trade in meat have been primarily formulated by the World Organization of Animal Health (OIE).

The Codex Alimentarius

The Codex Alimentarius consists of collection of internationally recognized food safety standards, codes of practice, general guidelines and other recommendations relating to food products and food production. The standards are developed and maintained by a body called the CAC, established by the FAO and the United Nations in 1961, while the World Health Organization (WHO) joined in 1962. The standards are also recognized by the WTO as international benchmark in food safety rules and are used as reference for resolving disputes among the member countries

The standards cover all types of food including raw, semi-processed or fully processed food which are directly marketed to the consumers. The text contains specific standards on food items including meat products (fresh, frozen, processed meat and poultry), milk and milk products, fish and fisheries (marine, freshwater and aquaculture), foods for special dietary requirements (infant formula and baby foods) etc, and general guidelines on matters such as food labelling, food additives, contamination of food, pesticide and veterinary residues in foods (maximum residue limits), food hygiene etc. In addition to the above, the Codex standards also contain recommendations for the governments on how to establish import and export inspection services and a domestic certification system for foods. This implies that the Codex standards are scientifically justified and are accepted as benchmarks against which national measures and regulations on food safety are evaluated.

In international trade, the CAC goes a step further beyond removing barriers to trade. It rather encourages traders to adopt and accept ethical practises voluntarily that protect consumers' health and promote fair trade. The Codex Alimentarius contains a Code of Ethics for International Trade in Food, the general principles of which are stated as following:

i. *"International trade in food should be conducted on the principle that all consumers are entitled to safe, sound and wholesome food and to protection from unfair trade practices."*

ii. "*No food should be in international trade which:*

   (i) has in it or upon it any substance in an amount which renders it poisonous, harmful or otherwise injurious to health; or

   (ii) consists in whole or in part of any filthy, putrid, rotten, decomposed or diseased substance or foreign matter, or is otherwise unfit for human consumption; or

   (iii) is adulterated; or

   (iv) is labelled, or presented in a manner that is false, misleading or is deceptive; or

   (v) is sold, prepared, packaged, stored or transported for sale under insanitary conditions."

The code is currently being updated to reflect the impact of the WTO agreements on SPS and TBT on international trade. The main objective is that exporting countries should be stopped from dumping food products of substandard quality and safety in international markets.

Agreement on the Application of Sanitary and Phyto-Sanitary Measures (SPS)

The SPS Agreement came into force with the establishment of the WTO on January 1, 1995. The main objective was to establish domestic regulations that would ensure supply of 'safe' food, as per appropriate standards, in a way that they may not be used as a means to protect the domestic producers by member countries. Hence the SPS Agreement sets out basic rules for how countries may enforce their domestic food safety and animal and plant health measures. Nevertheless, these regulations must be based on scientific justifications and the prevailing international standards. Member countries may set higher standards for health safety under the agreement but these rules cannot be enforced arbitrarily between exporting countries where identical or similar conditions prevail. The SPS measures under the agreement are defined as any measures that are used:

1. *"to protect human or animal life from risks arising from additives, contaminants, toxins or disease-causing organisms in their food;*
2. *to protect human life from plant- or animal-carried diseases;*
3. *to protect animal or plant life from pests, diseases, or disease-causing organisms;*
4. *to prevent or limit other damage to a country from the entry, establishment or spread of pests."*

The SPS Agreement covers all food safety and hygiene measures such as control of veterinary residues, pesticide residues and other chemical/food additives used in food production. However, the measures to ensure environmental protection, protection of consumer interest and the welfare of animals are not covered under this agreement. Specific regulations regarding these can be found in the TBT Agreement.

The key features of the SPS Agreement are as following:

Basic Rights and Obligations: As per Article 2, members have the right to take SPS measures to protect human, animal or plant life which are consistent with those provided in the agreement but which do not arbitrarily discriminate between members having the same or similar condition or would serve as a means to unjustifiably restrict trade.

Harmonization: Under Article 3, member countries are encouraged to harmonize their SPS measures to international standards, guidelines and recommendations as much as possible. Higher standards may be applied by member countries but on the basis of scientific justification.

Equivalence: Under Article 4, member countries should recognize and accept the SPS measures of other member countries even if they differ from their own *if* they can be objectively demonstrated by the exporting country that the measures are appropriate as per the importing country's standards.

Adapting to Conditions: Article 6 takes into account that the local conditions amongst member countries may vary to a large extent, including climatic conditions, existing diseases and pests and food safety conditions, and therefore the same SPS standards cannot be applied at the same level.

Risk Assessment and Determination of Appropriate Level of SPS Protection: The agreement through the provisions of Article 5 encourages member countries, while enforcing SPS measures in their domestic regimes, should be as transparent as possible for assessing the risks. In case a member country deems that the SPS measures put in place by another member country are restrictive to trade, the member country maintaining such standards would provide an explanation the necessity for maintaining such levels based on the scientific justification.

Transparency: Under Article 7, the member countries are required to notify changes in their SPS measures which can potentially affect trade relations. The governments are also required to set up offices called "National Enquiry Points" to respond to requests on new or existing SPS measures and they must

be open to scrutiny by other member countries as to how they apply their food safety measures for human, animal and plant health.

In view of the above obligation, Pakistan has set up the National Animal and Plant Health Inspection Service (NAPHIS) under the Ministry of National Food Security and Research as the national enquiry point for domestic SPS measures and related issues. It is also the focal point for Codex Alimentarius Commission (CAC) and the European Union Rapid Alert System for Food and Feed (RASFF). It is envisaged that the organization will be transformed into a statutory regulatory body and would also be the focal point for dissemination of information and issues on TBT.

The Agreement on Technical Barriers to Trade (TBT)

The TBT Agreement recognizes that technical regulations are important for many reasons including consumer safety, environmental protection, and national security etc. The problem arises with the fact that these regulations vary from country to country that makes trade difficult for producers and exporters. Also if these standards are set arbitrarily, they can make trade restrictive in the disguise of protectionism of domestic industries by member countries. The agreement therefore strives to ensure that these technical regulations, standards, testing and certifications do not create unnecessary barriers to trade. Although it recognizes the member countries' rights to ensure domestic safety and protection, they are encouraged to adhere to international standards and follow the principle of non-discrimination amongst trading partners.

For the sake of clarity, it may be noted that technical regulations and standards include the specific characteristics of a product in terms of its size, shape, design, functionality and performance and these also include the requirements of its labelling and packaging.

The agreement is based on the following objectives:

1. **Protection of human safety and health**, examples include equipping motor vehicles with seat belts to minimize injury, labelling of cigarettes which indicate their harmfulness to health.

2. **Protection of animal and plant health** and life by water, air and soil pollution so that they do not become extinct.

3. **Protection of the environment** that may include recycling of paper and plastic products, levels of carbon emissions etc.

4. **Prevention of deceptive practises** by producers that includes provision of complete information regarding the product to consumers in terms of its labelling and packaging requirements, measurements, classification and definition etc.

The key features of the TBT Agreement are discussed as below:

a. **Preparation, Adoption and Applications of Technical Regulations and Standards**: The TBT Agreement under Articles 2, 3 and 4 specifies a code of good practice for governments of member countries and also non-governmental and industrial bodies to prepare adopt and apply the voluntary standards. Internationally, over 200 standards-setting bodies apply this code.

b. **Fair and Equitable Assessment**: The Article 5 of the agreement specifies that the procedures adopted by member countries which determine the conformity of a product with relevant standards should be fair and equitable and discourages any methods that may provide domestic products with an unfair advantage.

c. **Mutual Recognition**: The agreement encourages member countries to recognize each other's procedures that test the conformity of the product to relevant standards and technical regulations. Without this the product may be tested twice, once in the exporting country and then by the importing country. Article 2.7 also encourages member countries to accept equivalent technical regulations of other members, even if they differ from their own, if satisfied that the regulations adequately achieve the objectives of their own regulations.

d. **Transparency**: Article 10 of the agreement binds member countries to set up "National Enquiry Points" to disseminate information regarding domestic technical regulations and standards and to exchange information with other member countries through the WTO's procedure for notification of new and existing regulations.

In response to the above obligation, the PSQCA has been nominated as the national enquiry point on standardization, conformity assessment, legal metrology and technical services. Other than PSQCA, the Pakistan Council of Scientific and Industrial Research (PCSIR) is providing technical testing and quality control services to exporters and is issuing analytical reports/ certifications that are currently being accepted by other countries including the EU. Exportable food items including milk and milk products are also being tested by PCSIR for microbial contamination and shelf life.

Domestic Compliance of International Standards - The National Animal and Plant Health Inspection Service (NAPHIS)

As discussed earlier, Pakistan lacks a coherent and integrated system for the management of SPS measures, technical regulations and standards. Due to this, the country faces frequent restrictions and bans on exports of agricultural and industrial products by other countries.

In view of above, a Public Sector Development Program (PSDP) funded project called the Integrated National Animal and Plant Health Inspection Services (NAPHIS) is being implemented under the newly formulated Ministry of National Food Security and Research. The project titles "Special Program for Strengthening SPS Facilities and Quality Inspection Services in Compliance with WTO - Establishment of an Integrated National Animal and Plant Health Inspection Services (NAPHIS)". With an estimated budget of PKR 415 million, it is scheduled to be completed by the end of the year 2012. The specific objectives of the project include:[78]

1. Capacity building of agricultural line departments for international accreditation;

2. Ensuring compliance of national/international food safety laws for better trade,

3. Developing an integrated SPS Management/ Inspection and Quality Control and Certification system for exports and imports;

4. Coordinating and integrating provincial SPS management systems with that of the federal one;

5. To be the focal point for SPS related issues and to establish NAPHIS as the regulatory authority on SPS measures in Pakistan.

NAPHIS is currently coordinating with UNIDO under the EU funded TRTA II program to develop a suitable model for integrated food safety and SPS management in Pakistan. It is also operating as a "Think Tank" for technical input on national and international levels for Pakistan.

[78] NAPHIS, Ministry of National Food Security and Research

SECTION 5: CONCLUSIONS AND RECOMMENDATIONS

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The preceding sections provide an in-depth review of the livestock value chain and supply chain including its strengths and weaknesses and further highlight trade potential of the livestock sector besides discussing the relevant governmental policies and regulations in Pakistan.

This section is prepared keeping in view the overall objectives of: (i) bringing major developmental issues faced by the livestock sector, (ii) making an assessment of hidden potential of the sector, (iii) facilitation initiatives taken by the government and other support organizations in the public and private sector, (iv) assessment of gaps between sector's developmental requirements and support in the shape of policy and implementation by the governments at federal and provincial levels, and (v) to recommend policy and development and regulatory related initiatives which can be used to bridge gaps and make the sector more efficient in fulfilling domestic demand initially, followed by its competitiveness to make inroads into potential export markets.

Medium and long term policy initiatives and preparedness of all stakeholders to upgrade the present situation are also considered in this section. For compilation of the overall study and mainly to cover its final part, a reasonable number of stakeholders in the public and private sectors were consulted. Use of secondary data, wherever required, is also made. This includes review of the current literature available on the subject, government records and web-based information and other sources.

The Dairy Hub Concept - An Integrated Livestock Development Approach

The authors 'extensive research[79] and policy reform proposals received through a public-private dialogue (PPD) titled "Enhancing Competitiveness and Export Potential of Livestock and Dairy Sector", held under the European Union funded TRTAII programme,[80]confirmed that various stakeholders have firmly established that organization of the dairy sector is a crucial pre-requisite to in any developmental efforts for the livestock sector. The finding is based on the rationale that rearing animals for production of meat and other livestock products is a secondary off-shoot to the primary activity of dairy farming in Pakistan. In other words, meat production is a by-product of keeping animals for milk production or draught power for crop production by a majority of farmers. Hence the development of the dairy sector is intimately integrated with the consequent uplift of livestock sector for meat production. The key element is to organize the 83% small-scale, subsistent livestock farmers as the major stakeholders and to institutionalize their representation in government policies. The Dairy Hub concept provides an impetus to organize these farmers into clusters or cooperatives based on vertical integration of the dairy supply chain, with a focus on the provision of livestock development services. The concept finds its background in the largest dairy development program in the private sector, called the Dairy Hub, which has been initiated by Tetra Pak Pakistan and is being implemented through large milk processors such as Nestle, Engro Foods and Haleeb Foods. This community development programme aims at providing training, consultancy and veterinary services to rural dairy farmers on one-herd basis of 20 villages, located within the radius of 15-20 km and making up one Dairy Hub.[81] Some of the initiatives taken under this program on the farm management include provision of mechanized milk machines and on-farm consultancy services by a field service officer posted in the area.[82]

Workability of the Dairy Hub Concept

It is proposed that the implementation of the same concept could prove to be very effective in organizing the dairy and livestock sectors of Pakistan, through an active and coordinated participation of the public

[79]Extensive interviews held with public sector organizations including livestock and dairy departments, dairy producers, dairy processors and the academia

[80]ITC, Enhancing the export competitiveness of Pakistan's livestock and dairy sectors (article). http://www.intracen.org/Enhancing-the-export-competitiveness-of-Pakistans-livestock-and-dairy-sectors/

[81] There are currently three Dairy Hubs operational under this concept established by Engro Foods (2009), Nestle (2009) and Haleeb Foods (2010) and encompassing 16-24 villages in the areas of Kassowal, MianChunnu and ChuchakRenala respectively. The hubs have successfully achieved targets in improved average animal yield, establishment of disease-free areas, quality assurance of milk (TPC < 500,000), reduction in production costs, capacity building of farmers and less reliance on the middlemen. (Solve Agri Pak Private Limited)

[82]The consultancy for the project was provided by Solve Agri Pak Private Limited, a dairy consultancy based in Lahore

sector and dairy processors with a sense of ownership. The rationale is to implement the one herd-one farm concept, within a pre-determined livestock-concentrated region[83], focusing on establishing an efficient milk collection and chilling mechanism. With the contribution of the public sector, it is proposed that the government may define areas at the Divisional level[84] (Tehsil level) of 50-60 villages in one hub and extend livestock services such as breed improvement and management, feed and fodder production and provision, veterinary care, extension services, and financial and credit in a concentrated manner. The two most positive effects of this concept which can be foreseen are increased and active participation of the smallholder in community development and the ability for the public sector to assess the results of its development initiatives in a transparent and accountable manner.

