

# Livestock & Dairy Development

---

## **The Policy Papers**

GOVERNMENT OF THE PUNJAB  
LIVESTOCK & DAIRY DEVELOPMENT DEPARTMENT

# Tables of Content

---

Acknowledgement	<b>6</b>
Preface	<b>8</b>
Executive Summary	<b>10</b>
<b>1. INTRODUCTION</b>	<b>12</b>
1.1. The Resource Base	12
1.2. The Ambience and Need for the Provincial Livestock Policy	13
1.2.1 The Existing Practice	14
<b>2. MAJOR CHALLENGES</b>	<b>18</b>
2.1 The Public Policy Framework	18
2.2 The Governance Framework	18
2.3 The Knowledge Framework	19
2.3.1. Calibrating the Options	19
2.4 The Marketing Framework	20
2.4.1 The Cattle Markets	20
2.4.2 The Meat and Dairy Market	21
2.5 The Financial Framework	22
2.5.1 The Share of Livestock in Agri. Loans' Consumption	22
2.5.2 The phenomenon of middleman	23
2.6 The Production Framework	24
2.6.1. Economic Model Vs. Conventional Model	24
2.6.2. Low Productivity	24
2.6.3. Bench Marking	24
2.6.4. Shortage of Feed, Fodder, Minerals, Nutrients & clean Drinking Water	25
2.6.5. The Missing Link of Feedlot Fattening	25
2.6.6. The Processing - the hostile Landscape	25
2.6.7. The Dynamics of Meat	25
2.6.8. The Commercial Poultry	26
2.6.9. Lack of Disease Surveillance Infrastructure and Forecasting	26
2.6.10. Lack of Documentation of Interventions	26
2.6.11. Shortage of Vaccines	26
2.6.12. Quality Assurance and Registration	27
2.6.13. Disease Diagnostics	27
2.6.14. The Economic Loss of Diseases	27
2.6.15. The Breeding Framework	28
2.6.15.1. The Genetic Upheaval	28
2.6.15.2. The Semen Production Units	29
2.6.15.3. The Artificial Insemination	29
2.6.16 The Research Framework	29
2.6.16.1 The Livestock Experimentation Farms	30
2.6.17. The Extension Framework	30

<b>3. AIMS AND OBJECTIVES OF PROVINCIAL LIVESTOCK POLICY</b>	<b>31</b>
3.1. The Development Framework	31
3.1.1. Sustainable Livestock Sector Development	31
3.1.2. The Enabling Infrastructure	31
3.1.2.1. The Role of PAMCO	31
3.1.2.2. The Role of PLDDB	32
3.2. The Market Led growth	33
3.3. The Governance Framework- Paradigm Shift from Curative to Preventive	33
3.3.1. L&DD as Livestock Asset Manager	33
3.3.1.1 The Human Resource Development	33
3.3.2. Disease Prevention	34
3.3.2.1. Disease Surveillance and Forecasting	34
3.3.2.2. Vaccination	34
3.3.2.3. Animal Husbandry Practices	34
3.3.2.4. Deworming	34
3.3.3. Food and Nutrition	35
3.3.4. Extension Services	35
3.3.5. Capacity Building Livestock Production Systems	35
3.3.5.1. Research, Education and Training	35
3.3.5.1.1. The Role of Higher Education in Livestock Production	35
3.3.5.2. Re-discovering the role of L&DD's Livestock Experiment Farms	36
3.3.5.3. R&D & Intellectual Property Rights	36
3.4. Partnerships for Socio-Economic Change- Livestock Activists: Women, Lambardars, Imams Masjids and Village Students.	36
3.5. The Regulatory Framework	36
3.5.1. Provincial Drug Control & Marketing Facilitation Authority	36
3.5.2. Control of Zoonotic Diseases	37
3.5.2.1. The Issue of Unwholesome meat	37
3.5.3. Livestock: Agro Based Industry	38
3.6. The Service Delivery Framework	38
<b>4. FOOD SECURITY</b>	<b>39</b>
4.1. Definition and Narration	39
4.2. Livestock Feed Mix Redefined	39
4.2.1. Silage, Fodder & Hay	39
4.2.2. Nutrients & Minerals	40
4.2.3. Restocking of Rangelands	40
4.2.3.1. Preferred flora for restocking of Range Lands	40
4.2.4. Mapping of seasonal migration routes of Livestock	41
4.2.5. The Nomadic Livestock Clans	41
4.2.6. Mapping of trade routes of Livestock	41
4.3. The Livestock Product Mix Redefined	41
4.4. Socio-Economic Security of the Producer	42
4.4.1. The issue of price capping	42
4.4.1.1. Price capping by the Government	42
4.4.1.2. Price capping by the unfair market practices	42
4.5. The Breeding Framework	43
4.5.1. The Progeny Testing Programme	43

4.5.2. The Breeding Plan	43
4.5.3. The Breeding Policy & Rules	44
4.6. Preferred Areas of HR Development	44
4.7. Special Emphasis on the South & Cholistan	45
4.8. Managing the Tribal Area's Livestock	46
4.8.1. Warble Fly Control & Eradication Management	46
4.9. Conservation of Animal Bio-Diversity	46
4.10. The Trade Protocols of Livestock & Livestock Products	47
4.10.1. The Export Regime Protocols	47
4.10.2. The Import Regime Protocols	47
4.10.3. The Quarantine	47
4.10.4. The transportation Regime Protocols	47
4.11. Indigenous Vaccine Production	47
4.12. Disaster Management Protocols	48
<b>5. COMPETITIVENESS</b>	<b>49</b>
5.1. Changing the Service Delivery Model- the Virtual Governance	49
5.2. The Market Infrastructure	50
5.2.1. The Information Dissemination and Vertical Market Linkages	51
5.2.2. The Echo-Marketing Zoning- Localized Cattle Bazars	51
5.2.3. Towards the Virtual Markets	52
5.3. The Financial Architecture	53
5.3.1. Institutional response to the middleman phenomenon	53
5.3.2. The Documentation (Tractability) and Quality Assurance	54
5.4. Availability of Quality data for R&D	54
5.5. Academia- Industry Linkages	54
5.6. The Processing Industry	54
<b>6. PROSPERITY OF STAKEHOLDERS</b>	<b>56</b>
6.1. Health, Hygiene and Better Environmental Management	56
6.2. Animal Welfare	56
6.3. Tractability and Disease Free Zones	56
6.4. The Role of NGOs	57
6.5. The Expected Gains for the Economy	57
<b>7. EXPORTABLE SURPLUSES</b>	<b>58</b>
7.1. The Halal Market	58
<b>7.2.</b> The Requisite Quantity of Livestock Products	58
<b>7.3.</b> Feedlot Fattening	58
<b>7.4.</b> Dairy & Dairy Products	58
7.5. Sheep & Goat	59
7.6. Camel	59
7.7. Equines	59
7.8. Egg & Poultry	60
7.8.1. The Rural Poultry	60
7.8.2. The Commercial Poultry	60

7.8.3. Ostrich Farming	61
7.9. The Role of Exporter Redefined	62
7.10. The International Trade Protocols	62
<b>8. THE COMMUNICATION FRAMEWORK</b>	<b>63</b>
8.1. Vision	63
8.2. Mission	63
8.3. Institutional participation of the public in generating dynamic knowledge base	63
8.4. FM Radio	63
8.5. Annual Progress Reports submission to the Provincial Assembly	63
<b>9. THE POLICY LIFECYCLE:</b>	<b>64</b>
9.1. Defining the policy in short, medium and long terms	64

## ACKNOWLEDGEMENT

---

The Public Policy formulation is a very tedious job from any yardstick. It is more challenging when there exists none. The day to day firefighting and administrative challenges left little room for such endeavours which should have otherwise been a routine practice of public institutions. Luckily after having laid down the foundation of strategic corrects of the historical wrongs, the Punjab Government has decided to launch next generation reforms pertaining to livestock & dairy sectors by crystalizing the will of the public and future plans of action pertaining thereto. The Honourable Chief Minister Punjab personally monitored the formulation of the policy for which inputs from a wide cross section of stakeholders were obtained like Farmers' Associations, Poultry Association, Academia, Industry, Dairy Association, exporters, supply chain actors, retailers, veterinary professionals, shepherds, nomads, multilateral partners like World Bank, PEEP of USAID, FAO, Brooke, etc.

Mr. Irfan Elahi, Chairman P&D Board, remained a source of inspiration and guidance at each stage. Mr. Mumtaz Manais, Chairman PAMCO, Syed Yawar Ali, Chairman Nestle Pakistan Ltd. Ms Aqeela Mumtaz, Mr. Asad Zahoor of PEEP USAID, Mr. Riaz of World Bank, Dr. Hassan, Baba Bashir, a shepherd interviewed in Cholistan, carrying a collection of local wisdom of that area, Mr. Niaz Ahmed, a milkman, who shared the inside information, Mr. Allah Ditta, whom I met deep inside Kasur, who shared his part of the story and many more, who contributed towards the formulation of this policy deserve deepest gratitude.

Acknowledgements are due to many friends and partners of livestock & dairy development in the Punjab without the help of which this effort would never become so comprehensive and apt. I am personally grateful to Mr. Arshad Jutt, Special Advisor to Chief Minister for his support and guidance. Gratitude is due to Prof. Dr. Talat Naseer Pasha, VC UVAS whom I used to consult several times a day. Faculties of Agriculture University, Faisalabad, particularly Dr. Iqrar Hussain, VC, Prof. Dr. Zafar Iqbal, Dean Faculty of Veterinary Sciences, Pro. Dr. Muhammad Sajjad Khan, UAF, Pro. Dr. Jahangir Sial, of PMAS Arid Agriculture University Rawalpindi, Pro. Dr. Syad Khawaja Alqama, VC Bahaudin Zakariya University Multan, are no less in support and guidance. Institutional knowledge and experience have no substitute, so department's precious HR, particularly Dr. Nawaz Saeed, DG (Ext.), Dr. Rasheed DG (Research), Dr. Abdul Rehman, Director Breed Improvement, Dr. Sanaullah Bhatti, former Additional Secretary Technical, Dr. Rafaqat Shah, who is the most dedicated and sincere resource of the department, Dr. Qurban, Director P&E, Dr. Mansoor, DSR Multan, who is a professional of tall order, Dr. Ghulam Muhammad Gill, Director Small Holder & Dairy Development, Gujranwala, Dr. Abdul Rauf, Director PVTV, Rawalpindi, Dr. Naveed Niazi, Dr. Iqbal Shahid, Deputy Secretary L&DD, Mr. Khalid Chaudhry, Deputy Secretary Planning, Dr. Nawaz Malik, Deputy Director Disease Surveillance for his contribution in the first ever profiling of economic losses of diseases of all the districts in the Punjab, Dr. Abdul Rehman, Director PRI, Rawalpindi, Dr. Iqbal, Principal Livestock Training Institute, Sheikhpura, Dr. Yasir, Research Office, Mr. Shahid, from Directorate of Livestock Farms, Dr. Abdul Saeed, Dr. Muhammad Atif, Mr. Muhammad Sharif, Mr. Muhammad Anwer, VAs, Sheep & Goat, Cholistan, Rao Iftilhar Ahmed, VA Donga Bonga, and lot many whose names are left from mentioning here only due to dearth of space as their contribution is no less than others in value and magnitude.

Special thanks are due to Dr. Usman Tahir, Assistant Chief P&E and Dr. Muhammad Ikram, Planning Officer, P&E, both being epitomes of professional dedication, commitment, sincerity,

vision and inbuilt capabilities, who contributed a lot towards the institutional input in the formulation of the policy. Acknowledgement is far from completion without mentioning shining stars of SPMS team of L&DD; Dr. Azhar, Dr. Qayum, working under Dr. Qaseem's dedicated leadership who produced wonderful results.

Last but not least my special appreciation is due to Mr. Muhammad Irfan Khalid, my Deputy Secretary, who conceived the novel idea of Virtual Governance and transformed it into a successful working business model; he wrote the policy and kept working with me in odd hours and on holidays for timely completion of the task.

Shortcomings, which may be many in any undertaking of this proportion, remain mine.

**Naseem Sadiq**  
**Secretary**

# PREFACE

---

Punjab is the largest province, population wise (both human and animal), of Pakistan. It is the biggest contributor to the national GDP. Its share in Pakistan's GDP was 59% in 2014. It is especially dominant in the Services & Agriculture sectors of the economy. It has a vibrant private sector, and poised much to gain from meaningful reforms, which increase efficiencies in business processes, allowing the government to concentrate on regulation and facilitation to benefit the stakeholders involved with the livestock and dairy industry.

In the pre 18<sup>th</sup> Constitutional Amendment period, there was not possible clearly articulated policy framework for the provinces regarding livestock. The situation had already got deteriorated in the wake of devolution of power from provincial to local governments without consulting the stakeholders at the local level. Livestock was one of the affectees.

Historically, the private sector was restricted from entering areas of business dominated by government, with limited incentive to develop markets, create demand, and increase economic activity. The consequences are distortion of market forces and inefficient business processes. Eighty percent of small holders, who constitute 90 % of the breeders, are landless. They need to be at the heart of any policy to exploit the livestock potential in the short term. The time has come to take the challenge from the front and convert it into an opportunity.

The Livestock and Dairy Development Department has been tasked to initiate next generation reforms that would bring the much awaited benefits of a functional democracy to the public by translating the popular will into tangible and measurable reality. The bottom line of reforms is to transform the livestock and dairy sectors into competitive and productive sectors of economy for ensuring the food security and bringing prosperity to the stakeholders while generating exportable surpluses. South, particularly Multan, Bahawalpur and Cholistan area have been targeted to produce organic meat; DG Khan Division, particularly the Tribal areas of DG Khan and Rajanpur has been focused for the first time for boosting local economy by producing organic meat through small ruminants. Central Punjab will be converted into production house of silage and hay for local and foreign markets besides becoming production house of milch animals. Northern Punjab will be the focus for production of small ruminants and rural poultry aiming at foreign markets.

It has been decided to harness the prowess of local breeds by unleashing the genetic potential and re-defining the benchmarks that led to certain un-economic decisions by the farmers with undesirable fallout. Camel is focused for meat, particularly veal production and milk products. The thrust of reforms is on the indigenous capacity building by using local strengths and wisdom. Modern processing technologies for small to medium players of the supply chain will shift the value gain up to the primary producer i.e. the subsistence level farmer. The Government will focus on the disease prevention along with associated protocols of vaccination, deworming and disease surveillance. The crux of approach is to prevent disease from occurring so that no need of cure is left. Rationalization of resources will be accordingly ensured. Areas of priority of HRD in the domain of livestock and dairy have been declared, which is a new shift towards forward planning. Relentless efforts have always been made for curbing the menace of middleman, who historically used to be an undesirable reality. Although the spread of very phenomenon has been arrested yet much is needed to eliminate the specter altogether but in a phased manner. For the first time, a unique response has been proposed for competing the middleman phenomenon in the market through institutional response of designing and offering financial products flexible and competitive enough to help provide productive capital to the

farmers. The roles of PAMCO and PLDDDB are being re-defined in the same context. PAMCO will focus on the capacity building of small to medium processing informal enterprise with associated capacity building of existing processing systems and HR by introducing technologies in small to medium processing and packaging. The PLDDDB will concentrate on the designing and facilitation of provision of productive financial products for the farmers with the help of lending institutes. Both have been retracted from the research on primary production systems for which L&DD's research paraphernalia is enough besides dedicated universities like UVAS and UAF. A Livestock University in Bahawalpur will be a giant step towards sustainable development of the Southern Punjab in tandem with other policy interventions for the area.

Rural women, students, Imam Masajid and Lambardars, being the opinion makers at the village level, have been envisaged in the role of livestock social activists to ameliorate the conditions of their environment, to channelize their energies for the economic uplift of their neighbourhood through education, training and awareness. Livestock Nomadic clans have been addressed for the first time by any government.

Extension services are being boosted with provision of 4580 medical/ A.I./ disease diagnostic/ vaccination kit mounted motor cycles connected with the farmers through 9211 system for timely provision of services. They will be deployed along over 500 defunct Octroi posts in the Punjab, which has been decided to be handed over to L&DD department for using them as relay centers of their services on the rural landscape.

Administrative dynamics are being boldly changed. Newly introduced Virtual Governance System is in line with Government's inherent desires and efforts to make quality service delivery round the clock available. If fully implemented, it has the potential to transform the sector and the mindset of its stakeholders. Real time performance monitoring through the very system has enabled the Government to incentivize the performance of HR. A comprehensive regime of performance based incentives has been envisaged, which will boost the quality and quantity of service delivery to the delight of the public.

For the first time in Lahore, quality assurance system regarding quality of fresh meat has been deployed through 9211 platform of virtual governance. The same has put the control in public's hands to check the veracity of quality claim of fresh meat at sale. Strict crackdown on unwholesome meat's trade has started gaining the public confidence. The same will be replicated in the rest of the province. The Government has decided to revive the country medicine's regime and to create stringent quality control regime for quality assurance of animals and birds' food items. The concept of one health and control of zoonotic disease has been introduced for the first time. Approval has already been granted for creation of a Zoonotic Diseases Research Institute. Comprehensive disaster management protocols have been devised for the Livestock in the Punjab.

Skill development, education, training, and capacity building of HR and primary, secondary and tertiary systems of production, supply chain, finance, and marketing of livestock and dairy sectors are the hall mark of first ever Livestock Policy of the Punjab.

