CAPACITY DEVELOPMENT STRATEGY FOR LIVESTOCK SECTOR SERVICES IN MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT, NEPAL

FINAL REPORT – VOLUME II

Government of Nepal
Ministry of Agriculture and Livestock Development
Nepal Livestock Sector Innovation Project
Kathmandu, Nepal
July 2020

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PREPARED FOR
Ministry of Agriculture and Livestock Development, Nepal

SUBMITTED by
Nepal Livestock Sector Innovation Project Office (NLSIP)
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ACRONYMS AND ABBREVIATIONS

AEC	:	Agro Enterprise Center
ADS	:	Agriculture Development Strategy
AFGRC	:	Animal/Forage Genetic Resource Centers
AFU	:	Agriculture and Forestry University
AI	:	Artificial Insemination
AITC	:	Agriculture Information and Training Center
AMR	:	Anti-Microbial Resistance
ANSAB	:	Asia Network for Sustainable Agriculture and Bio-resources
APP	:	Agriculture Perspective Plan
ARGC	:	Asian Regional Goat Conference
BFIs	:	Banks and Financial Institutions
BQ	:	Black Quarter Disease
CDP	:	Capacity Development Plan
CDP	:	Central Dialogue Platform
CDCAN	:	Central Dairy Cooperative Association of Nepal
CDRCD	:	Capacity Development and Research Collaboration Division
CENA	:	Capacity Enhancement Needs Assessment
CFPCC	:	Central Fisheries Promotion and Conservation Center
CNA	:	Capacity Need Assessment
CRVH	:	Central Referral Veterinary Hospital
CTCC	:	Central Project Coordination Committee
CTEVT	:	Council for Technical Education and Vocational Training
CVL	:	Central Veterinary Laboratory
DCC	:	District Coordination Committee
DCCI	:	District Chamber of Commerce and Industry
DDP	:	District Dialogue Platform
DFTQC	:	Department of Food Technology and Quality Control
DLF	:	Directorate of Livestock and Fisheries
DLS	:	Department of Livestock Services
DLSU	:	Decentralized Level Support Units
DNPWC	:	Department of National Parks and Wild Life Conservation
DoA	:	Department of Agriculture
DP	:	Dialogue Platform
DVH	:	District Veterinary Hospital
EDCD	:	Epidemiology and Disease Control Division
FFS	:	Farmer Field School
FGD	:	Focus Group Discussion
FMD	:	Foot-and-mouth disease
FNCCI	:	Federation of Nepal Chamber of Commerce and Industry
FYM	:	Farm Yard Manure
GAHP	:	Goat Animal Husbandry Practices
GCMS	:	Gas Chromatography–Mass Spectrometry
GDP	:	Gross Domestic Product
GESI	:	Gender Equality and Social Inclusion
GFP	:	Good Food Practices
GHG	:	Green House Gas
GMSRC	:	Gorakhakali Manakamana Study and Research Center
GMP	:	Good Manufacturing Practices
GoN	:	Government of Nepal

HACCP	:	Hazard Analysis and Critical Control Points
HPAI	:	Highly Pathogenic Avian Influenza
HPLC	:	High Performance Liquid Chromatography
HR	:	Human Resource
HRD	:	Human Resource Development
HS	:	Hemorrhagic Septicemia
ICT	:	Information and Communication Technology
INGO	:	International Non-Governmental Organization
IDA	:	International Development Association
ILRI	:	International Livestock Research Institute
IPS	:	International Poultry Symposium
JT	:	Junior Technician
JTA	:	Junior Technical Assistant
KIS	:	Key Informants Survey
KISP	:	Knowledge Information Shearing Products
LBOs	:	Livestock Breeding Offices
LDC	:	Least Developed Country
LDP	:	Livestock Development Plan
LG	:	Local Government
LMIS	:	Livestock Management Information System
LMBIS	:	Line Ministry Budgetary Information System
LMP	:	Livestock Master Plan
LPDD	:	Livestock Poultry and Dairy Development
LS	:	Livestock Sector
LSCs	:	Livestock Service Centers
MCCs	:	Milk Chilling Centers
M & E	:	Monitoring and Evaluation
MoAD	:	Ministry of Agriculture Development
MoALD	:	Ministry of Agriculture and Livestock Development
MoCSI	:	Ministry of Commerce, Supplies and Industries
MoEST	:	Ministry of Education, Science and Technology
MoEWRI	:	Ministry of Energy, Water Resources, and Irrigation
MoF	:	Ministry of Finance
MoFA&GA	:	Ministry of Federal Affairs & General Administration
MoFE	:	Ministry of Forrest and Environment
MoLD	:	Ministry of Livestock Development
MoLMA&C	:	Ministry of Land Management, Agriculture and & Co-operative
MoLMCP	:	Ministry of Land Management, Cooperative and Poverty Alleviation
MoU	:	Ministry of Understanding
MSS	:	Milk Supply Scheme
MSP	:	Multi-Stakeholder Platform
MPPSS	:	Milk Products Production and Supply Scheme
MToT	:	Master Trainers of Training
MVS	:	Municipal Veterinary Hospital
NABIC	:	Nepal Agribusiness Incubation Centre
NAFLQML	:	National Animal Feed and Livestock Quality Management Laboratory
NAL	:	National Avian Disease Diagnostic Laboratory
NAP	:	National Agriculture Policy
NARC	:	Nepal Agricultural Research Council
NCDB	:	National Cooperative Development Board
NDA	:	Nepal Dairy Association
NDDB	:	National Dairy Development Board
NEVLA	:	Nepal Para-veterinary and Livestock Association

NELTA	:	Nepal Livestock Service Technicians Association
NFC	:	National Farmers Commission
NLBC	:	National Livestock Breeding Center
NLBO	:	National Livestock Breeding Office
NGO	:	Non-Governmental Office
NLRMPO	:	National Livestock Resources Management and Promotion Office
NLSIP	:	Nepal Livestock Sector Innovation Project
NPC	:	Nepal Planning Commission
NSCEH	:	National Environmental and Health Study Center
NVA	:	Nepal Veterinary Association
NVC	:	Nepal Veterinary Council
NVPL	:	Nepal Vaccine Production Laboratory
OH	:	One Health
OIE	:	World Organization for Animal Health
OVOT	:	One Village One Technician
PAD	:	Project Appraisal Document
PCN	:	Project Concept Note
PCU	:	Project Co-ordination Unit
PDADD	:	Planning and Development Assistance Coordination Division
PDCCD	:	Planning and Development, Co-operation Coordination Division
PDO	:	Project Development Objective
PIM	:	Project Implementation Manual
PIS	:	Personal Information Systems
PMIS	:	Project Management Information System
PMU	:	Project Management Unit
POs	:	Producer Organizations
PPP	:	Public-Private Partnership
PPR	:	Peste des Petits Ruminant
PVH	:	Provincial Veterinary Hospital
PSC	:	Project Steering Committee
RDW	:	Rural Development Workers
R&D	:	Research and development
RFID	:	Radio-Frequency Identification
RFTQC	:	Regional Food Technology and Quality Control
RSU	:	Regional Support Unit
SAADC	:	Sustainable Animal Agriculture for Developing Countries
SDG	:	Sustainable Development Goal
SIDA	:	Swedish International Development Cooperation Agency
SLA	:	System Learning Approach
SMP	:	Skim Milk Powder
SOP	:	Standard Operating Procedures
SPs	:	Sub- Projects
TA	:	Technical Assistance
TADs	:	Trans-boundary Animal Disease
TADA	:	Travel and Daily Allowances
TLDP	:	Third Livestock Development Project
TMR	:	Total Mixed Ration
ToR	:	Terms of Reference
TRDP	:	Tribhuvan Rural Development Program
TU	:	Tribhuvan University
UGC	:	University Grant Commission
UHT	:	Ultra Heat Pressure
UMMB	:	Urea Molasses Mineral Block

VAHW	:	Village Animal Health Worker
VC	:	Value Chain
VH&LSEC	:	Veterinary Hospital and Livestock Service Expert Center
VHLSSC	:	Veterinary Hospital and Livestock Service Specialists Centers
VL	:	Veterinary Laboratory
VSDRL	:	Veterinary Standard and Drug Regulation Laboratory
WB	:	World Bank
WHO	:	World Health Organization

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Executive Summary

1. Introduction

As per the scope of assignment provided by the Nepal Livestock Sector Innovation Project (NLSIP), this study - "Capacity Enhancement Needs Assessment (CENA)" of livestock sector institutions of Nepal (MoALD/DLS and all three tiers of the governments) is done to assess the present situations of capacity of livestock sector professionals across the three tiers of the governments. This includes also preparation of a detailed Capacity Development Strategy of Livestock Sector professionals (Technicians) working in different entities of MoALD, DLS, and provincial and local (Municipality) level livestock sector institutions in Nepal. This report is prepared with a funding support from NLSIP.

2. Objectives and Scope of the Study

Capacity building is a continuously evolving process of growth and development of an organization or individual. Here, the envision of a positive change is at the center of the argument for determining the outcome of development endeavors, and the same applies to making Capacity Development (CD) Strategy and Plans (OECD, 2006). The same concept of CD is also used in this report with in-depth analysis and with a discussion on the findings in it. The capacity enhancement needs assessment of MoALD/DLS and its associated entities across the country has been done in this report with the following specific objectives and outcomes, as stated below.

(i) To undertake a Capacity Enhancement Needs Assessment (CENA) of Livestock Sector entities of Nepal (DLS, livestock sectors of MoALD, livestock sector entities of the province, and local level governments (Municipalities).
(ii) To propose an appropriate capacity development plan and budget. The assessment and development plan will include human resources and financial resources.
(iii) To suggest recommendations for strengthening the enabling environment and institutional arrangements for effective utilization of acquired skills in the livestock sector institutions.

As per the study objectives, first, the study team has analyzed capacity needs and related issues, , which involved the capacity gap (and needs) analysis of all the public sector Livestock Sector entities under the MoALD and DLS. This included the LS entities of provincial government and Local level government. Then, the capacity development plan and training plan for the development of the Livestock Sector of all three tiers of the government were developed.

3. Methodology

The capacity needs assessment has been done using the overall framework of “Capacity Enhancement Needs Assessment (CENA)” as earlier suggested by FAO, UNDP (2009), and ILRI). First, capacity gaps and training needs of the livestock sector entity at various scales of the DLS (and MoALD) were assessed. Then, various tasks like management, monitoring, implementation, and service delivery to the concerned stakeholders of these entities were assessed. This study used the CENA framework of assessment to develop a capacity development plan for strengthening the capacity of livestock sector professionals within various entities of MoALD.

Capacity development at different levels of society - policy, institutions, systems, environment, organizations, and individuals - was done depending upon the pressing problems and constraints and obstacles at hand to the organizations (or components of capacity needs), as illustrated by CENA study

framework of various UN and WB and other international agencies. UNDP (2009) defines capacity development as the process through which individuals, organizations, and societies obtain, strengthen, and maintain the capabilities to set and achieve their development objectives over time.

a) Specific indicators, questions, and tools were developed along with inter and intra-connections and their synergies of three dimensions. The capacity development plans were developed after thoroughly assessing the existing capacity available as institutional requirements, organizational needs, and on an individual involved in the service delivery by the three tiers of government. Accordingly, indicators and their respective sub-indicators are developed and integrated into the study tools to reflect the required information for the data evaluation. More specifically, the specific methods used and the activities carried out to prepare a comprehensive capacity development strategy of livestock sectors institutions are Capacity Need Assessment (CNA)[1] and capacity gaps identification on the capacity of various livestock sector entities (institutions, organizations, and individuals) to achieve certain desired goals and targets (often unquantifiable – a future road map of an organization).
b) Using a participatory approach through meeting with different experts and one on one discussion (physical and online meeting and consultations), we prepared through structured survey tools and techniques, and shared them with selected key stakeholders of MoALD/DLS through e-mail and other social media, to obtain their feedback and information on existing capacity needs and capacity gaps that prevails in the LS institutions across the three tiers of the government.
c) A comprehensive checklist was shared with over 40 senior LS sector senior experts and former retired officials, and senior decision-makers across various institutions and entities in the country. We got valuable responses from 31 of these professionals, which we have used to analyze the capacity needs and capacity gaps at various thematic groups and sectoral and cross-thematic issues in Nepal.
d) The assessment of the CD Needs (and training needs) was done by grouping and sub-grouping the issues/checklists filled-in (or suggestion) of key stakeholders into four plus two pillars framework of the livestock service delivery (management, animal breeding, animal health, feeding and nutrition, value chain development and agribusiness support, and institutional and policy supports), by extending the four pillars of livestock service delivery principals.
e) The study briefly assesses also Capacity Development issues associated with selected national Banks and Financial Institutions (BFIs), DFTQC, Multi-Stakeholder Dialogue Platforms, etc., to enhance their capacity for enhanced service delivery in the livestock sectors.
f) The study used a mixed approach using data and information from both primary and secondary sources. The primary data was collected through a quantitative approach involving a perception survey among responsible key stakeholders and LS officials and other stakeholders. The secondary data were reviewed from various previous data records.
g) FGDs and Key Informant Survey (KIS) were used as the basic methods of qualitative approach. The sample survey was based on the semi-structured questionnaires and the qualitative FGD, and KIS was used as guiding strategy. Apart from questionnaires, discussion, meetings, workshops, interactions, and dialogues were held according to needs as the parts of information collection and gathering.
h) A total of 16 districts were selected for the data collection from provincial and local government level livestock institutions, representing all seven provinces, and representing all three-ecological regions, Terai, Hills, and Mountain. From these districts, we were able to approach officials of over

[1] The terminologies like Capacity Needs and Capacity Gaps terminology used in this study are used interchangeably, which is the also same case found in the literature of capacity development sector literature, as well. In principle, the capacity need is a sub-set of capacity gap in an organization.

32 municipalities, and various nature of data was compiled across a range of professionals representing diverse sets of organizations and institutions across all three tiers of the government, both public sector and private and semi-public livestock organizations (or autonomous agencies).

i) Due to the lockdown of the country, physical contact with respondents was almost impossible for the study team. In such cases, a series of online-based consultations, online meetings, and electronic surveys were practised with diverse sets of officials (respondents) across the targeted sites, for compiling data and information for the assessment.

4. Key Findings and Discussions

The study findings are summarized in this section, wherein, first, the study team summarized major capacity gaps and needs across the three tiers of the Livestock Institutions; and then suggested alternate policies and programs for addressing these capacity needs related factors. After that, a summary of the short-term training program and academic programs to be initiated and implemented by the MoALD and DLS for enhancing the Capacity (professionals and skill enhancements training) over the next 10 years are provided. The training numbers have been split into slots for a 5-year period, and the number of slots to be given in 6-10 years' time horizon from now. Likewise, based on the feedback and responses obtained from the national experts 'survey carried out by the team earlier, the training was prioritized into highly important and medium priority training for capacity development (CD). A summary of all the training programs is presented in the text of the main report, with item-wise descriptions and item-wise costing in annex tables.

4.1 Capacity Gaps and Alternate Measures Enhancing Capacity of LS Institutions

Capacity gaps on livestock entities were analyzed separately for each of the national institutions, provincial institutions, and municipality level agencies. Accordingly, the results are summarized separately for each tier of government, as illustrated below.

A. Federal Level Institutions

Capacity Gaps

1. Performance-based incentive system is not designed and implemented across the public entities of livestock institutions in MoALD. The policy of "Right man at the right place" has not been implemented well. This is because proper distribution of existing technical staffs of livestock sectors among three tiers of government is not well-balanced. The provincial and local government (municipality) level organizations of livestock institutions are in acute shortage of critical technical human resource to carry out the functions and activities in-their jurisdictions as is provisioned by the federal constitution of 2015.
2. Government policy is lacking for capacity development activities. The Capacity Development initiatives in MoALD are not institutionalized and therefore the budget allocated for capacity development subjects within the livestock sector is insufficient to ensure a regular pace of capacity enhancement within the institutions.
3. Specific area/field of training is usually non-identified and non-prioritized as per the specific need of the country. This is due to the inadequacy of the capacity at all levels (tier) of the government. Similarly, available infrastructure facilities for training in the livestock sector are inadequate. As a result, very limited numbers for training are provided to farmers and technicians on annual basis, considering the huge scale demand for livestock sector training from the farmers at the grass-root levels.

4. Institutional capacity to implement process and programs is constrained by limited size and skills of human resources, insufficiently and inadequately trained staff, and lack of hardware and limited funds to carry out programs in the LS institutions.
5. Lack of coordination between research, extension, and education, which has led to mismatch on academic courses offered, trainings provided/offered, and the needs of the already employed human resource in the MoALD.
6. It was observed that more than required competent technical professionals (human resources) are kept in federal based organizations of livestock institutions, whereas, the provincial and local governments (municipalities) level organizations of livestock institutions (and in other sectoral institutions) are in acute shortage of critical technical human resource to carry out the functions and activities in-their jurisdictions as is provisioned by the federal constitution of 2015. Most of the office chief of LSC across the municipalities are only with intermediate academic degrees.