The administrative setup of the country comprises of provinces, divisions, districts, tehsils[85]and union councils. According to government sources, there are currently twenty seven divisions in Pakistan. The physical infrastructure for public sector veterinary care is already present with at least one veterinary hospital dispensary/ centre in each union council. It is proposed that one extension worker may be employed by the government for two villages and two extension workers should be headed by at least one veterinary doctor. Considering the above, each division would potentially have 32-48 veterinary doctors and 64-96 extension workers; and each union council would have three-four veterinary doctors, supervising a total of six-eight extension workers. The largest hospital amongst the union councils in the division may be established as the headquarters of the Dairy Hub.

Role of Public Sector

The first and foremost role of the Ministry of Food Security, through the Livestock and Dairy Development Board (LDDC) and Pakistan Dairy Development Company (PDDC), in coordination with the provincial governments, is to formulate a national level policy for the encouragement of Dairy Hubs, linking them with the overall developmental policy based upon poverty alleviation. The same needs to be implemented by the provincial governments in a phased manner, preferably starting from pilot projects in fewer divisions to judge the stakeholders' response and success rate.

The provincial governments need to make available their existing infrastructure and human resource in veterinary care to be employed as a base for the Dairy Hub concept. All other existing facilities relating to model farming, feed and fodder provision, extension and financial services need to be concentrated and delegated to the divisional units for proper functioning of the hub.

A proactive and successful role modelling by the government of Punjab in the implementation of the concept, having the majority share in the livestock and dairy sector of the country, could provide the necessary impetus to other provinces to follow course as well. The provincial government has been internationally recognized by agencies such as the World Bank in initiating effective developmental projects and has been declared as role model government amongst the provinces.

The central factor in the sustainability and acceptance of Dairy Hubs is the provision of purchase guarantee for meat animals by the private sector through open tendering in designated areas within the hubs.

Another crucial role in the sustainability of the project is a consistent provision of funds. Although the sectoral development is mandated to the federal government, the financial provisions are to be made by the provinces in view of the 18th amendment. There is a need to seriously lobby the cause of dairy and livestock development to international donor agencies currently active in Pakistan and through submission of targeted project proposals

The government needs to play a crucial role in the marketing of investment opportunities to donor agencies in the fields of dairy and livestock research, policy reviews, technology, breeding and genetics, and

[83]The data on livestock and dairy farms in the country is marinated regularly and is currently available with the livestock departments of each province as per the report's findings

[84]In the administrative setup of the country, one Division generally comprises of 8-12 Union Councils (UCs) and each UC in turn comprises of 5-6 villages

[85]Also known as Talukas in Sindh and Sub-divisions in KPK and Baluchistan

enhancing capacity of the public sector, which could further enhance the effectiveness of the Dairy Hub concept.

The provincial governments should focus on provision of free livestock development/extension services only rather than free provision of feed, vaccines etc. This would ensure that the smallholders do not develop an over-reliance on these facilities and an attitude of hand-holding.

Lastly, the government needs to play a regulatory role in terms of breed management and preservation, semen, feed and vaccine quality, in coordination with provincial governments for the implementation of the Dairy Hubs.

The federal government, under Ministry of Food Security and Research and relevant provincial departments, should continue its research and development efforts on the government-owned farms to benefit the entire dairy sector.

Role of Private Sector

As has been apparent from international and local experience, the private sector plays a crucial role in the development of any industry, through innovation and technology transfer. The formal medium and large dairy processors should be encouraged to take ownership of required investments in veterinary services, feed production, artificial insemination and especially the purchase, sales, transportation and distribution of meat animals.

The formal dairy processing industry is facing supply chain constraints in acquiring the required produce due to geographical dispersion as well as quality issues. Through the implementation of Dairy Hubs, the private sector would benefit greatly from a consistent supply of quality animals for meat production. This aspect of the hub operations would ensure increased participation and ownership by meat and livestock processors.

Since the private sector is strongly connected to market dynamics on the domestic as well as the international front, the initiative to develop and implement improved livestock services and Dairy Hub mechanisms can be effectively marketed by it to other stakeholders.

As investment and financial support from international donor agencies remains unpredictable in view of the prevailing socio-economic and political conditions of the country, the private sector's participation should be enhanced gradually over a period of time in view of undertaking profitable livestock business enterprises.

Keeping in view the various sector-specific and cross-cutting issues identified in the areas of livestock supply chain management, trade potential and regulatory framework, the following recommendations are proposed to overcome the obstacles to its development. These recommendations have been formulated in consultation with all the relevant stakeholders and are based upon the preceding rationale for the Dairy Hub concept, foreseeing the participation of dairy farmers and producers and anticipated roles of the public and private sectors and the civil society.

The Livestock Value Chain and Supply Side Constraints

Meat Animals Production – A Secondary Livestock Enterprise

Issues

In Pakistan, raising livestock for meat production is considered as a secondary activity as compared to crop and milk production. This approach has resulted into uneconomical utilization of resources mainly including underutilization of available agricultural land[86], primitive livestock breeding techniques[87], limited

[86]PLDDB

commercial and market orientation by the livestock farmers, inefficiency of the labour force[88], limited flows of investment in the meat sector, and low meat productivity per animal. There are many opportunities that are lost due to inappropriate farm management, mainly including production and utilization of by-products that can indirectly be helpful for sustainability of sector itself.

Much of the by-products including animal hair, bones, skins, guts and casings etc. are wasted during slaughtering operations as well as at the time of disposal which results into diminished value of their trade opportunities. Other opportunities that are not fully availed include possibility of producing *biogas,* in the formal and informal dairy sectors, to serve as a substituent to the deficient and much expensive energy reserves procured from thermal operations under the prevailing economic conditions.

As has been discussed in the introductory part of this study, more than 80% of the livestock farmers are smallholders owning less than five animals. This comes to a total of more than 50% of the livestock in Pakistan (mainly cows, buffalos, sheep and goat raised to acquire milk for self-consumption). These smallholders are mostly landless farmers who are geographically dispersed in various parts of the country. This makes outreach of the government's facilitation institutions much difficult and uneconomical.

Measures Adopted

- Provincial Autonomy

Through the 18th constitutional amendment, agriculture has been devolved to the provinces from the federal level, with an overall objective to give provinces more autonomy in formulating policies and strategies. The federal government is now responsible for making national policy on the livestock sector.

- Development Initiatives

Before devolution, the Ministry of Livestock and Dairy Development implemented seven projects at the cost of PKR 8.8 billion. These included mega projects such as "Strengthening of Livestock Services Project"(SLSP), Livestock Production and Development of Meat Production and the Prime Minister's Special Initiative for Livestock (PMSIL).

In the year 2007, a private sector-led initiative was taken by the government and the Livestock and Dairy Development Board (LDDB) was formed. LDDB is responsible for development and promotion of livestock sector, provision of remedial measures to counter development constraints through enhanced research and development, promotion of marketing of livestock products, facilitating capacity building of the stakeholders, and dissemination of information on improved farm technologies.

International agencies such as USAID have earmarked funds of US$ 2.4 million for the period 2011-14. The aim is to increase productivity of 12,000 small-scale farmers in the provinces of Punjab, Sindh and KPK by 15-20% through adoption of better farm management techniques.

"The Pakistan Domestic Biogas Program" (PDGP) was initiated in January 2009 by the Rural Support Programme under the financial assistance of SNV (Netherlands Development Organization) and with the consultancy of Winrock International. The main objective of the project is to raise livelihoods of rural farmers and improve their quality of life by establishing a commercially viable biogas sector in Pakistan.

Impact Assessment

The government's initiated projects that were completed under the Ministry of Livestock and Dairy Development prior to devolution have resulted into;(i) establishment of the National Epidemiology Network for Livestock Disease Surveillance and Reporting, (ii) completion of more than 13,000 feedlot fattening operations resulting into the production of 163,000 beef animals and 200,000 mutton producing animals, (iii) establishment of 290 new veterinary clinics that provide 70% reduced cost of services to the rural farmers, (iv) reduction in the cost of vaccines by 30% with improvement in the quality, (v) dissemination of

[87]PLDDD
[88]Nestle Pakistan

basic veterinary training through 3,000 master trainers, and (vi) economic uplift of more than 4,256 female livestock farmers through better animal husbandry practices.[89]

As more than 80% of livestock community is based in far flung rural and relatively remote areas of the country, the major issue with effective implementation of the above initiatives remains limited due to outreach problem and reluctance of the farmers' community to accept these initiatives. The initiatives are generally found unable to benefit a larger percentage of farmers due to poor infrastructure, financial constraints, and limited access to the opinion leaders in various farmers' communities. Often, there occurs overlappings in different initiatives of similar nature that are either initiated by government sector or by certain international or domestic organizations. The major reason is lack of coordination.

"The Pakistan Domestic Biogas Program" (PDGP) having set a target of establishing 14,000 biogas plants by the end of 2012 has not been able to foster the required progress in the sector and has been able to construct only 70 biogas plants in the first year of its operation. The main reason is time consuming preoccupation of its managers in streamlining the sector's infrastructure and marketing and establishing linkages with various stakeholder organizations.[90]

Recommendations

(i) *The provincial governments urgently need to establish model meat production farms based upon feedlot fattening in the concentrated as well as far flung areas in the livestock sector.*

(ii) *Clustering is the only solution to organizing and formalizing the livestock sector. These cooperatives need to be established at the Union Council (UCs, consisting of 5-6 villages) or Divisional levels (consisting of 10 UCs) which can address the basic issues of the small scale farmers through technology and financial assistance.*[91]

(iii) *Government owned livestock farms should not be privatized as they are specifically carrying out research and development (R&D) and are acting as hubs in preserving precious genomes of livestock breeds*[92,93]

(iv) *Successful implementation of the project for the production of* ***biogas*** *on commercial basis requires ownership and commitment between the public and private sector and for acquiring technological expertise. Provincial and federal governments may seek assistance from the private sector*[94] *in maximizing the impact of the programme and also prepare some model biogas plants that can be used as success stories for the livestock farmers. Again, a well-formulated national media campaign and effective use of technology can be valuable means of approaching the target audience. The initiative could be the potential solution to the energy crises plaguing the country at the moment. Once the value of this resource is realized at the national level, only then its value can be translated to the dairy and livestock farmers.*

(v) *To ensure increased level of investment in the meat animal production, it is imperative to build the investment based on the structure of the poultry industry. Currently fattening is not a profitable enterprise due to high cost of production, lack of buying guarantee to the producers and weak farm-to-market linkages. Following the example of the poultry industry, the government should encourage a separation of activities and stakeholders in breeding and rearing (fattening) of calves for sale to slaughterhouses and meat processors through its investment agencies. This would lead to lesser levels of required investment by each stakeholder, therefore lowering the overall cost of production.*[95]

[89] Economic Survey of Pakistan, 2011-12

[90] Rural Support Program Network (RSPN), Pakistan Domestic Biogas Program (PDBP), http://rspn.org/our_projects/pdbp.html

[91] Arid Agriculture University, Rawalpindi, Department of Industries, Commerce and Investment, Government of Punjab

[93] Arid Agriculture University, Rawalpindi

[95] Pakistan Meat Exporters' Association

Taking an example, the third largest meat exporting company in Pakistan has an average requirement of 1,200 animals per month to ensure meat supplies to its customers in the UAE. If the company undertakes the breeding and fattening activities of these animals as well, it would end up requiring an investment of PKR 20.5 million per month, which would make meat production very unprofitable for the company. Furthermore, the entire cycle comes to about 1.5 years in rearing a calf for slaughtering.

Training and Awareness of Stakeholders

Issue

During the consultation process with the selected sample of livestock stakeholders in the public and private sector, approximately 90% of them ascribed "***lack of awareness***" in the livestock farmers on essential subjects. The awareness issue relates to development of meet breeds, feed and nutrition, and veterinary care. This has served as one of major obstacles in smooth execution of various government and private sector's initiatives meant to uplift the conditions of farmers' communities and enhancing the competitiveness of livestock and livestock products. The awareness issue is not only in the farmers' community but it also relates to the personnel of the government-run organizations. In the provinces of Punjab and Sindh, governments use media to launch awareness campaigns on various projects initiated in the agriculture sector including livestock. The outreach programme attains partial success mainly due to the above reason despite maximum efforts made by the policy makers.

Lack of awareness on part of farmer community can be divided into four major areas that include; (i) knowledge of potential and profitable meat animal farming as a commercial business, (ii) efficient farm practices that can improve meat productivity per animal, (iii) awareness on feed availability and nutritional values for feedlot fattening of meat animals on the basis of the TMR technique,(iv) awareness on hygiene, animal welfare and veterinary care matters, (v) knowledge on development of meat-specific breeds and their development through natural mating and cross-breeding via efficient AI services, and (vi) compliance to the international standards in the meat processing and marketing industry.