Market led growth of the sector has been envisaged by keeping the government away from creating distortions in the marketing and value formation channels and concentrating on facilitation of the markets and stabilization of the business environment. Similar unfair practices by the private sector to distort fair market competition shall also be checked in the same spirit in the context of ensuring food security and prosperity of stakeholders, particularly small farmer. The policy aims at contributing visible push in the GDP in coming years.

# Executive Summary

---

The Agriculture Sector contributes 21 % of GDP of Pakistan, which consumes 46% of direct labour force, coming from 67 % of population. Out of Agriculture, the share of Livestock sector is 56 %. However, the head count involved in both sectors is same as livestock and agriculture supplement each other in the rural landscape. The semi-arid and arid climatic conditions of the country coupled with shrinking water resources due to varied reasons have severely undermined the future prospects of crops, if practiced on the prevalent model. Livestock is thus the only rescuer in this backdrop, which has the tremendous potential to climb the ladder of value addition as well.

The resource base highlights the existing strengths of the Punjab and its potential regarding the livestock & dairy sectors. The non-existence of Provincial Livestock Policy was due to some Constitutional and functional aspects of the body politic. The ambiance has now changed and dice is casted in favour of public policy formulation to lend structure to the will of the people through institutional mechanics- hall mark of functional democracy.

The existing practice on the livestock canvass is predominance of the public sector with little room for the fair market competition and resultant growth. The same role has been unwittingly replicated by some private players, further adding to the unfair market practices at the peril of healthy market growth and prosperity to the farmer. Within the public sector, major chunk of resources are being consumed by those having little contribution towards private sector led growth like the poultry, which grew by itself without having much R&D inputs from the public organizations.

Major challenges are the nascent public policy framework; the misdirected governance framework with focus on the curative side, the knowledge framework that has little output on the basis of logic, reasoning and local wisdom. Marketing framework is but collection of unfair market practices. The financial framework is starvation by default, having little to do with marketing aspect of financial products and plagued with middleman phenomenon. The production framework is replete with low productivity, anachronistic benchmarking, shortage of feed, fodder, nutrients, minerals and clean drinking water to the animals. Then the missing link of beef production and hostile landscape for dairy production further complicated the situation.

Lack of disease surveillance, documentation of interventions and non-availability of critically important vaccines are all progeny of the prevailing doctrine of livestock sector governance with increased desire of letting the livestock fell ill for getting it treated. It is not surprising that no mapping of district wise economic losses of diseases had ever been undertaken. Similarly the breeding framework is replete with confusion resulting genetic upheaval and untenable practices of SPUs. The research frame work is but going totally indifferent and irrelevant of what it ought to have been. The Extension is but limited in concept to the treatment only.

Due to pre 18<sup>th</sup> Amendment public policy vacuum at provincial level, in the absence of any clear direction and vision regarding livestock besides unsuccessful efforts of interlocking of foreign

models left only one sector growing rudderlessly i.e. HR pool of higher educated livestock professionals, who in the absence of matching growth in the sector, evolved their own industry of providing treatment to the ailing animals. Hence, disease is part of the business model in a void of Veterinarians as livestock asset managers rather livestock disease attendants. Elimination of animal husbandry subject 13 years ago from the disciplines is a testimony to that fact. It further alludes towards this reality that enterprise always remain there. Its channelization is required to harness and transform it into prosperity of all stakeholders.

Hence, the Government has decided to make L&DD Department the “Livestock Asset Manage”r of the Province with associated re-alignments, re-defining and reorientations. The development framework has in its core the sustainability and enabling infrastructure for attaining the optimal potential of livestock and dairy sectors. A complete paradigm shift from curative to preventive side of the livestock sector governance has been initiated. It will ensure food security through competitiveness resulting in the prosperity of stakeholders with generation of exportable surpluses. The concept of private sector led growth has been enlarged to market led growth. By redefining the concept the unfair market practices by some of the private sector players at the peril of poor farmer will not be allowed. However, the approach is to evolve the competing institutional response which is competitive in the market to knock out any deterrent to the fair market growth. The government is retiring itself from monopolizing the market growth. It will be the facilitator and stabilizer of business environment.

A Policy Communication Framework has been defined, which is also a first in the realm of public policy. The policy has been described along with complete lifecycle to help measure its performance parameters.

# INTRODUCTION

---

The Agriculture Sector contributes 21% of GDP of Pakistan, which consumes 46% of direct labour force, coming from 67% of population. Out of Agriculture, the share of livestock sector is 56%. However, the head count involved in both sectors is same as livestock and agriculture supplement each other in the rural landscape. Livestock's value exceeds the combined value of all the major and minor crops by about 6.1%. The share of livestock products in the generation of foreign exchange is about 13%. More significantly, livestock is an integral part (30-40%) of livelihood of about 30 to 35 million rural farmers. Presently, the reported gross value addition of livestock stands at PKR 1,172 billion, whereas livestock share in export is 8.5%.

Pakistan is leading FAO statistics of livestock with 2<sup>nd</sup> position in buffalo population of the world. Moreover Pakistan reportedly ranks 4<sup>th</sup> in total livestock population, 4<sup>th</sup> in goat population and 12<sup>th</sup> in cattle-milk production. During 2013-14 agriculture sector grew by 2.1%; interestingly much of this growth was contributed by livestock sector, which reportedly grew by 2.9% during the same period.

The semi-arid and arid climatic conditions of the country coupled with shrinking water resources due to varied reasons have severely undermined the future prospects of crops, if practiced on the prevalent model. Livestock is thus the only rescuer in this backdrop, which has the tremendous potential to climb the ladder of value addition as well. Further this is the only sector which can arrest the unchecked urbanization by creating decent employment opportunities in the rural areas.

## 1.1. THE RESOURCE BASE

Punjab is the largest province, population wise (both human and animal), of Pakistan. It is second largest province in terms of land area measuring 205,344 Sq. Km and is located at the North Western edge of the geologic Indian plate in South Asia. The province is bordered by Kashmir to the North-East, the Indian States of Punjab and Rajasthan to the East, the province of Sindh to the South, the province of Balochistan to the Southwest, the province of Khyber Pakhtunkhwa to the West, and the Islamabad Capital Territory to the North. The province is mainly a fertile region along the river valleys, while sparse deserts can be found near the border with Rajasthan and the Sulaiman Range. The region contains the Thal and Cholistan deserts. The Indus River and its many tributaries traverse the Punjab from North to South.

The landscape is amongst the most heavily irrigated in the world through a well elaborated infrastructure canals. Weather extremes are notable from the hot and barren South to the cool hills of the North. The foothills of the Himalayas are found in the extreme North. Most areas in Punjab experience extreme weather with foggy winters, often accompanied by rain. By mid-February the temperature begins to rise; springtime weather continues until mid-April, when the summer heat sets in.

The onset of the Southwest Monsoon reaches Punjab by July. The spring Monsoon has either skips over the area or causes it to rain so hard that floods result. June and July are oppressively hot. The temperature reaches 51°C in some extreme cases.

In August, there comes the rainy season, subsiding the hardest part of the summer but cooler weather does not come until late October. In the Punjab the temperate ranges from  $-2^{\circ}\text{C}$  to  $45^{\circ}\text{C}$ , but can reach  $47^{\circ}\text{C}$  in summer and can touch down to  $-5^{\circ}\text{C}$  in winter.

Punjab is the biggest contributor to the national GDP. The province's economy has quadrupled since 1972. Its share of Pakistan's GDP was 54.7% in 2000 and 59% in 2014. It is especially dominant in the Services & Agriculture sectors of the Pakistan Economy. With its contribution ranging from 52.1% to 64.5% in the Services Sector and 56.1% to 61.5% in the Agriculture Sector. It is also major manpower contributor because it has largest pool of professionals and highly skilled manpower in Pakistan.

As per 2006 Census, the Punjab dominates the Pakistan's livestock sector. The province has claimed to have 49% of Pakistan's cattle, 65% of the buffaloes, 24% of the sheep, and 37% of the goats. In value of product, it is reportedly producing 62% of milk, 43% of beef, 32% of mutton and 75 % of Poultry of Pakistan. However, livestock productivity and standards of preventive health are far below world benchmarks.

## **1.2. THE AMBIENCE AND NEED FOR THE PROVINCIAL LIVESTOCK POLICY**

Punjab has a vibrant private sector, and is poised much to gain from meaningful reforms, which increase efficiencies in business processes, allowing the government to concentrate on regulation and facilitation to benefit the stakeholders involved with the livestock industry. Traditionally the main transaction in the livestock sector is in the form of live animals. Out of the reported annual trade of 20 million animals, 7.8 million animals valuing Rs. 200 billion are traded on *Eid-ul-Izha* within a squeezed time span of just two weeks. Against the claimed production, the local carpet and leather industry had to import wool and hides worth billions as per their verbal discourse. The import of dumped, near expiry dry milk and new phenomenal import/ smuggling of whey powder with its "known industrial uses" is no more a secret and as it has degenerated to "retail level" by informal actors.

In the dairy industry wastage against the reported 20% is on the much higher side due to poor infrastructure facilities. The highest ever investment made in this sector in in the form of corporate/ commercial farms four years ago has almost 70% evaporated in the form of disinvestment. The deserted structures of such farms are indicative of the misconceptions while making the feasibility of investment. Even in public sector, huge investments pumped into the value addition of the sector were siphoned out into the drain. It all happened because of the distorted markets, coordination disjoints and policy vacuum. Idara-e-Kisan is one of the examples of the brutality and butchery purported with this sector and the stakeholders.

Promotion of beef as a distinct product has never been attended as it always remained a by-product of what is left-over of a milch animal. The same is the case with mutton, thanks to the price capping, which has worked as a "shock" to the breeder, who is none else but a subsistence farmer. This single phenomenon can be held responsible for not allowing a single sheep/ goat commercial farm to evolve in the whole of country let alone

the Punjab. Does this situation allow us the grading as per age/ weight of animals or cover quarantine issues while moving towards fattening or breed improvement?

So is the claimed quantum of milk production. The correlation between the input cost and output value has never been calculated for which the farmer may be held responsible. Perhaps he is forced by the conventional forces and informal set up with full dominance of middleman to accept whatever he is paid. The conventional model heavily hides the cost of production pertaining to service and labour. The very phenomenon has even started expressing itself at the level of corporate farming. Plethora of consultants has burnt midnight oil to fetch the wisdom but fate of poor breeder is too stubborn to move; interlocking of anachronistic “exotic” systems could not meet the desired expectations. The need is to put the governance at the back burner and bring the public service at forefront of mind and behaviour by giving a heavy tilt in favour of the poor breeder, including the “corporate subsistence farmer”, in the first phase as a confidence building measure.

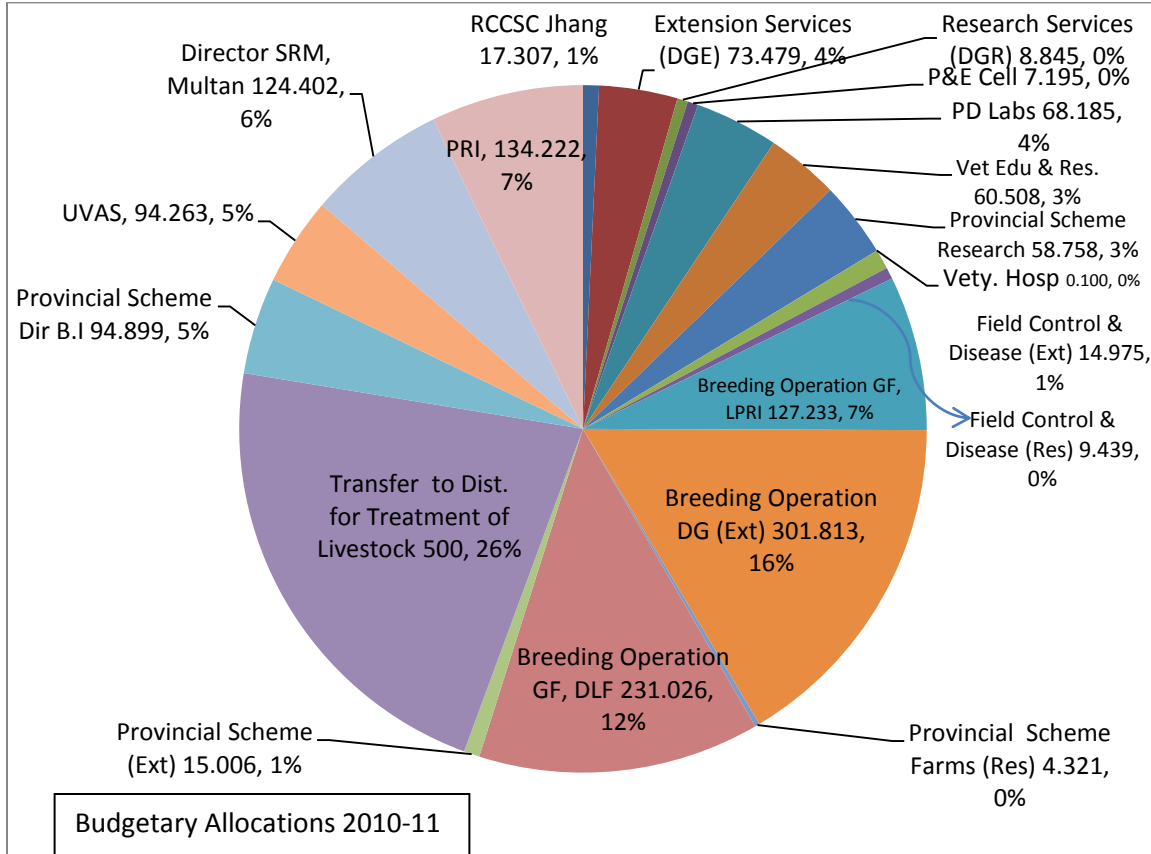
The diversity of above mentioned challenges and their inherent links with each other; their socio-economic repercussions, the untapped potential of livestock in the Punjab, coupled with the decision of the Punjab Government to put the Punjab as a vibrant player on the livestock map of the world, bringing desired economic prosperity to its millions of population has induced the first Livestock Policy of the Punjab. In the pre 18<sup>th</sup> Constitutional Amendment period, there was not possible clearly articulated policy framework for the provinces regarding livestock. The situation had already got deteriorated in the wake of devolution of power from provincial to local government without consulting the stakeholders at the local level. The same was done in isolation at the Federal level. Livestock was one of the affectees, with the consequence that issues such as cattle markets, slaughterhouses and meat markets were badly distorted.

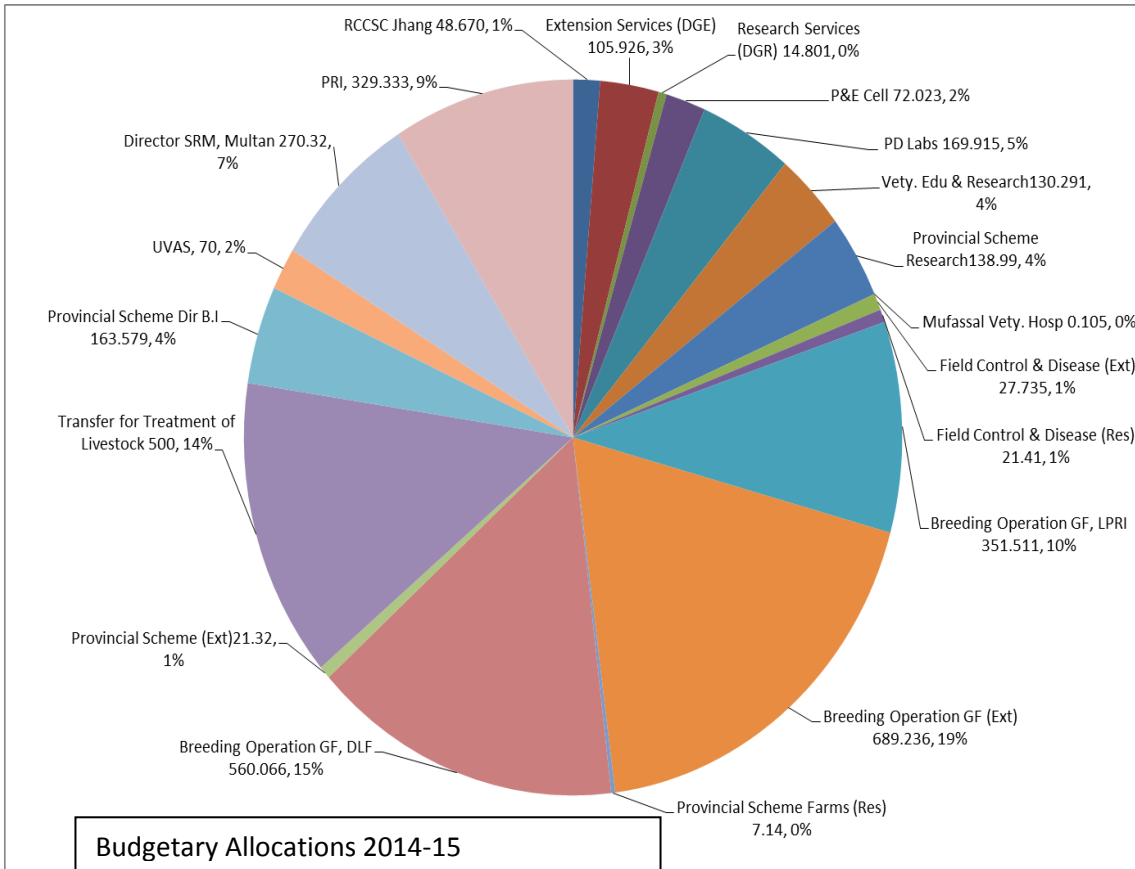
In the post 18<sup>th</sup> Amendment scenario, much needed breathing space has been created. Areas like drugs and medicines registration and regulation, veterinary profession registration and existing Federal laws and institutions pertaining to similar issues have to be replaced with more vibrant provincial ones. Historically, the private sector was restricted from entering areas of business dominated by government, with limited incentive to develop markets, create demand, and increase economic activity. The consequences are distortion of market forces and inefficient business processes. In the livestock sector, although there is potential for increased growth yet the non-existence of comprehensive policy contributed to reduced economic performance to a level which is unacceptable under the current conditions of demand. Dairy productivity is only 22% of world benchmarks as animals are heavily underfed, unprotected from disease, with poor extension and husbandry services. Eighty percent of small holders, who constitute 90 % of the breeders, are landless. They need to be at the heart of any policy to exploit the livestock potential in the short term. The time has come to take the challenge from the front and convert it into an unavoidable opportunity.