Measures to be Undertaken for Enhancing Capacity

1. The existing policies, rules, and regulations related to veterinary and livestock services need to be updated or amended as per the changing context of local markets and for better service provisions to the livestock farmers. Since, several policies, acts, and regulations were prepared for the unitary systems of governance in Nepal and have become obsolete, in functions, the effectiveness of many of these policies are questionable at this time of federal set up of the governance in Nepal.
2. The government of Nepal (and MoALD) need to give priority to designing and implementing a performance-based incentive system. The policy of "right man at the right place" and "reward and punishment" should be implemented effectively while transferring the professionals across the agencies/departments within the administrative systems.
3. Priority should be given for the development of the internal capacity of implementing agriculture and livestock projects and management within organizations by institutionalizing the capacity development activities (process), even within the limit of the regular budget of the government.
4. Effective coordination to be established among the three functions of Agricultural (Livestock Services) Research, Education, and Extension activities. This can be done even by institutionalizing/setting up a separate division (headed by the joint secretary), '***say Capacity Development and Research Collaboration Division (CDRCD)***" in MoALD to coordinate these four functions of agricultural and livestock development within one umbrella. This division should also take initiative for the restructuring of training institutions under the federal setup.
5. Preparation of appropriate human resource plan and its implementation with tight time-bound M&E and follow up activities are most essential. Infrastructure facilities for training should also be extended as the training activities expand. This includes optimum and effective use of ICT tools and techniques in the training and extensions activities of DLS.

B. Provincial Level LS Institutions

Capacity Gaps

1. All the provincial governments are in a transitional phase in terms of the evolution of institutions or organizations in a country. All the required legislative infrastructure, including policies, acts, regulations, and strategies of the provincial government are not enacted from the provincial assembly. This has adversely affected the functioning of provincial-level livestock organizations and institutions in the province.
2. Coordination with the central and local levels and other stakeholders is weak.
3. Several remarkable functions of livestock and veterinary services are assigned to the provincial level organizations, but inadequate human resources are allocated to the provincial organizations. Though there is a possibility to extend livestock and veterinary services greatly across the locations and remote places within a province, all comprehensive livestock and veterinary service may not be feasible to provide to all parts of the province, with limited numbers of officers.
4. Allocated budget, physical infrastructure, and facilities that are available with the provincial government now are not adequate for the effective provision of the livestock sector activities to the grass-root farmers across with wider coverage.
5. Limited positions, limited facility, and equipment are the major constraints in Veterinary Hospital and Livestock Service Expert Centers (VH&LSEC).

Measures to be Undertaken

1. Required provincial policies, acts, strategies, and other legislative regulations (and documents) essentials for the functioning of provincial level livestock services activities should be formulated according to the précising needs and requirements of each province.
2. Coordination and linkage within central and local governments and stakeholders should be strengthened through various coordination channels, taking initiatives from the provincial LS institutions. The more pro-active roles of provincial-level LS organizations are expected for effective implementation of various LS activities.
3. Adequate budgetary provision, physical infrastructures, and facilities for provincial level LS institutions should be prioritized during the development planning, using the four plus two pillars functions of the livestock sectors, that is, fixing acts and regulations, project management, value chain development, and agri-business of livestock enterprises so that profitable livestock enterprise can be set up.
4. Several employees of provincial-level organizations show less interest to work on local levels due to limited career development opportunities at the provincial-level public services. Hence, measures to be undertaken to increase the motivation and career plan of the professional staffs, increase morale and incentives of the employees for working in provincial-level organizations.
5. Provisions of different kinds of short-term and long-term training (specific to the institutions-ministry and directorate, and/or districts and local level), exposure visits, and workshops with field staffs are recommended to enhance the capacity development of provincial organizations, which will also enhance their motivations.
6. District Veterinary Hospital and Livestock Service Expert Centers (VH & LSEC) are to be provided more technical backstopping and hand-holding support in their operation (and quality veterinary health services to farmers) from provincial and federal level livestock institutions.

C. Local Level

Capacity Gaps

1. There is an acute deficiency of professional human resource (technical) in livestock services to work in local level organizations (municipalities), as required by the services. Basically, municipalities and rural municipalities are lacking skilled and trained human resource to do specialized livestock services demanded by the livestock entrepreneurs and farmers.
2. Limited number of positions of professionals available at grass root level to oversea and to provide services to farmers, limited laboratory facility and office space (limited mobility) and veterinary service, non-availability of laboratory equipment are some of the major capacity gaps at the livestock service center (LSC) and municipality or wards level service center.
3. There exists also weak co-ordination and linkage among different livestock organizations across the provincial level of governments. For example, the role of the District Coordination Committee (DCC), as well as District Dialogue Platform (DDP), is not functioning effective in many parts of the country in terms of their ability in providing timely supports for modernizing agricultural and livestock activities in the municipalities, as demanded by the markets.

Measures to be Undertaken

1. Sufficient technical human resources in livestock sector services should be provided for both urban and rural municipalities.
2. Short and long-term training, according to needs and demand should be provided to the livestock and veterinary staff and other required grass-root stakeholders. Exposure visits to selected sites to be encouraged to make the stakeholders' competent and knowledgeable as per the changing technology and time.
3. Different reforms to be carried out on policies and regulations, and implementation level of livestock organizations, including proper aligning of the professional man-powers (technical) across the various tiers of the livestock organizations
4. Coordination and linkage among different levels of government organization functioning at the municipality level to be strengthened.
5. Priority to capacity development and specialized training activities on livestock sectors of MoALD and DLS to be targeted more to enhance skill and professional capacity of professionals working in the local government offices, or at local service centers.
6. VH & LSEC and municipality government (LSC) to play more pro-active roles for organizing training courses on livestock services (VAHW, and short-term courses) in their jurisdictions, as per the needs of the local context, with the coordination/facilitation from the provincial level training center (or Directorate of Livestock Services and Fisheries).

4.2 Proposed Capacity Development Plan

A capacity development plan with training, exposure, and the academic course has been proposed with high priority from farmers to higher-level executives. The CD plans described here involve to support all three tiers of the government- Federal, National level institutions, provincial, and local level (or municipalities). The total training costs and total items of training beneficiaries are separated for academic training and non-academic training.

Summary Table 1. ***Summary of academic courses proposed for enhancing the capacity of livestock professionals across all three tiers of the governments in the next 10 years***

Degree Course	No. of courses	No of Participants	Cost in 1-5 years (Lakh NRs.)	Cost in 6-10 years (Lakh NRs.)	Total Cost (Lakh NRs.)	High Priority Costs (Lakh NRs.)	Medium Priority Cost (Lakh NRs.)
Bachelor Degree	5	85	344	336	680	600	**80**
Master Degree	18	204	646	586	1,232	935	**297**
Ph.D. Degree	10	54	156	156	312	244	**68**
Grand Total	**33**	**343**	**1,146**	**1,078**	**2,224**	**1,779**	**445**
Total Cost in Crore Rs.			**11.46**	**10.78**	**22.24**	**17.79**	**4.45**

Note 1: The detailed breakdown of item-wise costs is given in the annex tables.
2. I millions of Rupees = 10 Lakh Rupees. & 1 crore = 10 Million Rs.

Summary Table 2. ***Summary of training and study visits for enhancing capacity of farmers and all livestock professionals across all three tiers of the governments in the next 10 years***

Level of Participants	No. of Activity proposed	Total slots allocated (No)	Total Participants (No)	Total costs (Lakh NRs.)	Total Cost for 1-5 years (Lakh NRs.)	Total Cost for 6-10 years (Lakh NRs.)	Cost per Participant (NRs.)
I. Farmers and SM level (Total)	30	646	12,648	10,060	**5,677**	**4,383**	79,538
1. High priority	21		**10,355**	**7,895**			**76,243**
2. Medium priority	9		2,293	2,165			94,418
II) Non-Officers Level (Total)	40	232	4,785	2,575	**1,307**	**1,268**	53,814
1. High priority	25		**3,918**	**900**			**22,971**
2. Medium priority	15		867	1,675			193,195
III). Officers Level	48	466	9,271	5,681	**2,013**	**3,668**	61,277
1. High priority	33		**8,060**	**3,416**			**42,382**
2. Medium priority	15		1,211	2,265			187,036
IV). Senior Officer level (SMT)	20	63	1,264	1,273	**705**	**568**	100,712
1. High priority	0		**831**	**963**			**115,884**
2. Medium priority	9		433	310			71,594
V) Total High Prioritized Cost							
1.Total high prioritized training costs **in lakh Rs**.			**23,164**	**13,174**			**257,481**
2. Total high prioritized training costs **in crore Rs**.				**131.75**			**546,242**

VI) Total medium prioritized cost (participants no, and total costs) **in lakh Rs**.			**4,804**	**6,415**			
VII) Total cost 1) In lakh Rs (year wise (1-5 and 6=10)				**19,589**	**9,702**	**9,887**	
2) In crore Rs (year wise (1-5 and 6=10)				**195.89**	**97.02**	**98.87**	

Notes: 1. Detailed discussions and narratives are in chapter 8 and in annex tables 11.1 to 11.4
2. Conversion: I million Nepali Rs = 10 lakh Nepali Rs. & 1 crore Rs. = 10 million Rs.
4. **High priority** = High priority training; **Low priority**: Medium priority training

The study also proposed changes on some of the livestock related institutions and policies (rules, regulations, and guidelines regarding livestock sector development) for enhanced livestock related services to the farmers. Several of these policies are to be updated or amended as per the changing context of local/regional markets of livestock animals and livestock products, and as per the newly adopted federal constitutions (new governance systems) in the country in 2015. This is also because large number of the agricultural and livestock sector policies and programs were prepared earlier when the country was in the centralized systems of the governance earlier.

Likewise, preparing and timely updating a Livestock Master Plan is a long-overdue task in Nepal, which has not been revised/updated since it was prepared in 1995, with its 20 years of roadmap. Hence, the study recommends preparation of a new livestock master plan soon to better suit the livestock service provision in the context of newly adopted federal governance structures in the country. An updated master plan of the livestock sector will help to address various issues and concerns related to capacity development identified in this study.

More specifically, some level of restructuring on the existing training related organizations of livestock sectors, as well as institutional collaboration division in the MoALD have been suggested for effective implementing capacity development activities across the three tiers of the government.

CHAPTER I

INTRODUCTION

1.1 Background

The agrarian history of several countries in the developing world shows that demands for livestock products and services will increase over time, as the economy develops and the income of most of the population increases over time. That is, the importance of livestock products and services gets increased when there is an increase in income and prosperity in society. This is because of the higher income elasticity of consumption of meats and dairy products than that of consumptions of cereals and other farm products Hence, in a development path of an economy, livestock sector activities gradually transform from merely viewing as sources of food security and employment to a profitable enterprise and attracting large-scale private investment in the sector.

Nepal is in the transition and transformation stage of subsistence-based raising livestock to more of profit and market-enterprise-oriented production systems of the livestock. Livestock contributes over 13 percent of the annual national GDP and about 30 percentages of the annual agricultural GDP (Economic survey 2019, Ministry of Finance, GoN 2019). Livestock is a major source of protein for the mass population, even more among the vegetarian population. Livestock is providing food security as well as a means of cash income to many rural households in Nepal. By-products of livestock animals are also equally used to the farming communities in terms of organic fertilizers and draft power. In many places, livestock is also considered as insurance against any future calamities in the family. During such period livestock provides insurance to the owners of the livestock, as a result, raising livestock animals by smallholding farmers is a livelihood strategy to cope with the household's uncertainty of rural livelihoods.

We have analyzed and described livestock sectors across the three tiers of the government. The restructuring process of the agricultural sector has devolved huge-scale work activities at the local level and with the provision of policy functions for livestock development at the central level. The central level agencies have been assigned more roles related to coordination related functions and activities of the ministry (MoALD) on livestock sector services across the three layers of government (i.e., across the federal government, provincial government, and local government).

In this context, as per the objectives and scope of the study TOR provided by the Nepal Livestock Sector Innovation Project (NLSIP)", this study has analyzed "Capacity Development Strategy of MoALD" taking as 10 years of time horizon. This study is done as per the issues discussed and aggraded at the project inception workshop meeting held in the project office in February 2020.

1.2 Country Context- Livestock Sector Development in Nepal

1.2.1 Historical Evolution of Livestock Sector in Nepal

The historical evolutions of livestock sector institutions (public entities) in Nepal for over a century are summarized in Table 1. For the first time, Jung Bahadur Rana, then the prime minister of Nepal had imported improved livestock breeds in Nepal from Britain and France, when he visited these countries as prime minister of Nepal in 1850-51 AD. Then along with the improved breed, improved forage (white clover's seeds) was also imported from these countries.

Agricultural research and development activities, including livestock sector R&D, started in the country only after late 1930when agricultural and livestock departments, councils & livestock research farms were established in the country from 1937 to 1967. A separate Department of Livestock under the Ministry of Agricultural Development was functioning from 1967 to 1992. District livestock service offices were re-established in all districts in 1995 AD. It allows penetration of the livestock and veterinary service to the smallholder farmers across the country. Detailed evolutionary pathways of the livestock sector institutions are in Table 1.

In the same way, the adoption of 20 years of Agriculture Perspective Plan (APP) in 1995; and the launching of the Livestock Development Project (LDP), second LDP, third LDP, and Community LDP in 1995, all boosted the livestock service delivery activities in Nepal. These longer terms of projects accelerated the pace of development of human resources and technical capacities (of the professionals) in the livestock sector institutions, along with fast pace development of infrastructure base and equipment for dissemination of technologies for increasing productivity of livestock sectors in the country.

The importance of livestock and veterinary services was felt by higher-level decision-makers in the late 1990s. Accordingly, several acts, policies, and regulations were enacted in this period to support fast pace development of livestock institutions (organizations)The value chain principles and commodity-wise approach of development of livestock were recognized and fully institutionalized in the livestock department. Subsequently, the MoALD has adopted four-pillar system of service provision of livestock services to the stakeholders in the early 2000s. Likewise, self-reliance in livestock products like milk, meat, and egg, were also then the core objectives and aims of the livestock sector working policies and programs of the ministry.

After the adoption of the federalism-based constitution in 2015, MoALD (and DLS) have handed over different livestock farms and veterinary hospitals to provincial governments in 2017. Even some, less numbers of qualified human resources (professionals with high competency a specialized knowledge) have been reallocated to the provincial and municipality level governments than it was expected earlier. As a result, the process of devolution of technical human resources to rural municipalities has led a shortage of critical human resource – professional staffs - in provincial and municipality level offices for livestock services. Likewise, inadequate program budget and a capacity gap exist in a large part of the local government units (municipalities). The details of the evolution and development pathways of livestock service in Nepal for over a century are summarized in Table 1.

Table 1: Evolution and development pathways of livestock institutions in Nepal

Timelines	Key events
1850 AD (1907 BS)	Import of improved livestock from the United Kingdom and France and started formal Agriculture Development in Nepal by Jung Bahadur Rana and Chandra Shamsher Rana.
1851 AD	Then, the prime minister of Nepal, Jung Bahadur Rana, Initiated breeding in cattle in the country by importing the semen of one jersey bull, two jersey cows, and the seed of white clover grasses from Britain. Establishment of the first Agriculture office or Agriculture Council in Nepal by the prime minister Junga Bahadur Rana.
1922 AD	Establishment of the first agricultural station as an agricultural office in Singha Durbar at the government level. Establishment and re-strengthening of the Agriculture office and Agriculture Council in Nepal by then prime minister Chandra Shamsher Rana.
1925 AD	Formation of Agriculture Department in Nepal.