The work force of provincial governments employed to assist farmers' communities also lacks necessary advanced knowledge and in the absence of a proper monitoring and evaluation mechanism, desired results cannot be achieved.

Measures Adopted

a. To create awareness on modern farm management including best business practices and adoption of technology, an extension programme has been initiated under supervision of Pakistan Dairy Development Company (PDDC). The extension programme aims at providing vocational training to the master trainers and experts in dairy development. Regular field trips are also arranged to familiarize the trainers with the real issues and find solutions to the problems through appropriate management and technical measures.

b. Under the Prime Minister's Special Initiative for Livestock (PMSIL), basic livestock training is being provided to rural and female farmers in better husbandry practises and veterinary care. In total 3,150 community organizations have been formed under this project, 3,000 rural workers have been trained and through one month training courses and over 4,000 female livestock farmers have been able to enhance their income levels.

Impact Assessment

Although these projects seem to have brought positive results, however, the outreach of these initiatives has been found to be much lower considering the fact that more than 8 million geographically dispersed rural based farmers require such active support. The proportion of trained staff and farmers is very low as against the total farmers' population size. These programmes, however, have been initiated very recently and therefore it would need long term policy measures to approach such a large target group of farmers.

Recommendations

(i) *The government must encourage farmers/ entrepreneurs in the country through its various business support organizations, such as LDDB, Pakistan Dairy Development Company (PDDC) and Small and Medium Enterprise Development Authority (SMEDA) to undertake livestock farming for meat production as a primary source of income besides crop and milk production. A shift in the mind-set has to be created in the farmer community so that they consider their animals as a potential and valuable investment with financial return rather than as a social capital and insurance in times of financial crunch.*

(ii) *Awareness campaigns on development of the livestock sector must primarily be spearheaded by the government primarily rather than merely by the private sector or international agencies since these have their own limitations and capacity constraints when it comes to infrastructure and contacting with target farmers' groups. Government may initiate joint ventures with these organizations and formulate a media strategy to develop effective outreach themes for attracting the target groups. Awareness campaigns and trainings can be organized with the support of trained extension workers and veterinarians in the proposed Dairy Hubs at the divisional and union council levels to ensure maximum contact with the farmers.*

(iii) *Efforts are required to be made to enhance outreach through involving opinion leaders and assigning greater responsibilities to the heads of villages and* ***Panchayats.***[96]

(iv) *Training programmes for the government functionaries are also required to be conducted. These workers should be chosen from the village communities and after training they should be posted in their own vicinities by assigning targets. A monitoring and evaluation system should be established to oversee the progress and offer rewards and reprisals to the workers. These training programmes can also be conducted with the help of existing government and private sector vocational institutions. This will ensure appropriate and cost effective use of available resources and also build capacity of these training institutions.*

(v) *At the national level, federal government can involve certain donor agencies to launch a National Awareness programme through media and other intermediate means (also including local cable networks, cellular service providers*[97] *etc.) and therefore can assist the provinces in fostering their efforts. The financial constraints can be reduced by involving media, private sector, and donor organizations as media partners.*

(vi) *Currently there are six agriculture universities with a number of campuses are operation in Pakistan.*[98] *These are responsible for providing vocational education on the livestock and dairy development in Pakistan. Considering the fact that there is insufficient human resource on the veterinary side as against the whole livestock and dairy sector, there is an urgent requirement to establish more campuses of these universities with advanced curriculum prepared in line with international standards. The curriculum should also include ample information on the domestic and international regulatory regimes and requirements for development of the livestock and dairy sector especially when these products are considered for exports. These vocational institutions and universities can be established under public-private partnership initiative at the divisional level and preferably these should be affiliated with international universities of repute so as to attach privilege to these institutions. These institutions can also help in establishing research centres for the livestock and dairy sector in Pakistan.*

Animal Management and Welfare

Some of the major issues in the livestock sector also include lack of focus on development of breeds for meat production. It is observed that male calves are sold during the first year of life for slaughtering purpose. This is mainly done to make up for losses incurred due to wastage of milk during calving. The mature or end-of-career female animals are marketed once they have completed their milk production cycle. Other issues include inaccessibility to water and feed with high nutritional value. This is due to limited awareness on feed quality and its importance in the farmers. It is followed by the issue of low investment in production of quality fodder followed by seasonal fluctuations in feed supplies.[99] The issue is further aggravated due to inaccessibility to appropriate and affordable veterinary care. The average dairy

[96] Local system of resolving disputes through involving elders of a village who form a committee for the purpose. These *Panchayats*are headed by *Panch*whose decision is considered final and is followed in letter and spirit by the whole village. The *Panch*can also be approached and used for implementation of various initiatives in the dairy sector.

[97]Awareness through prerecorded advises can be delivered to the residents of rural as well as urban and peri-urban farmers. The assistance of National Database Registration Authority (NADRA) can also be used to identify target audience.

[98]The Universities include (i) KPK Agriculture University, Peshawar (Faculty of Animal Husbandry and Veterinary Sciences), (ii) Lasbela University of Agriculture, Water and Marine Sciences (LUAWMS) at Lasbela (Faculty of Veterinary and Animal Sciences), (iii) University of Agriculture, Faisalabad (UAF) (Institute of Animal Nutrition and Feed Technology), (iv) PirMehar Ali Shah Arid Agriculture University, Rawalpindi (Department of Livestock Production and Management), Sindh, (v) Sindh Agriculture University, Tandojam (Department of Livestock Management), Sindh, (vi) University of Veterinary and Animal Sciences (UVAS), Lahore, Punjab.

[99] Due to seasonal shortage and poor nutritional value of fodder there is huge gap in demand and supply. It is estimated that feed requirement of animals in Punjab is about 40 million tonnes while production is only 0.2 million metric tonnes. Moreover, nutritional value of fodder is insufficient to boost milk and meat in the animal. (PLDDD)

farmer in Pakistan holding less than five animals is usually caught up in a vicious circle where his low yielding animals do not offer him any incentive to invest in high quality nutritional feed and medicines and which resultantly further deteriorate productivity of his herd.[100]

Measures Adopted

1. Breed Preservation and Management

The soon-to-be operational "Centre of Excellence for Development of Sahiwal and Exotic Breeds" in the Sargodha district of Punjab under Punjab Livestock and Dairy Development Board (PLDDB) claims to be a state-of-the-art semen production unit. It aims at producing one million semen doses annually101. One similar project is under consideration in the Sindh province to cater to the requirements of local breeds in the area.

Currently two research institutions under PLDDD namely the Research Centre for Conservation of Sahiwal Cattle (RCCSC) and Buffalo Research Institute (BRI) have been established at Jhang and Kasur in Punjab. The latter has been operational since 2005.

Progeny Testing Programs have been started by PLDDD at Patoki, Haroonabad and ChakKatora in the Punjab province as well.102

One national level project on breed management and reproductive efficiency has been initiated by the Livestock and Dairy Development Board. The project is title "Improving Reproductive Efficiency of Cattle and Buffaloes in Smallholder Production Systems". The program mainly aims at setting up semen production units in the country while building provincial and private sector capacity and offers embryo transfer technology through its facility in district Okara of the Punjab province. The private sector is not largely involved in semen production but some companies import and supply these doses to large commercial farms in Pakistan.

A similar project has been launched in the province of Baluchistan under the title "Promotion of Livestock Farming in Baluchistan" by Livestock and Dairy Development Board.

To regulate the quality of the semen doses being supplied in the market, the government of Punjab has taken initiative and has drafted laws such as "Semen Regulatory Act" and the "Breed Control Act". To encourage high yield breeding, the federal government has zero-rated import of the live animals.

The "Profarm" initiative under the Punjab Board of Investment and Trade (PBIT) is anew initiative taken by the provincial government to enhance meat producing breeds specifically.

2. Feed and Nutrition Management

The LDDB has initiated a major project to increase milk production in Pakistan. Under this project, livestock farmers in 500 identified villages would be provided high quality fodder for the purpose of improving animal nutrition.

For preserving animal feed, technical training programmes have been started by Pakistan Dairy Development Company (PDDC).

The Silage Project has been initiated by PLDDB in cooperation with the Belgian Blue Cattle Farms Pakistan Limited.

PLDDB has also established Animal Nutritional Centre in Lahore along with a project to supply "Anmol Wanda" to dairy farmers in Punjab[103.]

[100]Pakistani Cattle and Buffaloes produce an average of 4-5 liters milk per day during the total lactation period of 305 days (SMEDA)
[101]Currently the imported semen dose costs Rs 10,000 or US$ 9 whereas the semen production unit, after its commencement, would be able to offer semen dose for as low as Rs 100 or US$ 0.95 per dose thus reducing the cost by a substantial amount.
[102]Punjab Livestock and Dairy Development Board (PLDDB)
[103]*Anmol Wanda* is a special type of feed concentrate.

To regulate the quality and provision of animal feed in Punjab, the Feed Control Act is also in the process of being implemented in the province.

The government has also zero-rated the import of fodder and certain feed concentrates[104].

PBIT has collaborated with Maxim, a manufacturers of quality concentrate feeds for feedlot fattening farms, and Auriga group of Companies, involved in the production of micro-nutrients, to facilitate the maximum outreach of animal feed in the province

Trainings are also provided on nutrient rich feed production and storage techniques105.

3. Veterinary Support and Animal Health

Provincial governments mainly carry out veterinary service and related activities. activities As explained in Section 2 above, there are 963 veterinary hospitals, 2869 veterinary dispensaries and 2875 veterinary centres in Pakistan.

Animal quarantine and drug and vaccine regulations are done at the federal level by the Animal Quarantine Department and the National Veterinary Laboratories, Islamabad, respectively. Vaccine production mainly is the mandate of the public sector; however, a few private companies have emerged in this business that are regulated by the Drug Regulatory Authority of Pakistan (DRAP).

Currently there are no disease control action plans at the national level. However, the LDDB has planned to launch a nationwide project called the "Development of Strategy and Implementation Plan for the Progressive Control of Foot and Mouth Disease in Pakistan" in the near future.

Impact Assessment

Breed Preservation and Management

It has been observed that the government initiatives are more focused on capacity building of farmers on improving farming techniques rather than addressing the root causes of low productivity in which breed management is a major factor. Currently only one government project is operational under the LDDB on breed improvement. The government has therefore been criticised for not been able to deal with this urgent issue.[106]Very limited focus has been given to the development of specific meat producing breeds in the large and small ruminants.

Imported semen doses become very expensive for the private sector as its cost ranges from Pak Rupees (PKR) 10,000-12,000 each. Furthermore, absence of appropriate domestic regulations has encouraged production of substandard semen doses by the private sector[107]. Artificial Insemination (AI) technicians are insufficient. Due to financial limitations, against a requirement of employing 16,000 trained personnel, only 900 paid employees and 3,000 self-employed people are presently working in the PLDDB's programme. There is also a capacity building issue for the stakeholders in semen freezing, artificial insemination and embryo transfer.[108]

Feed and Nutritional Management

Although the federal and provincial governments as well as the private sector and the donor agencies have started various initiatives on feed and nutrition management for the farmers, however, the impact of these initiatives still remains very low. There exist large gaps between the supply of appropriate fodder and its demand in the country.

Veterinary Support and Animal Health

[104]Economic Survey of Pakistan 2011-12
[105]Tetra Pak Pakistan
[106]Nestle Pakistan
[107] Availability of semen doses in Punjab is a big issue. Punjab's annual requirement of semen doses is 8 million, whereas only 2 million doses are produced leaving a deficiency of 75%. (PLDDB)
[108] Punjab Livestock and Dairy Development Board (PLDDB)

Absence of an appropriate national policy on veterinary support and animal healthcare has resulted in overall deterioration of veterinary services in Pakistan. Despite the presence of infrastructure for these services in the country, there are limitations as to the quality and outreach of service providers in this field considering the fact that at least 8 million small, medium and large farmers have to be approached.

Apart from the awareness issues with the farmers on the importance of veterinary matters and the issues of limited resources hindering service providers to reach to a large number of farmers, a major issue that remains is lack of proper training of the healthcare personnel in the government. This creates yet another barrier in the appropriate service delivery to the target group. These are not only some major impediments in enhancing livestock production in the country but also restrict export opportunities of value added products from Pakistan.

Recommendations

Breed Preservation and Management

(i) There is a general consensus amongst all stakeholders that a national level policy should be implemented to develop breeds especially for meat production. Brazil has emerged as the largest meat exporter in the world through development of meat cattle breeds specifically, such as Gir and Ongole of Indian origin, that first came to the country in 1906.[109] However, the government is recommended to undertake further research in this area that would determine the profitability of businesses involved in fattening of male animals for meat production as opposed to dairy farming only.

(ii) Lack of awareness regarding breed management is the biggest issue that needs to be tackled at the grass root level to ensure that good bulls are bred through appropriate feed and nutrition to produce healthier and superior off-springs.[110] This strategy needs a long-term and continuous planning and implementation to counter the negative attitudes and lack of responsiveness amongst the local farmers.[111]

(iii) Government projects like the CEDSEB are currently facing financial constraints due to lack of public funds. It is proposed that private sector competition as well as joint ventures with internationally renowned companies should be introduced in the project to ensure its early completion and for the provision of high quality semen doses.[112] This initiative can potentially lead to export of semen doses as there is demand for indigenous breed in the international markets as per industry and governmental sources.