### **1.2.1. THE EXISTING PRACTICE**

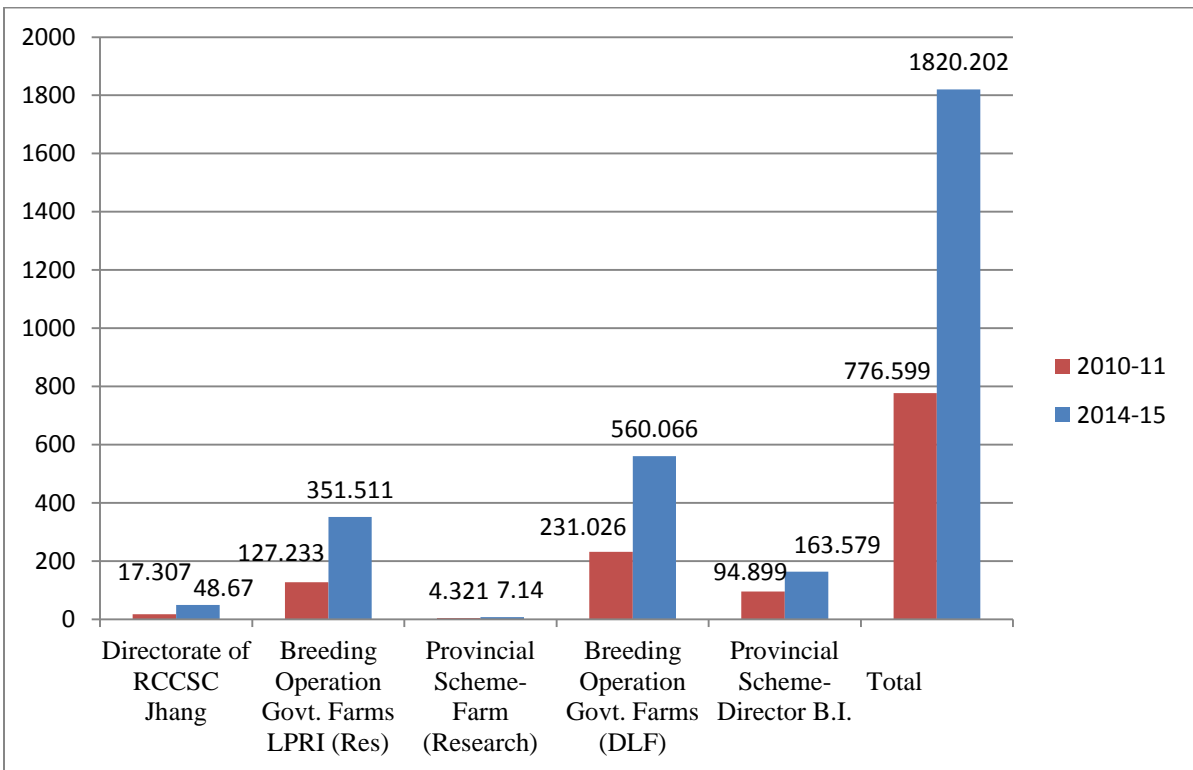
Presently, no comprehensive policy document exists that translates the constant desire of the government to set the private sector to attain its true growth potential with government being a stabilizer of business environment and facilitator of business endeavors.

There is vacuum in area of disease control, curative health standards, livestock medicine, including country medicines, feed ingredients, and breeding practices etc. Expenditure patterns reveal heavy tilt towards curative services. Following two diagrams depict the expenditure patterns of the L&DD for the years 2010-11 and 2014-15.





Budgetary allocations indicate heavy investment on the following:



**THE OUTCOME**

The public sector claims artificial insemination (A.I.) of 1.8 million animals and the private sector 2.3 million animals in the year 2013-14. Using the modest yardstick of at least 50 % conception rate, 2.1 million animals of better breed should have been produced by now. The reality seems to be transcendental in nature, which mundane calculation systems have failed to demonstrate!

# MAJOR CHALLENGES

---

## 2.1. THE PUBLIC POLICY FRAMEWORK

The biggest challenge and also the argument regarding Constitutional democracy in Pakistan has been the failure - perceived or otherwise, of the government of the day to translate the popular will into tangible reality. Government of the Punjab has gone a long way to decipher the structural anomalies in the governance architecture. The root cause is the over-arching public sector with top-down mind set. No competition and no need to excel in the performance have rendered a pool of HR that cannot fathom the depth and pace of change being encountered across the traditional barriers and boundaries in the present day world. The fulcrum of control is heavily tilted in favour of the public at large. Sticking to old guns is no more an option. The advent of information age and knowledge economy has accentuated the role of *knowledge worker*. The critical evaluation of any organization's performance should be thus a continuous process. The definition of control is no more to monopolize a given landscape but to introduce corrective measures well in time to save the cost of delayed decisions. The historical absence of maturing a popular desire from across the grass-root level and its reflection and expression in the governance actions have pushed the governments, heavily leaned towards the omni-present bureaucratic channels, to obtain public policy inputs with associated limitations.

Luckily, the 18<sup>th</sup> Constitutional Amendment has given opportunities to the federating units to exercise independence in an overarching bureaucratic federal setup. There is no short cut for the time taken by systems to gain maturity and evolve. However, the first Livestock Policy of province of the Punjab is a first step towards that direction. Efforts have been made to enlist and take care of the interest of the producer of livestock on the rural landscape of the Punjab, whose interest could never find its due place before, owing to varied reasons. The scale and pace of change in the livestock sector and the impact it can generate is evidenced from the reception of poor breeders and rural masses witnessed in the wake of interventions, the Punjab Government made to offset the flood disasters and in the recent mass vaccination campaign. This policy aims at to put the Punjab on the livestock radar of the world.

A public policy framework that takes care of all aspects of livestock sector development and ensures the intended transition is the biggest challenge, particularly keeping in view the existence of undesirable forces working to safeguard their parochial interests.

## 2.2. THE GOVERNANCE FRAMEWORK

There are two components of livestock sector governance, like any other health sector management:

1. Preventive Regime, having following intrinsic components:-
  - a. Vaccination
  - b. Reproduction
  - c. Fattening
  - d. Milking
  - e. Skins & hides

2. Curative Regime, comprising of:-
  - a. Invasive procedures (surgery etc.)
  - b. Non-invasive (antibiotics etc.)

The preventive regime needs a distinct infrastructure both physical and operational, which may be approached through pro-active and dynamic outreach activities in the field, technically called extension services. On the other hand, the curative side is catered to through its static infrastructure of hospitals, dispensaries and medical centers etc. Since animals, unlike humans, do not have socio-economic value in the old age, they are rarely allowed to attain the age beyond their reproductive age. The actual productivity directly comes from the quality management of intrinsic components of the preventive regime of livestock sector governance for which the 180 degree paradigm shift is required in the operational dynamics and positioning of the L&DD.

## **2.3. THE KNOWLEDGE FRAMEWORK**

In the absence of fairly competing markets, knowledge generation is also retarded. There is neither focus nor availability of applied knowledge in the field of livestock production and disease prevention. The misdirected resource allocation has resulted in a situation where only supply of treatment-side-professionals is available to some extent. The absence of practical exposure to veterinary graduates has restricted the growth of clinical expertise. The element of application of knowledge is also missing. The research is for the sake of obtaining better pay scales and not for the enhancement of productivity of the system and the production with little applicability to the requirements of real life challenges.

The care of animals, which a general prudence would demand, like provision of clean drinking water, protection from extreme weather, observance of breeding seasons, realization about the harms of inbreeding, awareness about the mineral deficiencies in the fodder and drinking water and subsequent use of supplements etc. is but fast disappearing due to knowledge gaps and resultant misconceptions amongst the breeders and practitioners of livestock. The forgotten recipe of country medicines with ease of use and akin to animals' needs of a given eco-system requires revival.

### **2.3.1. CALIBRATING THE OPTIONS**

The Punjab Government has calibrated its priority on protecting public interests and rights with minimal interference with a well-competing private sector. The Government intends to put the private sector in the driving seat for unleashing the enterprising and entrepreneurship. However, the facilitation regime would be so erected to ensure that public good is fully taken care of through inbuilt accountability mechanism with clearly defined lines of responsibilities.

The summarized policy framework would be as under:

1. Addressing the market distortions by adopting regional and customized approach with focus on demand driven market mechanism, with producer having direct share in the value gain across the value chain.

2. Increasing awareness amongst the end users that there is a cost for goods and services, if sustainability of the supplies is required.
3. Formation of associations of subsistence farmers at district and regional level for information and experience sharing and for creating their institutional input in aligning the policy goals. Blending of their wisdom and experience to attain optimal potential of the regional breeds. It must include a mechanism of gene pool mapping and its propagation mechanism.
4. Investment in socio-economic uplift of subsistence producer, through education, exposure and training, as a corner stone of livestock sector capacity building while incorporating cultural ethos in viable business models.
5. Village is to be made the basic reference and demonstrable business model of best practices by exploiting the established but under-utilized institutions of Lambardars, Imam Masjid, Chowkidars and the students.
6. For regaining the trust of the poor breeder; for excluding the mighty middleman and to liberate the breeder from the fear of disease and extortion, Eco-Markets mechanism will be introduced.

## **2.4. THE MARKETING FRAMEWORK**

The prevailing marketing systems have resulted in sub-optimal performance of the sector. There is little value addition in the livestock value chains characterized by lack of grading of livestock and livestock products, low awareness about fattening of animals to improve quality prior to marketing, inadequate infrastructure for processing and poor handling of livestock products, etc. Moreover, processing costs are high, and farmers generally have inadequate knowledge, facilities and skills for small scale processing. The challenge is to improve value addition in the livestock value chains at affordable cost and at a scale suitable for rural communities.

Livestock and livestock products marketing and trade face several constraints and challenges including:

- Poor market infrastructure for livestock and livestock products;
- Poor and costly transportation system for livestock and livestock products;
- Poor or little knowledge (inadequate information) of the markets (domestic and export) for livestock and livestock products;
- Non-existent livestock producers organizations, eliminating the bargaining power of farmers and no economies of scale in marketing of livestock and livestock products, leading to high transaction costs, wastage and inefficiencies;
- Weak linkages or coordination among actors in the livestock value chains;
- Inadequate incentivization and business skills especially among smallholder resource-poor livestock producers;
- Non-compliance with international quality standards.

### **2.4.1. THE CATTLE MARKETS**

The evolved dynamics of each cattle market in Punjab needs to be studied as a special case to understand and evaluate the deployed tactics/ techniques. Basically the site

selected for the purpose was on the basis of the convenience of the organizers and not that of the breeder. An in-depth study of each cattle mandi would reveal the following:

1. Monopoly of one or two groups over the whole management and trade, for which collaboration of certain investors and patronization at the local level has to be arranged.
2. Informal financing mechanism by advance of credit supply, where actual monetary transactions are designed to separate value from the cost, with value taken away by the financier and cost left with the producer, including the service cost of money, mark up and subsidized cost of production in the conventional model practiced by the subsistence farmer. It means the farmer is losing the value of produce, the value of time spent and efforts made with double jeopardy of opportunity cost and cost of production he has to bear due to prevalent system.
3. No cattle can be sold without reference for which the breeder had to pay a specific amount to the group of influential working through proxies. Any endeavour to direct sale is intercepted by introducing fake owners by stigmatizing the animals “as stolen”
4. Investors in each mandi use their tentacles to ensure that “No Purchase” happens just to crash the market, forcing the breeder to induce panic sale as the cost of transporting back the animals is staggeringly high for the latter. The produce is then liquidated at a time of choice to extract double profit by forward maneuvering.
5. The seller and the purchaser well understand per head cost of transportation of each cattle, with additional enroute cost of paying “*bhatta*” at each check post.
6. The animal both slaughtering and the miltch brought to the markets are from different areas for which no guarantee as to their health and other related information can be provided. For milch animals, there are 5-6 main cattle markets, from where the animal is taken to different parts of the country and beyond. The routine practice is that the animal is not milked up to 18 hours till its sale. Major transactions take place in the afternoon with the customary practice of demonstration of its milking in the purchaser’s presence. The newly born calf is used just for milk let down and intake of the toxic milk which was retained in the udder of the animal to show off its milking prowess. Traditionally the calf is weaned off, sold with the ultimate fate that either it is immediately slaughtered or dies of diarrhea. Hence, incalculable loss of the produce, the reproduction potential and the breeding system.
7. Actual transactions between sellers and buyers are conducted as a secret process, so that price transparency is not possible.

Under the situation and given the level of extortions in the markets, the Punjab government has envisaged a relief package to address the menace.

#### **2.4.2. THE MEAT AND DAIRY MARKETS**

Dairy sector in Pakistan consists of three types of producers; 80% small farmers raising more than 50% of total milk animals (herd size less than 5 animals), 14% medium-sized farmers/ producers, raising 29% milk animals (herd size 5-10 animals), 3% large-scale producers sharing 21% of milk animals (herd size less than 10 animals). Animals are raised in agricultural lands and almost 1/5th of this land is used as pasture land to raise

animals including milk-producing animals. Medium and large size producers are mostly located in peri-urban areas having better farm-to-market access.

The fragmented structure of supply chain of milk pose serious problem, with high collection costs due to dispersed supply sources, poor supply chain infrastructure and absence of cold chain resulting in substantial losses and poor quality of milk, adulteration by middlemen and others. Lack of dairy supply chain result in high losses up to 15% especially in summer. The geographical dispersion of the large number of smallholders in the dairy sector and use of conventional transportation, inappropriate storage and inefficient calving practices results into wastage of almost one-fifth of the milk collected.

During 2013-14, milk production claimed to have increased by 3.2% and meat 4.5% as compared to corresponding period last year. According to United States Department of Agriculture statistics, Pakistan ranks 9th among top beef producing and consuming countries and also ranks 9<sup>th</sup> amongst sheep producing countries. Pakistan exported 58,730 metric tons of meat and meat preparations during 2013-14 (July-March). The export of meat and meat preparations fetched US\$ 177.5 million. During same period export facilitation was also provided for livestock by-products like animal casing, bones, horns and hooves, gelatin that fetched US\$ 50.0 million.

For the last four years, the business model of the dairy farmer has totally been disturbed as some of the packing industry started preferring use of imported dry milk; which encouraged the mafia to introduce the synthetic milk with whey powder as its main ingredient. The situation directly affected the demand and ultimately the feasibility of keeping dairy animals has totally been disturbed. It has almost reversed the investment trends of the past three years in the dairy industry for corporate farms. On the other hand the small dairy farmers who are 90 % in number out of which 80 % are landless and their subsistence has been put at stake. This upheaval has directly affected the use of concentrates and supplements due to which the reproductivity has sharply declined. The ever-growing panic sale of animals, increased percentage of slaughtering of female animals of reproductive age should be taken as an SOS call. This trend, if not arrested, can even endanger the existence of the local species and supply of the dairy products to the local population, endangering the food security. This situation poses a big question mark about the exportable surplus and the ranking of the country with reference to the animal population/ milk production claims.

## **2.5. THE FINANCIAL FRAMEWORK**

### **2.5.1. THE SHARE OF LIVESTOCK IN AGRI LOANS' CONSUMPTION**

Bank loans to the agriculture sector have been on the rise for some years. In FY 13-14, banks exceeded their indicative agricultural lending target in Punjab. However, a fraction of the said lending i.e. just 7% could find its way in livestock sector despite the fact that livestock sector constitutes 56% of agriculture sector in terms of GDP.

Bank loans to the agriculture sector have been on the rise for some years. In FY13-14, banks exceeded their indicative agricultural lending target in Punjab. Banks' lending to Punjab's agriculture sector totaled Rs. 293.3 billion in 2013 and Rs. 339.1 billion in FY14, against the target of Rs. 246 billion and Rs. 294.7 billion, respectively. This

resulted in overall higher-than-targeted agricultural lending of Rs. 336.2 billion in FY13 and Rs. 391.4 billion in FY14 for the whole country. A careful study is required to understand the financial architecture in vogue in the field.

## **2.5.2 THE PHENOMENON OF MIDDLEMAN**

Historically, the middleman used to be a dagger stabbed in the heart of the agriculture sector. The government has done a lot on priority basis to curb the menace of the middleman. However, control is primarily adorned with relentless administrative actions, personally and painstakingly supervised at the highest executive level. Institutional response is thus need of the hour to expose the middleman phenomenon to a matching competitive market response, generated by working public policy stimuli, the logical corollary of next generation reforms.