1937 AD	Formation of agriculture council, Provision made for director of the agriculture department to be appointed as head of an agriculture council, Establishment of sheep farm in Chitlang and Shivapuri, import of Red Sindhi cow from Pakistan, Initiation to send Nepalese student in India for Agriculture training by Chandra Shamsher, Establishment of first commercial Agricultural school.
1938 AD	Formation of Agriculture development Board by merging the Agriculture Department and Agriculture Council
1939 AD	Establishment of Veterinary dispensary.
1940 AD	Establishment of a first veterinary hospital in Kathmandu, Treatment of livestock by Homeopathy method, the introduction of awareness about animal health, and initial works for animal treatment.
1944 AD	Establishment of Government sheep farm.
1952 AD	Execution of Tribhuvan Rural Development Program (TRDP) with the help of British Government, development of the organizational framework in agricultural communication.
1957 AD	Rural development workers (RDW) produced from Agriculture school under the Agricultural department was given additional training, and these RWD training programs were converted into JTA training.
1958 AD	Reformation of Agriculture Department, Initiation of the Livestock Development sector, Establishment of livestock development farm.
1967 AD	Establishment of Khumaltar livestock farm.
1967 AD	Establishment of livestock development and livestock health department.
1968 AD	Conversion of Agriculture school into Agriculture colleges.
1972 AD	Establishment of the Institute of Agriculture and Animal Science in Kathmandu.
1973 AD	Livestock Development and Livestock Health Department merged into Department of Agriculture
1979/80	Re-establishment of Livestock Development and Livestock Health Department, Establishment of Regional Livestock Service Directorate in each region.
1982/83	Establishment of Veterinary hospital in every district, 480 livestock service centres established.
1989 AD	Changed the name of Livestock Development and Livestock Health Department to the Department of Livestock Service.
1992 AD	Department of Livestock Service reunited with the Department of Agriculture.
1995 AD	Livestock service department re-separated. Establishment of District livestock service office in 75 districts, Establishment of 359 livestock service centre, and 640 livestock service sub-centre**.**
1995 AD	Adoption of Agricultural Perspective Plan (APP), 20 years of agricultural development program, by the Government of Nepal.
1997 AD	Third Livestock Development Project (TLDP) was a people-cantered project implemented from 1997 to 2004. This ADB project promoted the Systems Learning Approach (SLA)" of LS in the country. TLDP programs have been implemented in 19 districts of Western (12 districts), Mid-Western (3 districts), and Far-Western (4 districts) regions of Nepal.
2003 AD	Community Livestock Development Project (Nepal) was initiated from 2003 to 2011.
2004 AD	National Agricultural Policy 2061 BS was adopted by the Government of Nepal, which has institutionalized several modernization policy issues and directives pertaining to agriculture (LS services) and with emphasis on the gradual transformation of subsistence mode of farming into commercial and competitive agricultural (and LS) system in the country.
2007 AD	Agricultural business promotion policy adopted by the GoN.
2070 BS	Initiation of Youth Targeted Livestock Production Programs Initiation of Livestock Insurance Policy with targeted programs from DLS 55 Embryos (30 Jersey and 25 HF breed) were transferred in some of the selected private farms and NARC cattle farm Khumaltar
2071 BS	A liquid nitrogen plant with a capacity of 30 litres/hour was established in NLBC, Pokhara

2072 BS	• Adoption of ADS 2015-35 (Agricultural Development Strategy), a 20 years' program by Govt. of Nepal, which has given high-value production (including LS services) in the country. • A separate ministry named as Ministry of Livestock Development (MoLD) was established by GoN • 4o-points commitments were approved and published from the MoLD to achieve the target of becoming self-reliant on eggs within one year, on meat within two years, and milk within three years. • Initiation of One Village Development Committee One Technician (OVOT) programs almost in all districts of Nepal
2073 BS	• The budget of the FY 2073/74 for the livestock sector was increased by more than double in research and extension. Accordingly, an appreciative volume of the budget was allocated to DLS and DLSO to achieve the target as stipulated in 40 points commitment of the ministry. • A full capacity second NLBC at Lahan (as the backup of the NLBC, Pokhara) was started with the ample budget, as proposed by the Directorate of Livestock Production/DLS in Plan of the DLS. • Animal welfare guideline, 2073 (based upon the animal transportation standard, 2064) approved by the MoLD • The Directorate of Fishery which was under the department of agriculture has been brought to DLS • Altogether 26 Joint secretary posts (12 veterinaries, 11 livestock, and 3 Fishery have been approved by the GoN and registered in the Department of Civil Service Record of the Ministry of Federal Affairs and General Administration (MoFAGA) • International Buffalo Symposium organized in Sauraha of Chitwan
2074 BS	As per the 2015 federalism-based constitution of Nepal, the LS services were devolved into provincial and local government level, wherein, farmers' level extension of LS services to municipalities (LS Units) and monitoring and evaluation work to the provincial government. • The MoLD was merged in the MoAD and renamed the united ministry is called as Ministry of Agriculture and Livestock Development (MoALD) • The previous four directorates (Directorate of Livestock Production, Directorate of Animal Health, Directorate of Livestock Market Promotion, and Directorate of Livestock Training &Extension) under the DLS has been merged and renamed as Livestock Disease Diagnosis & Control Division, Livestock Quarantine Division, and Animal Genetic Resources & Economic Analysis Division • Two livestock farms; Poultry Development Farm, Khajura, and Goat Development Farm, Chitlang, have been handed over to the respective provincial government, Livestock Development Farm, Pokhara, and NLBC, Pokhara have merged and renamed as National Livestock Breeding Farm. Two other LBOs (Gaughat, Banke, and Lahan) have also renamed as NLBO
2075 BS	A full-fledged Project Coordination Unit (PCU) has been established in the DLS and started to work as per its ToRs.
2076 BS	• 7thInternational Conference on Sustainable Animal Agriculture for Developing Countries (SAADC) was organized in Pokhara, attended by more than 300 national and international delegates participated. • Covid-19 pandemic-related lockdown started in Nepal from the 3rd week of March 2020; which has kept stand and still of all sectors of the economy, including all sub-sectors of agriculture (and livestock and veterinary programs and activities) in the country.

Source: Adapted from various publications of DLS, MoLD, and MoALD and some recent events/development facts and figures (especially of after the 1980s) as recalled by the authors' team of the report.

1.2.2 Economic Performance of Agricultural Sector

Agriculture is providing almost one-third value addition to the annual GDP and almost 2/3rd of annual employment of Nepal in 2015 and in recent years. Despite severe ups and downs in the global economy in the past decade, Nepal's economy has performed at satisfactorily well in the recent past. This has been possible not only due to continuing internal reform in different sectors of the economy, but it was also as a result of the collaborative efforts of various agencies and tiers of the governments.

Past projects in livestock have contributed to transforming the livestock sectors from subsistence to commercially oriented farming enterprises. As a result, dairy production, poultry, and piggery have been commercialized in some selected pockets/locations, mainly along the east-west highways and north-south road corridors, and nearby major consumption centers (or market hubs). The increased

commercialization of livestock services also requires more sophisticated extension services and technology backstopping to the farmers and individual livestock entrepreneurs.

1.2.3 Maintaining the Track

Agrarian and rural development activities in Nepal have been largely decentralized to provincial and local level government entities, especially after the promulgation of the new federalism-based Constitution in 2015. The functional service delivery of the government has been divided among one federal structure, seven provincial governments, and 753 municipalities scattered all over the country.

At present, various development programs in agriculture have been initiated to leapfrog the economy to a new height and to transform the economy of the country to the level of developing countries category from that of the LDC category, within the next couple of years. Various sectoral economic activities have also been restructured or reformed.

However, a recent global pandemic of the COVID has not only affected the public health sector of Nepal, but it has seriously devastated all economic production and services sector activities of the country, especially with a long term-damage to tourisms, travel, and transportation. Amid these recent health issues, moving the economy into a growth path, agricultural activities in the country need to be boosted up. Considering the important roles of agriculture for the provision of income and employment to large sections of the population, in the aftermath of the COVID 19 pandemic, several policies and programs have been implemented to strengthen livestock sector activities by the MoALD.

1.2.4 Livestock Sector Development in Nepal – Recent Initiatives

Development and reform in the livestock sector, and or, economy-wide demands for livestock and livestock products are directly related to the economic well-being and poverty reduction of people living in the rural areas of Nepal. Livestock contributes to food and nutrition security, as it is a rich source of protein and micronutrients for large-section of the population both in urban and rural areas. Its contribution to household livelihoods, national economic development, and overall well-being of communities and society is very high. This sector not only provides meat and milk but also helps to sell available livestock products for cash and enabling them to buy necessary food and other items. Earnings from livestock provide a low-cost safety net to small and marginal farmers in the rural areas, and a reliable source of livelihoods option (insurance) in case of calamity and disasters related events in the communities.

Recognizing the important role of agriculture in the Nepalese economy, the Government of Nepal (GoN) has promulgated the Agriculture Development Strategy (ADS) in 2015, which will guide agriculture development in Nepal for the next 20 years. The ADS underpin the role of livestock for sustained agricultural and economic growth, poverty reduction, improving food and nutrition security. Key elements envisaged ADS strategies for livestock development comprise productivity enhancement, promoting commercial and competitive livestock production system strengthening extension and outreach services to graduate farmers from subsistence farming systems, institutional capacity development, and providing improved services using an enhanced value chain approach with proper space for private sector engagement in livestock sector services delivery (MoALD 2015).

At present, there is a shortage of ground-level technical staffs of livestock sectors across most local governments (both rural and urban municipalities alike). This has adversely affected, large-numbers of smallholding livestock farmers across the countries have not been able to uptake the improved

management practices and technologies in livestock management that are available with Livestock Service Centers (extension centers). The Livestock Service Centers (LSCs) have been facing difficulty in providing technical services for livestock farmers due to inadequate basic diagnostic facilities, budget, and adequately trained human resources. With the creation of LCS in 753 municipalities after 2015, over time, the new working modalities and systems would get stabilized at the local level. Then, it is expected to improve service delivery significantly especially even at the grassroots level. In sum, the opportunities provided by cooperatives, producer groups, and private businesses in providing extension services at the grass-root level remain largely unexploited.

1.2.5 Challenges Ahead

Many challenges hinder the efficient production and management function of livestock services. The higher scale of the prevalence of animal diseases impedes the productivity, safety, and marketing of products. Farmers have very limited capacity or no capacity to cope with the challenges. Considering the importance of competent human resources, different initiatives have been undertaken by the government of Nepal.

The frequent split and merging of the ministry of livestock with MoAD, and making such widespread changes on a discretionary basis, and in many times making such structural adjustment just to serve the vested interest of few powerful personalities have also posed a huge-scale hurdle in the efficient function of the ministry.

Recently, a plan related to human resource development for the Ministry of Livestock Development has been prepared, however, after the restructuring of the ministry, and after enacting the federalism-based constitutions, a large part of previous studies has become less relevant now.

The effective implementation of livestock services and the re-allocation of qualified and competent professionals uniformly (and based on the local needs in each site) across the province and the local governments (municipalities) are also one of the major challenges in terms of the development of livestock sectors in the country. These issues have huge implications for efficient and effective allocations and reallocations of livestock professionals and service delivery across all three tiers of the government.

The training divisions of the ministry has also been restructured, and the coordination across the training and capacity development activities of MoALD has also been almost defunct. Hence, it is time to reassess the organizational and functional effectiveness of the Training institutes across the three tiers of the countries, as also suggested in this study in later sections of the report.

Assessment of stakeholder's needs of services was critical for ensuring efficient and effective service delivery to the livestock farmers, around which required human resource, structures, and facilities are based on and could be evaluated accordingly.

1.3 Livestock Sector Capacity Development (MoALD- O&M)

Federal Level Human Resource Study

In the context of a paradigm shift in governance and public service delivery of livestock institutions, after enactment of the 2015 federalism-based constitutions, livestock development related activities have been assigned to all three tiers of the government. With the expanding activities of livestock sectors among the farmers and entrepreneurs, and with their huge-scale of investments in livestock enterprises, these farmers also demand competent, economic, and efficient service delivery from the public sector agencies. Thus, the changed context requires high-quality performance from public service providers, involving extensions and health and other management services linked with the production, management, and marketing of livestock products.

The Ministry of Livestock Development was split out from the Ministry of Agricultural Development in 2072 BS (in 2017) AD). Then, with the help of a study by Nepal Administrative Staff College, the Ministry of Livestock has prepared a ministerial-level human resource and O & M plan in July 2017. The O & M study concluded that under a new political arrangement, a high competency is required in the livestock sector, with more efficient public health services, not only of sufficient human resource in number but also with high quality and competency in their work.

A human resources plan is prepared to achieve the goal and targets of food and nutrition security through sustainable livestock production and its value chain development. The HR plan is prepared considering the mandate of federalism-based constitutions. The report analyzes availability (and need) of the capacity of human resources across the three tiers of the government, especially, in three broad areas like education, training, and experiences. It is assumed to meet the expectations of the public for enhancing health-related service quality and meeting service demand.

After analyzing the functions and assignments of each tier of government, the study report has reported capacity gaps in some sector and proposed a capacity development plan accordingly. Because of the complex nature of functions at each level of government, highly competent human resource has been recommended to fulfill those capacity gaps.

1.4 Study Objectives

The main objectives of the assignment were to:

(i) undertake a Capacity Enhancement Needs Assessment (CENA)of Livestock Sector entities of Nepal such as DLS, livestock sectors of MoALD, livestock sector entities of province, and local level governments.
(ii) propose an appropriate capacity development plan and budget. The assessment and development plan will include human, physical, and financial resources development plan.
(iii) recommend the establishment of an enabling environment and coordination and institutional arrangements to increase retention as well as utilization of acquired skills in the livestock sector institutions.

In this context, the specific objectives of the assignments, based on the scale of operation, are summarized as follows:

a) Ministerial and Department Level: To identify the capacity of livestock sector service providers of MoALD, DLS, and Department of Food Technology and Quality Control (DFTQC)in terms of institutional, policy implementation, technical, managerial, and financial resources.

b) Provincial and District/Local Level:

i) To identify the capacity of livestock sector service providers at the provincial and district/ local level (municipalities and rural municipalities).

ii) To identify the human, technical, and financial capacity of Veterinary Hospital and Livestock Service Expert Center (VH&LSEC) of the project command area across all three ecological zones to deliver required services.

c) Stakeholder Level: To identify capacity, willingness, readiness, and access for financing sub-projects viz. bank and financial institutions (BFIs), insurance companies, and related other institutions.

d) Recommendations: To come up with recommendations regarding enabling environment and institutional arrangements that would impact retention as well as utilization of acquired skills and knowledge by the livestock sector technical staffs of the ministry (MoALD).

Develop Capacity Development Plans: To propose an appropriate capacity development plan (in terms of human resources, veterinary/animal nutrition laboratories, and related infrastructures, etc.) with a budget based on capacity need assessment of the service providers for each of MoALD/DLS and other concerned offices.

1.5 Scope of Assessment

The overall framework of CENA has been used for assessing the capacity needs and gap, and preparation of the capacity development plan. The focus is more on analyzing and documenting the gaps in capacity prevailing at various levels of livestock sector institutions (entities) and in identifying training and capacity development needs and proposing capacity development and training plans to meet the capacity gaps in the respective sectors. More particularly, the study has assessed capacity related issues concerning the following organizations and stakeholders, as noted below:

- Capacity gap assessment of livestock sector agencies and institutions of MoALD, various entities of DLS, along with provincial and local governments is done to assess their capacity to implement the regular livestock sector activities and deliver the required technical and other key functional services to the farmers and various other stakeholders in the country.
- Capacity gap assessment of Veterinary Hospital and Livestock Service Expert Centre (VH & LSEC) of the project command areas across all three ecological zones concerning their capacity to deliver required services to the farmers and other stakeholders.
- Capacity gap assessment of Rural/Urban Municipalities and other major stakeholders of livestock sectors of the country, representing all eco-zones concerning their capacity to deliver livestock services to the farmers and various other stakeholders.
- Capacity Gap assessment of organizations concerning their role in capacity enhancement of the livestock sectors and contributing to achieving the objectives of strengthening livestock sector institutions (i.e., of MoALD/DLS, Multi-Stakeholder Dialogue Platforms, etc.).

1.6 Rationality and Justifications of the Study

Capacity building is a perpetually evolving process of growth and development and a positive change that is central in determining the outcome of development endeavors. The European Commission defines "Capacity as the ability of people, organization, and society as a whole to manage their affairs successful (OECD, 2006)". Thus, the CENA framework of the study is very critical for identifying the present capacity and the capacity gaps relevant to concerned organizations (like MoALD, DLS), and other related offices and employees working there.

More specifically, the following are the rationality or justification of conducting the study on Capacity Enhancement Needs Assessment (CENA) of livestock institutions in Nepal, at this moment. They are:

1. A CENA of livestock sector professionals of DLS, MoALD, province, and local governments is critical for preparing the capacity development plan of livestock sector institutions, and in improving outcome and impacts, and the service delivery levels across the interested farmers in late 2020.
2. The capacity assessment task is in-built with the process of development of an appropriate capacity development plan and budget including human, physical, and financial resources.
3. Identification of the capacity gap of livestock sector service providers of MoALD, DLS, DFTQC in terms of institutional, policy, implementation, technical, managerial, and financial resources, is important for improving service delivery of the public sector agencies in the country
4. The livestock master plan was prepared in 1995, about 25 years ago. During the last 25 years, a lot of changes have already been taken place in terms of the availability of young human resource with a specific academic degree and/or enhancing their competency for better services to farmers. All these elements will also be very useful to the livestock sector developments in the country. The assignment has identified the technical, managerial, and human resource management (financial) capacity of livestock sector service providers at the provincial and district level (municipalities & rural municipalities), VH & LSECto deliver required services to the farming communities.
5. Along the same lines, identification of major capacity gaps involved in other stakeholders of livestock institutions such as access for financing, BFIs, insurance companies, NABIC, AEC, are also to be done in terms of 10 years of CDP as done in this study
6. Identification of the present capacity and capacity gap in the livestock sector institutions as done in the report will provide valuable recommendations about enabling environment and institutional arrangements. This would help to prepare retention as well as the utilization of acquired skills.
7. Likewise, a capacity development plan, with an estimated budget for MoALD/DLS developed in this study will address the problems of human resources management in MoALD/DLS, also address a miss match on a reallocation of livestock professionals across the three tiers of the government.