Feed and Nutritional Management

(i) Currently imported feed prices are quite low as compared to the ones locally produced. According to industry estimates, 1 kg of imported corn feed costs PKR 20(USD 0.2) as compared to local corn feed at PKR 30 (USD 0.2). This price difference makes a huge impact on the small-scale farmer.[113] Therefore the government should continue its policy of opening up imports of all required types of feed and zero-rate them as much as possible.[114]

(ii) To cater to the large domestic demand of animals feed and fodder and to decrease the price of high quality concentrates produced locally, the government needs to encourage private investment in this industry. There is a high potential to earn profits by the private sector in

[109] Department of Animal Husbandry, Dairying and Fisheries, Government of India, Report on National Commission on Cattle, Chapter VII
[110] Punjab Livestock and Dairy Development Board (PLDDB)
[111] It should be noted that, as discussed above, farming and rearing practices amongst the local farmers are mainly based upon traditional knowledge and experience and therefore a majority of them resist in changing their attitude towards improvement.
[112] Punjab Livestock and Dairy Development Board (PLDDB) and Punjab Board of Investment and Trade (PBIT) would be required to take a proactive role in this aspect.
[113] According to government estimates, about 25 kg of silage is required to fulfill the daily dietary requirements of 1 mature milch animal.
[114] SMEDA

silage production due to increased efficiency, as even the government is earning profits on its silage production project.[115]

(iii) Side by side, spreading of awareness among the farmers' community is an important aspect of making them realize the importance of providing nutritional values to the milch animals in order to get more production from them and therefore become commercially and economically better off.[116] *The same can be ensured in the Dairy Hubs through provision of low-cost technology, silage production training and imparting relevant knowledge to the opinion leaders and progressive-minded farmers in the villages.*[117]

(iv) The root cause of lack of proper feed and nutrition and water supplies provided by small-scale farmers is their unawareness of its impact on the animal welfare. These can only be overcome through model practises in the Dairy Hubs. For example, the acceptability of silage production and provision was very low amongst the small-scale farmers. Under the hub concept, fattening of male calves for meat production can be encouraged. Through proper feed and intake of water, the calf has a potential of gaining weight equivalent to 500-900 grams[118] *per day, which would prove to be very valuable for the farmer at the time of its sale.*

(v) As value of land is very high, government may lease land on reasonable rates to farmers interested in growing crop for fodder. Based on the huge gap in the demand and supply of feed, there is a very profitable opportunity for competition in the industry.

(vi) A national strategy is required to be adopted where awareness programmes should be launched for the farmers on the importance of food and nutrition according the Total Mixed Ration (TMR) technique.[119]

(vii) Feed production needs to be on scientific basis, considering the supply and demand gaps in the country as well as encouragement of specific types of feed and fodder production that contribute to higher animal and health and productivity.[120]

(viii) Balanced rations of feed and fodder may be extended to small-scale farmers on credit basis in the Dairy Hubs.[121]

Veterinary Support and Animal Health

(i) Disease prevention and control needs to be given primary importance to promote availability of quality animals and meat in the country and to overcome obstacles in their export. The same can be achieved through stringent regulations that would result in the establishment of "Disease-free Zones" within various parts of the country.[122]

(ii) The animal health needs to be linked directly to public health to raise the significance of proper veterinary care and animal welfare. If the concept can be streamlined into the general veterinary policy in the country, the same can be used as an effective marketing tool in trade with the partner countries.

(iii) Government at national and provincial level should activate its available infrastructure. There are a number of animal healthcare hospitals in the country whose effectiveness is far below required levels. Hiring policy for these hospitals and veterinary care centre has to be ensured with preference to the local inhabitants so that their interest in posting at their home stations should be used as a motivational tool to retain them for provision of quality service to the stakeholders.

[115]The cost of production of 1 kg currently stands at PKR 5, while it is being priced at PKR 6.5 (Corn Silage) and PKR 7 (Wheat Silage) to cater to the local farmers, especially when there is a shortage in local fodder production during the winter months. The costs do not include depreciation on the imported machinery and the profits are being reinvested into the project. Source: Punjab Livestock and Dairy Development Board (PLDDB

116Local farmers generally provide low cost wheat straw to their animals which has very low nutritive value and a subsequent negative affect on their productivity levels.(Small and Medium Enterprises Development Authority, SMEDA and Punjab Livestock and Dairy Development Board, PLDDB)

118Till the age of 1.25-1.5 years (Punjab Livestock and Dairy Development Board, PLDDB)

119 TMR ensures that feed quantity should be 3-3.5% of the total animal weight to get maximum productivity.

120120Food and Biotechnology Research Center, Pakistan Council of Scientific and Industrial Research (PCSIR) Laboratories

121Arid Agriculture University, Rawalpindi

122Department of Livestock Research and Development, Government of Khyber Pakhtunkhwa

(iv) *The extension workers and veterinary specialists posted at various divisions should be compensated as per their performance. This method would provide monetary incentive to increase their veterinary outreach efforts. It is proposed that a bonus may be rewarded to those officials having the lowest disease incidence rate in their respective hubs.*

(v) *Use of resources of local Panchayat and Daira*[123] *facilities of local village heads can be used while appropriate trained personnel from within the local community can be posted as veterinary attendants under the supervision of the village heads. UC centres under the divisional hub headquarters at union council levels should be established, which can monitor the performance of these medical attendants and also can provide medicines to them. This effort will greatly facilitate healthcare efforts in the farmers' communities and enhance the outreach to the nooks and corners of the country.*

(vi) *As suggested above, there is urgent need to form veterinary training institutes and universities*[124] *in the country to overcome the dearth of trained medical staff in the veterinary field. This requires medium and long term strategy. The government should form veterinary academies in major Tehsils as a first step and afterwards may form colleges and universities to overcome shortage of trained medical professionals. Again, consortium of medium and big farmers as well as international agencies with the local governments would greatly facilitate this effort.*

Issues in the Meat Processing Industry

The basic infrastructure of the meat processing industry in Pakistan is mainly the slaughterhouses themselves. According to an estimate, more than 300 slaughterhouses have been established by the public sector but they employ primitive slaughtering techniques and unhygienic handling of meat and its transportation. There is also a problem of having a small number of slaughterhouses in the country. Although a few modern slaughterhouses have been established by large processing enterprises, many of the established ones lack the availability of basic facilities like water, electricity, and cold storage. These units operate in unhygienic conditions that usually result in the loss of quality of the meat. Additionally, there are large numbers of illegal slaughterhouses in the country who are providing meat of dead or low quality animals. There is also lack of health and safety inspection in the industry.

Measures Adopted

1. The number of slaughterhouses has been increased from just three modern ones a few years ago to about 23 modern slaughterhouses all over the country.[125]

2. To counter the infrastructure problems of the processing industry, the LDDB has plans to encourage establishment of modern slaughterhouses in the country to be managed by the private sector. A financial grant of up to PKR 3 million will be provided against the total investment of PKR 70-80 million.

3. Further grants of PKR 300,000 are also available for opening of new meat shops in the country.[126]

Impact Assessment:

Although the impact of above measures has been positive, however, they are still limited in their outreach and financial capacity to develop and promote the meat processing industry rapidly.

[123] These are usually formed by the medium and large size farmers in their agricultural lands. These Dairas are also used as guest houses for guests coming from outside. Storage of grains and other agriculture implements is also done here. Besides, in almost all Dairas, the farmers also house certain animals including cows, bulls, dogs etc.
[124] The University of Veterinary and Animal Sciences is the only university in the country specifically related to livestock husbandry.
[125] Livestock and Dairy Development Board (LDDB)
[126] Ibid

Recommendations

(i) *The Pakistan Livestock and Dairy Development Board needs to carry out detailed planning needs to ensure linkages between the livestock markets, slaughterhouses and the processing facilities for livestock by-products.*

(ii) *It is better to plan and regulate smaller slaughterhouses on the basis of towns in large cities, rather than having one large unit in the suburbs. In case of a huge city like Lahore, small units can be opened in the nine towns as per the administrative setup. This would ensure a convenient supply chain for the meat processors in terms of cost efficiency and overcoming the perishibility factor. It would also provide environmental and hygiene benefits as the solid waste can be managed through government facilities in these towns.[127] In Punjab region, this setup would be implemented through the Punjab Agriculture and Meat Company (PAMCO), while similar initiatives may be taken through the livestock departments of other provinces.*

(iii) *The animal casings processors and exporters may also be facilitated by the above mechanism through establishment of small processing facilities in the vicinity of these slaughterhouses on land owned by the public sector. It would provide them with the opportunity to timely process the casings under suitable temperatures and would also help contain the subsequent environmental hazards.[128]*

(iv) *Meat processing zones as well as export meat processing zones should be established near major cities of the country. These zones should be equipped with facilities required by the meat and meat products manufacturing and processing units that are required to comply with international sanitary and phyto-sanitary standards and general standards adopted by existing as well as potential markets.*

(v) *Government owned livestock farms should not be privatized as they are specifically carrying out research and development (R&D) and are acting as hubs in preserving precious genomes of livestock breeds.[129]*

(vi) *To encourage value-addition in the industry, investors should be provided soft loans to establish processing facilities and should also be offered export refinancing credit schemes to support the international marketing of the meat products.[130]*

Trade Potential of Livestock Products

Generating Exportable Surplus

As mentioned earlier that breeding of meat animals is given secondary importance in the rural economy, the issues relating to productivity, integration of value chain system, standardization and compliance become more complex. These factors have led to limited availability of exportable surplus as the domestic demand is increasing as against the supply potential of meat animals. Investment in the downstream as well as upstream meat production and processing industries remains low and poses a major challenge to its development. There is urgent requirement of attracting investment in the value added and ancillary industry to cope with the increasing demand and to settle the supply side issues.

Measures Adopted

Although the Strategic Trade Policy Framework (STPF) 2009-12 recognizes future potential of the livestock sector on the basis of the country's comparative advantage in meat and milk production and on the basis of potential of the sector to contribute positively to the exports of Pakistan. However, no specific initiatives on development of the meat export sector were made part of the STPF.

[127] All Pakistan Meat Exporters and Processors Association (APMEPA)
[128] Manufacturers and Exporters of Animal Casings
[129] Arid Agriculture University, Rawalpindi
[130] Punjab Board of Investment and Trade (PBIT)

Impact Assessment

In the absence of export related initiatives, the assessment of impact cannot be made.

Recommendations

Trade depends on availability of exportable surplus that can meet regulatory and compliance related requirements of the export markets. Certain recommendations for increasing export competitiveness are given below:

(i) *To address investment related issues in the value added livestock export sector, government must position meat production as profitable business and provide facilities to develop this sector in the shape of export meat processing zones facilitate setting up of modern slaughterhouses after assessing industry's requirements and provide various schemes through the financial sector for a limited period of time.*

(ii) *Although this is a much stressed upon recommendation by the private sector, the provision of freight subsidy to exporters would put a further burden on the limited financial resources of the country. It is therefore recommended that, in the medium and long run, the government needs to encourage competition in the domestic airline industry to bring down freight costs. In the current scenario, with Pakistan International Airlines (PIA), holding a monopoly in the domestic industry, exporters are at a huge loss in terms of international transportation of highly perishable items such as livestock products. The unpredictable and frequent increase in the freight charges by the carrier causes much distress to the exporters of meat products and animals casings.*[131]

Standardization, Compliance and Traceability Issues

The SPS Agreement of the WTO allows the member countries to adopt certain standards to protect animal, plant and human life from possible threats that can be posed by importation of substandard products from partner countries. The main objective is to ensure compliance with the recognized international standards, increase transparency and reduce protectionist tendencies in certain member countries of the WTO in domestic production and specifically in the export of livestock products.

The three food safety laws explained in Section 3 loosely form the domestic regulatory framework. They do not appear to be in conformance with the international standards and these are also are poorly implemented resulting into production of below standard products.

Livestock sector faces issue of traceability which is one of the major requirements of European Markets and therefore restricts trade opportunities for Pakistani livestock products. There is usually no maintenance of pedigree record or tagging of the farm animal and there exists no regulatory framework to this aspect. Further, there is no concept of providing awareness on the usage of healthy semen (especially in Artificial Insemination technique) which results in the adulteration of the animal's breed.[132]

Measures Adopted

A project funded under the Public Sector Development Project (PSDP) programme namely "Special Program for Strengthening SPS Facilities and Quality Inspection Services" has been initiated by the "Integrated National Animal and Plant Health Inspection Services" (NAPHIS) which is placed under the newly formed Ministry of National Food Security after the devolution of powers to the provinces. The main objective of the project is to bring all measures related to animal health and quarantine in compliance with the WTO standards. With an estimated budget of PKR 415 million, it is scheduled to be completed by the end of 2012. The specific objectives include the capacity building of agricultural line departments for international accreditation; ensuring compliance of national/international food safety laws for better trade;

[131]Punjab Board of Investment and Trade (PBIT), Punjab Agriculture and Meat Company (PAMCO), Pakistan Meat Exporters' Association and Exporters of Animal Casings
[132] Various dairy farmers in Punjab

developing an integrated SPS management system; and finally being a focal organization for SPS related matters, establish NAPHIS as the regulatory authority on SPS measures in Pakistan.[133]

NAPHIS is currently coordinating with United Nations Industrial Development Organization (UNIDO) under the EU funded TRTA II program to develop a suitable model for integrated food safety and SPS management in Pakistan. It is also operating as a "think tank" for technical input on national and international levels for Pakistan.