The success of middleman lies in his competitiveness and market distortions due to public sector's role in blocking the competition in the markets. Wherever there is price capping in the market, the market forces axiomatically shift the incidence on the primary producer. This is the rule of the game that must be understood. The middleman is competitive due to the prowess of his vertical market linkages and the design of financial products he offers. Unlike banks, he does not lend money. He simply provides the credit line that operates in kind. The earning is the produce that translates into money strictly following the balancing effect of demand and supply at a given time. And definitely, that given time is the time of middleman's choice when market is facing glut due to good intentions of governments by inducing price capping.

In his financial offerings, the middleman provides inputs' provision in kind to the farmer as a credit line. He follows the principles of deferred payment while paying to the providers of inputs like seed, fertilizers, tilling etc. in the market and reduces the shelf-occupancy of his offering by reducing the time of actual transaction operated out of the farmer's credit line and availability (production) of the produce. This technique reduces the cost of his financial product and he easily makes the exorbitant profit, making him more powerful on the landscape of this canvass. In comparison, state financial institutions and commercial banks are not keeping up to develop ingenious financial products to compete this market as any seller would become in sellers' market. It is pertinent to mention here that 73% of potential banking market does not have access to banking sector in Pakistan.

What is keeping the cauldron from exploding is the aggressive pumping of soft agri loans that are being consumed without generating a commensurate produce, besides visible efforts of the government to protect public from naked actions of the middleman through administrative means. Hence, what once used to be the consumption of agri loans in the marry making by the farmers, had relegated to meet their daily expenses. This may be where the extra billions had gone in addition to the allocated amount, as discussed in the former paragraph. If there is some research or understanding of the very dynamics of middleman's growth, the answer is no more than a silence. Even if that were not enough, the distortions and misconceptions did not allow the markets to gain the corrections, which ought to have been a natural market phenomenon.

## **2.6. THE PRODUCTION FRAMEWORK**

The production framework is replete with many issues that are keeping the livestock & dairy sectors away from attaining the desired level of growth and development as per the potential and resource base that can be made available. The traditional role of supply of milch and beef animals to other provinces and some neighbouring countries requires augmentation of efforts to produce extra livestock. The increasing commercial use of wheat straw, other crop residues and inputs used by livestock requires proactive policy with regard to the silage and hay making for which the potential of Punjab is still untapped.

Since Punjab is the only producer and supplier of milch animals nucleus of its prime milch animals is being drained without proper replenishment plan. The past practice of refurbishing of dry animals by bringing them back to their original habitat needs to be re-activated to fill this vacuum. The enterprising nature of some areas still have the capacity to offer that facility. The keeping of milch animals in peripheries of big cities, particularly that of Karachi, which are mainly victims of ruthless use of oxytocin could be overhauled and again put to production of milk and meat in planned way. The Pakistan Railways needs to be approached for facilitation of transportation to such animals for shifting them back from Karachi for such rejuvenation purpose for which the Punjab Livestock Department can even share the subsidized freight charges.

### **2.6.1. ECONOMIC MODEL VS. CONVENTIONAL MODEL**

There are two prevalent models of livestock production in the Punjab. The economic model is the one, many call the corporate farming. The other one is the conventional model, where costs of inputs are heavily subsidized from inside the inner system of the farmer. While the economic model has almost been knocked out of the market due to varied reasons, cost of production being the biggest, the conventional model, which primarily caters to the subsistence farmer, is still struggling to survive but has inherent limitations for production multiplication.

### **2.6.2. LOW PRODUCTIVITY**

Although Punjab is a major producer of livestock products, the average productivity of livestock is lower compared to world average. Inadequate availability of feed and fodder, poor breeding practices, poor management and husbandry practices, high economic losses due to diseases, inadequate marketing and financial infrastructures, and unorganized marketing are the other major culprits for low productivity of livestock systems.

### **2.6.3. BENCHMARKING**

Due to lack of benchmarking of local breeds and their produce with exotic breeds and their produce, it has become easily exploitable for parochial interests to hijack policy decisions by employing skewed interpretation in unit comparisons. For example Nili- Ravi buffalo may produce more liters of milk in best circumstances with fat content

of more than 6%. A Frisean cow producing more liters of milk but with half of the fat content cannot have a comparison in terms of actual value of the produce. So the benchmarking should be on the content baskets of a given animal's produce with reference to the consumed input, stamina to sustain weather and disease, reproductive lifespan.

#### **2.6.4. SHORTAGE OF FEED, FODDER, MINERALS, NUTRIENTS & CLEAN DRINKING WATER**

The gap between the requirement and availability of feed and fodder for livestock is increasing primarily due to decreasing area under fodder cultivation and reduced availability of crop residues as fodder. There is continuous shrinkage of common/ range lands leading to over-grazing in the remaining grasslands. It is imperative to arrange sufficient good quality feed and fodder for efficient utilization of genetic potential of the various livestock species and for sustainable improvement in productivity. This factor can be gauged from the fact that irrespective of the genetic potential, underfed cattle can hardly give higher yield. The National Commission on Agriculture (NCA) 1988 suggested that *"if all animals in milk receive full diet which meets their daily appetite without changing the feed mix i.e. maintaining the present poor nutritional requirement balance, this alone could increase milk yield by 100 per cent"*. The nutritional value is to be enhanced by supplementing the required nutrients/ minerals for which mapping is required. The importance of clean drinking water, its availability and awareness amongst farmers is pathetically lacking. Hence, little training and support to livestock workers on nutritional aspects of livestock care can bring about amazing results.

#### **2.6.5. THE MISSING LINK OF FEEDLOT FATTENING**

Meat as a distinct product has never been developed in Pakistan. The only focus has been that of the milch animals. Meat is thus a by-product of the milch animal, which has been retired from milk production spectrum of life. It is, therefore, not surprising that feedlot fattening has never been taken seriously except for rearing sacrificial animals for Eid Markets. This is tantamount of closing the doors to high end meat markets.

#### **2.6.6. THE PROCESSING – THE HOSTILE LANDSCAPE**

The poor capacity of processing facilities related to various livestock products has culminated into huge wastages in the system of supply chain. With fraction of the cost of perished commodities, requisite capacity to process and pack the produce can be made available by an enabling infrastructure on Use, Earn & Pay (UEP) basis.

#### **2.6.7. THE DYNAMICS OF MEAT**

The cost of meat is not commensurate with the cost of production. Beef is more costly in production than mutton but market is willing to pay more for the mutton than the beef. Beef in turn is not prepared rather it is a leftover of a retiring milch animal. If that is not enough price capping and treatment meted out to the farmer further retards the growth of production systems. Overwhelming majority of animals are used in a time span of two

days at Eid. In the absence of processing industry other restrictions, huge volume of some by-products go in wastage which otherwise could fetch billions of rupees.

### **2.6.8. THE COMMERCIAL POULTRY**

The commercial poultry has not attained its true potential. Day old chicks (DOCs) of grandparent flocks (GPs) are being imported, which is a question mark from the point of view of food security and sustainability, besides incurring added cost to the production.

### **2.6.9. LACK OF DISEASE SURVEILLANCE INFRASTRUCTURE AND FORECASTING**

Although some infrastructure exists for the disease testing but in the absence of a viable and robust surveillance infrastructure, the disease forecasting would not be possible. There is a need to establish effective and integrated surveillance, vigilance, prevention and control mechanisms designed to protect the productivity and safety of all animals and an efficient forecasting and management information system on occurrence of diseases, particularly of epidemic and endemic nature. Prompt collection and validation of animal disease information and creation of database would help in launching of various disease control programmes. This system would also help in meeting the international obligation of notification of certain diseases and will have direct impact on the fate of export to high end markets.

### **2.6.10. LACK OF DOCUMENTATION OF INTERVENTIONS**

There is neither any protocols available nor need was ever felt due to parasitic approach in the management of livestock sector. The sector had traditionally been subservient to policies of the Federal Government with scant space for the Provincial Government to adapt to the market needs or changes in the demand of development of the sector. The wastage of resources was of such a high proportion that documentation was deliberately avoided to minimize the track of interventions to escape accountability. The provincial government has decided to reverse this practice. Without accountability, there will not come productivity and for making the actions subservient to different accountability regimes, including social accountability the need is to ensure the documentation of government interventions and make them widely available through some digital accountability mechanism.

### **2.6.11. SHORTAGE OF VACCINES**

The area of vaccine production could not take off due to overwhelming focus on curative side of health management. This practice has culminated into huge economic losses, which if calculated would offset the cost of several vaccine production facilities in the country. Nonetheless, the shortage of vaccine is a major impediment to move towards eliminating the preventable diseases; to minimize the economic losses of diseases and to gain access to high end export markets.

### **2.6.12. QUALITY ASSURANCE AND REGISTRATION**

The absence of quality assurance and registration apparatus of medicines and other products for the livestock sector has hampered the growth of a vibrant industry as there is legislative void after the passage of 18<sup>th</sup> Amendment.

### **2.6.13. DISEASE DIAGNOSTICS**

Disease diagnostics is the area having far reaching impact if working properly as per the requirements of the farmers and the market. Unfortunately, due to absence of a livestock policy, directionless efforts did not produce intended results, leaving the deficiency of information regarding disease prevalence patterns, compromising the ability of strategic decision makers to take corrective measures well in time. It multiplied the curative cost to the breeder as well.

### **2.6.14. ECONOMIC LOSS OF DISEASES**

The economic losses of preventable diseases are in billions of rupees. FMD alone causes losses to the tune of Rs. 8 billion a year. Mastitis reduces the milk productivity of animals up to 50 % with irreparable economic shock to the farmer. Losses from Hypo-dermosis, PPR and BQ are billions. Then comes the ND. Every estimate shall be less than the actual colossal losses caused by tap worms/ Ecto-parasites. There is no dearth to the list of diseases that can be prevented with fraction of a cost, which otherwise grows staggeringly high in the aftermath of outbreak. A survey in the wake of recent mass vaccination campaign, through which samples of blood, faecal and milk collected from each street of a village revealed the economic losses being born by the poor farmer of each district are as under:

Sr. No.	District	Endo-parasitic Prevalence	Haemoparasitic Prevalence	Prevalence of Sub-clinical Mastitis	Prevalence of Brucellosis	Monthly Loss (Rs.)
1	Attock	37.24%	20.96	11.66	0	230405292
2	Rawalpindi	56.55%	5.84	12.1	3.3	194878104
3	Chakwal	36.66%	8.8	8.67	0	249299428
4	Jhelum	28.89%	5.56	14.74	0	95902563
5	Mianwali	50.86%	3.23%	3	0	175101891
6	Khushab	58.85%	5	23	0	269651405.5
7	Sargodha	39.95%	8.3	6.69	0	312383772.1
8	Bhakkar	29.77%	5.5	7.4	0	199206557.4
9	Gujranwala	26.38%	0.5	14.57	6.2	108389569.1
10	Gujrat	19.89%	0.00%	8.83	0	55642674.54
11	Sialkot	26.15%	3.17	13.11	0.6	80726503.35
12	Hafizabad	50%	0	18.15	0	167964256.3
13	Mandi Bahauddin	38.46%	13.59	20.21	1.13	90536638.87
14	Narowal	36.63%	8.92	22	5.57	91962447.36
15	Lahore	44.96%	5.20%	23	3.98	143998752.2
16	Sheikhupura	64.73%	15.99	40.96	36.55	308312199.3
17	Nankana Sahib	50.96%	10	28	5.4	121489394.5
18	Kasur	56.58%	5.32%	22.84	2.75	359909702.7
19	Chiniot	62.88%	4.9	43.51	0.72	211340688.8
20	Faisalabad	31.13%	9.88	15.93	0.37	298884898.3
21	Jhang	52.36%	0.1	5.87	0	434861795.7
22	Toba Tek Singh	48.41%	6.6	23.85	0	229440773
23	Sahiwal	64.66%	4.35	15.43	1.29	495426256.7
24	Okara	52.71%	6.21	17.31	8.83	462560098.9
25	Pakpattan	60.55%	4.72%	18.82	1.43	360003287.5
26	Bahawalpur	93.99%	1.56	3.36	0	906149821
27	Bahawalnagar	63.01%	5	22.45	0.17	369954526.8
28	Rahim Yar Khan	95.77%	4.4	7.36	0	1162190384
29	Dera Ghazi Khan	72.11%	2.72	25.43	0	835862196.6
30	Rajan Pur	84.91%	0.51%	35.2	0	729858907
31	Muzaffargarh	54.83%	17.7	20	0	858055508.1
32	Layyah	36.37%	4.2	11.08	0.14	275383759.7
33	Multan	71.94%	5.5	6.86	0.59	459359647
34	Khanewal	68.90%	13.26	10	0	431004999
35	Lodhran	79.62%	5.35%	10.69	0	414112297.6
36	Vehari	76%	11.02	23.84	0.2	510851794.3
	<b>Punjab Province</b>	<b>52.57</b>	<b>11.33</b>	<b>19.92</b>	<b>5.16</b>	<b>12701062791</b>

## 2.6.15. THE BREEDING FRAMEWORKS

The breeding services despite consuming major chunk of the budget did not produce desired results. Rather they added to the distrust of the farmers due to off the mark outcomes. The reasons are many, chiefly being the absence of a direction and linkage of breeding activities and goals with holistic development of the livestock sector.

### 2.6.15.1. THE GENETIC UPHEAVAL

The reckless introduction of exotic breeds and heavy inbreeding amongst local breeds have culminated into a genetic upheaval of biblical proportions.

### **2.6.15.2. THE SEMEN PRODUCTION UNITS**

The Semen production units are in the public as well as in the private sector. Due to absence of any accountability mechanism and traceability, most of them have become hubs of rudderless activities with devastating repercussions for the breed and the breeder.

### **2.6.15.3. THE ARTIFICIAL INSEMINATION**

It is that unfortunate domain that has been subject of unchecked growth of unregulated activities with free license of playing with health of animals without fear of accountability. The results are devastating for what has been purported not only with the animals but with the breeders. The economic losses of A.I. done by ill-trained A.I. technicians can never fully depict the agony and misery of the animal and the farmer.

### **2.6.16. THE RESEARCH FRAMEWORK**

There are state of the art laboratories with equipment, chemicals, kits and trained HR from best institutions of the world but they could not contribute to the sector as per their capabilities. Further, the demand based applied research could not be promoted for certain reasons. The Government has decided to identify the need areas and species/ livestock production systems, on regional basis, of research for the next 10 years.

The public sector has a number of research institutes working in different areas. Unfortunately, they are not only poorly resourced but also being managed like traditional public sector organizations. Most of these facilities are standalone without any interlinkages or support from other national or international institutions or data from the field, which in itself is a costly venture. A livestock research network that would link all the research facilities and synchronize data from the field from research point of view is thus need of the time. This will allow evolution of an integrated research agenda without any duplication and redundancy. The creation of such a network is cardinal responsibility of the Government.

This network would be supported by a web-based digital platform to support virtual discussions and online availability of research material. The government has decided to create a “Content Management System” (CMS) for optimizing the benefits of quality applied research. Through provincial Livestock Department, proposed research facility (CMS), spanning across multiple public and private organizations would also develop close liaison with farmers and with extension services for developing applied research agendas as well as testing their interventions.

### **2.6.16.1. THE LIVESTOCK EXPERIMENT STATIONS**

There are 28 Livestock Experiment Stations/ Farms, including 9 poultry research farms, comprising thousands of acres of land. The policy vacuum did not allow them to attain their actual potential. They somehow drifted in production of cash crops, which was not their mandate. The assigned task of research could not get the required priority as many of the completed projects were kept continued without authority and justification. The production of animals without catering to any requirement or research need kept the staff and resources unduly engaged. Hence, requires a turn around by drastically curtailing their misdirected adventures by replacing with targeted research as per their original mandate.

### **2.6.17. THE EXTENSION FRAMEWORK**

The extension services are but in the rudimentary condition with much to do despite seeing sizeable chunk of budget. Extension workers are mostly ill-motivated with little incentive to work and bring about the change. Extension is not medical treatment is a surprise for many. The concept of extension as capacity building of production and supply chain systems of various types is non-existent. It is rather considered as provision of medicines at plethora of static hospitals, more in number than for humans.

# AIMS AND OBJECTIVES OF PROVINCIAL LIVESTOCK POLICY

---

## 3.1. THE DEVELOPMENT FRAMEWORK

Sustainable development of the Livestock & Dairy sectors is the basic mandate of L&DD department. A holistic approach is required to encompass all facets of development. Hence, a development framework is being professed for optimal utilization of resources and enabling the stakeholders to take productive decisions in the very domains of livestock and dairy.

### 3.1.1 SUSTAINABLE LIVESTOCK SECTOR DEVELOPMENT

Sustainable livestock sector development was not possible in the absence of a comprehensive policy on livestock, with expressed aims and intentions of the government to send explicitly clear signals across the markets to boost confidence of the stakeholders. Sustainable livestock sector development entails a long term commitment of the government to bring about the promised change.

### 3.1.2 THE ENABLING INFRASTRUCTURE

The provision of enabling business environment is the basic responsibility of the state. The Public policy is the apparatus to crystalize and communicate the professed objectives of facilitation and stabilization of business environment. In the present scenario of livestock and dairy development obligation, the government has three distinct entities for creating such environment viz. the L&DD, having deep penetration in the rural landscape with a huge infrastructure of research, training and in some cases production; PAMCO and PLDDDB: both Section 42 Companies, providing leverage to operate beyond bureaucratic constraints, and lastly the UVAS, Lahore, a dedicated university for the Animal and Veterinary Sciences.

The enabling environment warrants taking into account the marketing, financial, processing, research, production systems, standardization, documentation, traceability, disease surveillance and institutional knowledge formation.