1.7 Report Outlines

The report is divided into nine chapters. With the background, study objectives, a brief study methodology, key activities of MoALD, DLS, and related other major livestock sector institutions in Nepal are presented in this chapter, the second chapter briefly describes the study framework and the methodology used for completion of the Capacity Enhancement Need Assessment (CENA) study of MoALD institutions/DLS and the method adopted in preparing Capacity Development Plans. Then, the third chapter presents a capacity analysis of federal level livestock sector institutions (i.e., MoALD and DLS). The fourth chapter presents the capacity needs of federal-level institutions (MoALD and DLS) and their affiliated organizations at the federal level. Similarly, the fifth chapter presents the existing capacity and capacity needs of livestock sector public entities at the provincial level government, including a brief discussion on roles and capacity gaps at district veterinary hospitals (VH&LSEC). In the same way, the sixth chapter presents the capacity needs at local livestock organization – i.e., at municipalities, the seventh chapter presents special topics on capacity developments for Livestock Services in Nepal, including discussion on cross-cutting and cross-thematic issues at the local level.

In the same way, the eighth chapter presents a capacity development strategy and training plan for MoALD and DLS and their affiliated organizations across the provinces, with the budget, covering the period of the next 10 years. The reports include also a capacity development plan with budgets separately for various categories of livestock sector professionals (i.e., senior management and senior officers, officers, non-officers levels, and separately for farmers and LS sector entrepreneurs). Then, the last section summarizes the authors' conclusions and the study recommendations and way forwards concerning the capacity enhancement of livestock institutions, public entities, and other stakeholders.

CHAPTER II

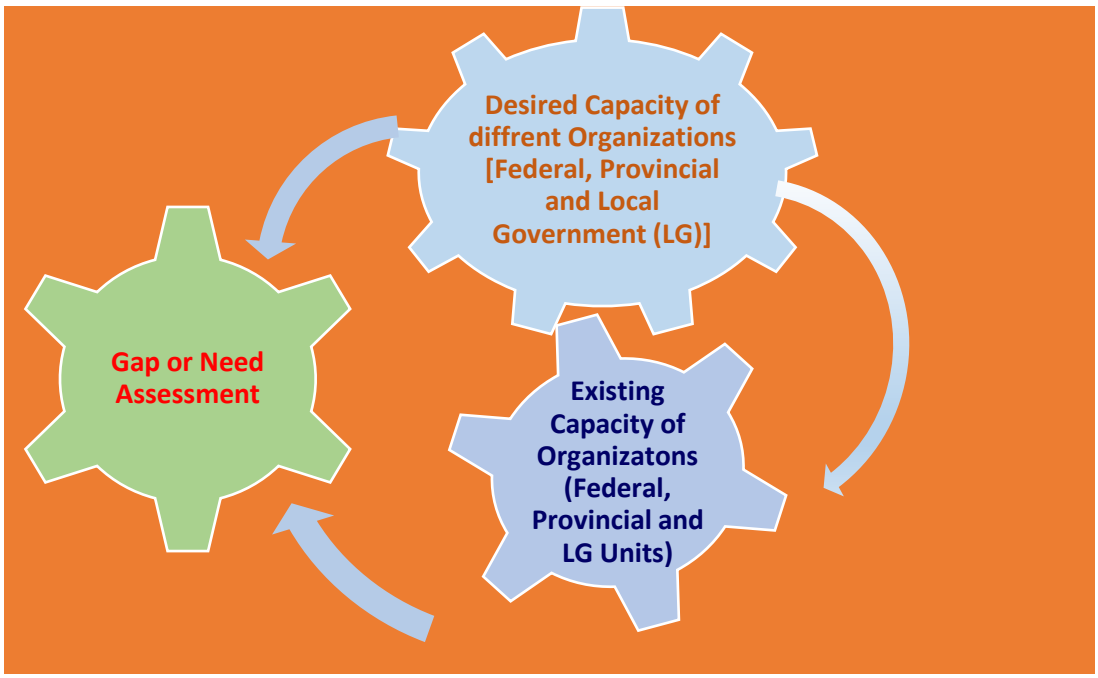
STUDY FRAMEWORK AND THE ASSESSMENT METHODOLOGY

2.1 Conceptual Framework of the Study

In case of study on capacity assessment and capacity development subject is that the word “capacity” or “Capacity development” is a different concept and things for one person to another, and/or to another sector and different sections of society. The definition and illustration of CD as adopted by UNDP are used which states that Capacity Development is “the process through which individuals, organizations and societies– i.e., all tire of a sector -, gets strengthen and maintain the capabilities to set and achieve their own development objectives over time” (UNDP 2009). In this sense, capacity development has some subjective notions and normative perspectives on human resources development are intertwined with the capacity assessment process as well.

The institutional mechanism for service delivery in the livestock sector has broader implications, as each level of government (Federal, Provincial, and Local) has its defined roles and responsibility. Hence, capacity assessment for those specific jobs, identification of gaps, and further actions to fulfill these gaps to achieve desired outcomes efficiently were done to derive the capacity development of the organization. The basic concept and framework used for the capacity needs identification and need assessment is shown in Figure 1.

Figure 1: Conceptual framework of Capacity Needs Assessment



In practice, capacity development can take place at different levels of society - institutions, systems, organizations, and individuals, depending upon the pressing problems, constraints, and obstacles of the organizations (of capacity needs) to be assessed, as described in Table 2.

Table 2: Three major dimensions for Capacity Needs Assessment

Dimension of Capacity		Existing Capacity	Capacity Gaps
I. Enabling Environment-Level I			
1.1 Institutional Environment			
1.2 Policy and Strategy Context			
1.3 H R Management (Technical skill)			
1.4 Co-ordination with other stakeholders			
II. Organization-Level II			
2.1 Processes/Implementation ability			
2.2 Technical Capacity			
2.3 Financial Management			
2.4 Human Resource (Technical skill)			
2.5 Information management			
2.6 Related key infrastructure			
III. Individual-Level III			
3.1 Professional Skills and experience			
3.2 Professional development opportunity			
3.3 Use (and ability) of ICT at workplace			
3.4 Motivational/Incentive at workplace			

[Note: This is a conceptual framework of CENA framework of capacity assessment, showing a number of dimensions of capacity at three scales. The information was compiled using a separate checklist were prepared to cover these issues across stakeholders across the three tiers of governance in Nepal. Details on CENA framework of study are in FAO 2010, UNDP 2009; and USAID 2018

The underlying concept of the Capacity Development (CD) framework is to achieve a long-lasting development of capacities and to obtain measurable impact and changes in peoples' lives. The proposed CD-related need assessment activities under the CENA framework cover all three scales i.e., at an individual, organizational, and an enabling environment level to fix the problems at hand. Levels of neglecting one level among the three comments may undermine the effectiveness of the CD related interventions. Hence, the overall framework of CENA has been used in this study taking into the three dimensions, separately using dedicated indicators, questions, and tools for analyzing each dimension, and looking at the balance among them, as well as to their interactions, inter-connections, and synergies (Details are in the annex note 10).

2.2 Definition of Selected Terminologies used in the Reports

A brief explanation of the major terminologies and overall concept of Capacity Development used in the study is summarized in Table 3.

Table 3: Brief explanations and illustrations of key terminologies on Capacity Development

S.N.	Terminology	Explanations with Illustrations
1.	**Capacity**	Capacity is the ability of people, organizations, and society to manage their affairs successfully and effectively (OECD, 2006).
2.	**Capacity Development (CD)**	It is the process whereby people, organizations, and society unleash, strengthen, create, adapt, and maintain capacity over time (OECD, 2006, 2008). Capacity development is a broad and vague concept, which can take place at different levels of society, institutions, systems, organizations, and individuals. Over time, and historical perspectives, the emphases on CD has been changed and evolved to include various activities.
3.		**Capacity Development Dimensions**
3a.	**Individual Dimension**	It relates to the people involved in agriculture and rural development in terms of knowledge, skill levels (technical and managerial), competencies, attitudes, behaviors, and values that can be addressed through facilitation, training, and competency development.
3b.	**Organizational Dimension**	Organizations are open systems that are influenced by conditions in their environment (SIDA, 2005). Organizational dimensions of CD relate to public and private organizations, civil society organizations, and networks of organizations involved in agriculture and rural development in terms of: i) Strategic management functions, structures, and relationships; ii) Operational capacity (processes, systems, procedures, sanctions, incentives, and values); iii) Human and financial resources (policies, deployment, and performance); iv) Knowledge and information resources; and v) Infrastructure. The change in learning that occurs at the individual level affects, from a results chain perspective, the changes at the organizational level. An example could be like improvement in the use of databases or information systems for partnership building effectiveness.
3c.	**Enabling Environment Dimension**	It refers to the context in which individuals and organizations work, including the political commitment and vision; policy, legal and economic frameworks, and institutional set-up in the country; national public sector budget allocations and processes; governance and power structures; incentives and social norms; power structures and dynamics.
4.	**Institutions**	Institutions are rules of games that shape and constraint human behaviors in a society. That is, institutions are "integrated systems of rules that structure social interactions". An institution is a social structure in which people cooperate and which influences the behavior of people and the way they live. Institutions can be formal or informal types.
5.	**Formal Institutions**	Formal institutions are normally established and constituted by binding laws, regulations, and legal orders which prescribe what may or may not be done by individuals and organizations.
6.	**Informal Institutions**	Informal institutions include conventions value systems, norms, attitudes, traditions, beliefs, and behaviors, accepted ways of doing things, whether economic, political, or social. These institutions are also embedded in traditional social/cultural practices which can be equally binding.

7.	**Institutional Frameworks**	Institutional frameworks are ideas, approaches, and situations that generate the power that has been shaped and been given fixed forms. By nature, there are both informal institutional framework and informal institutional framework.
8.	**Contextual Analysis**	It is a process of identifying and analyzing external factors that exerts a decisive influence on the operational areas of contribution. It includes a survey of ways in which external factors influence or are influenced by activity, contribution, and/or, organization.
9.	**Competency**	It is an observable behavior supported by specific knowledge, skills, and attitudes. Each competency has a specific result or output.
10.	**Training Needs Assessment**	It is the method of determining if a training (or capacity development effort) need exists and, if it does, (what training or capacity development activities) is required to fill the gap and to achieve the desired level of outputs or performances.

Adapted from various capacity development related reports produced from FAO, 2015, OECD, 2006, SIDA 2005; and UNDP 2009.

2.3 Methodology and Analytical Framework

The conceptual frameworks proposed for the study are briefly illustrated in this section. The detailed assessment activities and capacity development process were developed to assess the capacity of livestock institutions on three dimensions – (institutional requirements, organizational needs, and personal requirements) based on service delivery by the three tiers of government. Accordingly, indicators and their respective sub-indicators are developed and integrated into the study tools and techniques to reflect the required information for the data evaluation (see, Figure 1 and Tables 2 & 3).

Capacity Need Assessment:

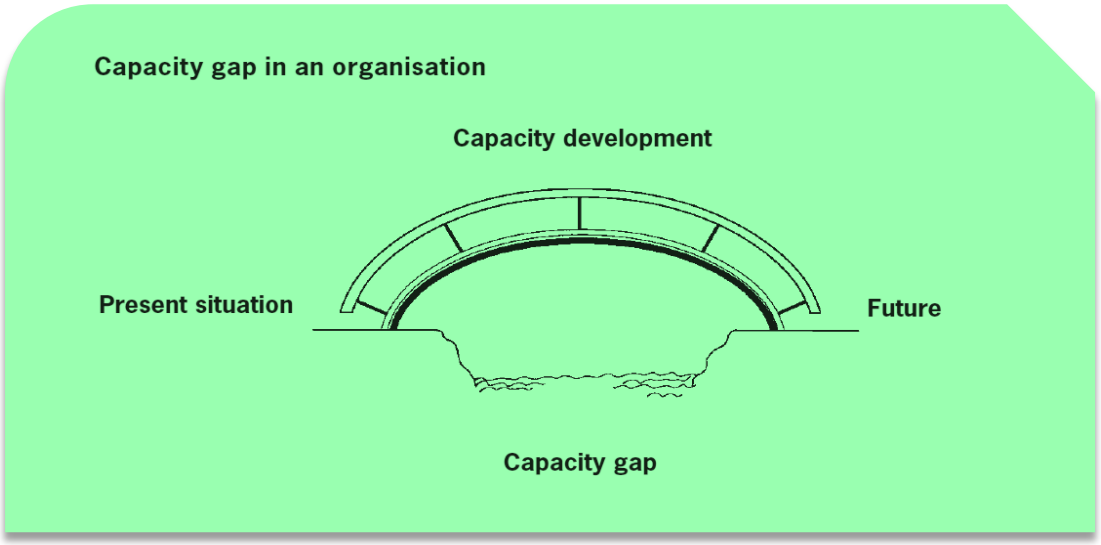
Capacity Needs Assessment is a process of evaluating actual existing capacity gaps in a targeted sector (within organizations; institutions; individual professionals (human resource personnel) in terms of knowledge, skills, strengths, weaknesses, opportunities, threats, assets, and other elements required for them to achieve the pre-specified objectives (UNDP, 2009). The assessment processes are also briefly illustrated in Figure 2.

Figure 2: Major goal post of activities and process of UNDP's proposed Capacity Development for the development sector (see UNDP, 2009)

The capacity gap of the livestock sector (largely public sector agency) is a very tricky question as it is not a straightforward computed element across all sub-sectors and scales of governance (see Figure 2). The term capacity as such is a subjective concept. Since, capacity is "the ability of people, organizations, and society as a whole to manage their affairs successfully and effectively (OECD, 2006)."Hence, just counting the numbers of training, academic qualification, and years of professional work experience, alone does not indicate capacity developed to do a specific activity. Figure 3 also illustrates the conceptual aspects of the capacity gap in an organization.

Hence, the capacity gaps related to information were compiled across the stakeholders using semi-structured questionnaires. Various questions were asked related to capacity gaps, and capacity development needs related issues with key stakeholders and during the survey with national experts. We have estimated stakeholders (experts) weightage preference on capacity needs (or capacity gaps) by asking a set of specific questionnaires with weightage preference (rank preference) on the set of capacity need assessment-related elements (and in index ranking).

Figure 3: Illustration of Capacity Gap in an organization and the Capacity Gap in a given context (Adapted from SIDA, 2005)



In Summary:

- Capacity Need Assessment (CNA) is a preliminary stage of any capacity development process and it forms a basis of planning and materializing capacity development (CD) strategies.
- CNA involves identification of capacity gaps in the capacity (institutions, organizations, and individuals) to achieve certain desired goals and targets (often unquantifiable and goals and perspectives of the organizations and institutions – a future road map and perspective of an organization).
- The CNA process is a structured and participatory approach through one- on-one discussion (physical or online) and through the structured survey tools and techniques.
- While designing checklist and questionnaires on CNA, the study team has included capacity gaps (needs) related issues specifically targeting all three scales -enabling (institutions and governances), organizational level, and individual level concerns - to achieve the desired outputs and desired level of outcomes.

Assessment Method and Survey Process

The mixed methodology of the survey was used by combining both qualitative and quantitative survey tools and techniques. This report is mainly based on the information on capacity gaps (and assessment) based on the perception and opinions of key national expert's livestock sectors and key stakeholders. Focused Group Discussions (FGDs) and Key Informant Survey (KIS) were also used as guiding tools to collect qualitative information and to get information and perspectives on deeper level.

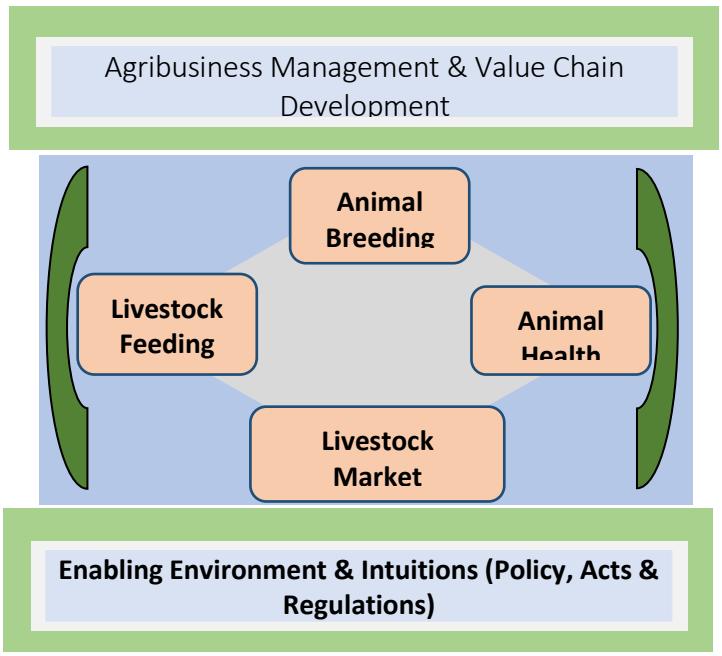
For example, a series of semi-structured questionnaires were used for a sample survey with national experts to collect quantitative data. Checklists and standard forms of questionnaires were used for gathering, managing, and validating information. Face-to-face meetings were also held with various stakeholders.

However, after the emerging pandemic of the COVID 19, the methodologies were revised and adapted to the new context such as different levels of discussions were held with the key stakeholders such as online meetings, online group discussions, online talk, and interactions, dialogues, and exchange of information. These methods and tools were used apart from introducing.