With the aim of tackling the traceability issues, PDDC has initiated to provide tagging equipment to dairy farmers through its Rural Services Provider Program (RSPP) and Model Farm Program. Traceability initiatives have also been undertaken in the private sector by Belgian Blue Cattle Farms Pakistan (BBCF Pakistan) and Nestlé's Responsible Sourcing Traceability Programme. Besides this initiative, the Punjab Agriculture and Meat Company (PAMCO) has initiated E-Tagging system at approximately 2,500 livestock farms to ensure that the traceability of animals is observed. The project has been initiated with the assistance of a U.K based firm "**Cabrob"** who is responsible to provide tagging. The programme is run under the title "Save the Calf and Feedlot Fattening Programme". PAMCO is providing free of cost E-Tagging services to these farms. However, the current outreach accounts for 10% of the total target. This requires entry of similar companies and initiatives together with investment for achieving better results.

Impact Assessment

The Punjab Pure Food Rules have been revised under the influence of the project and set out standards for food safety that are within the requirements of the international Codex Alimentarius Commission. This has provided an important stepping stone for the further development of food control system in the province. The federal food safety approach is also being planned to be implemented through the launch of the Federal Food Safety, Animal and Plant Health Authority. The impact of the initiatives has not been realized in the livestock sector as these have not been fully implemented as yet.

As far as initiatives on the issue of traceability, no authentic records were found that could be mention in this study.

Recommendations

(i) To increase competitiveness and export potential of Pakistan's livestock products in the world market, it is essential that the Federal Food Safety, Animal and Plant Health Authority bill may be converted into legislation at the earliest. Since the federal food control system will have a positive and speedy impact on the revision of foods laws and regulations in the provinces as well.

(ii) The issue of traceability is central to the provision of safe and hygienic livestock products, not only in the international markets but also for the safety of domestic consumers. The Dairy Hubs would provide a convenient opportunity for the government to launch an action plan including registration of all the animals within the defined region, information on the feed provision, insemination[134] and vaccination and disease occurrence amongst the herd population. The data should be gathered electronically and be saved at the remote server in the hub headquarters and should be accessible via internet for regular updates. Upon receipt of the information the animals may be tagged accordingly.[135]

(iii) Setting up disease-free zones[136] within the hubs is a realistic approach by restricting the movement of animals from one hub to another and thereby containing the occurrence of any disease. The principle of regular testing and culling of infected animals must be encouraged amongst farmers in the hubs to safeguard previous livelihoods

[133]NAPHIS, Ministry of National Food Security
[134]Exotic viruses can be transmitted through cross-breeding with imported animals (Pakistan Agricultural Research Council, PARC)
[135]University of Animal and Veterinary Sciences (UVAS)
[136] Livestock and dairy imports into high-end market like the EU are only allowed through countries declared as disease-free zones. (Punjab Livestock and Dairy Development Board, PLDDB); Department of Commerce, Industries and Investment, Government of Pakistan

(iv) *In the short to medium term, awareness amongst domestic consumers regarding traceability of dairy products to strengthen bio-security in the country,[137] should also be addressed through employing the media and social opinion leaders primarily. The subsequent demand for safe and traceable dairy and other food products would create an environment of regulation in the country which would put pressure on the local producers to follow the principle of "One Step Forward, One Step Back Linkages". Through this concept, the exact supplier of any contaminated/ unsafe dairy products and its subsequent consumer would be easily identified and the risk may be contained. This can be achieved through compulsion of required documentation of the food chain by domestic dairy processors and the presentation of such information as and when required.[138] In the medium to long run, Ministry of Commerce should lobby the establishment and existence of disease-free zones within the country in the international markets; once the same have been declared through self-assessment by the government in the proposed hubs. Bilateral agreements and concessions should then be effectively negotiated with regions like the EU to allow importation of Pakistani livestock (other than animal casings) and dairy products.[139]*

(v) *The issue of traceability of herd animals is central to ensuring promotion and quality of livestock products in international markets such as the EU. The key step is to implement a nation-wide database of registering milch and meat animals through individual animal identification, pedigree information, age, weight, health and disease history etc. and employing the DNA fingerprinting. The animals can then be tagged accordingly.[140]*

International Marketing of Livestock Products

Domestic marketing serves as a key element of international marketing. A strong domestic base acts as basis of generating international trading activity. Unfortunately in Pakistan, the quantity of meat produced and marketed is very low due to over-reliance on milk production from the livestock. Due to lower demand of meat products in the country as compared to dairy, there is no appropriate monitoring and evaluation mechanism which could correct this situation. The same is reflected when it comes to internalization of livestock and livestock products. A weak domestic regulatory regime does not facilitate the livestock sector to become internationally compliant.

Measures Adopted

As mentioned earlier, the trade policy currently in force does not contain any specific initiatives for the livestock sector from trade perspective. The LDDB is the primary organization with the mandate or promotion and marketing of livestock and livestock products but its projects are primarily involved in the domestic development of the sector. The services of TDAP, the marketing arm for the Ministry of Commerce, also remain unutilized for promotion of livestock products.

Impact Assessment

Due to lack of concrete policies, protocol arrangements[141] with trading partners and compliance to international standards Pakistan is unable to successfully export its livestock and livestock product in the world markets. Therefore an objective impact assessment is hard to carry out at this stage.

Recommendations

[137] Punjab Livestock and Dairy Development Board (PLDDB)

[138] Under the EU's General Food Law, 2002, traceability has been made compulsory for all food and feed businesses. "It requiresthat all food and feed operators implement special traceability systems. They must be able to identify where their products have come from and where they are going and to rapidly provide this information to the competent authorities." Documentation requirements include names and addresses of suppliers, and customers in each incidence, nature of the product and the exact date of delivery..

[139] Dairy and livestock producers and processors

[140] Food and Biotechnology Research Center, Pakistan Council of Scientific and Industrial Research (PCSIR) Laboratories

[141] According to industry sources, it has been estimated that the price for meat is PKR 1,000 (USD 10.5) in Turkey, while the cost of exporting the same quantity from Pakistan comes around to PKR 400 (USD 4.2). This shows that Pakistan could have huge potential in the Turkish market if a protocol agreement is signed between the two countries. It has also been indicated that at least two meat processors in Pakistan would be able comply with Turkey's import regulations.

(i) *Joint ventures and investment by Pakistani investors in markets such as the United Arab Emirates (UAE) should be encouraged through a proactive role by the Punjab Board of Investment and Trade (PBIT). UAE would be interested in corporate farming of meat animals that would ensure a consistency in supply to cater to its domestic demand.*[142]

(ii) *There is an urgent need to comply with international quality and safety standards in the meat sector to tap its export potential. Other than this, protocol arrangements with more countries should be entered into on the basis of demand of Pakistani meat products, especially in the global Halal food segment.*

(iii) *The services of TDAP should be fully realized to provide subsidy to meat exporters in order to establish retail meat outlets in the importing countries and should also include provision of rental charges to attain counters in international high-end super markets for direct selling to consumers in these countries.*

(iv) *The government should provide financial assistance on mandatory international health and safety certifications required to be undertaken by the meat exporters, on the same lines as for the textile exporters.*

(v) *Capacity of the LDDB should be augmented to cater to the international marketing needs of the sector. This is imperative due to the fact that the organization is very closely associated with the entire system of the industry.*

Easing Import Restrictions on Live Animals and Livestock Products

As mentioned earlier in Section 3, Pakistan has prohibited the import of live animals, including cattle, buffalo, sheep and goats and their meat from a substantial number of countries on account of Bovine Spongiform Encephalopathy (BSE) infection under its Import Policy Order, 2009. These countries include the United Kingdom, Ireland, Belgium, Denmark, Falkland, France, Germany, Italy, Luxembourg, Holland, Spain, Brazil, Czech Republic, Austria, Poland, Slovakia, Slovenia, USA and Alberta Region of Canada.[143]

It may however be noted that countries such as the USA and Brazil are leading producers and exporters of cattle and buffaloes and their products, which can be crucial sourcing destinations for the Pakistani livestock and dairy processors in view of the domestic shortage of meat and milch animals.[144] Furthermore, countries such as Belgium, Denmark, Austria and Brazil have been recognized as having "Negligible" BSE risk, while the rest of the countries have been accorded the "Controlled" BSE risk status.[145]Keeping in view the above factors, the government should progress towards opening up import from these countries in a phased manner as per domestic requirements.

Border Measures

The sloppy border measures on the neighbouring borders of Afghanistan and Iran pave way to informal trade of live animals which incur heavy economic losses to Pakistan. Live and productive animals are sent across the border without much problem by the informal traders. This creates shortage of the livestock that results in artificial escalation of commodity prices in the domestic markets. Resultantly poor breeds remain a constant trouble for the domestic producers.

Porous borders of Pakistan result in loss of valuable breeds and therefore require appropriate strategy to discourage illegal or informal trade of live animals which hurts the interests of ancillary industry like leather and leather products etc. Informal trade and porous border also facilitates bringing of unhealthy and unproductive live animals into Pakistan from other sides of the border which poses threat to the domestic species and to the public health.[146]

[142]Pakistan Meat Exporters' Association
[143]Import Policy Order, 2009, Section 3 (k)
[144]SMEDA, Milk/ Meat Producers/ Processors
[145]World Organization for Animal Health (OIE), Bovine Spongiform Encephalopathy (BSE) Status of Members, According to RESOLUTION No. 16 (80th General Session May 2012)
[146]Punjab Livestock and Dairy Development Board (PLDDB)

Measures Adopted

Customs department is mainly responsible for checking and quarantine of animals upon entry within the borders of the country. The department is also responsible to prohibit entry of food products containing pork or those that are on the "negative" list.

Impact Assessment

Pakistan shares a long mountainous border with Afghanistan. The rough terrain and current law and order situation in the Pakistani neighbouring tribal belts makes it difficult for the border control authorities to protect each and every part of the long border given that the economic and human resources are not enough for this particular purpose. Further to this, corrupt practices in the border and customs personnel make government's efforts to fail. Therefore this situation has resulted into rise in the informal trade of livestock worth millions of dollars from Pakistan thus giving a shock to the national economy.147

Recommendations

Informal trade of livestock only is not the single issue of Pakistan as far as border issues are concerned. There are other products that are also traded between Pakistan and its neighbouring countries informally. Therefore both domestic as well as international border measures are required to be taken to stop informal trade of precious products from Pakistan.

(i) *Governments of Pakistan and its neighbouring countries should enter into bilateral arrangements where they should adopt measures to restrict the smuggling of line animals across international borders. Customs authorities of both sides should be made responsible to restrict any informal movement of live animals from one end to the other end of the two sides of the border.*

(ii) *If it is found that the customs department has limited capability to put enforcement activated, the government may consider establishing a livestock protection agency. Necessary policy and regulatory measures should be taken by the federal government in consultation with the provincial governments. An implementation force should be managed, especially on the interprovincial border areas which should check each consignment of livestock sent from one province to another. This will also ensure unauthorized passage of animal species from one province to another.*

(iii) *Appropriate legal reforms resulting in prohibitive penalties should be enforced where the illegal trade of live animals should be restricted and punitive measures should be defined for those involved in such illegal trade. This will greatly reduce the informal trade since the local police will also be involved and authorized to curb smuggling by providing a third tier of check on the informal trade.*

Policy Measures and Regulatory Framework for Development of Livestock Sector in Pakistan

Taxes and Tariff Regime

During the process of conducting primary research where stakeholders were contacted for seeking their opinion on various regulatory and policy related matters, a number of them mentioned that the government has not established a separate tax and tariff mechanism for the livestock sector. The government usually apply same duty and tax regime for poultry and livestock sector without considering the fact that both sectors have different parameters and varying levels of advancement. To them, livestock and dairy sector requires additional incentives as it is far behind the poultry sector which is much more organized and systematized due to specialization and investment by the stakeholders. Therefore a different tax and tariff regime is required to make livestock sector progressing and productive.

147 Smuggling makes animals dearer,Tahir Ali Khan, Dawn Newspaper.

Measures Adopted

Measures include duty free import of live animals (bovine), veterinary equipment and vaccines, dairy and livestock machinery and equipment. Very recently, certain other products such as feed ingredients and other inputs used for feed preparation, growth promoters and vitamin pre-mixes were also allowed at zero rated duty.

Impact Assessment

Most immediate impact of the liberal import regime with zero tariffs has resulted in the import of 9,500 exotic animals, 318,768 semen doses and 4,300 embryos of high yielding animals since 2010. This has had a direct and indirect effect on an increase in the establishment of meat processing units in the country.

Recommendation

(i) *It is proposed that the government should open trade of live animals and livestock products from the countries prohibited in the Import Policy Order, 2009 to cater to the domestic demand in view of high prices and shortage in supply of animals due to rampant smuggling.*

Reforms in Meat Pricing Mechanism

The domestic meat market is currently facing a dilemma in which price of meat produced in the informal sector is being regulated by local authorities in the urban markets, whereas no such regulations are applied to prices of packaged meat products in the formal sector. In case of informal meat production, the designated officials of the local authorities carry out a market survey and then in consultation with the relevant stakeholders fix a selling price of meat in the domestic market. Other than this, live animals for production of meat are sold in the domestic markets on the apparent health and quality of the animal, rather than on live-weight basis. This causes a huge revenue loss for the livestock producers.

Measures Adopted

The “Price Control Committees” formed under the provincial/ district governments carry out consultations with the relevant associations to fix the retail price of meat in the local markets.[148] The price to be negotiated with these committees by the associations is initially mutually agreed upon by their members.[149]

Impact Assessment

The practice of price control is highly flawed, as in the first instance the members of the relevant association come together and agree upon a mutual price, and secondly the forum of the association is then used for fixation of price in coordination with the local authorities. The process gives rise to collusive practices and deteriorates the environment for domestic competition. The associations also generally have low negotiating powers to advocate the selling price on behalf of its members with the local authorities.