#### 3.1.2.1. ROLE OF PAMCO

The role of PAMCO needs to be re-defined for making it more focused on tangible delivery with measurable dimensions in the context of proposed policy interventions. Instead of aiming at tall wish list of functions that are beyond the preview of single organizations, PAMCO is required to concentrate on developing core support

capability of different layers across processing supply chain for creating enabling environment in support of informal players who are destined to gain economies of scale and quality if such support is provided to them. The same will help mobilize the whole value chain process of the supply chain. Henceforth, PAMCO will invest in the physical infrastructure of the processing industry only with focus on associated HR training and capacity building. It is, in fact composite capacity building of small to medium scale informal processing and mostly rudimentary packaging industry with the investment of modern technology. The PAMCO will be working as sort of a shelf linking the secondary producer with the tertiary market. Provision of certifications like 'Halal' and facilitating the enterprise and investment in the very domains are intrinsic part of the redefined mission. PAMCO in no case will enter into any of the primary production activities of livestock and agriculture.

### **3.1.2.2. ROLE OF PLDDB**

Orientation of PLDDB's objectives needs to be aligned with the proposed strategic re-positioning of the L&DD by diverting it away from all the activities it is performing having institutional overlapping with L&DD department's core functions like research, preservation of breeds, establishment of SPUs and experimentation with feed regime etc. Some of its declared objectives also trespass on the ones professed by the PAMCO. So no tangible result has so far been produced, failing the intentions with which the idea was conceived. The dairy sector development should be the lead objective of the PLDDB with rest of livestock sector following suit. Investment in physical infrastructure, breed improvement, research, involving in the decision regarding genetics should not be the permissible area of venture for the PLDDB. In fact, PLDDB should be pulled out of all sort of physical infrastructure and material handling.

PLDDB is destined to focus on the financial infrastructure building of the whole sector with order of priority. It is required to identify the financial needs of small to medium producers, production systems and informal supply chain actors; design small to medium financial products with special nature of collateral, make possible with the help of data created by the Virtual Governance System of the L&DD described in the document. The PLDDB will act as a match maker between the producer, the supply chain actor and the lending institutes with complete log of performance of the loan thus matured.

The window of strategic opportunity is a state that exists when internal capabilities of a given individual or system comes in perfect harmony with favourable opportunities in the external environment so that desired results are produced. The 73 % unbanked market is denied that window of strategic opportunity. The same is being capitalized on by the middleman. PLDDB will act as a competitor of the middleman and would provide tactical maneuverability to the strategic financial (lending) partners in the proposed financial framework for producing a conducive environment, for helping the

market tapping potential business opportunities, by helping provide access to the productive capital.

### **3.2. THE MARKET LED GROWTH**

Promotion of private enterprise is at the heart of livestock policy, starting from the primary producer of livestock products i.e. the subsistence farmer up to the corporate producer, processors, and other stakeholders. Private sector should be in the driving seat and government should work as a facilitator & stabilizer of business environment is soul of the proposed policy. The concept envisages a growth led by the market. While facilitating and stabilizing the business environment, the government will not allow cartelization at the peril of fair market growth. The market distortions resulting in the wake of unfair market practices are as much undesirable as are the government interventions to thwart the natural flow of markets.

### **3.3. THE GOVERNANCE FRAMEWORK- PARADIGM SHIFT FROM CURATIVE TO PREVENTIVE**

The Punjab government has approved a strategic paradigm shift in the livestock sector governance from 99 % curative regime, presently in vogue, to 99% preventive regime and resultant re-positioning of the L&DD's posture and policy interventions of the Government of the Punjab along with resource allocations. This is a leap forward in the right direction and a very giant step from any yardstick. The bottom line is quite clear. The economic losses of diseases are more pronounced in the livestock sector health governance. There was no logic to keep waiting for diseases to set in and then move for their treatment by providing medicines. The need was to prevent the disease from coming so as to avoid its economic losses. Hence, the paradigm-shift with full focus on the hitherto neglected preventive side of sector governance for the sustainable livestock development.

#### **3.3.1. L&DD AS LIVESTOCK ASSET MANAGER**

The change in the paradigm while realizing the potential of livestock and promoting the competition to check undue market distortions requires the L&DD to work as a facilitator and not merely the administrator. The role further seeks the L&DD to work as "Livestock Asset Manager of the Province" with all connotations of the description.

##### **3.3.1.1. THE HUMAN RESOURCE DEVELOPMENT**

The human resource development, particularly relating to various types of technicians, in the livestock sector, are need of the hour. Without preparing a critical number of trained and skilled HR, the dream of L&DD as livestock asset manager of the province will be a forlorn hope. Since private sector is a partner in the sector development, a strict quality assurance mechanism with appropriate level of licensing and registration of the HR with provision of ICT based verification will be put in place for ensuring better quality of services to the sector.

### **3.3.2 DISEASE PREVENTION**

Disease prevention is an area that needs to encompass a host of related domains.

#### **3.3.2.1 DISEASE SURVEILLANCE AND FORECASTING**

L&DD's capacity is going to be uplifted to conduct permanent surveillance capable of detecting new exotic diseases, providing evidence being free from diseases, describing distribution and level of occurrence of endemic diseases, and assessing progress in control and eradication of preventable diseases. Regulation to ensure disease monitoring and reporting from private veterinary clinics, livestock markets, and slaughter/ processing facilities will be put in place, besides establishment of disease control and eradication areas for particular transmittable diseases.

Logical framework of disease surveillance and forecasting warrants devising protocols for data collection, information processing and management, quarantine, movement restrictions, mass awareness, additional epidemiological research, and education and training in the very areas.

#### **3.3.2.2 VACCINATION**

Without vaccination, disease prevention is impossible. The government will facilitate provision of vaccines to the livestock for preventable diseases. In the next three years the government will encourage to attain the vaccination of animals. The use of country medicines will be promoted for putting the cure in the economically manageable limits of subsistence farmer. Other proposed interventions will help improve the general health of livestock, further mitigating the chances of disease.

#### **3.3.2.3 ANIMAL HUSBANDRY PRACTICES**

Standard animal husbandry practices are almost non-existent. The reasons are exclusion of the discipline of animal husbandry from the Veterinary Universities a decade ago. The repercussions are far reaching and results are untenable. The need is to refocus on the standard animal husbandry practices. Livestock sector is less in need of large number of physicians or surgeons and more in need of great number of good animal husbandry practitioners, who could educate the farming communities on the ways to manage their livestock and keep it safe from the disease.

#### **3.3.2.4 DEWORMING**

This single intervention has the tremendous potential to increase the productivity and reduce the incidence of disease. In the next three years, the Government has decided to establish standard working protocols against the Endo and Ecto-Parasites with complete prevalence mapping. This is one of the top priority areas.

### **3.3.3 FOOD AND NUTRITION**

Feed means the balanced feed. Nutrition means the appropriate mix of nutrients as per the need of the type of livestock, taking into consideration the mineral deficiencies. The Government will promote a standardization regime for the feed and nutrition so that maximum benefit can be obtained. The same shall also cover the actual nature and effect of different toxins and their antidotes.

### **3.3.4 EXTENSION SERVICES**

All the interventions aimed at enhancing the productivity of livestock production systems are covered under the extension services. Appropriate set of extension services with measurable productivity and performance will be put in place. Mobility of L&DD staff is of prime importance in any strengthening of Livestock Extension Services. The government is providing more than 4500 motor cycles, equipped with medical, diagnostics and AI kits along with fuel for each motorcycle, to the L&DD field and support staff for deep penetration and provision of services at the door step of farming communities. The need is to re-define the role of extension services from provision of same from a static platform to a mobile and dynamic one, which is in access of the farmers instantly, at their doorsteps.

### **3.3.5 CAPACITY BUILDING OF LIVESTOCK PRODUCTION SYSTEMS**

Capacity building of economically viable livestock production systems is of utmost importance for replication and propagation of the same. In the wake of proposed policy interventions, new livestock production models and systems are destined to evolve, the lessons learnt and inference of best practices out of the successful models and production systems need to be synthesized into some institutional knowledge repository for stakeholders to benefit from.

#### **3.3.5.1 RESEARCH, EDUCATION AND TRAINING**

Research, education and training are required regarding cost benefits of control, including diseases with sub-clinical expressions affecting production and economic losses of preventable diseases. This shall be the priority area of HR development for the next 10 years.

##### **3.3.5.1.1 THE ROLE OF HIGHER EDUCATION IN LIVESTOCK PRODUCTION**

Higher education is of prime importance in developing the requisite HR for the livestock sector. Theoretical aspect has overgrown at the cost of practical training. The Government has decided to start house job for the veterinary graduates to expose them to practical management of the livestock health issues. The economic aspect of diseases needs to be more focused and PhDs in the areas of livestock economics, besides Animal Husbandry shall be preferred. The urgent need is to produce livestock

asset managers by the Veterinary Universities. A major review of curriculum and admission policy would be required. For any research and PhD, true selection of the rural area and livestock production system shall be ensured instead of wasting time and efforts on peri-urban areas of Lahore and Faisalabad, which can never be the true representative sample.

### **3.3.5.2 RE-DISCOVERING THE ROLE OF L&DD'S LIVESTOCK EXPERIMENT STATIONS/ FARMS**

The livestock experiment farms will be used for experimentation and its practical demonstrations. Each farm shall be encouraged to develop excellence of specialty in at least one area of livestock. Adoption of applied technologies with quantifiable results and practical commercial and public demonstration will be promoted at L&DD's Research Farms.

### **3.3.5.3 R&D AND THE INTELLECTUAL PROPERTY RIGHTS**

To promote quality research with commercial applicability, it has been approved that the intellectual property rights of such a creation shall be protected.

## **3.4 PARTNERSHIPS FOR SOCIO-ECONOMIC CHANGE- LIVESTOCK ACTIVISTS: WOMEN, LAMBARDARS, IMAM MASAJID AND STUDENTS**

Livestock is the oldest professions of the world. It is not only an economic activity, rather a way of life. Its various issues cannot be addressed without enlisting the support of the whole rural society. Woman is the one who introduced the concept of "JIT" just in time as a housewife and is the one who spends maximum time with the livestock. She carries the ability and passion to understand the desire and needs of the animals and is in a position to immediately attend to them in time of need. Rural livestock landscape is but a story of women and livestock growing together. Any policy that does not incorporate the pivotal role of rural women will not produce results. The Government has decided to encourage the participation of rural women, Imam Masajid and students as catalysts of socio-economic development of the farmer - the primary producer of the livestock.

## **3.5 THE REGULATORY FRAMEWORK**

### **3.5.1 PROVINCIAL DRUG CONTROL & MARKETING FACILITATION AUTHORITY**

The logical corollary of post 18<sup>th</sup> Amendment is the creation of a Provincial Drug Control and Marketing Facilitation Authority to regulate the production, marketing, sale and administration of medicines and products pertaining to the livestock sector. The Government has decided to create such authority.

### **3.5.2 CONTROL OF ZOOONOTIC DISEASES**

A considerable number of infectious diseases in humans are of zoonotic origin. Government of the Punjab has decided to establish a Zoonotic Diseases Research Institute with the help of UVAS, KEMU, University of Punjab's Center of Excellence of Molecular Biology, BZU, Multan and Forensic Science Agency Punjab. It will go a long way to ensure bio-security and will help establish protocols of bio-security in the province. The proposed Institute will also determine the industry codes and entry and exit specifications and protocols of livestock products into the province. It will also focus to the utilization of the concept of "ONE-HEALTH".

#### **3.5.2.1. THE ISSUE OF UNWHOLESOME MEAT**

The issue of unwholesome meat has potential to degenerate anytime in some outbreak of zoonotic disease, besides playing havoc with health of the public. Dynamics of unwholesome meat need to be comprehended to grasp the issue for devising credible solution. Prevalence of preventable diseases like infestation of parasites, diseases causing major economic losses, in animals is major cause of providing constant supply of dead/ near to death/ diseased animals to the market of unwholesome meat. Because of exorbitant profit margins in such heinous trade, this constant production is main cause of concern with untenable consequences. Due to the very market, haram animals' meat also finds way along dead animals' meat into the market, adding salt to the injury. The menace requires multi-pronged strategy i.e. shrinking the supply chain and raising the entry barriers. The former needs the prevention of diseases that are easily preventable; a complete paradigm shift of the department has been proposed for the same. the paradigm shift from curative to preventive like deworming, vaccination, health management are some of the intrinsic parts of the proposed strategy. Raising the entry barriers warrant pincer movement of both the public and the Government. The 9211 meat tag enquiry system, the first of its kind in the world, regarding quality assurance of fresh meat, in Lahore - the biggest meat market of the province, puts control in the hands of the public. A comprehensive mass sensitization campaign has started creating much needed demand for the strategic reform. Well-coordinated administrative actions of L&DD with different Government Agencies and District Administrations, against the unwholesome meat mafia, like arrests, detention orders, etc. have made the entry into the ugly business very difficult.

There is another aspect of this unholy business: the price capping devastates the genuine producer and processor of meat. It is pre-requisite to control such monstrous activity that price capping may be removed by the Government; and by the private sector, which induces its own type of price capping by resorting to unfair market practices in cattle markets at the peril of subsistence level farmer. A better return on produce to the primary producer i.e. subsistence level farmer will work as incentive to produce more and healthy animals to fetch better value for the produce.

Any workable strategy to control the menace must incorporate the replacement of dead animal with live animal as owners of dead animals, in most of cases, are poorest of the poor. The same may be covered under some scheme, having easy pay back of cost of replacement in instalments. It will help document the causes of the death besides enabling physical disposal of the dead animal's carcass and eliminating chances of such

carcass ending up as unwholesome meat at some sale point for unwanted human consumption. It will also be viable from another point of view as the person holding the dead animal is more likely to genuinely raise the replaced live animal, having history of rearing animals. Disposal places are required to be declared/ established for burial/ incineration of dead animals by TMAs, with provision of complete documentation of details of the carcass thus brought for disposal.

### **3.5.3 LIVESTOCK: AGRO BASED INDUSTRY**

The livestock sector shall be declared an Agro-based industry with all the associated benefits and exemptions a declared industry can benefit from.

## **3.6 THE SERVICE DELIVERY FRAMEWORK**

The service delivery framework is, in fact, the logical framework and a natural corollary of the aforementioned discussion on policy points. It encompasses the service delivery architecture pertaining to ensuring the food security, competitiveness of the sector, prosperity of stakeholders and generating exportable surpluses. Each of the said areas is so exhaustive that separate chapters have been dedicated for discussion and expounding on the each.

# FOOD SECURITY

---

Livestock provides natural capital such as meat, milk, wool, hide, rangeland and pasture; financial capital such as cash, savings, credit, insurance, gifts; and social capital such as traditions, wealth, prestige, identity, respect, friendship, marriage dowries and festivities and power capital such as traction and biogas, besides being a source of organic fertilizer, converting waste products into inputs to the production of high-value food. The livestock also satisfies religious needs. Over the past few years, the world has been hit by a series of economic, financial and food crises. Price volatility and weather shocks, due to climate change, are likely to undermine food security. In this context, promoting livelihood resilience and food and nutrition security has become central to the policy agendas of the Punjab government. Smallholder farmers need to be at the center of this priority to play a leading role in the investment efforts, needed to achieve it.

## **4.1. DEFINITION AND NARRATION**

The state of food security exists when all people, at the time of need, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. From this standard, we have to go a long way to materialize the dream. Besides quantity, the quality standards are also of prime importance to ensure food security. The people are required to be educated to fathom the true concept of food security. Livestock products are relevant to the concept of food security from two angles. Firstly, provision of proteins, milk and associated products from the livestock source. Secondly the capacity to make economic decisions (choices) more easily from the income generated with the help of livestock, particularly amongst the subsistence level farmers and rural women.

## **4.2. LIVESTOCK FEED MIX REDEFINED**

The conventional livestock feed mix has been enlarged to encompass the silage, fodder, hay, nutrients, water, and last but not the least the essential minerals for the animals. It is imperative to grasp the nettle of holistic development of the livestock sector in the special perspective of food security. The industrial waste, culled dates, the leftover of harvesters in paddy and wheat, needs to be focused to be explored for their possible use in livestock feed/ silage.

### **4.2.1. SILAGE, FODDER & HAY**

The policy specifically envisages to:

1. Make Central Punjab the silage producing mine for the whole of Pakistan; Middle East, Iran, Afghanistan and beyond. There are possible five produces of silage in a year from the fertile lands and favourable climate of the Central Punjab.
2. Produce hay for the whole of Pakistan with handsome export markets.
3. Encourage packaging technologies.

4. Subsidize production of packaging materials and customized machinery for the silage packaging will be promoted.
5. Create special export zones with tax holidays for next 10 years for attracting FDI in the areas of fodder production, hay and silage making and exports, besides sale in the local markets. L&DD will earmark under-utilized land at its farms for kick starting the proposed initiative. It will also cover local production of customized machinery.
6. Undertake efforts to increase production of quality fodder seeds through necessary incentives, arranging foundation seeds of different high yielding fodder varieties and modern scientific farming procedures. A special emphasis of fodder research will be to map and remove the deficiencies of nutrients in various lands for requisite quality fodder production.
7. Ensure round the year availability of hay, silage and fodder for the local livestock at market competitive rates in appropriate packaging and with requisite standard of preservation. The Government will consider merger of Fodder Research Institute by establishing its satellites at each L&DD farms, instead of continuation of its working in isolation.
8. Make timely availability of fodder seed and its multiplication in the respective areas, having demonstration plots, the Punjab Seed Corporation can play a pivotal role.