Results on Capacity Need Assessment and CD strategy

The assessment of the Capacity Needs Assessment (and training needs) was done by grouping and sub-grouping the issues/checklists filled-in (or are suggested) by key stakeholders and key informants using four plus two pillars (Or 4+2 pillars) concept of the service delivery of livestock service (see Figure 4). The four pillars of livestock service delivery principles and concepts are usually discussed on service delivery of livestock products in Nepal; and additional two pillars (institutions and agri-business) are being done to reflect the true reality of livestock services and agri-business activities of the livestock services in the country. Details are illustrated in Figure4.

Figure 4: Proposed four plus two pillar of livestock development strategy in Nepal



(Note: The 4-2 pillars of the livestock service delivery strategy are used to summarize (grouping together) key survey questions, and the results of the survey-findings)

2.4 Data Collection Tools and Techniques

Both primary and secondary data were collected to derive capacity development (CD) need assessments or CD gap analysis. Secondary information on capacity needs was collected through a literature review (both national and international), and assessments were done as a part of the desk study. Questionnaires were designed for Federal, Provincial, and Local level (municipality level) livestock institutions along with KIS and FGDs.

Desk Study

The desk review of relevant literature related to the livestock sector and government policies were reviewed, relevant acts, regulations, and budgetary processes and provisions were critically reviewed. Human Resource (HR) policies, programs, and provision of HR in Livestock Master Plan, Agricultural Development Strategy (ADS), 15thfive-year periodic plan, Sustainable Development Goals (SDG) were thoroughly reviewed. MoALD Road Map, a guideline on FMD, PPR, meat, milk, pashmina, and other useful documents were reviewed. The relevant information and lessons learned from other projects/programs were used while carrying out the proposed study/assessment. Relevant international case studies were also reviewed and adapted to the context of livestock sectors' realities of Nepal.

Accordingly, the proposed capacity development strategies have been designed considering all the federalism-based governance and allocation of governing functions to various tiers of the governments in Nepal.

Key Informant Survey (KIS)

The consultant teams visited key offices (officials) of MoALD and DLS and gathered the required information as mentioned in the operational framework earlier. KIS with elected experts were conducted at (I) Federal level (ii) Province level, and (iii) Local level.

Focus Group Discussion (FGD)

Focus Group Discussions were conducted to collect data from selected stakeholders from 16 districts.

2.5 Field Study Locations- Data collection Tools and Techniques

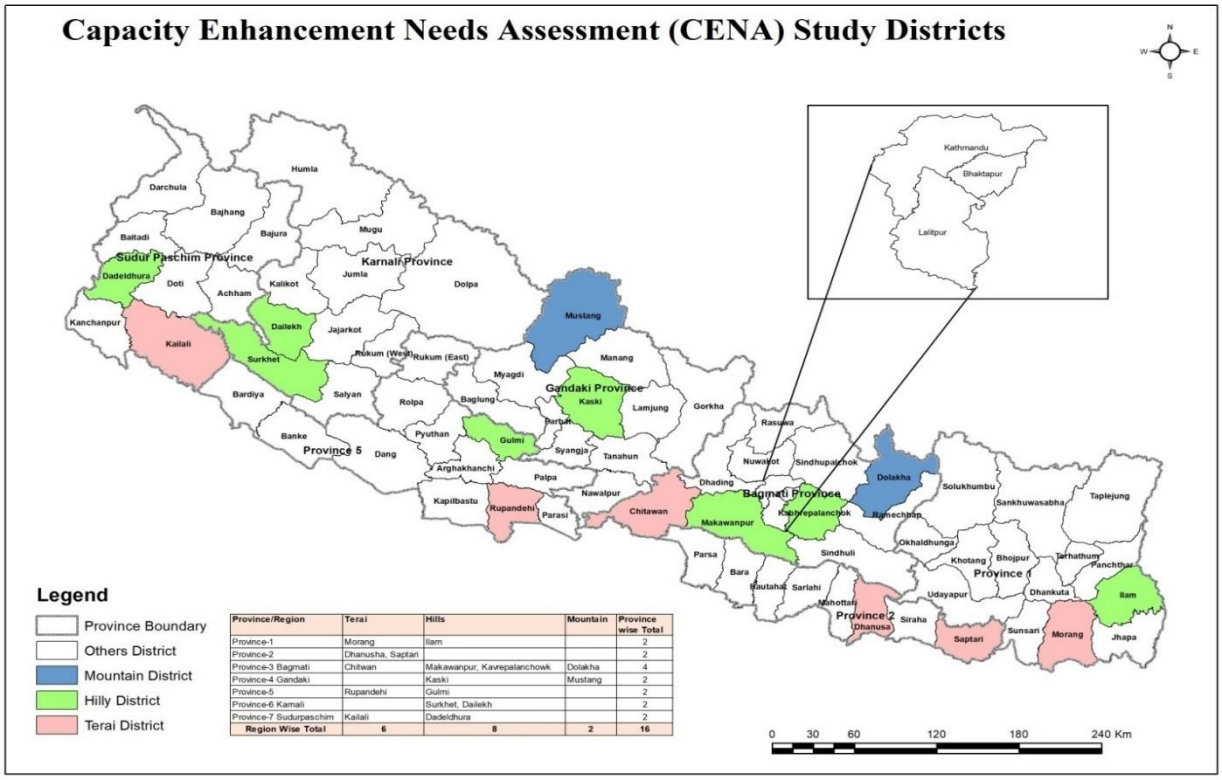
Based on the literature review and expert's (livestock sector) opinion, both structured and semi-structured questionnaires/checklists were finalized (first draft). These checklists were further refined and updated after pilot-testing of these checklists at various municipalities in Kavrepalanchwok and Makawanpur districts.

i. Semi-structured tools such as checklists/interview guides were designed to conduct key informant's survey, Focus Group Discussion (FGD), and to compile secondary information. Semi-structured questionnaire for the key informant survey
ii. Structured tools were used for institutional assessment.
iii. Semi-structure checklists were designed for Focus Group Discussions at selected sites (dialogue meetings, and other group-level meetings)
iv. A semi-structured format (checklist) was designed for dialogue platforms and discussions with other stakeholders

2.6 Study Sites and Sample Organizations Surveyed

In brief, in consultations with the NLSIP project officials and others in the livestock sector professionals, 12 districts out of the 28 designated districts of the NLSIP districts were selected for the field study. They were selected to represent all three-ecological regions: Terai, Hills, and Mountain; possible to ensure at least two districts in each province, and located proportionately in all of the five provinces targeted by the project (NLSIP). Then, based on several factors, Kailali and Dadeldhura districts from Sudurpaschim Province, and Surkhet and Dailekh districts from Karnali Province were selected also outside of project command areas. This is done so that the capacity needs related information of livestock sectors across all the seven provinces were compiled from the field study, including representation of situations on availability of livestock sector capacity and competency in all the three ecological regions and seven diverse provinces of the country. Thus, in total 16 districts were selected for the fieldwork and for consultation with the officials working on the ground, representing all seven provinces. Details are illustrated in Figure 5 and Table 4.

Figure 5: Map of the study districts



Province/Region	Terai	Hills	Mountain	Province wise Total
Province-1	Morang	Ilam		2
Province-2	Dhanusha, Saptari			2
Province-3 Bagmati	Chitwan	Makawanpur, Kavrepalanchowk	Dolakha	4
Province-4 Gandaki		Kaski	Mustang	2
Province-5	Rupandehi	Gulmi		2
Province-6 Karnali		Surkhet, Dailekh		2
Province-7 Sudurpaschim	Kailali	Dadeldhura		2
Region Wise Total	**6**	**8**	**2**	**16**

Table 4: Sample districts with geographical locations

Province Name/ Geographic Zone	Terai	Hills	Mountain	Total Districts
Province No. 1	Morang	Ilam		2
Province No. 2	Dhanusha and Saptari			2
Bagmati Province	Chitwan	Makawanpur and Kavre	Dolakha	4
Gandaki Province		Kaski	Mustang	2
Province No. 5	Rupandehi	Gulmi		2
Karnali Province		Surkhet and Burkhead Dailekh		2
Sudurpaschim Province	Kailali	Dadeldhura		2
Total	**6**	**8**	**2**	**16**

Selection of Municipalities

A total of 32 municipalities out of 16 districts were selected for the field study and field site visits including visit/consultations at veterinary hospitals and livestock expert service centers (VH & LSEC) both in urban and rural municipalities and for interviewing individual local experts (entrepreneurs). The livestock service units /sections of the respective municipalities were taken for the in-depth field study. Various checklists and questionnaires were used for compiling the field information, as noted earlier.

Table 5: List of municipalities for the study

Province	District	Municipality	Rural Municipality	Total
Province-1	2	2	2	4
Province-2	2	2	2	4
Bagmati	4	4	4	8
Gandaki	2	2	2	4
Province-5	2	2	2	4
Karnali	2	2	2	4
Sudurpaschim	2	2	2	4
Total	**16**	**16**	**16**	**32**

(Note: There were some changes in survey sites with respect to the availability of the respondent, and due to the COVID 19 related locked down in the economy during the survey period)

During the middle of the fieldwork, the COVID-19 pandemic related lockdown was announced in the country. After that, phone-based interviews were used including sharing a softcopy of checklists and questionnaires with the respondents (senior officials of DLS/MoALD and national experts, and key officials of provincial level and municipality level offices).

Limitation of the Study Methodology and Field Visits

Due to the COVID-19 lockdown, the study team could not visit many stakeholders on 3 levels. Should it have been a normal situation in the country, more extensive study with the involvement of a wide variety of stakeholders through workshops, seminars & visits at least one each in central provincial & local levels should have been fruitful to accommodate suggestions and recommendations from different field levels.

More specifically, during the field study period, COVID-19 induced lockdown was imposed in the country, as a result, the physical availability of respondents for a one-to-one survey and getting detailed information from some sites was not possible in a few cases. In such cases, electronic communication supported survey work was done by the team to gather the needed data across the different offices across the provinces.

Besides, some tools and techniques were also modified to suit the new situation and restriction created by the pandemic related regulations. More uses of online tools and techniques (webinar, social media, and e-mail communications) were used to complete the survey checklists and to collect the data and information. Likewise, we also developed two new sets of checklists targeting for e-mail-survey, and/or, an online survey with national level or livestock experts and professionals. The sample of over 35 experts and national level professionals were selected for their inputs and feedback on these issues through snow-bowl methods of the sampling.

Likewise, a separate checklist was prepared also for compiling emerging issues and concerns and data related to district level dialogue platforms in the selected districts. Then, we shared these checklists with the targeted stakeholders (officials and individuals of livestock experts) involved in the functioning of dialogue platforms.

CHAPTER III

CAPACITY ANALYSIS OF LIVESTOCK SECTOR (MOALD /DLS)

3.1 Background

Capacity and Human Resources[2]

The improvement of the capacity of existing officials (human resources) of livestock institutions (in MoALD) is limited by declining budgets for training, capacity building, and limited incentives to provide services. Training and capacity building or higher study of its staff is considered as second priority project/program (or P2 type of policy program) of the MoALD or of the Government of Nepal. Besides, capacity building training and study visits are largely done from the external funded projects and programs, with limited expenses from the government's regular fund.

Continuing education and capacity building of presently working human resources (livestock professionals) in MoALD is also inadequate to serve all the livestock farmers due to less priority for training, and limited incentives given by budgetary allocation for conducting training and capacity building efforts. All these factors have resulted in poor service delivery and the inability to meet the service demand of the mass population of livestock farmers across all parts of the country.

Agriculture subject is not the core course in school curricula. Therefore developing a large-numbers of ground-level (or mid-level professionals) of technicians in agriculture and livestock sectors or allied fields are a challenging job. Likewise, agriculture colleges have not been established in adequate numbers to develop mid-level and higher-level entrepreneur farmers across the nation. This has led to less than an adequate number of mid-level and high-level technicians (and professionals) for the agriculture field in the country. Furthermore, the inequality in the distribution of livestock professionals between capitals across the provinces, and professional technicians working (available) between urban and rural areas of the country.

Institutions and Human Resources

Despite considerable rhetoric on policy planning in the country, indicating agriculture as a high priority sector for development, there are still several anomalies in the priorities and allocation of budgets for the development of agriculture in the country. Some of them are listed below.

1. For some times, a high level public policy debates are there in Nepal now on income growth and poverty reduction, however, its credibility has been eroded over the times (only a rhetoric slogan).
2. Frequent changes in the leadership of agencies and organizations responsible for the livestock and agricultural sector,
3. Low budgetary support to the livestock sector both in terms of capital and recurrent expenditures,
4. Enormous capacity gaps in agriculture and livestock institutions (organization) between the extent of policy formulation and actual field level implementation, and
5. Weak system for monitoring and evaluation of development projects.

[2] For more discussions and elaboration of the issues highlighted in this sections can be found in ADS 2015 of the MoALD.

Moreover, institutional capacity to implement policies and programs is constrained by limited size and skills of human resources (technical competency), insufficient and inadequately trained staffs, and lack of hardware and investment funds to implement the programs effectively.

Likewise, there are serious questions on accountability and transparency in program implementation and budget allocation procedures across various programs in the ministry, including for capacity development and training of mid-level staffs and ground-level staffs of the livestock institutions. There is also inadequate linking of the monitoring and evaluation systems of the organization to its regular planning (annual and periodic planning) process of the MoALD and DLS.

Accordingly, performance evaluation systems and the incentive structures of the ministry (MoALD) to be designed to ensure effective linkages across the organization, and flow of feedback from the M & E systems to the annual program planning and budgetary allocations process. This includes also a better addressing the issues of disproportionate allocation (reallocations) of technically competent professionals across the federal level organizations and provincial and local level organizations by designing various incentive structures, and better targeting special and complementary grants across the three tiers of the governments.

3.2 Policy context and Recent Initiatives on Capacity Development in Livestock Sectors

Policy background

A brief description of the major livestock development sector policies, acts, and regulations are summarized in Table 6.

Table 6: A brief description of selected livestock sector acts, policies and regulations and concerns

Policy Documents	Description
Constitution of Nepal-2072 BS (2015AD)	Article 36 of the constitution mentions rights relating to safe and healthy food. Based on the ToR, Nepal's Constitution, 2072 was reviewed and tabulated to identify the specific livestock development functions defined for the federal, provincial and local levels. Schedule – 5 - 9 of the constitution, 2072 has provided information on some concurrent functions to be accomplished by both federal and provincial governments. The unbundling report of the OPM has also provided specific roles and functions of each tier of the government for the development of livestock sectors in the country, for example, farmers' level support to be done by municipalities, market development to be done by the provincial government, and quarantine or control of national-level important disease outbreak, surveillance to be done by the Federal Government.
Livestock Master Plan 1995-2015 AD	A separate human resource development target was set in the 20-years livestock master plan. The plan focused on the development of professional and technical training institutes. According to the Livestock Master Plan 1995-2015, during the next 20 years of the plan period, basic pre-service training would be provided for 1,000 veterinarians and other professional staffs. Almost 6,000 technical staffs (JT/JTA or equivalent), 75,000 subtechnical staffs who would provide front line service to farmers (VAHW or similar) and almost 400,000 farmers. The master plan also suggested that regular in-service training would be made available to all technical and professional personnel whether employed by the government, private sector, or self-employed. Similarly, the master plans suggested strengthening the capacities of the institute of agriculture and animal science for the development of different courses for pre-service study and training as well as program of producing livestock JT/JTA under different training institutes of CTEVT. Note: a quick review and assessment of available human resource structures of MoALD suggest that the scale of professional (technical) human resource has not been developed in livestock institutions in the last two decades.