Another aspect is the potential inability of local producers to sell meat at the fixed price in view of their cost of production. This gives rise to constraints in consistent supplies to the domestic consumer as well a rise in the incidence of sale of low quality meat. Even when the price is fixed, there are not enough capacity or enforcement mechanisms in the local authorities to properly enforce it and to counter and penalize the unilateral increase in prices by butchers and meat retail shops within a particular area.

[148] Arid Agriculture University, Rawalpindi

[149] According to the latest price control list issued by the City District Government Karachi (CDGK), the selling price of mutton is fixed at PKR 500/ kg (USD 5.26), beef with bones at PKR 260/ kg (USD 2.77), beef without bones at PKR 290/kg (USD 3) and calf meat at PKR 3000/ kg (USD 3.1) in the urban area

Recommendations

(i) *It is proposed that the relevant governments/ authorities should immediately withdraw their support from fixing and controlling the selling price of meat in urban centres. The practice of using private associations as forums to negotiate prices and the consequent 'collusion' created by the government is against the spirit of competition and all such agreements are prohibited under Section 4 of the Competition Act, 2010.*[150]

(ii) *The intention behind price fixing is to mainly keep meat affordable to the local consumers. The same can be achieved in a more effective and sustainable manner through the introduction of open competition in both the informal and formal sectors. The price of meat will reach equilibrium once the demand for quality is driven by consumers and this would also have a subsequent impact on improving the production efficiencies of livestock farmers, producers and processors to effectively compete in the domestic market. The prices of animals on live weight basis should be strictly enforced. Such a pricing mechanism ensures that farmers and livestock producers get the optimum price based upon the animal's actual weight. The live weight includes the weight of body tissues, contents of the alimentary tract and the bladder and the weight of the moisture contained within. The weight of these components is included in the overall weight of the animal, which in turn proves to be very valuable for the producer. Currently, producers are unable to receive premium prices for their animals due to poor marketing structure and the exploitative role of middlemen in the selling of these animals.*[151]

Revisiting the 18th Constitutional Amendment

The main focus of the 18th constitutional amendment was to provide greater autonomy to the provinces to ensure better service delivery to the public and is considered a landmark achievement of the current government. Through this amendment, the previously federal subject of agriculture has been devolved to the provinces, with an overall objective to give provinces more autonomy in policies and actions. The federal government is now responsible for making national policy on livestock and dairy.

Impact Assessment

Since the newly formed federal Ministry for Food Security and Research is still in its infancy post the recent constitutional amendment, it is quite early to assess its impact. The LDDB and Pakistan Dairy Development Company (PDDC) are trying to find sound footing in coordination with the relevant provincial departments for future development of the dairy sector.

Recommendations

(i) *It is pertinent to improve the capacity and skills of the agriculture personnel in all provincial departments to develop agriculture and livestock policies. The Ministry of Food Security and Research needs to take a central role in the training for policy development and implementation in coordination with international training organizations.*

(ii) *In the dairy sector, farmers being producers are to be considered as the major stakeholders by the provinces. Therefore, it is imperative to institutionalize their participation in developing policy instruments for the industry. The same can be ensured through the implementation of Dairy Hubs which would increase representation by the small holders especially and also create a mechanism for inputs and feedback regarding development initiatives starting right from their door steps.*[152]

(iii) *A key element that was central to providing autonomy in the agriculture sector was the implementation of a structure by the provinces for the collection of agricultural income tax from producers. It is about time that the practice be initiated by provinces in view the fact that*

[*150] Section 4(1) prohibits and renders void "all agreements between undertakings, decisions by associations of undertakings and concerted practices which have as their object or effect the prevention, restriction or distortion of competition in trade in any goods or services in the State or in any part of the State". The Act lists some specific types of behaviour which are expressly prohibited. These include "Fixing the purchase or selling price or imposing any other restrictive trading conditions with regard to the sale or distribution of any goods or the provision of any services."

[152] Livestock Farmers and Breeders Association

although the sector, including a major share of the livestock sector constitutes around a quarter of the country's GDP, its contribution to tax revenues remains disappointingly low at around one per cent. Provincial legislators need to introduce an effective and serious dialogue in consultation with the relevant stakeholders for implementation of this initiative as it has a high potential to increase the Tax-to-GDP ratio for the country as well as raise much needed funds for development of the sector.[153]

Revamping the Food Safety Regime

Currently Pakistan does not have a cohesive and clear set of regulations for either imported or domestic food products at the federal level. Within the present structure, the federal government is solely responsible for the regulations on imported food (including dairy) products, while the provincial governments are mandated to enforce standards in the domestic environment through the relevant health and safety departments.

The import regulations overly rely on the premise that if the product is sold in the country of origin and meets the domestic safety requirements, then it meets Pakistan's requirements as well; therefore establishing a reactive rather than a proactive approach in regulating food imports. Other than the above, the focus is on ensuring adequate shelf life.[154]

Amongst the three over-riding laws for food safety, there is an overlap in food standards amongst the Pakistan Pure Food Ordinance (PFO), 1960 and the Pakistan Standards and Quality Control Authority Act (PSQCA), 1996. The PFO does not cover contamination of food by pesticides, mycotoxins, specific microorganisms and heavy metals, while the PSQCA Act has a more domestic outlook and ignores quality testing, inspection and regulation of imported food stuffs.

In relations to the Codex Standards, the PFO lacks in covering import/ export inspection and certification, exchange of information with export markets in rejection of food items and emergency situations, accreditation of imports/exports, development of equivalence agreements and inspection in relation to SPS measures with trading partners and production and issuance of electronic certificates as per Codex guidelines. In comparison to that, the PSQCA Act is more comprehensive in covering a larger portion of the above standards but is weaker in terms of coordination with trading countries and import certification.

Impact Assessment

The rising levels of Pakistan's exports in recent years and the restrictions faced by food producers and processors in high-end markets such as the EU have provided an impetus for drafting of various new food safety laws and amendments of previous ones at the federal and provincial levels. A draft bill has been proposed to the parliament for establishment of the Federal Food Safety, Animal and Plant Health Authority to overlook the SPS and TBT measures in compliance with international regulations.

The provinces have initiated the amendment of existing food laws to be implemented in their designated territories. The draft laws regarding milk safety and animal breeding have been submitted to the provincial cabinet of Punjab while Sindh and KPK are following course in drafting of such laws. The Punjab Food Authority has been established in the current year and has been awarded regulatory powers to ensure food safety standards in the province.

Pakistan still needs to cover immense ground on major issues, other than food safety, such as SPS measures, traceability, residual control and testing in food and feed, implementation of Good Agricultural Practices (GAP), quarantine treatment and safety of food packaging materials.

[153] Varying estimates place the revenue potential from taxing the agricultural income from PKR 40-60 billion to as high as PKR 250-300 billion. Nevertheless, the potential influx of public funds is significant in view of current economic conditions of the country (Source: Pakistan Institute of Legislative Development and Transparency (PILDAT), Briefing Paper: Taxing the Agricultural Income in Pakistan, November 2011)

[154] At least 50% original shelf life at the time of importation of the food product into Pakistani territory

Recommendations

(i) *It is proposed that international accreditation of food testing laboratories should be undertaken at the federal level and capacity building and enhancing of food inspection services be carried out under NAPHIS.*

(ii) *The FPO should be amended in view of the Codex standards to include 400 new food products, including livestock products, in addition to the existing 105 being covered by the legislation.*

(iii) *The food testing laboratories working under the PSQCA and provincial governments should be upgraded to enhance their capacity for microbiological analysis.*

(iv) *Currently there are no laws governing and regulating the sale of meat produced in the unorganized sector in the domestic market. The producers need to be incentivized through the Dairy Hubs to produce better quality meat animals. The regulations should include a mechanism to ensure enforcement of quality standards with the provision of applying prohibitive penalties (civil and criminal) by the local authorities.*[155]

(v) *As per EU's Regulation No. 2007/777/EC adopted and enforced on November 29, 2007, Pakistan has been placed in the category of "Undetermined" BSE Risk. The issue finds its basis in the import of 192 non-traceable cows imported from UK 1987. However, as per OIE's provisions, if no case of BSE is reported in 15 years, the case may be automatically resolved in favour of the country in question. This issue needs to be taken up by the relevant organizations such as NAPHIS under the Ministry of Food Security and Research and the LDDB with the OIE to rectify the BSE status of the country as per its requirements and provisions.*

(vi) *The same would have a positive effect on the promotion and pricing of Pakistani livestock products in the international markets, as well as enhancing the overall image of animal health in the country.*[156]

(vii) *The Pakistan quarantine authorities have strict requirements in place for residue analysis and testing of each export consignment for casings, which implies an increase in overall cost for the animal casing exporters, which may prove to be very expensive for companies sending large consignments. It may be noted here that all exports of animal casings from Pakistan are directed towards the EU and it has exempted non-EU casings exporters such as Pakistan from submitting a specific residue control plan. Keeping the above in view, the quarantine authorities need to take a more balanced approach in ensuring domestic precautions for residue monitoring, while saving exporters from taking on the burden of unnecessary costs.*[157]

Improving Outreach of Financial Support

The dairy as well as livestock farmers are generally unaware of the credit schemes offered to them by the government through various government run as well as privately owned financial institutions.

Even if the farmers and other stakeholders working in the dairy sector know about the credit schemes, they avoid availing them due to lengthy and cumbersome loaning procedures including processing time as well as documentary requirements. High mark up on the credit facilities is yet another impediment in provision of financial facility to the farmers.

It has also been reported that the outreach of the Micro Finance Banks (MFBs) and Micro Financial Institutions (MFIs) is either inefficient or the supply of credit is inadequate to meet the original financial requirements of the farmers' community. The operating costs of farmers get to as higher as 22% per annum in the dairy sector. This generally makes micro finance a little attractive and les viable option and therefore a large number of farmers cannot avail the facility.

[155] Khyber Pakhtunkhwa Chamber of Commerce and Industry (KPKCCI)
[156] Manufacturers, Exporters and Importers of Animal Casings
[157] *Ibid*

Measures Adopted

Currently 26 commercial and microfinance banks are operating in Pakistan through their branch network base of more than 3,900 designated branches for agricultural credit purpose. These financial institutions prominently include Allied Bank Limited (ABL), Habib Bank Limited (HBL), Muslim Commercial Bank (MCB), United Bank Limited (UBL), two specialized banks i.e. ZaraiTaraqiati Bank Limited (ZTBL), Punjab Provincial Corporative Bank Limited (PCBL) and 14 private domestic banks. Furthermore, five microfinance banks (MFBs) are also providing financing to the farmers. Amongst other agricultural activities, livestock farming is also covered under certain financing schemes.

Impact Assessment

Total amount of funds for the agriculture credit disbursement increased to PKR 285 billion in 2011-12, as compared to PKR 263 billion in the preceding year. More than 65% of the total credit disbursement was made to the farm sector, including livestock and dairy, which was higher than the previous year. However, small farmers face difficulty in receiving credit from the mainstream financial institutions due to the inability of securing them through "collateral", an explicit guarantee that is required by the banks to off-set the risk associated with lending. Since small farmers do not usually own any such guarantee or security, they remain outside the net of potential borrowers.

Recommendations

(i) *The State Bank of Pakistan should instruct the banking sector to launch facilitation desks at all the branches offering credit schemes for the dairy and livestock sector (mainly covered under agricultural credit). Besides, other branches and banks not offering agricultural credit facilities should also be equipped with proper information so that a maximum number of people are approached and provided information on the agricultural credit schemes offered by certain financial institutions in the public as well as the private sector. Media campaign (electronic and newspapers) can also help in spreading information in the farmers' community. People should be able to know the cost and benefits of availing a financial facility so that no deceptive marketing should be able to deceive them.*

(ii) *Easy and timely access to loans needs to be ensured to small farmers who are mostly illiterate and do not own any guarantees that can be used as collateral. The credit schemes for these farmers should be on the same footing as these are for the medium and large-scale farmers.*

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ANNEXURE: IMPORT REGULATIONS OF POTENTIAL MEAT EXPORT MARKETS

On the basis of market analysis provided in Section III above, a brief overview of the SPS and technical regulations and standards of the following potential markets is described below:[158]

Russia

Russian government adopted Resolution No. 159 on March 24, 2006, giving VPSS (the Russian Federal Service for Veterinary and Phyto-sanitary Surveillance VPSS) the authority to apply international standards in lieu of divergent Russian regulations when evaluating the safety of imported live animals and certain products of animal origin. Despite Russia's on going preparation for WTO accession, agencies' control over imported foodstuffs remains complicated and bureaucratic. Barriers to trade depend on the type of product, customs clearance location, importer's status, and other non-transparent factors.

Important mandatory requirements for safety and identification are articulated not only in sanitary and regulatory documents, such as the Sanitary Rules and Regulations ("SanPiN") but also in some national standards (known by the Russian abbreviation "GOST") and technical regulations. Import (veterinary) Permits and Import Quarantine Permits are issued by different divisions of the Russian Federal Service for Veterinary and Phyto-sanitary Surveillance (VPSS) either after inspection of cargo or/and on the basis of relevant certificates of the exporting country submitted to VPSS by importer.