#### **4.2.2. NUTRIENTS & MINERALS**

Nutrients (micro-nutrients) and minerals are of as much importance for the animals as they are for the humans. Many metabolic disorders of animals, with potential of severely retarding their growth and productivity are due to shortage of appropriate quantity of nutrients and minerals. The policy envisages ensuring provision of all the requisite nutrients and minerals to the animals as their basic right. The industry standards will be propagated for ensuring provision of the same.

#### **4.2.3. RESTOCKING OF RANGELANDS**

One-third of the livestock is dependent on grazing lands. Scientific Rangeland Management is need of the hour. Various projects for restocking of rangelands and afforestation of such eco-systems in the hilly tracts had been implemented in the past. A complete catalog of all such intervention need to be prepared with the help of donor agencies as they used to be the funding source of such projects with documentation of the outcome so that lessons learnt could be incorporated in future plans for ameliorating the condition of range lands.

##### **4.2.3.1. PREFERRED FLORA FOR RESTOCKING OF RANGE LANDS**

Following species have been declared the flora of preference in the restocking of rangelands due to various economic, ecological and nutritious requirements:

Sr. No.	COMMON NAME	BOTANICAL NAME
1	Kikar	<i>Acacia nilotica</i>
2	Jaman	<i>Eugenia jambolana</i>
3	Sohanjana	<i>Moringa oleifera</i>
4	Sehtut	<i>Morus alba</i>
5	Beri	<i>Ziziphus mauritiana</i>
6	Khajoor	<i>Phoenix dactylifera</i>
7	Neem	<i>Azadirachta indica</i>

#### **4.2.4 MAPPING OF SEASONAL MIGRATION ROUTES OF LIVESTOCK**

Traditional livestock rearing is spanning across waste migratory routes. These routes, ecological conditions along these routes and potential of carrying and spreading disease of one into another are of vital importance to be incorporated into the institutional knowledge bank of the L&DD for better management of rangelands, disease prevention, establishing the processing industry along very routes and provision of quality genetic material to the herds for increased livestock production.

#### **4.2.5 THE NOMADIC LIVESTOCK CLANS**

The nomadic livestock clans are to be mapped for provision of extension services to them without compromising their mobility and professional traits evolved over centuries. Their unique best practices are need to be reflected into courses taught at universities. They deserve to be researched and presented to the outside world for enhancing marketing prospects.

#### **4.2.6 MAPPING OF TRADE ROUTES OF LIVESTOCK**

Mapping of trade routes of livestock, particularly of Eid days will help create the processing industry and collection routes along those routes to tap on the opportunity that is concentrated to few days of Eid-ul-Izha. This mapping will help understand the changing trends and finding new areas of activity.

### **4.3 THE LIVESTOCK PRODUCT MIX REDEFINED**

Slaughterhouse by-products like blood, bones, casings, ingesta, etc. besides milk, meat, skins & hides, hooves, and their derivative products are all part of the livestock product mix. Processing of animal casing, blood and ingesta will help contribute towards the prosperity and cost competitiveness of the whole supply chain of slaughtering/ sacrificial animals.

## **4.4 SOCIO-ECONOMIC SECURITY OF THE PRODUCER**

Livestock is not simple economics in the backdrop of Punjab's culture. It is socio-economic habit, crystallized over centuries. Theory of hierarchy is always more pertinent when it comes to have livestock in the Punjab. To tap on this unique characteristic of a Punjabi mind, be it urban or rural, poor or rich, the provision of capital and attention for livestock is not at dearth in the Punjab. The policy envisages ensuring the socio-economic security of primary livestock producer for helping him produce the requisite livestock cost effectively. To capitalize on the concept, the Government will introduce special features regarding livestock in school curriculum, a basic special technical course at high school level and preference to those having read this course while hiring in projects aimed at rural/ community development. Livestock is a profession practiced by the Prophets and its importance should be reflected in the national narration. Without ensuring socio-economic security of primary producer of livestock, food security will be a forlorn hope as rural urban migration will continue to barren the livestock production systems.

### **4.4.1 THE ISSUE OF PRICE CAPPING**

#### **4.4.1.1 PRICE CAPPING BY THE GOVERNMENT**

Meat price capping is the most serious issue that is damaging the whole local meats production, supply chain and processing industry. Through price capping, cost of the production is not allowed to be recovered from the consumer as is the case of other produce of human consumption. The same sends the ripples, backward in the production system making its growth anemically retarded. The Government is considering lifting the price capping on sale of fresh slaughtered meat. If there were not available market for by-products of slaughtered animals, the business of meat slaughtering would have been knocked out of existence. The concept of food security warrants keeping the producer of food products buoyant so that production systems keep on running and producing with dependability.

#### **4.4.1.2 PRICE CAPPING BY THE UNFAIR MARKET PRACTICES**

There is another aspect of price capping. It pertains to unfair market practices and cartelization. It is purported by the private sector e.g. the informal price capping that is preventing the milk producer to recover the cost of production, is done by certain players, by resorting to dry milk and whey powder import. There is need to identify and map all such informal price capping induced by the unfair market practices of the private sector. For the sake of food security such trends shall be arrested forthwith and shall be tracked and monitored on permanent basis. The Government will also help support the primary producer of milk and small retail milk collectors through institutional interventions by helping them acquire small pasturing and packing units of milk for better return on their investment and provision of quality milk in the vicinity of milk production clusters. For

implementing the desired objectives, Idara-e-Kissan will be revived being the best example to cite from past.

## **4.5 THE BREEDING FRAMEWORK**

The breeding factor is an important reason of late maturity and long intervals of calving. Shortening of service period by one day yields an increase of 5 to 7 liters milk and one estrus cycle results in additional 105 to 147 liters milk. Reproductive disorders in females lead to significant economic inefficiency. Studies show that Punjab is losing about 11.57 million tons of milk each year on account of this reproductive disorder. When converted into monetary figures, this loss comes out to be about PKR 120 billion in buffalos only.

### **4.5.1 THE PROGENY TESTING PROGRAMME**

The existing progeny testing programmes for Sahiwal and Cholistani Cattle, Nili-Ravi Buffalo and effectiveness of A.I. both in private and public sector farms shall be evaluated to ascertain the factual position and to introduce the corrective measures to move towards producing the requisite number of quality animals for domestic and exportable use. The same policy will be implemented for evaluation and future development of the small ruminants. The devised SOPs of Breed Improvement Act shall be implemented in letter and spirit. To further improve the A.I. results, and for timely heat detection, availability of teasers to the farmers shall be ensured.

For bull mother scheme, there will be a genetic pool of superior or required gene for the characters market demand, for future breeding program of our dairy breeds which can be achieved by developing each breed champions like Sahiwal or Nili-Ravi buffalo breed champions. These champions will have genetic pool of minimum 200 adult animals. The animals will be kept and bred as per criteria defined by livestock experts. Royalty will be paid on selected bull of the experts farmers whereas below average bulls will be discarded.

### **4.5.2. THE BREEDING PLAN**

AI will be incentivized and government will set up AI training centers across province involving renowned genetics companies where possible. Six such training centers will be commissioned. Every village will be provided a bull for the natural service till the time AI capability as per the requisite quality and quantity will be developed. The bull thus provided to the village will have periodical screening, overhauling and shifting to avoid diseases and to ensure spread of diverse genetic makeup by exchanging bulls. There will be a breeding plan for the whole of Punjab with elaborated details on the basis of specie and area. Best quality semen, true to its breed, will be provided to the farmer at subsidized rates. Complete documentation and traceability of new progeny will be kept to streamline and harness the genetic prowess of different breeds.

The economic model of the poor breeder due to price capping seems to have been disturbed, which has led to panic sale. The sale and slaughtering of under-age animals

both small and large, alarming rate of slaughtering of heifers, female sheep goat and buffalos/ cattle, still having reproductive age, should be taken seriously. It requires a continuous monitoring with reference to the local consumption and export in connection with weight and sex of the animal slaughtered.

### **4.5.3. THE BREEDING POLICY AND RULES**

Distinct Breeding Policies for all sorts of animals: local, exotic or mix will be prepared along with framing of rules thereof. The Government will widely disseminate the Breeding Policy and Rules, with clearly laid down areas of responsibility, in Urdu, for the benefit of farmers' communities. There will be prepared a herd book for each district/ region regarding all indigenous breeds of animals and birds.

## **4.6 PREFERRED AREAS OF HR DEVELOPMENT**

Applied research in the following areas, with special reference to livestock, has been declared the preferred areas of HR development for the next 10 years:

1. Animal husbandry
2. Economics
3. Statistics
4. Breed improvement and Genetics/ Genomics
5. Nutrition and Metabolic Disorders
6. Molecular Biology
7. Microbiology
8. Biochemistry
9. Pathology
10. Business Education
11. Curriculum Development
12. Dairy Technologies
13. Meat Technologies
14. Leather Technologies
15. Marketing
16. Banking & Finance
17. E-Commerce
18. Quality Assurance & Management
19. Sociology & Anthropology
20. International Business/ Trade
21. Trade (WTO) Laws
22. Animal Husbandry
23. Management
24. Mass Communication
25. Electro-Mechanical Engineering
26. Information & Communication Technologies
27. Livestock Technologies
28. Processing Technologies
29. Food Technologies

Moreover, Livestock Technician will be aggressively developed in the next 10 years. The candidates from rural areas and women will be given preference.

#### **4.7 SPECIAL EMPHASIS ON THE SOUTH & CHOLISTAN**

Livestock is the backbone and perhaps the only industry for the South of Punjab. The area has huge potential for development. It needs inroads of development deep into its natural systems of production. The South of Punjab comprised of three administrative divisions of Multan, DG Khan and Bahawalpur. They were ignored and repeatedly mistargeted in the past due to varied reasons. The livestock is their life line. However, like primary producers of livestock anywhere else in the country, they historically remained at the mercy of ruthless middleman phenomenon.

There are seven distinct features of the livestock economy here:

1. Enterprising and innovation of people with cooperative nature.
2. Vast natural wild rangelands- reducing the cost of rearing.
3. Organic and wild nature of livestock and its feed with staggering potential of growth and value addition.
4. Deep catchment area - trade routes stretching into neighbouring provinces and beyond.
5. Graveyard of schemes and interventions of past governments.
6. The presence of a comparatively less depleted gene pool for Cholistani cattle.
7. The migratory and semi-wild nature of the Cholistani cattle.
8. Colossal scale of impact, an apt policy and logical interventions could generate.

A detailed analysis of each has been made. Following policy goals are suggested:

1. The present livestock set up of CDA is unlikely to achieve the targeted objectives due to lack of HR and institutional support.
2. A state of the art Livestock University will be established with international level facilities of research at Bahawalpur for producing requisite number of quality HR.
3. Special programmes will be launched, targeting specific areas within the South for the development of specific breeds and livestock production systems.
4. A special export zone, within the South, will be created for fetching better value of livestock produced by the South.
5. Government of the Punjab will align all of its social interventions in tandem with the pattern of livestock industry development in the South.
6. The area has the gene pool of Cholistani cattle. The very nature of the animal as semi-wild with migratory trait requires a special caution and care as it has the potential for spreading of endemic or epidemic diseases enroute its migratory tracts, endangering the whole livestock population in the area.
7. Capacity building for the delivery of stated objectives will be prioritized within the L&DD.
8. Government will pay special attention for HR capacity building in the area of economics and marketing.
9. Branchless banking will be encouraged in the area for provision of cost effective productive capital and easy transactions.

10. Making south the hub of livestock production and trade with sizable value addition and growth in the GDP of South.
11. Special efforts shall be made for selective cross breeding for production of a genetically superior quality animal to fetch better value in the market.

## **4.8 MANAGING THE TRIBAL AREAS' LIVESTOCK**

As much as Cholistan will be targeted for production of large ruminants, Provincially Administered Tribal Areas of DG Khan and Rajanpur can become a hub of small ruminants' production. The government shall focus on the Tribal Areas' livestock as the same is only industry and livelihood available to the tribal people. Appropriate disease management, restocking practices, education, training and provision of processing industry in the area will impact tremendously on all: the man, the animal, the eco-system and economy and social life of the area. It shall thus be the preferred area of development.

### **4.8.1 WARBLE FLY CONTROL & ERADICATION MANAGEMENT**

Warble fly control and eradication programme needs to be enhanced and boosted to control and eradicate the menace of warble fly that has the devastating effect on the production and health of livestock of the area. Henceforth, warble fly control programme will include deworming interventions as an integral part of disease management. Warble fly control coupled with deworming would in itself pull the livestock out of the production depression into the vibrant industry of the area with associated prosperity.

## **4.9 CONSERVATION OF ANIMAL BIO-DIVERSITY**

The province has rich and diverse genetic resources of livestock in the form of a large number of species, breeds, and strains within these species. Punjab has some of the best breeds of cattle and buffaloes with traits for dairy and meat. In sheep and goat several highly prolific breeds are available. The newly developed breed of Nukra in goat and Mundri in sheep are two good examples of private enterprising. The breeds of livestock and poultry are essentially the products of long term natural selection and are better adapted to environment and diseases, and perform under low and medium inputs. Some of these breeds are suited to particular agro-climatic conditions of the country. Some of these breeds have useful genes for fast growth and prolificacy. Such utility genes and breeds would be identified, conserved and utilized for breeding and research.

The focus would be on conservation of indigenous breeds of livestock and poultry. Pastoral communities, particularly those managing migratory animals like cattle, sheep, goats, camel etc. shall be supported through creation of facilities along their migratory routes for feeding, breeding, healthcare, camping, and market channels for their produce and animals. Indigenous knowledge of pastoral communities about animal maintenance and breeding would be documented with active involvement of communities, breeders' associations and NGOs.

## **4.10 THE TRADE PROTOCOLS OF LIVESTOCK AND LIVESTOCK PRODUCTS**

### **4.10.1. THE EXPORT REGIME PROTOCOLS**

The export protocols require that no branded livestock product leaves country without acquiring standards specification certificate. It is important for developing the quality image of the brand made in Pakistan. The regime must incorporate the export of virus strains and those of bacteria for avoiding their genetic re-engineering, mutation and their possible re-introduction back in the country as a tool of biological warfare.

### **4.10.2. THE IMPORT REGIME PROTOCOLS**

There is an urgent need to establish the import regime protocols in the domain of livestock products in general and genetic products in particular. The exotic breeds carry many diseases that have devastating effects for the bio-security of the local eco-systems. The import of vaccines also needs to be regulated in the very context. The Government has decided to develop a quality HR for the purpose by imparting first rank training and exposure. This is one of the areas where donor agencies may invest as a development priority and their mandated responsibility.

### **4.10.3. THE QUARANTINE**

Establishment of quarantine facilities and that of their standards and technologies have registered phenomenal improvement. A state of the art quarantine regime shall be put in place to ensure bio-security of the province. This is also one of those areas where foreign donors may invest to share their international development responsibility.

### **4.10.4. THE TRANSPORTATION REGIME PROTOCOLS**

Transportation protocols for transportation of live animals do not exist. The same results in cruelty purported to the animals and economic loss in terms of stress that is induced to the animals, rendering them prone to diseases and weight loss. Appropriate transportation protocols will be devised and put in place for compliance. The concept axiomatically extends to all sorts of livestock products.

## **4.11 INDIGENOUS VACCINE PRODUCTION**

Indigenous vaccine production is of utmost importance for the food security and development of livestock as per the proposed policy objectives. Hence, Government will also encourage the private sector to come forward, invest and establish indigenous vaccine production facilities as per the international standards and quality.

## **4.12 DISASTER MANAGEMENT PROTOCOLS**

There are various types of disasters like earthquakes, floods, natural calamities e.g. rain, hailstorm, climatic upheaval, draught, fire, industrial disaster, nuclear radiation fallout etc. Each needs a peculiar type of response. However, dependable stocks of silage and hay need to be maintained with systematic refreshing by using old and adding new stocks. The private stock position and its geographical existence may be mapped to raise resources in time of emergency. Shifting of livestock in case of any eventuality and disposal of perished one to avoid diseases spread are pivot of any coherent disaster management protocols. Coordination and technical assistance of L&DD with other agencies also warrants a well thought out and scientific plan. A separate disaster management and rehabilitation plan will be prepared and made public in Urdu and local languages.

# COMPETITIVENESS

---

Competitiveness of livestock production systems and actors, including that of supply and value chains is one of the key policy areas of focus. If the requisite competitiveness does not come in the wake of present policy interventions, the sector will not start gaining economies of scale and helping the subsistence farmer moving up towards commercial farming and value addition. It encompasses all facets of economy that have even the remotest link with livestock production and liquidation. Mid Term Development Framework (MTDF) incorporated a shift towards the competitiveness through higher private-sector investment and to improve “Total Factor Productivity (TFP)” with concept of three-year rolling plans. Incentivizing & developing local strengths for increasing competitive advantage in various sectors of the economy is pivot of the strategy. TFP is a variable that accounts for effects in total output not caused by traditionally measured inputs of labour and capital. It measures joint effects of many factors: innovation, economies of scale, managerial skill, changes in “organization of production”.

TFP is more intangible (virtual) as it can range from technology to knowledge of worker (human capital). Human capital is a stock of knowledge, habits, social personality attributes, like creativity, embodied in the ability to perform labour so as to produce economic value. Innovative growth & efficiency are regarded as two of the biggest sub-sections of TFP, the former possessing "special" inherent features such as positive externalities and non-rivalness- enhancing its position as a driver of economic growth. Studies reveal that while labour and investment are important contributors, TFP may account for up to 60% of growth within economies.