Plans/Policies /Strategy	Description
National Periodic plans	Periodic plans include 5-year plans, 3-year plans, and long-term sectoral development plans like the APP. The planned development process was initiated in Nepal in 1956/57, and now has completed ten periodic Five-Year plans and almost two Three-Year interim plans, till 2010/13. The major issues of periodic plans include: • Budgetary allocations were hardly ever as envisaged in plans. • Institutional development aspects were either not properly planned or not implemented as planned. • Human resources development was not properly planned and not implemented as planned. • Except for the rituals of mid-term review and final evaluation, there was no system of regular monitoring of plan implementation. • From Eighth to Tenth Plans and even in Three Years Interim Plan Periods, aspects such as institutional development, infrastructure development, research, human resource development, and strengthening human resource were not prioritized but sometimes discouraged. Consequently, the agriculture sector capacity has been weakened. • Consistently with the Ninth and Tenth Plans, in the Three-Year Interim Plans more focus was given to the social sector at the cost of developmental sectors such as agriculture.
Fifteenth Plan Approach Paper, 2076/77-2080/81 B.S.	This plan has a long-term vision of graduating Nepal from the LDCs into a middle-income economy by 2030 by achieving the Sustainable Development Goals. The 15th periodic plan will incorporate strategies to meet these goals to ensure socio-economic transformation envisaged by the Government could be achieved. The approach paper of the 15th five-year plan also states that the contribution of the service sectors in the gross domestic product (GDP) can reach 57.6 percent by fiscal 2023-24 while the contribution of the agriculture sector and industrial sector in the national GDP can reach 22.1 percent and 20.3 percent respectively. The fifteenth plan approach paper has also set the national strategy to sustainable economic growth and increase production as well as productivity of major grains, fish, and livestock products to be self-dependent on food items.
National Agriculture Policy (NAP), 2061 BS	The NAP, 2004 adopts a long-term vision oriented towards transforming the current subsistence-oriented farming system into a commercial and competitive one. **Human resource development in national agriculture policy** • Strengthening of national agriculture resources centers. • Encourage the coordination and exchange of technology and expert services in agriculture R&D. • Special focus on farmers' training and capacity building at local level institutions. • Coordination and exchange of technology and expert services between universities, colleges, agriculture research centers, and national agricultural resources centers. • Categorization of agricultural training for the commercialization of agriculture. Capacity building of farmers and agricultural technicians for productivity enhancement.
Agriculture Development Strategy (ADS, 2015-2035 AD)	• Agriculture development strategy has formulated a 20-year strategic plan including a 10- year Action Plan and roadmap based on the assessment of the current and past performance of the agriculture sector. ADS focuses on a self-reliant, sustainable, competitive, and inclusive agriculture sector that drives economic growth and contributes to improved livelihoods, food, and nutrition security leading to food sovereignty. This strategy also sets the target and indicator to achieve the goal of the nation in the agriculture sector. This also includes human resources development of agriculture as one of the priority areas of the government interventions for strengthening the capacity to deal with the complexity of the agriculture systems. • ADS document has been prepared based on performance and with comprehensive review and synthesis of achievements of Agricultural Perspective Plans (APP), a 20years' strategy of agriculture of MoALD from 1995 to 2015.

3.3 Functional Analysis of MoALD/DLS

The most important function of MoALD and DLS is the overall development of the livestock sector as per the needs and institutional assignment rules and regulation of 2074 (Please see details in Annex Note 2 for major roles and functions of the ministry and DLS (or at www.MoALD.gov.np).

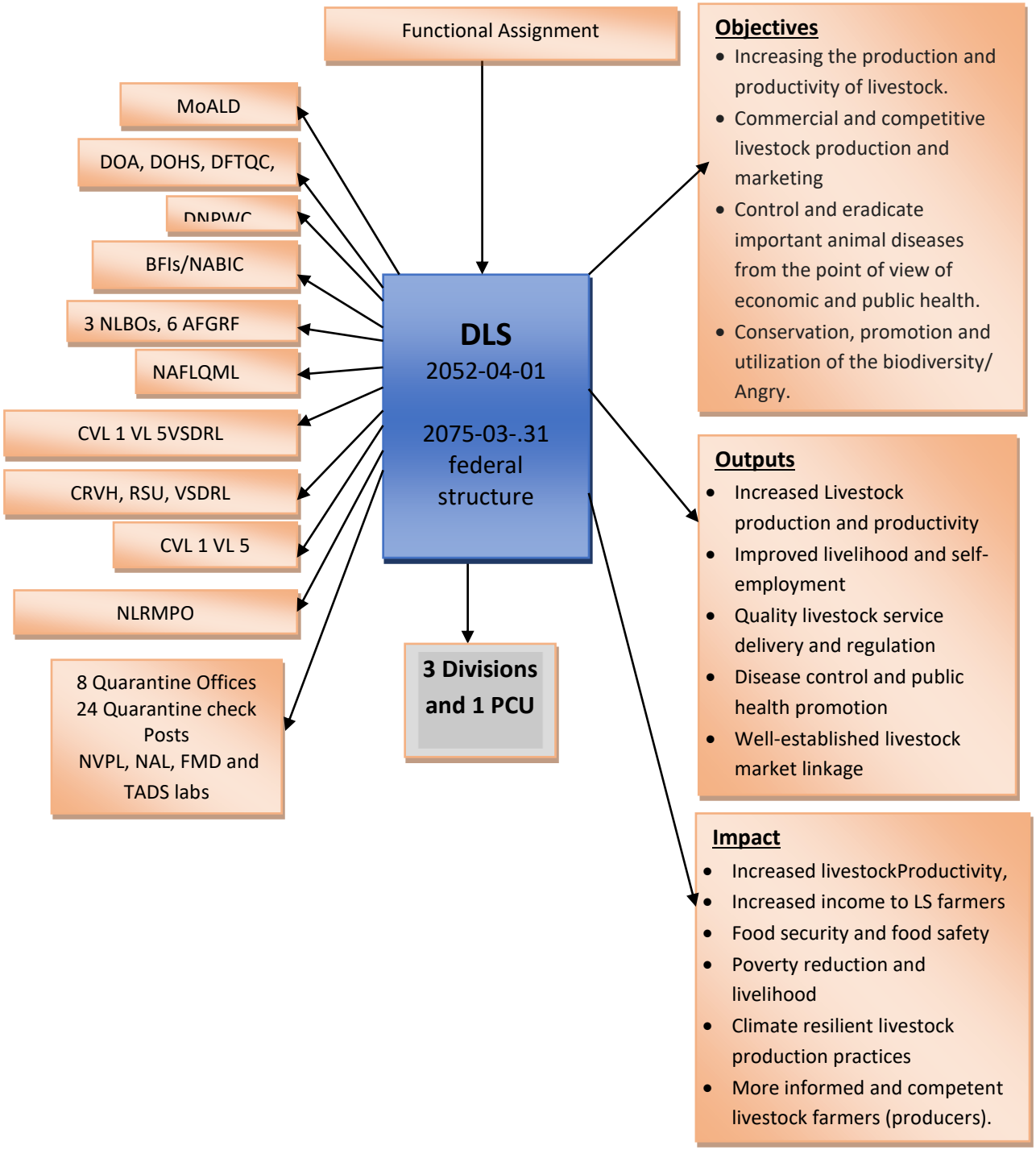
Moreover, in practice, there are several political bottlenecks for the operation of the policies and regulations in the country. The overall programs and planning in agriculture (also in livestock sectors) are usually done on ad-hoc planning basis, limited by the annual allocated financial and budgetary resources to the ministry. As explained in the ADS and15th national plan, there are always budgetary constraints for mobilizing human resources.

There is a minimal level of real monitoring and evaluation activities done for regular programs and activities of the governments. As a result, implementation of large-scale projects and programs are also done, without ensuring the situation analysis and with a basic level of baseline data, and/or, to work on compiling fundamental baseline data and information ad-hoc basis, or long gaps after implementation of the project.

3.4 Organizational Mapping

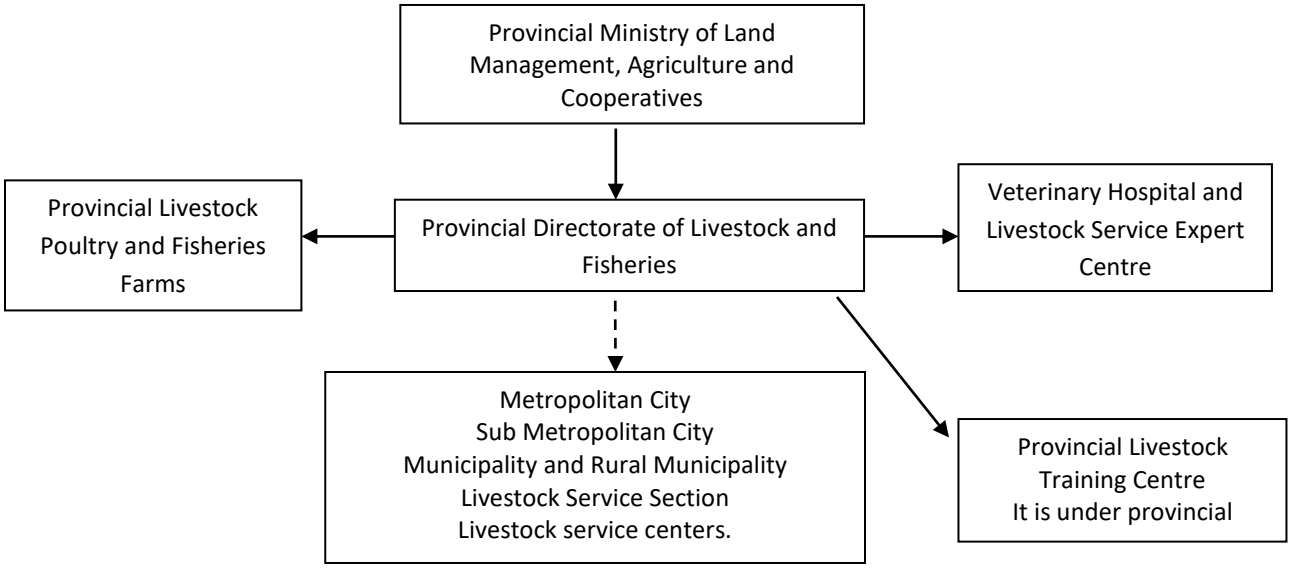
There are several entities/organizations that are functioning under MoALD or linked closely with the functioning of DLS, as shown in Figure 6.

Figure 6: DLS at a glance: interlinkage of DLS with other organizations under MoALD



In addition, several other players on livestock are also active, whose activities and functions are directly linked with the PCU (or provincial agencies) such as farmers, entrepreneurs (dairy, meat, poultry, live animal traders, insurance service providers, agro-vet, feed industries, hatcheries, regulatory authorities, etc.). These agencies, directly and indirectly, influence or affect the functions and are concerned with the outcome of organizations or projects are stakeholders.

Figure 7: Provincial livestock sector institutions at a glance



Note: the thick black line indicates the directly under the agencies, and the dashed line indicates no direct linkage.

3.5 Training Needs Assessment– Quantitative Aspects

The target of the human resources (technical human resource) development plan as projected in the Livestock Master Plan has not been achieved. As a result, the total number of professional staffs (technical expertise) in most of the entities of LS (MoALD) is considerably less when we compared it with the projected target in the livestock master plan in 1995.

The projections of LMP is also not realistic now as major structural reforms have taken place. There is a need to make a fresh assessment of human resources needs holistically.

Practical Suggestion

The DLS should quantify human resources projections envisioned by the Livestock Master Plan. It should be assessed in the present context need and requirement of DLS function and responsibility. These figures should be disaggregated by gender and caste.

Trainers and Facilitators

In the past, staff from different government agencies have been used as resource persons for various technical and social training activities that often formed the cornerstone of the livestock training programs of the DLS. Though the government staffs of DLS have good technical knowledge and skill, large numbers of them may not be good facilitators of the training program, hence their skills in the delivery of the training content (and facilitation skills) to be improved urgently.

In all cases, attention must be given not just to the facilitators' technical ability or professional knowledge or skills, but also to ensure that they have the necessary knowledge, skills, and attitudes to communicate the information as per the level of the training participants. In all cases, individuals selected to deliver training needs to be monitored, and then the training process and outcome (performances) to be evaluated using sound benchmarks for the assessment of their training and facilitation skills.

Professional in Livestock Services

Animal Science Professionals in MoALD/ DLS

The total number of animal science graduates working in Nepal in MoALD and its affiliated agencies, and with other agencies outside of MoALD, are summarized in Table 7. Wherein, the data are also separated by professionals and technicians, who are working under different divisions and units of MoALD and DLS, and all over Nepal. A number of persons allotted to different provincial Ministries and Directorate, and with s VH & LSEC and to municipality livestock units, were also recorded, and results are summarized in Table 7.

Table 7: Total number of in Animal Science Profession (Approximate) in MoALD and other agencies in Nepal

S.N.	Animal Science Technical Personnel	Number in Nepal (Approx.)	In MoALD (Approx.)	NARC (Approx.)	In Privet sectors (Approx.)	TU/ AFU (Approx.)	Remarks
1.	Number of Professional staffs of Animal Science with Ph.D. degree	37	4	7	10	16	NASA directory
2.	Number of Professional staffs of Animal Science with M S degree	83	24	32	10	17	NASA directory
3.	Number of Professional staffs of Animal Science with B Sc. Ag (Animal Sc.) degree	211	58	53	67	33	NASA directory
	Sub Total	**331**	**86**	**92**	**87**	**66**	
4.	Number of JT staffs of Animal Science with diploma and I Sc degree	1,500	40	252	1200	8	NEVLA, NELTA personal communication with CTEVT
5.	Number of JT/JTA staffs of Animal Science and vet. Science with CTEVT course	48,000	2,027	702	45,000	25	18-month JTA course and TSLC (2.5Yrs)
	Sub total[3]	**49,500**	**2,067**	**954**	**46,2000**	**33**	

Sources: Professional profiles NASA directory 2076 – Animal science in MoALD and allied agencies prepared with a consultation with the professional association and updated professional directories.

[3] No of Para-vet professionals & VAHWs working under each of these institutions are not available at any of these professional associations, or organization. The planning unit of MoALD may need coordinate and compile information also of VAHWs and paravets professionals at a point of time.

Veterinarians in MoALD/ DLS

Approximate 1200 numbers of veterinary science graduates are working both under the umbrella of MoALD/DLS, provincial-level government entities, and in other entities (Universities, private sectors, etc.,) as summarized in Table 8. The professionals in MoALD and DLS, under federal jurisdictions, are working under different divisions and units of DLS all over Nepal (now adjusted to different provincial Ministries and Directorates, and in VH&LSEC).

Table 8: Technical HR in veterinary science profession (Approximate)

S.N.	Veterinary Science technical personnel	Number in Nepal (Approx.)	Number in MoALD (Approx.)	Other Sector than MoALD (Approx.)	Remarks
1.	Number of Professional staffs of veterinary Science with Ph.D. degree	11	4	7	NVA and NVC
2.	Number of Professional staffs of veterinary Science with MS degree	68	40	28	NVA and NVC
3.	Number of Professional staffs of veterinary Science with BV. Sc& AH (Bachelor's degree)	1,120	560	560	NVA and NVC
	Total	**1,199**	**604**	**595**	

Source: National Veterinary Council (NVC); National Veterinary Association (NVA) professional Diary 2076 and consultation with veterinary professionals

Approximately 331 graduates in animal science, and 49,500 non-graduates, are working in the livestock services in Nepal (Table 8). In the same way, approximately 1200 veterinary graduates are working in the livestock sector. The bachelor's degree program for Animal Science subject has been closed in the Tribhuvan University faculties program in 2052 BS. Instead, the focus is more on the production of graduates with specialized expertise such as B.A.Sc. and AH (Bachelor in Veterinary Science and Animal Husbandry), who can provide health services as well and animal husbandry related information to the farmers.

3.6 Strategic Issues on Capacity Development of Livestock Sector

Governance and Positive Incentives for Retaining Competent Professionals

From the national expert survey, it has been identified that limited numbers of LS professionals (human resources) capacity exists in DLS/MoALD institutions particularly for policy analysis, planning, service delivery, and implementation. There is little analytical work and outputs produced by MoALD related to policy analysis and related issues. The formulation of policy in livestock sectors is often done without adequate analytical or evidence-based sound analysis. Policy implementation is insufficiently monitored and valuated, or is delayed until it is too late to make adjustments and corrections.

Limited human resources are available in the LS public entities to serve a large number of the farming population. In addition, inadequately trained service providers are working on ground level activities across large numbers of municipalities. All that results in the poor quality of service delivery to the smallholder farmers, and/or, inability to meet service demand of the mass population of livestock farmers by the ministry, and especially in agribusiness enterprises and livestock entrepreneur's management sectors

In fact, if the governance of daily international functions of MoALD and under its entities, then the organizational performance would be enhanced substantially. This will also help to ensure positive incentives for retaining competent professionals. An average employee of MoALD or any other sector ministry is more likely to work more efficiently and effectively, not only just because of more monetary

incentives but also if his/her work is recognized fairly and provided the needed non-monetary benefits and positive incentives in terms of various other forms.

To improve governance of functioning among the agrarian sector functioning institutions and organizations is one of the priority outcome indicators of the Agricultural Development Strategy (ADS) of the MoALD 2015. "Right man in right place" policy to be practised strictly, especially while transferring professionals across the institutions/Organizations, but it is done, as per the political interest and interconnection, and the staffs' connections and other networks in the groups

Thus, a separate mechanism for monitoring and evaluation, and for planning for new programs in the ministry, i.e., an evidence-based decision-making process, is proposed in this study. Some of them are listed below.

a) Result based (indicator-based) monitoring mechanism needs to be established in MoALD, DLS, and other LS institutions.
b) Accountable decision-making needs to be practised to make it complementarity across all tiers of the government (the organizations) by making the planners and other decision-makers responsible for the outcome of the implementation of the program.
c) As much as feasible, evidence-based planning must be followed for the launching of new policies and programs.
d) To coordinate Provincial and local governments to ensure transparency in decision making is to be established.
e) Service accountability and timeliness in service delivery is to be maintained in MoALD, and under its various constituents.
f) The use of ICT is encouraged in information sharing and communication, online service delivery is to be set up as an essential part of most of the allocation of grants and subsidies.
g) A focal person is to be appointed in MoALD for regular updates of website and information to mass media and sharing the information through the website.
h) Performance-based management and performance-based incentive system is to be implemented in the MoALD and other entities under its jurisdiction.
i) Electronic file tracking and assessment of employee work performance and work efficiency to be monitored.
j) The morale and motivation of employees are to be enhanced through institutionalizing result-based monitoring and evaluation, and equitable distribution of incentive-based on realistic and objective performance indicators.
k) The existing performance appraisals are to be revised and to be more predictable.
l) Clear cut demarcation is to be maintained between right and duty and make result-oriented performance management.
m) Scientific and transparent delegation of authority to be maintained across the tiers of the organizations within the MoALD.
n) The systems and functions in MoALD need to be encouraged group dynamics and teamwork, and this is to be tied up with the internal evaluation system, as well.
o) Changing attitude of all senior officials of the MoALD for minimizing practices of making Ad-hoc decisions/arrangements for managing the human resources and capacity development programs in MoALD, DLS and other entities within the ministry.