Import Regulations:

- Products derived from meat must come from inspected and approved facilities.
- Beef Inspectors from the Russian Federal Service for Veterinary and Phyto-sanitary Surveillance (VPSS) must examine all facilities that process or store raw beef intended for export to Russia. After inspection and approval, VPSS includes the establishments on an official list of approved facilities.
- Labeling information for consumer: Refrigerated poultry meat, offal, consumer-ready products, sausage, or any meat products must be labeled as frozen or chilled; Packaging must be labeled for poultry meat, consumer-ready products, culinary items, sausage, products from meat, and culinary items from poultry meat if packaged in vacuum packs or modified gas media (MGM); The percentage of meat, fat, offal, and plant-origin components must be listed for canned products – including those from poultry meat, ham, porridges containing meat - and for consistent, finely ground products; Recommendations for the product's final preparation are required for consumer-ready canned products.
- Pesticides and other contaminants: Levels of contamination by heavy metals including cadmium, lead, mercury, and arsenic are considered when determining toxicological indices of safety for meat, poultry meat, and processed products thereof.

Eligible/Ineligible Meat and Poultry Products

Eligible

- Poultry and poultry products (including bulk-packed ground poultry)
- Pork and pork products

[158]The following sections are based on specific information contained in the various country reports developed by the Global Agricultural Information Network (GAIN), under the United States Department of Agriculture (USDA) Agricultural Service.

- Deboned beef, bone-in beef, and beef by products derived from cattle less than 30 months of age. The beef and beef by products must be derived from cattle raised in the country of origin and must be processed in a manner to prevent contamination with brain, spinal cord, eyes, skull, and vertebral column regardless of the age of the animal. Horsemeat

- Baby food containing beef imported from Australia and/or New Zealand is eligible for export to Russia

Ineligible

- Beef and beef products other than those identified in the Eligible Products section above and all bison meat and bison meat products

- Red meat - Importation of ground red meat, packaged in bulk form or in the form of meat patties, is prohibited by the Russian authorities

- Lamb, sheep, and goat products. However, fully cooked, canned baby food containing lamb is eligible for export to Russia

- Consumer size packages of ground poultry, mechanically deboned poultry, and giblets are not eligible for export to Russia

- Meat and Poultry imported into the United States from third countries

Importation Procedures

In order to bring a product into the Russian Federation at the in-quota tariff rate for fresh, chilled, and frozen beef, pork, poultry, and poultry offal, it is necessary to secure a license. The Ministry of Industry and Trade (MIT) issues this license.

Veterinary Certificates

In general, the Russian Federation requires veterinary certificates for products of animal origin. This document certifies that the product complies with the Russian veterinary requirements, and states that the product has been manufactured at a facility approved for export to Russia.

Import Permits

An import permit must be obtained to import animals, products of animal origin, drugs, and feed and feed additives for animals into the Russian Federation. Permits to import these products are issued by the Chief State Veterinary Inspector of the Russian Federation of the constituent entity to which the regulated cargo is to be imported.

Other Documents

- Certificate of Conformity

- Certificate of origin (not required for all exporting countries)

- Sanitary-epidemiological conclusion

- Invoice containing information on goods and transportation (for sea transportation – the Bill of Lading for vehicle transportation - CMR).

Import Certificates for Meat and Poultry

The following meat and poultry products must be confirmed by the declaration of conformity:

- Meat from any type of slaughter and/or commercially hunted animals, as well as agricultural poultry and game;
- Offal from slaughter animals, poultry, alimentary blood;
- Crude fat resulting from beef, pork and poultry; chilled and frozen pork fat;
- Poultry meat processed using freeze drying and thermal drying processes, and bouillon cubes;
- Edible gelatine.

Listed below are the products subject to mandatory certification:

- Meat-based baby foods;
- Chilled, salted, and smoked pork fat;
- Sausage items, smoked and culinary items from meat and poultry, pâté and aspic, etc.;
- Canned meat and canned meat with vegetables.

Viet Nam

Vietnam lacks unified food laws, although a Food Law is currently being drafted (planned to be promulgated in 2010). Food quality and safety is regulated by a number of sub-law regulations. Under the existing system, regulations are issued under Ordinances (by National Assembly), Decrees, Circulars (by the Government) and Decisions (Ministerial and Inter-ministerial Departments).

The Ministry of Health manages all processed food, food additives, food colorants and flavours, residues and processing aids. The Ministry of Agriculture and Rural Development (MARD) oversees all fresh foods and raw materials: Animal Origin (Dept of Animal Health); Plant Origin (Dept of Plant Protection) and Fishery Products (National Fishery Quality Assurance Department).

Vietnam is a member of Codex, OIE, IPPC and adopts and implements international food standards, guidelines and codes of practice.

Import Regulations:

For beef and beef products, the following statements must be included:

- The meat was derived from cattle less than thirty (30) months of age.
- The meat was derived from federally certified slaughter and processing facilities, operating under supervision of the Food Safety and Inspection Service (FSIS).
- The cattle from which the beef and beef meat products were derived were not subjected to a stunning process, prior to slaughter, with a device injecting compressed air or gas into the cranial cavity or to a pithing process.
- The meat was derived from cattle that were officially given an ante and post-mortem inspection by FSIS inspection officials, and were not suspect or confirmed BSE cases.
- The beef and beef meat products were not derived from the following specified risk materials: the brain, skull, eyes, trigeminal ganglia, spinal cord, vertebral column (excluding the vertebrae of the tail, the transverse processes of the thoracic and lumbar vertebrae, and the wings of the sacrum) and dorsal root ganglia and the tonsils and distal ileum of the small intestine of any cattle regardless of age.

- The meat does not contain advanced recovery meat or mechanically separated meat.
- The cattle from which the product was derived were not fed meat and bone meal or greaves of ruminant origin.

The Department of Animal Health (DAH) requires import permits for imports of animals, animal products, aquatic animals and aquatic animal products. Although clearly described on its websites, the procedures for issuance of import permits are still arbitrary.

Certificates of Origin (C/O) should be prepared properly to avoid Customs determination of 50% surcharge on the total import duty of the product due to unknown origin of the product. The Certificate of Origin (C/O) submitted to the Vietnam Customs office must be an original and have the following contents:

- The issuance number of the C/O.
- Name and Address of the exporter, the exporting country.
- Name and Address of the importer, the importing country.
- Information on transportation of the goods.
- The trademark and label; quantity and type of packs; description of goods.
- Weight
- The goods‘ origin
- The enterprise requesting the C/O issuance (Enterprise‘s name and date of request for issuance).

Meat and all processed food items:

Required Certificates

- Certificate of Good Manufacturing Practices (GMP), Hazard Analysis and Critical Control Points (HACCP), or equivalent (for food safety and hygiene)
- Certificate of Analysis (test results) (for Food quality and standards)
- Export Certificate (for food safety and hygiene).

Egypt

The process of inspection and certification of imported goods is centralized under the General Organization for Export and Import Control (GOEIC) located in the Ministry of Trade and Industry. There are representatives from other ministries such as the Ministry of Agriculture and the Ministry of Health monitoring the inspection process. Release certificate is not issued unless all authorities approve the consignment and hence GOEIC issues a release or approval certificate.

The Egyptian Organization for Standardization and Quality (EOSQ) issued its decree # ES: 2613-2/2008 determining a new shelf life for the food products (fish and its products, dairy products, meat and its products, and other food products namely: salt, yeast, margarine, mineral and natural water, soft drinks, and vegetable seed oils).

The Egyptian Organization for Standardization and Quality Control (EOSQ) in the Ministry of Trade and Industry has sole responsibility for establishing, adopting and publishing food standards and codes of practice. While the EOSQ issues all product standards, it is the responsibility of the Ministry of Health and the Ministry of Trade and Industry to apply those standards.

In cases where no mandatory Egyptian standard exists, the Codex standards are acceptable. In the absence of an Egyptian or international standard, authorities often refer to the Analysis Certificate accompanying the product.

The Institute of Nutrition under the Ministry of Health is responsible for registering and approving all specialty and dietary foods.

Import Regulations:

In 2005, Egypt partially lifted its Bovine Spongiform Encephalopathy (BSE) - related import ban by allowing boneless beef and selected bovine offal (e.g. livers, hearts, and kidneys) from animals less than 30 months of age.

All imported meat must be certified halal.

The beef must come from plants on an approved list.

Turkey

The Turkish Ministry of Agriculture and Rural Affairs (MARA) is responsible for all import certifications which are mandatory for customs clearance of the products. Health Certificates are required for seafood imports and are prepared by the National Oceanic and Atmospheric Administration (NOAA). Health Certificates are also required for feed additives and semen import.

In most cases, MARA accepts export certificates that are issued by federal and also individual state authorities. MARA requires documents to be provided by official government agencies, and therefore does not accept documents provided by private companies or associations except for documents regarding compliance to certain standards that have been confirmed by government officials at the producer's plant or region.

Import Regulations:

Meat imports are traditionally not allowed in Turkey. In 2010 Turkey's domestic red meat prices increased significantly. In order to decrease the prices Turkish government temporarily allowed imported red meat.

- Health Certificates:
- Certificate of analysis, showing physical, chemical, and microbiological and heavy metal specifications.
- Veterinary Certificate, showing that animal is free disease i.e., BSE, FMD, rinder pest, heart water and contagious bovine pleuro pneumonia.

Singapore

The meat imports into Singapore are governed by the Sale of Food Act (SFA) 2002 and the Food Regulations 2002 administered by the national food safety body called the Agri-Food and Veterinary Authority of Singapore (AVA). The SFA defines the food products, prohibits selling of contaminated foods unfit or unsafe for human consumption or those which are not properly labeled or packaged and may mislead consumers. The Food Regulations (2002) on the other hand specify standards for food safety including permitted additives and their maximum limits, tolerable limits for chemical residues, and standards for labeling and advertising.

Import Regulations:

Processed Foods: Processed food may be imported from any country. Importers should ensure that the processed food products are produced in an establishment under proper supervision of the competent food authority of the exporting country or which has a quality assurance program acceptable to AVA. Documentary proof that the products imported are produced in a regulated establishment is required for products imported. Importers are advised to initiate some quality control checks on the products by sending the products to accredited laboratories for analysis.

General requirements for labeling: The law requires that the following basic information be declared and be provided in English:

a. Name or description of the product.

b. The common name of the food or drink or a description which is sufficient to indicate the true nature of the product.

A complete list of ingredients and additives should be declared in descending order of the proportions by weight in which they are present on each product label, i.e. the ingredient that weighed the most should be listed at the top. The exact identity or the permitted generic terms of the ingredients and additives should be declared. International Numbering System (INS) number or E number can be used for declaration of food additives. Imported food, the label should indicate the name and address of the local importer, distributor or agent. Telegraphic, facsimile and post office addresses alone are not acceptable

Expiry date marking: Expiry date information is required to be permanently marked or embossed on the package, and printed in letters not less than 3 mm in height, along with the general labeling requirements.

Country of Origin of the product: The labels of imported foods must contain the name of the country of origin. The name of a city, town or province alone is not acceptable as an indication of country of origin.[159]

Philippines

The regulation on food in the Republic of the Philippines is enshrined in the 1987 Philippine Constitution. Statutory laws are also in place providing legal basis for the creation of a regulatory agency. The Bureau of Food and Drugs (BFAD) is mandated to ensure the safety, efficacy and good quality of all food products being made available to the general public.

International standards and guidelines including those recommended by the World Health Organization (WHO), United States Pharmacopeia Convention (USP), FAO and Codex Alimentarius are used as a basis for formulation and implementation of rules and regulations governing the manufacture, importation, exportation, distribution or sale of food. Republic Act No. 9711, also known as the Food and Drug Administration Act of 2009 also renamed the BFAD as the Food and Drug Administration (FDA) with improved administrative and technical capacity in the regulation of food, drugs, cosmetics and device establishments and products.

Import Regulations

Import licenses/permits must be obtained from the relevant regulatory body for the goods to be imported to the Philippines before the products are shipped from the exporting countries.

Veterinary Quarantine Certificates (VQC) must be obtained from BAI and Import Permits (IP) from BPI prior to importation.

A Certificate of Product Registration (CPR), renewable annually, must be secured from BFAD prior to initial importation.

[159] www.ava.gov.sg

All agricultural and food products entering the Philippines must be accompanied by a phyto-sanitary or health certificate issued by the regulatory body in the exporting country. *This is required to be submitted for inspection along with the import permit to facilitate physical inspection of the goods and customs clearance at the port of entry.*

None of these products is allowed to enter the Philippines if it is deemed to pose a danger to human life or well-being, either directly or indirectly.

All food and agricultural products, including plant products that enter the Philippines, are required to pass through procedures designed to check that they are not contaminated with any pest and that they are fit for their intended use.

Under Philippine import laws, it is the responsibility of the importer to ensure that any product entering the country's customs territory is in full compliance with Philippine health and phyto-sanitary regulations. The enforcing authorities will check for compliance by inspecting the goods and relevant import/export documentation and decide on whether the goods may enter the Philippines.

Labeling requirements: Name of the food; List of ingredients used in the product (in decreasing order of proportion), including additives, flavorings and preservatives used; Net contents and drained weight; Name and address of manufacturer/packer or distributor, including country of origin for imported products and name and the address of Philippine importer/distributor; Lot identification.

The Bureau of Food and Drugs (BFAD) requires that importers provide advance copies of the labels of the products they intend to import.

All processed food products offered for retail sale in the Philippines must be registered with BFAD. Registration of imported products may only be undertaken by a Philippine entity, although some documentation and, for certain types of products, samples need to be provided by the exporter.

Exporters should also note that a Philippine importer needs to secure a License to Operate (LTO) from BFAD, which is actually a prerequisite for the registration of any food product.