The policy envisages harnessing the potential of innovation in the organization of production, besides other allied options to make the whole sector competitive. The more the sector becomes competitive, the more value will be produced in the value chain with inherent tendency to take the route to the primary producer of livestock, the subsistence farmer, as per the design of proposed policy interventions. The more the value lands at the subsistence farmer, the more the evolution of small commercial farmer. Availability of critical number of small commercial farmers (their economies of scale) will kick start the basic collection chain/ organization (s) of livestock produce by minimizing the operational cost, which even the corporate and donor investment has failed to induce.

## **5.1. CHANGING THE SERVICE DELIVERY MODEL- THE VIRTUAL GOVERNANCE**

Governance model assumes special significance when it comes to service delivery of basic services pertaining to the roles and responsibilities of the government. The impact of the quality of service delivery is an undeniable proven fact. But when the scope and scale of engagement is as large as the present policy envisages, the innovation in the governance model assumes utmost importance. The volume of a generation’s work may be done in a couple of years. Hence, the concept of Virtual Governance is invented and converted into reality with measurable outcomes, which are otherwise not possible in the traditional set ups. There are 220 working days in Pakistan. Since a working day comprises of 8 hours, 220 working days divided by 3 is equal to 73 days. Service

delivery, in fact, is done only for 73 days out of a calendar year of 365 days, which is a colossal loss of the precious time and resources deployed that remain idle for two third of the time, incurring considerable opportunity and redundancy costs, culminating into compromising seriously the quality and quantity of service delivery and erosion of public trust in governance institutions. The virtual governance system enables to provide the service delivery 24/ 7.

Virtual Governance operates on the concept of Government being more virtual in nature (interaction, management, functions, services etc.) than physical in existence. Law of the land is a codified law. Since service delivery is done through SOPs, which are basically extremely refined (specific) codification of rules with distinct “limits”. Just like electricity which is either on or off or binary language, which is either “-0-” “-1-”, packets (virtual) of service delivery can be made available round the clock in plenty with pre-programming of desired response, constructed in some robust business model. It is thus a complete business solution to reduce the activity time differential exponentially for attaining policy goals, in near future (otherwise possible in distant future) for a complete paradigm shift of the L&DD, without entangling efforts and energy on physical infrastructure and operational re-invention. Existing resources by adjusting the barriers as per desired limits and “Virtual Governance Business Model” would be used for the purpose as a force multiplier to increase the surface area of activity for increasing the number of activities and frequency of activities for pro-actively facilitating transactions. It is simply doing future in strides.

The prevalent tele-density in the Punjab and use of ICT is at the heart of the proposed model. There are 140 million cell phone connections in Pakistan. One can have instant, direct, dynamic and meaningful access to as much persons if connected through an ICT based business solution as described above. Conventional paper based communication and data handling systems are costly in terms of time, efforts and create picture at “undesirable level” that can be manipulated easily. Replacing the paper based conventional system with e-government modules still does not alter the outcome. When not constructed into and introduced through some viable composite business solution, which rarely happens even in developed economies, cost doubles; redundancy, duplication of key punching/ management functions and easy manipulation of entered data further blinds the policy managers from ground realities and shifting sands. Cost of connectivity and problem of electricity still persist. Ordinary mobile phone sets more than fulfills the requirement. Virtual Governance as a composite business solution is thus designed to eliminate all such inefficiencies, shortcomings and to bring productivity by instantly and exponentially increasing the meaningful connectivity and flow of apposite information amongst all stakeholder. The proposed concept has extended the government beyond ‘Restricted by time Activity, making it “Ever Available”. The policy aim at dynamically registering and engaging all the farmers in next 3 years by making them active first hand users of this business model of governance facilitation. It is a leap forward on e-governance. It is simply doing work of 5 years in one year.

## **5.2 THE MARKET INFRASTRUCTURE**

Markets provide the facility to make business transactions. They provide platforms to exchange the requisite information amongst the buyer and sellers regarding the products. The exchange of information requires structuring of the message regarding the products

and offerings. Showcasing is but an expression of that message communicated in the market. The intrinsic function of the market is to maximize the offering of a given product. This is called competition, which fetches the best value for the produce. Prices are not traded in the fully functional/ developed markets; value chains are. Value and pricing are two distinct entities that can only be separated through vibrant market mechanics. Without creation of value chain and resultant value gain for a set of given products, the competitiveness and prosperity is a forlorn hope. The proposed policy has fully incorporated these dynamics while designing policy interventions and setting policy goals.

### **5.2.1 THE INFORMATION DISSEMINATION AND VERTICAL MARKET LINKAGES**

The policy envisages creating specific yardsticks and their measuring protocols through which market information can be exchanged. There shall not be allowed information blackouts and limiting of offerings for transaction in the markets. This will stretch from the primary markets to the tertiary markets. The Government will help the private sector to create such systems to cater to specific market needs on the patterns of one L&DD has devised and deployed. The data so generated in the wake of virtual governance will help develop such business solutions for particular markets to eliminate conventional distortions. Vertical market linkages are of prime importance while designing the same. They will bring together the primary producer and end user of the produce. Middleman along the price chain will be replaced with the genuine business actors (facilitators) across the value chain, with each transaction pushing the value gain to the next higher level. The Government will ensure that markets are functioning vibrantly and there occurs no distortion.

### **5.2.2 THE ECO-MARKETING ZONING- LOCALIZED CATTLE BAZARS**

The presence of L&DD department is one of the heaviest on the rural landscape of Punjab. Recently, the L&DD has successfully launched 9211 SMS service of quick response facilitation regime for farmers, encompassing set of pertinent livestock services, ranging from disease surveillance, diagnostics to preventive coverage of vaccines; reproductive facilitation to help in the prospective purchase of targeted animal produce from the farmers in future. Credible real time data collection is the pivot of the system. The Government intends to make the province disease free. A phased approach has been devised. In the Punjab, after every few miles the dialect of local people is changed. There is great diversity in socio-economic patterns. This natural evolution has historically created many 'Mandis' or localized markets, which have grown to the size of even district and tehsil headquarters over time. The need is to tap on this natural evolutionary trend in the Punjab. Mostly they are the junctures of many crossroads.

The Government has decided to use the defunct octroi posts as relay centers of the livestock services owing to their presence on the main roads along big rural junctions, also touching peri-urban limits: more than 500 in number. A staff from amongst the existing will be deployed along the same with provision of 4580 motor cycles, equipped

with necessary medical kits, and connected through 9211 platform of ICT system with farmers, to provide desired services, with documentation of each interaction.

Transportation cost is one of the biggest barriers for the farmer to make a handsome deal at the traditional cattle market. Small cattle selling points or bazars for few hours on specified days may be arranged in clusters of one or two UCs along the physical infrastructure of L&DD, including these relay centers, having ample open spaces within or nearby. It will instantly provide relief to the poor breeders with no need of traditional cattle market paraphernalia and every opportunity to get the animals medically inspected and handsomely traded without botheration of bearing extra cost of transportation or panic sale. It will help unleash the possibility of farmers' much needed local cooperatives once the livestock sector productivity starts increasing. It will also minimize the spread of diseases due to unchecked long distance movements of animals in and out of their respective eco-zones. It is sort of creating eco-marketing zones along local trade routes, evolved in decades with every possibility of generating goodwill for the government and bringing back the much needed trust of poor farmers on the government institutions.

### **5.2.3 TOWARDS THE VIRTUAL MARKETS**

The provision and successful deployment of virtual governance modules through 9211 platform and the ease of real time quality data generation in bulk across all platforms through ordinary mobile sets, operating on all Telcos has given rise the possibility of creating a virtual stock exchange of livestock produce, operating on ordinary mobile phones. The government would help the private sector develop one. The L&DD would approach the State Bank of Pakistan and SECP for technical exposure of stakeholders for evolving the concept to a stage, from where private enterprise would take it up to the next generation as a vibrant market entity. It has tremendous potential of creating vertical market linkages. It will be a pre-cursor of pre-order economic revolution and will give access to the primary producer to the much elusive productive capital. It will transform the livestock economy, with spillover effects on other sectors of the economy. This area may have special interest for the international development institutions, keeping in view their mandate.

The concept envisages L&DD & private business entities jointly conceiving, designing and developing mobile financial products, tailored on the specific needs of the livestock & dairy sectors. It will create, for the rural poor, in the livestock & dairy sectors, in future, a financial infrastructure for a unique credit line to operate through virtual governance system for extending the hitherto unbanked segments the benefits of productive financial products to eliminate the role of "middle man". It will craft virtual vertical market linkages for liquidation of livestock products for translating financial benefits (better value for the produce) directly to the poor livestock farmers (primary producers) without letting them resort to the middle man.

## **5.3 THE FINANCIAL ARCHITECTURE**

Financial architecture may be designed and developed through the policy intervention but markets cannot be dictated to operate through a given financial architecture. Markets shape their own financial dynamics that caters to their peculiar needs. The bottom line is the flexibility of the financial infrastructure to cater to specific needs of markets.

### **5.3.1 INSTITUTIONAL RESPONSE TO THE MIDDLEMAN PHENOMENON**

It should be in the basics of designing a financial infrastructure for livestock markets that is flexible enough to accommodate ever-changing needs of the market place dealing with the livestock produce, the majority of which is of perishable nature with high concentration of value and swift liquidity. The nature of collateral is also unique. Conventional definition of collateral may be the animal mass/ numbers of given animals or some landed asset but actual collateral being used in the market for the financing thorough the local middleman is the enterprising history of the farmer and the shelf space he occupies in the production channel. This may send chills through spine of a traditional banker but at the end of the day they are the ones with huge pile up of non-performing loans. Nobody ever heard about a middleman financier with struck up loans. The policy envisages encouraging the lending institutions, business entities, NGOs, individuals and higher education institutes to research and design such financial products that could compete with the middleman in the market to provide 73% un-banked population access to the banking market. Branchless banking may become harbinger in this venture for which L&DD has already engaged the market players.

The middleman provides the farmer with a credit line that operates in kind at a time of farmer's production need. The middleman uses the principle of deferred payment to supplier of agri inputs, provided to the farmer through operation of the informal credit line. A fraction of the credit line may be used informally to meet some personal emergency requirement but again cash is not given to the farmer. If some bank moves ahead to tap on this concept, it may provide similar credit line to the farmer on analogous qualifications. The competitive edge that would bring down the cost of such financial product would be the invoking of mark up only when the transaction takes place through that particular credit line. This will keep the bank's books in healthy condition while ensuring financial discipline of the product user. The advance of credit line would be reflected in the performance of lending operations. The duration of markup would reduce the cost with obvious benefits to the user. The performance of loans will mitigate the overall risk factor, making the market commercially viable instead of becoming a dumping ground of bogged down capital.

The 9211 platform is especially designed to create enabling environment for the possibility of exploring described endeavours. It provides the formal banking sector in general and branchless banking sector in particular the much needed capability of tracing the movement of value created in the wake of their financial products' consumption - a luxury hitherto available to the middleman financier only, on a localized level. The bottom line would be to operate all transactions through ICT based mobile vaults without the possibility of hard cash entering into the primary and secondary users' hands with

100% traceability and control on movement of the capital. Such banking products may bind the users into specific agreements of use of their products, giving flexibility and depth to the proposed product line. It will also reduce the money drag while creating the wealth through credit transactions. Money tends to bind a certain amount of money while producing wealth through its transactions. Electronic exchange of money will not express such limitations along conventional barriers, further reducing the overall cost of production.

### **5.3.2 THE DOCUMENTATION (TRACEABILITY) AND QUALITY ASSURANCE**

The traceability is of utmost importance for quality assurance. More than anything else, it is responsibility of the state to provide an environment free from exploitation. The existence of a diseased consumable product is now categorized as the exploitation. Every effort shall be made to make the livestock produce traceable with credible level of documentation and quality assurance.

### **5.4 AVAILABILITY OF QUALITY DATA FOR R&D**

The ICT intervention of L&DD will provide real time bulk data for major interventions for the livestock sector. The L&DD will develop analyses tools for the interpretation of the data. The Government will provide this data to research institutions as well.

Credible data is a pre-requisite to planning. Hence, L&DD will build standing capacity and capability to conduct a survey/ census of the livestock in the province through the use of its ICT based platform of 9211 service.

### **5.5 ACADEMIA - INDUSTRY LINKAGES**

The policy envisages conscious efforts to develop academia-industry linkages by promoting quality applied research in areas of commercial significance. Universities are being facilitated to have hands on training at Livestock Experiment Stations/ Farms, of their students, for preparing them to be of practical use for the industry when they graduate. However, the engagement of academia and industry needs to be more meaningful and deeper. Any move on this count shall have blessings of the Government.

### **5.6 THE PROCESSING INDUSTRY**

Strong links to markets for poor rural producers are essential to increasing livestock production, generating economic growth in rural areas and reducing hunger and poverty. Improving these links creates a virtuous circle by boosting productivity, increasing incomes and strengthening food security. Better access by small producers to domestic and international markets means that they can reliably sell more produce at higher prices. This in turn encourages farmers to invest in their own businesses and increase the

quantity, quality and diversity of the goods they produce. Safe storage facilities, all-weather roads and affordable transportation are basic needs. In addition to infrastructure, real time information about market prices and demand is vital for participation in modern value chains. The processing is the only practical way of storing the highly perishable livestock products. Processing besides financials, depends to a great extent on the cheap availability of relevant technology and of course economies of scale. The growth of leather processing industry in the country is an example to follow. The basic reason of success is the liquidation of processed goods in the high-end international market. Here comes the role of trade regimes, particularly the quality standards and industry codes for the export of processed livestock goods. The Government will specially focus in next 10 years for the development of the processing industry in all fields of livestock with duty/tax free regime on establishment of processing industry pertaining to livestock in the Punjab, preferably in the South.

# PROSPERITY OF STAKEHOLDERS

---

## 6.1. HEALTH, HYGIENE & BETTER ENVIRONMENTAL MANAGEMENT

The socio-economic uplift of the farmer will help him have better health, hygiene and a better management of the environment. This is directly correlated with other socio-economic amelioration goals of the Government. Hence, conscious efforts will be made to re-align other development efforts to attain synergic effect. This is creation of a virtuous cycle to reap exponential prosperity.

## 6.2 ANIMAL WELFARE

Welfare of animal should be an integral part of livestock production system. Compliance of existing laws of the land on animal welfare will be ensured at every stage of value chain including production, transportation, slaughter, care of draught animal and animal handling. Animal welfare will be included as a compulsory subject in the curricula of animal and veterinary sciences both for graduation and diploma courses. Research to reduce drudgery of animals will be promoted. Moreover, a special narration will be promoted through Imams of rural mosques to sensitize the farmers on the rights of animals as per religious injunctions. The definition of animal welfare may be expanded to cover the basic rights of an animal to water, food and reproduction and above all the wages in return of its production. It is something like monetization of services an animal renders through its lifecycle. Some misconceptions about the animals in masses need to be clarified with reference to the unkind treatment, care in offering them feed and water, handling for breeding and while transporting.

## 6.3 TRACEABILITY AND DISEASE FREE ZONES

The logical corollary of the prevention of disease is to gain access to the high end markets. This is not an easy task, given the non-existence of concept and very little capacity at the moment regarding vaccine production and administration. The recommended strategy tool will be to follow a phased approach of starting from creating capacity of traceability and disease free zones. The same warrants creation of a vibrant production (of vaccines & information), administrative, financial and compliance framework. The aim is to make the Punjab disease free in next 10 years, starting from sizable disease free zones in terms of variety of livestock production systems, volume of produce, transportation protocols and provision of free vaccination for the next 3 years with complete traceability. Luckily an ICT based traceability system has already been developed and being tested by the L&DD in 10 Districts on the animals selected for A.I. It will help bring much needed prosperity up to the primary producer of livestock i.e. the subsistence farmer.

## **6.4 THE ROLE OF NGOS**

The role of good NGOs cannot be ignored. NGOs are more productive replacement of expensive administrative interventions of the government with additional advantage of flexibility of operations and corrective measures well in time. NGOs like Akhuwat, Brooke, and RSPs, besides many others local and foreign are doing commendable service in their respective areas. They can best become much needed catalyst of socio-economic change and vehicles of transmission of many desired intervention to the actual target segment without compromising the integrity of intended intervention. The L&DD will further facilitate them in the propagation and achievement of its proposed policy goals.

## **6.5 THE EXPECTED GAINS FOR THE ECONOMY**

The proposed policy interventions are expected to contribute considerably in the national GDP in coming three years. It is also likely to reduce the unemployment in the rural areas; economic empowerment of rural women, and is poised to arrest the rising trend of rural to urban migration.

# EXPORTABLE SURPLUSES

---

## 7.1. THE HALAL MARKET

The Halal market comprises of 1.90 billion consumers across 112 countries around the globe with an estimated worth of 2.3 trillion US dollars annually. About 70 % of the Muslim population that consume halal meat resides in Middle East and Asia Pacific region, which is most conveniently accessible from Pakistan. Brazil is main exporter of Halal meat in this Halal market. Turkey and Malaysia are growing as exporter of Halal meat to the market. Punjab has advantage of using pork-free-feed for poultry production and use of hand slaughtering rather than stunning for meat processing. Going forward, this is going to be an important area for earning foreign exchange and ameliorating the conditions of breeder.

## 7.2. THE REQUISITE QUANTITY OF LIVESTOCK PRODUCTS

Keeping in view the exportable potential of livestock product, the Government will focus on capacity building of livestock production and processing industry to generate requisite quantity of exportable surplus. The bottom line is to capture the high end markets in the next 10 years. For future planning the database of animals will be maintained up to the mark for its credible and productive use for the purpose. The Government has directed to conduct a baseline survey for measuring the impact of proposed policy goals and to plan the corrective measures for attaining the stated objective of exportable surpluses.