CHAPTER IV

CAPACITY NEEDS IN FEDERAL LEVEL LIVESTOCK INSTITUTIONS

4.1 Livestock Sector Capacity Needs within the MoALD

MoALD is mandated for the overall development of agriculture including the three major sub-sectors of the crop sector, livestock, and fisheries. The major capacity needs for the livestock sector are summarized below.

4.1.1 Strategic Planning and Policy Formulations and Implementation

Some of the major policy guiding documents of the Nepalese agriculture sector, which envisioned poverty reduction by an overall improvement in the productivity of the agriculture sector (from farm to fork) are listed below:

- National Agricultural Policy 2061 BS;
- Agriculture Development Strategy (ADS) 2015-2035;
- The 15th five years 'periodic plan;
- Then, various livestock farming-related policies, regulations, and acts; and
- Multi-Sectoral Nutrition Plan, Food Security action plan, and zero hunger challenge initiative 2016-2025.

The Planning and Development Cooperation Coordination Division (PDCCD) in MoALD prepares the annual plan and multi-year plan for ministry to achieve the fundamental goals with the help of DLS, DOA, DFTQC, and NARC, which is. led by a joint secretary, which has got several units headed by undersecretary level officers. Details are in Annex Figures 1 & 2. The PDCCD also provides functional linkage in planning and policies with other divisions and departments to prepare annual program ad policy as objectives as feasible.

4.1.2 Program Management (Planning, Implementing and Monitoring)

Regular program management-related issues, which include Planning, Implementing, and monitoring of programs and projects in the livestock sector institutions of MoALD are briefly summarized in this sector. Ministry of Finance (MoF) provides budget ceilings and guidelines to the MoALD annually, as suggested by the National Planning Commission (NPC). The PDCCD again allocates the budget ceiling for all departments, divisions, centers, boards, council, and company based on priority, program, performance, and actual expenditure related to last year. The PDCCD compiles the estimated programs and budget from the department and other organizations of MoALD entered in the Line Ministry Budget Information System (LMBIS).

The major capacity development-related activities to be performed (of capacity needs) in program management for MoALD are as follows:

- Annual working calendar, annual action plan, monitoring plan not properly planned;
- Feedback assessment and information from monitoring and evaluation systems are less prioritized in the planning process;

- One official must do the diverse sets of job and functions; i.e. specific functions of the job is not specified in the program management division;
- Use of ICT for PMIS or M & E systems is very poor, and not to the level of satisfaction;
- Low level of incentives makes the staffs focus more on TADA rather than the core responsibilities of the assignment; and
- Late release of budget jurisdiction to lower level originations against program budgets.

4.1.3 Planning and Implementation of ICT-based LMIS

Livestock development-related programs are implemented by the government for the benefit of smallholding farmers residing across the countries. Coordinating all of them and across all municipalities is not an easy task. Similarly, implementing planning and program on the ground takes place a long time due to long administrative procedures (or poor governance capacity). This is due to an inadequate linkage system across the sub-sectors of livestock.

Sensors, RFIDs, the internet, artificial intelligence, and blockchains are used in livestock farming and management. Disease surveillance and monitoring are widely used through recent tools developed in information technology. If we could adopt an even limited portion of this new innovative knowledge that would help to modernize our livestock production and marketing system in Nepal.

The use of ICT within the MoALD with some software has been in limited practice for livestock management. For conducting financial management planning, budgeting, and accounting function software like Line Ministry Budget Information System (LMBIS), Sub-national Treasury Applications SuTRA, etc. are in use. But the major software, Livestock Management Information System (LMIS) which is a gate-way to smart technology for livestock has not fully developed yet, except for some initiations recently taken by the ministry on this front. Similarly, more important software could be M & E system which should be established and used for a regular monitoring and reporting system of ministry. The capacity of institutions under ministry with adequate facilities as well as the capacity of technical staffs and other staff should be enhanced.

4.1.4 Process Management

MoALD has developed different, guidelines, directives, and norms for managing processes that are based on the legislative framework endorsed by the Nepal government. Each office has to display the Citizen's Charter. It describes the service procedure, responsible person, and cost for that specific service. Decisions remade based on the report of monitoring, and the current scenario and circumstances. Decisions are made by the concerned department, secretary, minister, and by the cabinet which flow from top to bottom.

The major gaps in process management by MoALD are as follows:

- Decision making is often ad-hoc rather than evidence-based and monitoring report;
- Weak reporting, documentation, and feedback;
- Weak monitoring and evaluation system;
- Inadequate protocols and SOP; and
- Inadequate modern communication tools.

4.1.5 Institutional Linkage (Planning, Implementing, Monitoring, and Partnership)

The overall functions planning and program implementation of the ministry (MoALD) in terms of development and delivery of livestock services are affected by the plan and action of various other ministries and line agencies. Some of the important in the lists are the Ministry of Education, Science

and Technology (MoEST), Ministry of Energy, Water Resources, and Irrigation (MoEWRI), Ministry of Federal Affairs and General Administration (MoFAGA), Ministry of Finance (MoF), Ministry of Forests and Environment (MoFE), Ministry of Land Management, Cooperatives and Poverty Alleviation (MoLMCPA), and Ministry of Commerce, Supplies and Industries (MoCSI). Thus, institutional linkage and timely coordination among the activities of these line ministries are important. for achieving efficient planning, implementations, and M&E of MoALD.

Similarly, interactions and strong linkage with donor agencies, INGOs and NGOs, professional associations, and the private sector are essential. There is duplication in the role between inter-ministries and functional linkage among three tiers of the government. This is also due to a lack of proper coordination.

The major capacity gaps identified are as follows:

- Poor coordination of MoALD (respective planning division) with the Agricultural Research (NARC), Agricultural Education (AFU, TU) in terms of annual program and periodic planning and periodic information and experience sharing related issues.
- Inadequate functional collaboration and effectiveness of work and sharing information on work activities of MoALD with the National Dairy Development Board (NDDB), Dairy Development Corporation (DDC), Nepal Veterinary Council (NVC).
- Only virtual linkage exists with the provincial ministry (MoLMAC) and local government (i.e., insufficient functional linkage across agencies), a bottleneck even for implementation of special and conditional grant projects across the provinces by the MoALD.
- The role and responsibility of MoLMAC need more clarity up to the public level.
- Less familiarization with objective, monitoring checklist, procedure, cross-cutting issues, and their possible way outs before to monitor local level governments program.
- Lack of functional linkage between provincial government to local government compromising effective implementation and monitoring of various livestock program.

Coordination among representatives of various ministries and sectoral line agencies at a local level is critically important since Livestock Service Centers are key players at the ground level services of livestock. To facilitate their functions more vivid, supportive, and constructive suggestions/ recommendations are required, as explained in later chapters.

4.1.6 Structures

The following are the key organizations under federal level livestock sector institutions, which are also linked with each other. Flows of information among and between these organizations are provided in a tabular format below.

Table 9: Selected organizations of livestock working at the federal level

Organizations	Competency	Link to	Organization	Competency	Link to
ministry of Agricultural and Livestock Development (MoALD)/DLS	Overall responsibility for the growth and development of agriculture and livestock sector.	All department and Line agency	Nepal veterinary council (NVC)	National veterinary statutory body	Universities, College, Line ministry, UGC
Nepal Agricultural Research Council (NARC)	An autonomous organization to conduct agricultural research in the country	functional network and others	department of Livestock Services (DLS)	Increase Production and productivity of livestock products and zoonosis control	functional network
national Dairy Development Board (NDDB)	An apex level policy-making body for overall dairy development	DDC, dairy industries, dairy cooperatives, and farmers	dairy Development Corporation (DDC)	Economic advancement of the farming communities and nationwide annual milk collection	Own supply scheme
Central Fisheries Promotion and Conservation Centre (CFPCC)	Promotion, conservation, extension, and research	Own functional network	Related universities and colleges	Teaching, research, and extension	Can be linked to all

Source: The study team based on information compiled from the fieldwork.

Table 10: Other specific organizations

Organization	Core Competency[4]	Link to	Organization	Core Competency	Link to
National Livestock Breeding Office (NLBO)	Production and distribution producing quality semen and liquid nitrogen for AI.	Animal Genetic Resource and Economic Analysis Division (AGREAD); NLBOs at Pokhara, Lahan and Gaughat, Nepalgunj	National Animal Feed and Livestock Quality Management Laboratory (NAFLMQL)	Quality analysis of animal feed, promotion of seed and forage production	Government Livestock Development Farms, Forage Seed Producer Farmer's Group, Feed industries
Central Referral Veterinary Hospital (CRVH)	It provides specialized treatment services to animals	VH&LESC and LSCs at Municipalities	Natural Reservoir Fish Promotion and Conservation Centre (NRFPCC)	Conservation and promotion of fish and aquatic animals that are found in the river, pond, lake, reservoir, wetland	Central Fisheries Promotion and Conservation Centre (CFPCC)
Animal Quarantine Division (AQD)	To check the entry of animal disease in the country or the specific areas of a country through animal, animal products, or animal production inputs.	Animal Quarantine office (AQO) and Animal Quarantine Check Posts (AQCP)	National Vaccine Production Laboratory (NVPL)	Production of different livestock and poultry vaccines	Animal Disease Investigation and Control Division (ADICD)
Veterinary Standard and Drug Regulatory Laboratory (VSDR))	To regulate the standard of veterinary drugs, biological, feed additives, and growth promoters	Animal Disease Investigation and Control Division (ADICD) Veterinary drug and feed additives importers			

Source: The study team based on information compiled from the field work.

[4] We acknowledge one of the reviewer of the report from the project in providing valuable inputs and feedback in some of the issues listed in Tables 10 and 11.

Professional Staffing at MoALD and DLS

The distribution of different technical staffing DLS is depicted in Table 11 and Figure 8. Gadget classes III and II are only 14 percentage of the total staff of the DLS. Other information in Table 10 is self-explanatory. Likewise, the study team asked national experts also to provide information on the adequacy of the Human Resources (Professional Staffs) at each of MoALD and DLS organizations. The results are summarized in Table 12. Among the surveyed respondent of 30 national experts, 63 percent said that the technical staffs in MoALD are not adequate, and likewise, 80 percent of the surveyed respondents said the available technical staffs in DLS are not adequate too.

Table 11: Distribution of different professional staffs by their positions within the Department of Livestock Services (DLS) in 2019

Positions at DLS	Number	Percentage
G Iclass	16	0.98
G II class	57	3.19
G III class	181	11.11
NG I class	437	26.20
NG II class	297	18.23
NG III class and related	24	1.47
Office Assistants	617	38.87
Total	**1,629**	**100.00**

G = Gazetted Officers; NG Non-Gazetted Officers.
Source: Department of Livestock, unpublished internal data record, 2020

Figure 8: Distribution of professional staffs by their positions in the Department of Livestock Service (DLS) in 2019

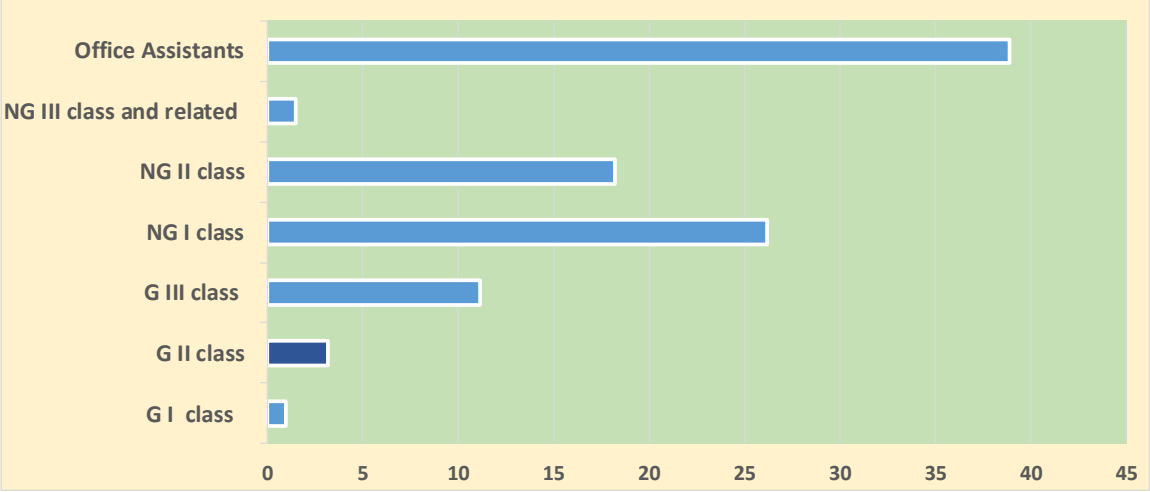


Table 12: Adequacy of existing human resource (professional capacity) providing acceptable services based on key informant and expert survey 2020

Particulars	MoALD	Percentage	DLS	Percentage	Remarks
Yes Adequate	11	37	6	20	
Not Adequate	19	63	24	80	
Total	**30**	**100**	**30**	**100**	

4.1.7 Production and Productivity Management

Production and Productivity of Livestock

MoALD formulates policy, guidelines, decisions that support the farmers to increase the production and productivity of livestock. Similarly, the intervention of improved and adapted technologies to increase productivity and initiate agribusiness is essential.

4.1.7.1 Dairy Production and Productivity (Cattle and Buffalo)

The dairy sector contributes almost 9 percent to the national GDP. There are over 7.39 million cattle and 5.31 million buffalo in the country; among them14.6 percentage of cattle and 29.39 percentage of buffaloes are in the milking stage (MoALD 2017). The annual growth rate of milking cattle and buffalo is 1.82 and 4.8 percent, respectively. The average milk production per lactation period is 737 litter and 879 litter, respectively for cattle and buffalo, which is a very low level compared to the productivity of exotic breed of dairy cattle and buffalos.

A large number of smallholder farmers are involved in the milk production system, where more than 150 thousand households are involved in about 1700 milk cooperatives (CDCAN, 2019; MoALD 2019). The annual per capita availability of milk at the national level is 72 litter which is lower than the quantity approved by FAO (91 kg per year or 250 grams per day). The milk production needs to be increased by more than 9% annually to meet the milk consumption to the level as suggested by the FAO.

Key measures to increase livestock productivity and marketing performances of the sector are listed below.

- Selection of breed based on geographical suitability and farmer's need,
- Breed improvement and conservation of local breed,
- Livestock feeding management,
- Livestock healthcare management and bio-security,
- Marketing and value chain development and value addition of livestock products,
- Adoption of Climate-Smart Technologies and Practices.

4.1.7.2 Meat Production and Productivity (Goat, Poultry, Buffalo, Meat, Pigs)

Buffalo, Goat. Poultry, Pig, Sheep, and duck are the main sources of meat in Nepal. The average per capita consumption of meat is about 13.1 kg per year, which is lower than the minimum nutrition requirement recommended at the global standard (14 kg). The total meat production in the year 20118/19 was 357,082 Mt. which is 3.14% higher than the year 2017/18 (*Krishi* Diary 2077, MoALD, 2077)

4.1.7.3 Chyangra Pashmina Production and Productivity

Pashmina from *Chyangra* is being exported from Nepal to western European countries. However, to meet the increasing demand for Pashmina in the country, Nepal Government has been importing Kashmiri pashmina and its related product from China and Mongolia, there is a possibility to increase pashmina yield by 2-3 folds than it is now, just by improving the existing breed of Chyangra. Despite modern technology, special focus needs to be given on various interventions in breeding, feeding, housing management, and enhancing the value chain of the pashmina products, besides processing.

4.1.7.4 Major Gaps in MoALD/DLS for Livestock (and its product) Productivity and Marketing

- Subject matter specialist (SMS/expert) on Pashmina is inadequate, even available human resource has been transferred to other places due to various administrative issues.
- Need to identify a pocket area and identify a marketing channel on that basis.
- Lack of efficient pasture management.
- Inadequate research regarding releasing new fodder and forage variety as per country's ecological domain particularly in the high hill and Himalayan region.
- Unable to integrate smallholder farmers in agribusiness (Policy lacking).
- Meat Inspection and Slaughter House Act 1995 is not properly implemented.
- The efficiency of the animal quarantine system not as expected due to improper placement of veterinarians as envisioned by the animal health and livestock service act 1995.
- Animal welfare obligations are compromised during the transportation of live animals
- Inadequate support system for the modern and equipped slaughterhouses even at major urban centers.