The "Revised Rules, Regulations and Standards Governing the Importation of Meat and Meat Products into the Philippines." AO 26 reiterates the need for a DA-accredited importer to obtain a Veterinary Quarantine Clearance (VQC) certificate prior to the importation of meat and meat products. A VQC will now be valid for 60 days from the date of issuance, within which the meat or meat products are to be shipped from the country of origin, and may no longer be extended beyond that. A VQC is non-transferable and can only be used by the consignee to whom it was issued. A one shipment/bill-of-lading per VQC issued policy will be strictly adhered to.[160]

Indonesia

The Food Act (1996) comprehensively covers legislative regulations relating to food besides reviewing those already in place and creating new ones. It controls the domestic production, imports, processing and distribution of food.

Many of Indonesia's regulations related to marketing of food are unclear and confusing and therefore either these are not enforced at all or are only enforced inconsistently. The most difficult problem for exporters shipping high valued products may be the requirement that all imported products be registered with the National Agency for Drug and Food Control (BPOM) to obtain food registration (ML) number. In addition, some products require additional approval from BPOM and animal-based food requires an import permit from the Director General of Livestock in the Ministry of Agriculture.

[160]www.bfad.gov.ph, www.da.gov.ph

Import Regulations:

Importer must obtain an import permit (SPP) or import recommendation before product is shipped.

An import approval recommendation from the Ministry of Agriculture is required in addition to an import permit (SPP) from the Ministry of Trade and from BPOM for food products containing animal-based ingredients.

Food labels in the form of supplementary label are to be in the Indonesian language and must be easily understood by consumers.

Labeling requirements: Product name, weight or volume in metric units, composition or a list of ingredients, use by date, production code, BPOM registration number, and the name and address of the manufacturer or importer. Any person producing or importing food which is packed for sale *(not institutional packed for the food service sector)*into the territory of Indonesia is obligated to place a label on, within and or at the packing of the food.

An Import Permit (SPP), issued by the Ministry of Trade, must accompany every import of poultry, meat, and other animal based food. The SPP will be issued after getting the Import Recommendation Approval (RPP) from the Ministry of Agriculture (Directorate General for Livestock Animal Health Service (DGLAHS) for live animal and animal products) or from National Agency for Food and Drug Control (BPOM) for processed animal products.

Any entry of animals, materials of animal origin, or products made of materials of animal origin are subject to the following conditions:

- Importers must obtain an import permit from the Ministry of Trade.
- The permit for import of live animal, animal products, and processed animal products that possess risk of zoonosis spread will be released after obtaining Import Approval Recommendation (RPP) from the Ministry of Agriculture. The Minister of Agriculture delegates authority on the issuance of RPP to the Directorate General of Livestock and Animal Health Services.
- Importation must be made through designated points of entry.

Certificate of Origin Country can be issued by Chambers of Commerce or notary public.

Materials of animal origin or products made of materials of animal origin, which include dairy products, intended for human consumption must also be accompanied by a *Halal* certificate from an accredited Islamic Council (except pork).

Other certificates needed for certain processed food products are as follows:

- Composition analysis certificate from producers (must be original, valid for 6 months).
- Genetically Modified Organism (GMO) content certificate.

Jordan

All unprocessed agricultural products are by law under the mandate of Ministry of Agriculture while processed food is under the Jordan Food and Drug Administration (JFDA). All imported foods should conform to the Jordanian standards issued by JISM. All agricultural products may be imported by the private sector, if the products meet local quality standards, which are set by JISM on the basis of the Codex Alimentarius. In 2003, JISM instituted a pre-shipment inspection program, which is entirely voluntary for food importers. Import licenses are not required for most imported goods. Some products require prior approval from either the Ministry of Agriculture or the Ministry of Industry and Trade. Agricultural products for which prior approval is required from the Ministry of Agriculture are live animals,

fresh, chilled and frozen meat and frozen animal semen. Jordan Customs developed and launched the Customs Integrated Tariff System (CITS) in Aug/2005 to assist importers.

Import Regulations:

All of meat and processed meat products imported into Jordan must be accompanied with Sanitary and Phyto Sanitary certificate (SPS) from proper authority indicating that the product is Free from infectious and contagious diseases as a preliminary food safety requirement, also the certificate shall state that the animal has not been fed feed that contains bovine bone and meat meals.

Govt. of Jordon recommendations for import of meat includes the following: *1) Meat should be free of Glands and Bones. 2) Meat should be from animals that are hormone free; a hormone free certificate is required. 3) Meat should be from animals that received ante mortem inspection in the country of origin. 4) Bovine meat should be from animals that have not been subjected to gas injection into fore cavity (nasal or mouth cavity) or upper veritable column puncture (might cause nervous tissues rupture) before slaughter. 5) Consignment should be free of eyes, brains, spinal cords or meat mechanically extracted from skull or vertebral column. 6) Meat should be from cattle not exceeding 30 months of age.*

All animal origin meat shall be accompanied with a Halal certificate to indicate the slaughter process has observed Islamic traditions. This general requirement is to satisfy religious requirements of the consumers' beliefs.

The Ministry of Agriculture requires a prior approval as a condition to ensure that the animals and animal products meet local health standards issued by Jordan Institute of Standards and Metrology (JISM).

Legal requirements for labeling are fairly standard although a statement of ingredients in order of preponderance is not required. All labels must either be in Arabic or have a stick-on label in Arabic. In general, the label should contain the name of the product, the manufacturer's name and address, net weight, fortifying matter (like added vitamins and minerals to powder milk), lot number and "use before" or "best before" date.

Bovine Meat and Processed Meat

Required Certificates:

- COOC (for Custom Valuation, Health, Risk control)
- SPS-VAHC (for Free from infectious and contagious diseases- food safety)
- *Halal* certificate (HC)- (Verification that slaughter conforms to Islamic traditions. Food quality and consumer protection.)
- A hormone-free certificate (Meat should be from animals that are hormone-free. Food safety.)
- Free from BSE high-risk tissues certificate (Free from BSE high-risk tissues. Food safety).

Requirements of Potential Animal Casings Export Markets

The Netherlands

The Netherlands, as a member of the EU, conforms to all EU regulations and directives. Regulation (EC) 178/2002 (General Food Law) is the harmonized regulation which sets out the general principles and requirements of EU harmonized food law. Exporters should be aware that there may also be some variation among Member States in applying EU harmonized legislation; there may be temporary waivers or exemptions and in certain cases there may be room for interpretation of EU harmonized legislation or aspects, which are not regulated in detail at EU level, may be handled differently in different member states.

The Dutch Food and Drug Law is called the “Warenwet.” This Warenwet provides the Dutch regulatory framework for all food and non-food products. It is applicable to domestically produced and imported products. Revisions of the Dutch Food and Drugs Law are published in the "Staatscourant".

The task of the Food and Consumer Product Safety Authority (NVWA) is to protect human and animal health. It monitors food and consumer products to safeguard public health and animal health and welfare. The NVWA is an independent agency in the Ministry of Economic Affairs, Agriculture and Innovation (EL and I) and a delivery agency for the Ministry of Health, Welfare and Sport (WVS).

Import Regulations:

In the EU, country of origin labeling is mandatory for beef and veal, fruit and vegetables, eggs, poultry meat, wine, honey, olive oil, aquaculture products and for organic products carrying the EU logo. For other products, the indication of the place of origin or provenance is mandatory only if the omission of such information might mislead the consumer.

The Import Process:

- Pre-announcement: by Common (veterinary) Entry Document (CVED or CED), issued by agent;
- Documentary Check: examination of the original required documents that accompany the consignment based on model certificate according to EU legislation, carried out by Customs based on an agreement between Ministry of Agriculture and Ministry of Finance;
- Identity Check: to ascertain that the products correspond to the information given in the accompanying certificates or documents. All veterinary goods undergo an Identity Check. The ID check is conducted by comparing the seal number of the container with the seal number mentioned on the HC. If no seal number is mentioned on the Health Certificate, the veterinary authorities will need to open the shipment to conduct the Identity Check.
- Physical check: Check on the product itself to verify compliance with food or feed law.

In the Netherlands, the labeling requirements have been laid down in the Warenwetbesluitetikettering van levensmiddelen and can be found at http://wetten.overheid.nl. Since the Netherlands follows EU legislation, standard U.S. labels fail to comply with Netherlands labeling requirements. Any non-edible parts of a packaging system that consumers could mistake for food must be labeled with the words “DO NOT EAT” and where technically possible carry the warning.

Japan

The basic structure of Japanese food law comes under three agencies: Ministry of Agriculture, Forestry and Fishery (MAFF) whose legislation covers Japan's agricultural standards and quality labeling standards (JAS) for GMO, organics, country of origin, ingredients and best-before-date. The Ministry of Health, Labour and Welfare (MHLW) legislation covers food sanitation law and health improvement laws for nutritional content, food additives, labeling of allergens, food with health claims (FHC) along with foods with specified health uses (FOSHU) and foods with nutrient functional claims (FNFC).The Consumer Affairs Agency (CAA) is a unified organization that governs labeling regulation and is in charge of making up draft labeling standards, with enforcement work being executed in coordination with related agencies.

Import Regulations

Notification Form for Importation of Foods, etc required for most food products, including beverages (to notify quarantine authorities of intent to import food products so that they can determine product testing required).

Quarantine Inspection Certificate required for fresh, frozen and processed meats(Mandatory inspection certificate to be submitted to the Animal Quarantine Service of Japan – Must be issued by the competent government agency of an exporting country for imports of all meat).

Beef and offal derived from cattle aged 20 months or younger -each accredited export establishment must provide a list of eligible products (Required to allow beef and offal to be imported into Japan).

New types of processed products imported for the first time (Required information allows the Japanese officials to evaluate a new product's compliance with relevant regulations and standards, such as the Food Sanitation Law).

China

Over the last several years, China has continued to overhaul and update its regulatory system for domestic and imported foods and agricultural products. The government has published new measures to regulate imports and modernise its food and agricultural standards, notably the food additive standard. China has issued or modified hundreds of food and agriculture related regulations and standards following its accession to the WTO in December 2001. However, inconsistencies between Chinese food standards and international standards still remain.

The Ministry of Health under the State Council is responsible for overall coordination of food safety, food safety assessment, food safety standards development, food safety information dissemination, development of the qualification requirements and inspection regulations for food inspection and testing agencies and addressing serious food safety occurrences.

Import Regulations

Specific Attestations Required on Export Certificates an original export certificate must accompany each export consignment at the time of entry into China. The certificate and attestation must match the container numbers in the shipment.

Certificate of Origin/Certificate of Free Sale. For some products, China requires a certificate of origin issued by the relevant authority of the exporting country's government, local or state Chambers of Commerce, state government, industry association, or manufacturer/supplier. This certificate should accompany the export consignment of all food and agricultural products, including processed and packaged food. Some regional inspection offices (CIQ) in China require only a certificate of origin. However, in many instances, CIQs require both the certificate of origin and a certificate of free sale.

The certificate should mention the order number, container number, port of discharge, buyer's name, and product description, in addition to a declaration along the following lines: *"The undersigned for (relevant organization) declares that the following mentioned goods as consigned above (or below) are the products of the exporting country and are eligible for free distribution and use within the exporting country. We hereby certify the goods to be of exporting country origin."*

Quarantine Inspection Permit (QIP) Any agricultural good imported to China must have a quarantine import permit to cover the contract amount and for Information regarding the content, volume, and physical characteristics of the shipment. The importer must supply documentation regarding the volume of the shipment to AQSIQ (General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China) with the QIP application. A QIP can technically cover multiple load/containers and is valid for six months.

Meat Quarantine Import Permit (MQIP) A meat quarantine import permit (MQIP) covering the contract amount (the volume of the shipment must be included with the MQIP application) is required to import meat to China. A MQIP can technically cover multiple load/containers and is valid for six months.

Export Health Certificate required for Poultry and Meat Products to certify quality and safety of products (required by AQSIQ).

Organic Certification Organic field crops, livestock, aquaculture, wild plants, honey, fungus, processed foods, fertilizers, and pesticides products sold in China may qualify for organic certification. For certification, producers must pay the expenses associated with a Chinese certifier in-country inspection as well as the certification fee. The certificate is valid for one year. Renewal of the certification requires a follow-up in-country visit from Chinese inspectors.

The International Trade Centre implemented the Trade Policy Capacity Building Component of the European Union funded TRTA II programme. It is aimed at the Ministry of Commerce and Government of Pakistan in developing a coherent trade policy and attendant regulations for export competitiveness. Specifically, it will aim to reinforce the skills of government officers working in trade related ministries and implementing agencies on issues related to trade policy, commercial diplomacy and regulatory reform. The main way in which to achieve this through the institutional capacity building of key local training institutes, which is intended to have an immediate effect on the capacity of government officers working on trade policy issues.

In addition, Component 1 promotes comprehensive, regular and well informed public-private dialogue among the government, private sector and civil society for trade policy development, monitoring and evaluation. To promote local ownership and legitimacy of the dialogue, a steering committee comprising equal representation of the public and private sectors has been established with the formal approval of the Ministry of Commerce of Pakistan. Its mandate is to oversee the planning, implementation and monitoring of public-private dialogue on key issues. To better inform the public-private dialogue process, research studies are commission and internationally peer reviewed before dissemination to stakeholders.

The targeted interventions of Component 1 to achieve these goals constitute the following:

Result for Component 1: Coherent trade policy and regulatory reform for export competiveness

1. The Pakistan Institute for Trade and Development (PITAD) institutional capacity is strengthened.
2. PITAD's and other research institutes' expertise on trade policy strengthened.
3. Government officers' capacity on specific trade policy and international trade negotiations strengthened.
4. Research studies contributing to the development of a national export strategy conducted.
5. Public-private dialogue for a coherent national export strategy is fostered.

International Trade Centre

For further information about the ITC implemented Component 1 and the TRTA-II programme visit: **http://trtapakistan.org**