## 7.3. FEEDLOT FATTENING

To exploit full potential of this sector, in production of meat, viable business model in all the regions shall be established to demonstrate the true potential of different breeds and its economic viability. The male buffalo calves shall get special attention for development to tap their potential for production of Veal. The focus would be on the weaned buffalo calves by introducing premium price for the value gain in the process of development, reducing the otherwise high mortality rate or premature slaughtering. For sheep/ goat cross with some exotic breeds will be experimented. The premium rates offered for the humped cattle rates to be exploited for which the country has the best breeds available. The universities engaged in Veterinary education will be bound to operate and maintain one project each at some prominent place to demonstrate its feasibility to attract the investors in this sector. Small pasteurizing units will be encouraged.

## 7.4. DAIRY & DIARY PRODUCTS

Dairy and dairy products, particularly of organic production and unique characteristics like goat, sheep, camel, and high fat content milk of buffalo may fetch good markets if properly marketed after having ensured appropriate processing and packaging regimes.

Dairy products like yogurt, Lassi: simple and with flavours have potential of capturing sizable markets. Certification regimes for processed dairy products like ice cream are relatively easier to obtain as compared with simple liquid milk. Idara-e-kissan model needs to be revived.

## **7.5. SHEEP & GOAT**

Breeding policy for sheep and goat will aim to improve growth, body weight, reproductive efficiency, meat and wool quality and quantity, and to reduce mortality. An area specific approach would be adopted to improve quality and quantity of coarse wool and fine wool. Main focus will be to produce and distribute good quality rams/ bucks of quality indigenous breeds which can thrive in different agro-climatic conditions.

## **7.6. CAMEL**

The camel has huge potential for meat due to various cultural, religious and medicinal reasons. The recent past witnessed its potential for export of veal. The camel milk is another untapped resource as it could find a local high end market with premium pricing if quality assurance and basic packaging and processing is made possible. The rearing families truly represent the marginalized segment. A slight boost in the liquidation of produce of camel is destined to end up in huge impact in terms of production and economic uplift of its livestock production system. This part of the livestock always remained neglected and its production remained retarded as no attention was ever paid for its disease control with research and control of its ecto/ endo-parasites. Through a proper survey a database of all such camel rearing families and their herds will be developed to provide specific interventions. The vaccination, disease mapping and allied support services shall specially be provided to encourage its development for the niche market of organically produced milk and meat.

## **7.7. EQUINES**

An important role and contribution by working equine (horse, donkeys and mules) and different kinds of pets in Pakistan cannot be denied. The equine population in the country is 4.75 million: including 0.34 million horses, 4.26 million donkeys, and 0.15 million mules according to Government of Pakistan, Livestock Census, 2006. In Pakistan, nearly half of the total equine population concentrates in urban and peri-urban areas of the country where the working equine are used by the equine owning communities as main source of their livelihood in different ways. Similarly, traction support provided by working equine in rural setup for food security and livelihood chain is of significant importance. It is estimated that over 2 million families or more than 15 million poor people depend on working equine directly or indirectly for their living and economic survival in the country.

The equine population in the Punjab has the potential to generate exportable surplus. The need is to devise special protocols and traceability mechanisms to ensure safe exit to the intended destinations. The L&DD will have to collaborate with the Brooke - an NGO

working in this field for conducting the survey, making a data base and using the same for control of their disease along with mapping of their diseases. The owners being the poorest of the poor would thus be receiving the much needed government attention to ameliorate their conditions.

The influx of development, particularly of industrial and urban nature and rapid change in the mode of transportation has exposed the equines' population to retarded growth and neglect. Research on equines is but non-existent. Uses of equine's remnants like hides of donkeys are but quite in demand in the international market, pushing their population in further pressure. The Government has decided to create a donkey Research/ Experiment Station at one of L&DD farms for devising strategies to benefit from this domain which already has informal existence.

## **7.8. EGG & POULTRY**

The Policy envisages sustainable supply of wholesome poultry meat; eggs and value added products to the local and international markets at competitive prices and aimed at facilitating and support private sector-led development for sustainable poultry production. The strategy revolves around improving regulatory framework; disease control and genetic improvement in rural poultry; hi-tech poultry production under environmentally - controlled housing; processing and value addition; Improving bio-security; need based research and development and framers training & education. Poultry sectors growth of 15-20% per annum can be achieved if bold measures are taken to support the poultry industry in line with competing countries of the region.

### **7.8.1. THE RURAL POULTRY**

The commercial poultry sector is highly organized and vibrant in the private sector. The entire organization of poultry research and production facilities of L&DD is thus being focused for the development of rural poultry. The backyard rural poultry, which is a scavenger by nature, always remained a major source for provision of protein in the form of egg and meat to the rural poor, especially the women and children. With the promotion of the organic products, for which the meat and eggs of rural poultry have gained popularity, there remains a high scope of its propagation and economic viability by keeping small units. The floods, the killing disease of ND and introduction of some non-backyard poultry breeds have played havoc to this sector. It requires urgent replenishment with healthy fully vaccinated stocks, to reoccupy its due place in the backyard of rural home. The commercial production of rural poultry has potential demand in the Northern KPK and Afghanistan with possibility of fetching handsome price. Facilitation to such poultry producing farms will be encouraged by the Department. The flood affected areas shall be supplied poultry units as replenishment of the perished flock with subsidy provided by the Punjab Government.

### **7.8.2. THE COMMERCIAL POULTRY**

Poultry sector is one of the important and vibrant segments of livestock sector in Pakistan. This sector has contributed 1.3% in GDP during 2013-14 while its contribution

in agriculture and livestock value-added stood at 6.1% and 10.8%, respectively. Poultry meat contributes 28% of the total meat production in the country. The current investment in poultry industry is estimated at more than PKR 200 billion. Poultry sector has shown a robust growth at 8-10% per annum, which reflects its inherent potential. The poultry value-added at current factor cost has increased from PKR 121.7 billion (2012-13) to 130.7 billion (2013-14) showing an increase of 7.4% as compared to previous year. Current turnover of poultry industry in Pakistan is estimated around PKR 732 billion annually. Poultry industry generates employment and provides source of income to more than 1.5 million people of Pakistan. There are 400 hatcheries, 150 feed mills and about 25000 poultry farms in the country. Breeding stock population is around 12 million and there are 40 million layers. Quail farming is also growing at very fast pace in the country. At present over 40% of agriculture produce and by-products of agriculture are being used in poultry feed.

Poultry meat and egg production has become a key component of national food and nutritional security. Punjab, by virtue of its market size and private sector's sustained efforts to establish this vital industry has become a major producer of poultry products in the country despite the fact that it has yet to attain its true potential in poultry production, value addition and exports. To capitalize on this intrinsic potential the government has decided to make the Punjab a hub of processed chicken for exports. Since poultry inputs like one day old chicks of grandparent flocks are being imported at the moment as government poultry research institutes could not contribute towards development of the indigenous poultry industry, the sector leaned heavily towards the import of inputs.

Now the production capacity has grown to a scale where the produce has altered dramatically the demand supply equilibrium; the industry is going to face a huge knock out in next 2 years. To address the situation forward planning is of prime importance. Exports are thus the only way out in the projected scenario. For exports to kick start to the critical level of value fetching and overcoming the competition, the cost of production needs to be reduced for which the inputs of all sorts like, chicks, parent flock, vaccines, medicines, processing machinery, packaging material need to be produced indigenously. The industry demands a rebate on exports and other similar concessions to beat the competition in the international market as is being provided to such industry in neighbouring countries. The Government will advocate lifting of duty and taxes on all sort of poultry processing machinery; inputs, vaccine production facilities, and shall offer rebate on the export at rates compatible with the internationally competing players. For indigenous development of above mentioned capabilities, R&D is imperative. The government is of the opinion to put the private sector in the driving seat in this domain as well. The funding will be provided by the Government taken as a percentage of export rebate given to the exporters and the same shall be used for the R&D in the very domain of indigenous production of poultry inputs.

### **7.8.3 THE OSTRICH FARMING**

Ostrich farming is among the world's growing agricultural businesses. There are strong, global markets for ostrich meat, eggs, feathers, leather and related products. It is estimated that ostrich producers are only meeting 10 percent of the consumer demand. This is high time to capture our share in the international market by rearing the Ostrich commercially and launching its by-products i.e. feather, skin (Boots, jackets, hats, and

purses are popular items made of ostrich leather). Apart from introducing these products / by-products in international market, setting up trend for consumption of Ostrich meat locally which is lower in cholesterol, calories & fat and contains higher quantity of Iron as compared to beef, chicken meat and lamb (mutton) is a point of future concern. In case of Ostrich Feed Conversion Ratio (FCR) is better than livestock and comparable with poultry. The immune system is much stronger than livestock and poultry. It lays 40 - 100 eggs in a season.

Trend of developing ostrich farming is also gaining popularity in Pakistan recently. At present, there are a few farmers who are rearing ostrich at small scale in different parts of the country. But there are certain constraints like high early mortality in chicks and difficult marketing, thwarting flourishing of this enterprise.

Punjab is the most suitable place for ostrich farming due to cheap labour, suitable climatic conditions, inexpensive fodder, and low business cost, critical number of businessmen, farmers and investors that can be involved in this business.

The shifting trends in poultry production regions and resultant closing of small sheds replaced by controlled sheds have rendered the engaged labour jobless. This idle capacity can best be utilized for the purpose.

## **7.9 THE ROLE OF EXPORTER REDEFINED**

The traditional role and importance of exporter is due to the foreign exchange he earns for the country. Halal market is perhaps the only future market for the livestock of Punjab. However, trust earning is the trick of the trade for procuring the brand value. This market is thus required to be developed with utmost care, professionalism and full government support. The policy expands the definition of exporter to encompass its role as high value fetcher for the primary producer due to would-be direct vertical links L&DD Department is striving to develop between the primary producer and the exporter.

## **7.10 THE INTERNATIONAL TRADE PROTOCOLS**

The Punjab government has decided to develop its HR capacity building in the International Trade Protocols in the context of WTO regime and phyto-sanitary and sanitary products. The requisite exposure will be obtained as a special training and education regarding trade of livestock products. The intended intervention will help gain the intellectual property potential of the indigenous livestock breeds like Sahiwal cattle, Nili-Ravi buffalo, Mundri sheep, Nukra/ beetle goats for their development and export to international genetic markets.

# The Communication Framework

---

The communication framework of the policy is perhaps the most important area of the policy intervention that has direct bearing on the successful implementation of the policy aims and objectives for producing the desired results. The same warrants to synthesize the policy into a compact vision and mission statement.

## **8.1 VISION**

Sustainable livestock sector development to ensure food security, enhanced competitiveness, quality life of stakeholders with exportable surpluses.

## **8.2 MISSION**

To attain vision through vibrant and measurable Public Policy stimulation with targeted interventions.

## **8.3 INSTITUTIONAL PARTICIPATION OF THE PUBLIC IN GENERATING DYNAMIC KNOWLEDGE BASE**

The Government has decided not only to enable the public to speak directly to the internal information system of the L&DD to earn the much needed trust on governance institutions but has extended the concept to enable the public to participate in real time in the policy formulation process by creating a digital bridge through state of the art Virtual Governance System of 9211. The same will eliminate the extreme wastages in taking corrective measures well in time. It will also help create a dynamic knowledge bank of information, much needed for public policy formulation. Public access to information is not necessary as public right only, rather it is imperative from the point of view of enlarging the surface area of governance institutions, with the public to have better understanding of public service delivery needs, in a fast changing world.

## **8.4. FM RADIO**

The use of call center based advisory service will be replaced with FM Radio based advisory service to reach maximum number of people.

## **8.5 ANNUAL PROGRESS REPORTS SUBMISSION TO THE PROVINCIAL ASSEMBLY**

Livestock and dairy sectors are such important areas of development that they must be at the top of Government's priority. To further augment the performance mapping of the L&DD Department and its resultant impact on the sector development, it is required that an annual progress report should be submitted, for review, on the floor of the Provincial Assembly.

## THE POLICY LIFECYCLE

### 9.1. PLOTTING THE POLICY IN SHORT, MEDIUM AND LONG TERMS

Every policy and product has a lifecycle. So is the present policy on livestock and dairy development. Plotting the policy objectives along with distinct action areas against a lifecycle in terms of short, medium and long term will help understand the measuring yardstick with the help of which progress on the policy could be evaluated. Following grid has been used to percolate the concept into deliverables.

Sr. No	Policy Area	Action Area	Policy Lifecycle		
			Short Term 1-2 Years	Medium Term 2-3 Years	Long Term 3- 5 Years
1	Sustainable Livestock Sector Development	Foundation for sustainable development: alignment of Institutions along defined roles	✓		
2	The Enabling Infrastructure	The Role of PAMCO	✓		
		The Role of PLDDB	✓		
3	The Governance Framework-Paradigm Shift from Curative to Preventive	Mass vaccination of animals and birds in the province	✓		
		Vaccine production	✓		
		Indigenous vaccine production facility	✓		
		Revamping the list of Extension Services	✓		
3	L&DD as Livestock Asset Manager		✓		
4	The Human Resource Development		✓	✓	
5	Disease Prevention	Disease Surveillance and Forecasting		✓	✓
		Animal Husbandry Practices	✓	✓	✓
		Deworming	✓	✓	✓
6	Feed & Nutrition	Village based profiling of deficiencies of minerals and water		✓	
7	Extension Services	Motor Cycles	✓		
		Octroi Posts	✓		
8	Capacity Building	Research, Education and		✓	

	Livestock Production Systems	Training			
		The Role of Higher Education in Livestock Production		✓	
		Re-discovering the role of L&DD's Livestock Experiment Farms		✓	
		R&D & Intellectual Property Rights		✓	
9	Partnerships for Socio-Economic Change- Livestock Activists: Women, Lambardars, Imams Masjids and Village Students.		✓		
10	The Regulatory Framework	Provincial Drug Control & Marketing Facilitation Authority		✓	
		Control of Zoonotic Diseases		✓	
11	Livestock: Agro Based Industry		✓		
12	Provision of Nutrients & Minerals		✓		
13	Restocking of Rangelands	Mapping of seasonal migration routes of Livestock		✓	
		The Nomadic Livestock Clans		✓	
		Mapping of trade routes of Livestock		✓	
14	The issue of price capping	Price capping by the Government	✓	✓	
		Price capping by the unfair market practices	✓	✓	
15	The Breeding Framework	The Progeny Testing Programme		✓	
		The Breeding Plan	✓		
		The Breeding Policy & Rules	✓		
		Preferred Areas of HR Development	✓	✓	✓
16	Special Emphasis on the South &		✓		

	Cholistan				
17	Managing the Livestock of Tribal Areas' of DG Khan & Rajanpur	Warble Fly Control & Eradication Management	✓	✓	
18	Conservation of Animal Bio-Diversity			✓	✓
19	The Trade Protocols of Livestock & Livestock Products	The Export Regime Protocols		✓	
		The Import Regime Protocols	✓		
		The Quarantine		✓	
		The transportation Regime Protocols		✓	
20	Indigenous Vaccine Production		✓		
21	Disaster Management Protocols		✓		
22	Changing the Service Delivery Model- the Virtual Governance	Virtual Communication module- mapping of 9211 system on all Telcos	✓		
		Virtual AI Module	✓		
		Virtual Census Module	✓		
		Virtual Vaccination Module	✓		
		Virtual Farmers' Registration Module	✓		
		Virtual Meat Tag Inquiry and Slaughtering Process Information Management Module	✓		
		24/ 7 dedicated communication & contact center	✓		
		Virtual Field Services Module	✓		
		Virtual Performance Monitoring/ evaluation Module	✓		
		Virtual disease alert & diagnostics module	✓		
		Virtual lab test communication module	✓		
		Executive Dashboard	✓		
Virtual OPD Treatment	✓	✓			

		module			
		Dynamic USSD capability for cost effective real time data formation	✓	✓	
22.1	The Information Dissemination and Vertical Market Linkage			✓	✓
22.2	The Echo-Marketing Zoning-Localized Cattle Bazars			✓	
23	Institutional response to the middleman phenomenon			✓	✓
24	The Documentation (Tractability) and Quality Assurance			✓	✓
25	Availability of Quality data for R&D			✓	✓
26	Academia-Industry Linkages			✓	✓
27	The Processing Industry			✓	✓
28	Health, Hygiene and Better Environmental Management			✓	
29	Animal Welfare			✓	
30	Tractability and Disease Free Zones				✓
31	The Role of NGOs		✓	✓	
32	The Halal Market			✓	✓
33	The Requisite Quantity of Livestock Products			✓	✓
34	Feedlot Fattening		✓	✓	
35	Dairy & Dairy Products	Collection Chain amelioration		✓	
		Pasteurizing/ Packing preferences		✓	

		Product diversification		✓	
36	Sheep & Goat	Eradication of Warble Fly & PPR	✓	✓	
37	Camel	Parasitic Control			
		Milk Marketing Mechanism		✓	
		Veal Formation		✓	
38	Equines	Research Farming		✓	
		Trade protocols	✓		
39	Egg & Poultry	The Rural/ organic Poultry	✓		
		The Commercial Poultry		✓	✓
42	The International Trade Protocols			✓	✓
43	Availability of institutional dynamic information to the Public			✓	✓
44	Policy Communication Framework	Annual Progress Reports submission to the Provincial Assembly		✓	✓
		FM Radio		✓	