4.1.8 Agribusiness and Value Chain Development

4.1.8.1 Dairy (Cattle and Buffalo)

Around 500 thousand dairy smallholder farmers (representing over 150 thousand households) are involved in supplying milk in the formal market through about 1700 dairy cooperatives (MoALD, 2019). Out of the daily production of 6.2million-liter milk, around 15% of the production is marketed in the formal sector market, 35% of it is marketed through the informal market, and the rest of the milk produced (50% milk) is used as home consumption. Out of the home consumption, a large part of the fluid milk is consumed and the rest is used for domestic processing to produce ghee, hard cheese (*chhurpi*), etc. (Source: SARC dairy outlook, 2017; MoALD 2019).

Out of the total volume of milk procured (marketed) in the formal sector, the marketed share of the milk (by volume) by Dairy Development Corporation, Private dairy industries, and dairy owned by cooperatives is 38%, 57%, and 5%, respectively. Out of the total volume of milk processed and marketed in the formal sector, about 77% is consumed in the form of fluid milk, 8% in the form of curd, 7% in the form of skim milk powder, 3% in the form of soft cheese (*paneer*) and 5% in the formed of other products like butter, ghee, ice-cream, cheese, and sweets (NDA Report, and MoALD, 2019)

4.1.8.2 Meat (Buffalo, Goat, Pig, Poultry)

The major actors in the meat value chain are farmers, traders, retailers, input suppliers, and consumers. The interrelation between these actors should be policy guided so that meat and its value-added business can be enhanced. The inadequate development of value chain linkages of the live animal and animal products are some of the major bottlenecks for the underdevelopment of commercial livestock

farming (and livestock agri-business) for buffalo, goat, and pig sub-sectors, where an informal network of agents is more prevalent than the formal network of agents. .

Over 75 percent of rural households are rearing goat in Nepal (MoAC, 2011), which clearly illustrates a greater preference of goat over other livestock species by average rural households in the country, especially, smallholding and marginal households residing in rain-fed or marginal locations. For a large part of smallholding and marginal rural households in Nepal, goat farming is a major part of the livestock sector, who do not have adequate landholding to grow all the food crops needed for their food needs, income, and employment round the year.

In relative terms, the value chain network of the poultry sector is better developed in Nepal than that of the other animals. Even large-scale private investments are also there in the poultry agro-business sector, who also are demanding specialized poultry management and value chain strengthening related supports from the government. For example, support on cold chain supply chain support, and control of disease and pest outbreak in the most efficient and effective manners so that these disease outbreak (such as bird flu outbreak, etc.) on poultry farm at the hotspot side can be checked and controlled on time, minimize the losses across the locations.

4.1.8.3 Chyangra Pashmina Production and Productivity (Input, Production to a Market Consumer)

Chyangra Development Program for Pashmina production has been initiated through NTIS with a broad theme for enhancing Pashmina production and supply to the Pashmina Industries in the country. Similarly, *Bhyanglung* Sheep production program was initiated for carpet wool production. These programs are launched to improve the livelihood of farmers of the Himalayan region.

The major gaps in agri-business development in the livestock sector for MoALD/DLS are as follows:

- Poor linkage between the departments and offices working on the agribusiness sector (Policy lack to guide the linkages);
- Limited or inadequate agri-business expert (subject wise like dairy, meat, pashmina);
- Limited exposure and training (capacity building) in value chain support and enterprise development-related subject areas; and
- The financing and priority sector land and credit on livestock enterprises are more on the policy recommendations and strategy documents of the government document than being implemented on the ground.

4.1.9 Financial Management (Financial Planning, Financial Accountability, and Financial Statements and Fund Flow Mechanism, Grant Management System)

Each office (cost center) under MoALD plans their annual budget, which is compiled by PDCCD, as mentioned above and after approval again ceiling is provided to respective offices by PDCCD of ministry. It is the responsibility of the heads of offices to spend the budget by the prevailing laws and directives, and then to get the expenses audited regularly. The office head is assisted by a finance controller/account officer of the finance section of the office, who is posted from the office of the financial comptroller general. The fund is allocated by the ministry to the offices as per the program and based on the level of last year's expenses.

The major gaps in financial management within MoALD are as follows:

- Inadequate capacity building of account officer in annual program planning,
- Poor knowledge of computerized accounting and payment system using ICT,
- Inadequate training and exposure to budget holders on financial management,
- Limited knowledge for grant management.

4.1.10 Cross-cutting Issues (Gender and Social Inclusion, Climate Smart Production, etc.)

Nepal is vulnerable to climate-related risks which are increased rainfall variability, increased winter drought, increased number of dry days in pre- and post-monsoon seasons, which affect crop and livestock productions. There exist potential epidemic diseases like FMD, H.S, B.Q, and parasitic infestation in livestock during the drought period. Similarly, during the flood, there will be a shortage of feed and fodder and the animals may strive, leading to a decrease in production, and farmers have to bear heavy economic losses. Moreover, the insurance payments on such losses of production losses are rarely compensated on time.

MoALD has to develop Standard Operation practice (SOP) and other guidelines for gender and social inclusions in their program. The resources need to be distributed equitably for increasing the livelihood of these sectors. The major gap is the subject expert who could develop the proper guidelines to cope with climate change, develop the climate-smart and climate-resilient technology, and incorporate the programs with the provision of social and gender inclusion.

Likewise, there are very low numbers (in percentage terms) of female extension personnel at the grassroots level. This is already a problem for the better functioning of extension services in rural areas. Also, recently due to the high pace of out-migration of adult members of households in rural areas to foreign employment, the agricultural system in Nepal is womanized. In this context, the recruitment of more women members of extension workers at the grassroots level is urgently needed to enhance the effectiveness of extension services in the country.

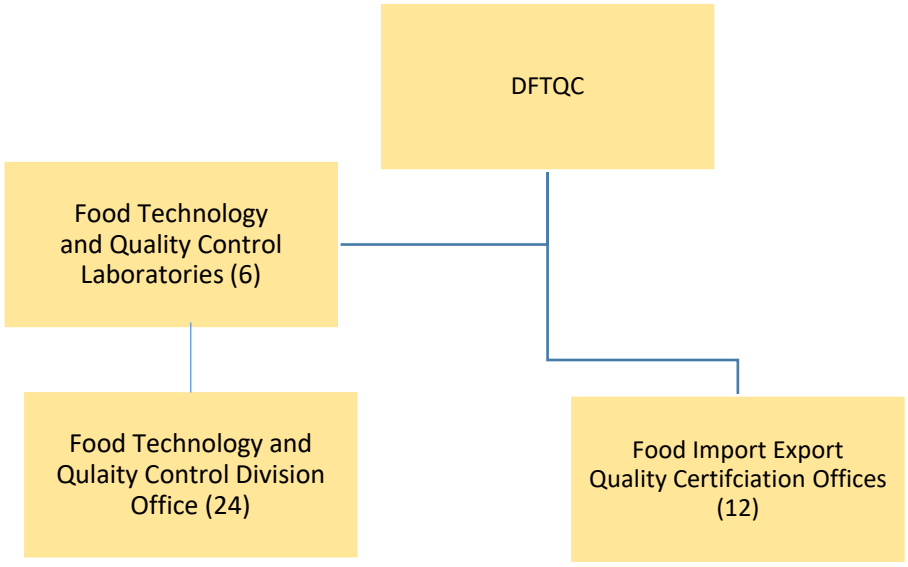
It is a high priority to the livestock sector agencies (all federal, provincial, and local government) to work in adapting and introducing labor-saving farm equipment that is suitable for smallholding farmers of Nepal. For example, the introduction of a milking machine, and chaff cutter, etc., even under the rental service market locally, is a high priority of the government to reduce excess drudgery of women farmers in livestock rearing practices.

4.1.11 Other Major Stakeholders of MoALD

A) Department of Food Technology and Quality Control (DFTQC)

Department of Food Technology and Quality Control (DFTQC) works as a regulatory body to assure the food and feed quality as directed by the food act 2023, and feed act 2033. All the central office, regional office, division office, and food quarantine is under the federal government. Food Technology and Quality Control are established under DFTQC at different locations namely Biratnagar, Janakpur, Hetauda, Bhairawa, Nepalgunj, and Dhangadi. There are 24 division offices under these regional offices covering 77 districts of Nepal. There are 12 food quarantine offices (Food Import Export Quality Certification Offices); 2 on the china border, 9 on the Indian border, and 1 on the Tribhuvan International Airport. These offices generally inspect the import and export food commodities (raw, processed, and semi-processed) including dairy and meat. The organizational structure of DFTQC is shown in Figure9.

Figure 9: Organization structure of Department of Food Technology and Quality Control (DFTQC)



Earlier, the DFTQC has only five regional labs for checking the quality of goods, etc., but now, it has set up one regional level one in each of the seven provinces in the country. These provincial labs of DFTQC have very important roles in terms of managing the import and export of live animal and livestock products from the country.

The major lacking in LS about food safety and agro-enterprise development is the lack of integrated coordination with DFTQC and its offices, especially in the area of quality assurance and standard settings for output, value-chain, food safety aspects, etc.

The Technical Human resources is available in DFTQC are shown in Table 13.

Table 13: Human resource (technical) available in DFTQC by position level

S.N.	Level	Allocated	Currently Fulfilled	Remarks
1.	First Class Officials	4	4	
2.	Second Class Officials	18	16	
3.	Third Class Officials	30	28	(One veterinary doctor)
4.	Non-gazette first class Officials	21	9	Post are fulfilled by a contract basis

Likewise, the capacities of DFTQC (central office, Kathmandu) for managing the following category of activities are shown in Table 14. The information provided in Table 14 below is self-explanatory.

Table 14: Capacity status of DFTQC (Kathmandu) to enhance the quality and safety of livestock services based on key informant survey

S.N.	Questions	Answer	If not, please provide reasons or N/A
1.	Misuse of higher antibiotics and pesticides for controlling ectoparasites	Yes	Depend upon compliant
2.	Misuse of hormones to improve animal feed efficiency	Yes	Depend upon compliant
3.	Adoption of good animal husbandry practices (GAHP)	No	Pre-harvest
4.	Good feeding practices (GFP)	No	Pre-harvest
5.	Good farming practices	No	
6.	Undertake periodic products quality monitoring at industry points	Yes	
7.	Organize workshops, training, and publicity to encourage the industries for compliance to GMP and implement awareness-raising in food quality and standards	Yes	
8.	Undertake a gap analysis in animal feed standards and animal feed safety	Yes	
9.	Conduct training for larger industries on Hazard Analysis and Critical Control Points (HACCP)	Yes	
10.	Implement a certification program for traders, butchers, and postharvest facilities.	Yes	
10.	Implement consumer knowledge and awareness programs to stimulate market demand for safe and nutritious (quality) livestock products viz. Dairy, Goat meat, etc.	No	
11.	Assist the grant recipients in machinery/equipment design and layout including effluent and chemical waste management.	Yes	

Source: The study team based on the Key Informant Survey with national experts of food quality.

The central laboratory of DFTQC has a facility to analyze pesticides, antibiotics, and hormones. Besides, the GMP, certification programs, and quality regulation. In addition to this, it also conducts DFTQC conducts consumer awareness, knowledge programs, and conducting training to industry about HACCP. It also analyzes the gap between feed standards and feed safety. Moreover, at present, quality control of pashmina, GAHP, and GFP do not come under the scope of DFTQC.

The skills for business proposals and climate-smart technology are very poor as per the survey conducted. However, skills in quality planning, project planning, and implementation, SOP preparation, HPLC, and GCMS operation are relatively good.

Based on a survey and expert advice, the following are the additional specialist requirements in DFTQC (central office) as shown in table 15.

Table 15: Additional specialists required in DFTQC (in KTM lab) to perform the given mandates

Level/types of specialists	No. of specialists needed	Remarks
1. Risk Analyst	2	
2. Food Sensory Analyst	2	
3. Nuclear Scientist (Food origin and authenticity)	2	
4. Biotechnologist	2	
5. Nutritionist	2	
6. IT Specialist	1	

Source: The study team based on Key Informant Survey with national experts of food quality

DFTQC can perform the following functions besides regulatory function, which are illustrated as:

- Developing SOP of good farming practice (GHP) of various animal farming, good feeding practices (GFP), and various agri-business modality,
- Food processing and value-addition,
- Agro-enterprise development,
- Agro-business plan development,
- Slaughterhouse plan development.

However, for the above job-functions, human resources on B. Tech (Food), M. Tech (Food), M.Sc. (dairy), M.Sc. (Meat) with MBA will be more efficient. The role of Veterinarians and animal nutritionist is mentioned in the Codex alimentary document.

B) Nepal Agricultural Research Council (NARC)

Nepal Agricultural Research Council (NARC) was established in 1991 as an autonomous organization under the "Nepal Agricultural Research Council Act - 1991" to facilitate effective agricultural research in the country to enhance productivity and income of large-section of small-holding farmers.

Objectives:

- To conduct qualitative studies and researches on different aspects of agriculture and livestock,
- To identify the existing problems in agriculture and find out the solution,
- To assist the government in the formulation of agricultural policies and strategies.

Functions and Responsibilities:

- Conduct qualitative agricultural research required for national agricultural policies.
- Prioritize studies and researches to be conducted.
- Provide research and consultancy services to the clients.
- Coordinate, monitor, and evaluate the agricultural research activities in Nepal.
- Document the research activities.

The major concerns and issues in relations to Capacity Development in NARC are as follows:

- Many positions of scientists and professional staffs are vacant for a long time.
- Limited exposure and training to the professional staffs for capacity building.
- Limited linkage with various sister organizations of MoALD (public and semi-public entities of livestock sector institutions).

- International communication and exposure gradually cut back and are at the minimum level.
- Insufficient level of collaboration with agricultural universities, DLS, provincial and local governments on doing LS research and development; and all major entities are working in isolations.
- The annual budget of NARC is provided through MoALD, however, the functional linkage at the program level of NARC with the related thematic programs of MoALD is very weak, rather absent. Hence, there is a huge gap in two ways participation in program and planning, and feedback mechanism even on closely related programs being implemented by MoALD affiliated entities and of NARC entities.
- In an adequate interconnections mechanism between research and extension and development in agriculture (both crops, livestock, and fisheries) in Nepal, as a result, there is several missing dots when it comes to collaboration and working together between NARC and respective divisions of MoALD.

In the context of ineffective collaboration and coordination on work activities between NARC and MoALD, a separate section is devoted to this issue in the next chapter, where we have provided a detailed set of recommendations in this regard.

C) National Dairy Development Board (NDDB)

In 1990, the GoN approved the "Ten Year Dairy Development Plan (1991-2000)" as a blueprint for dairy development in the country. Based on the recommendation of the Plan, the GoN established NDDB in 1992 under a separate Act. The board is an apex level autonomous institution of dairy development in Nepal. The major objectives of the board are to:

a. Assist GoN in formulating national level dairy development policies and plans,
b. Develop dairy industries,
c. Find remedies to problems relating to livestock development and animal health sector for dairy development,
d. Maintain coordination among the public and private dairies,
e. Carry out dairy development-related high-level studies and policy research works, and make arrangements for fodder and pasture resources.

The functions of NDDB include:

- Policy formulation and recommendation on import of goods necessary for production and promotion of milk and milk products as well as animal feeds, and implementation of the approved policies,
- Formulation and recommendation of milk pricing policy to the GoN,
- Recommendation to GoN on the well-being of dairy processors and consumers,
- Development of dairy cooperatives,
- Registration of dairy industries,
- Management and mobilization of national and foreign grant and loan for dairy industries,
- Technical assistance for setting-up, improving, promoting, and safeguarding dairy industries
- Review, monitoring and evaluation of dairy development programs, and
- Carry out other necessary improvement and modernization related activities for dairy industries in the country.

D) Agricultural Information and Training Center (AITC)

As per the decision of the Government of Nepal, the Agriculture Information and Communication Center and the National Agricultural Research and Development Fund (NARDF) have been merged in one place and established as an Agricultural Information and Training Center (AITC). The main responsibility of AITC is to provide training on various subjects related to agriculture and animal science to the officers working in various faculties of agriculture service at the federal, state, and local levels.

- The AITC website (www.aitc.gov.np) is providing online services and useful materials regarding agriculture technology, including animal husbandry. In collaboration with the district-based F.M., agricultural programs based on local needs in the local language are being produced and broadcasted since the early sixties of B.S.
- The AITC also orients and motivates the farming community to adopt a knowledge-based agriculture system by enhancing the inter-relationship among farmers, agricultural extension workers, and researchers using modern information technology.
- The AITC obtains technology and information on scientific achievements made in the field of agriculture like food and nutrition, agro-market and agribusiness, cooperatives to policymakers, agricultural technicians working in government and non-government bodies, agricultural scientists working for the Government, people involved in agro-processing, and traders

Training related capacity gaps in MoALD:

- Policy formulation, M & E, policy advocacy, monitoring, supervision, and evaluation of policy implementation
- Economic analysis, value chains, and business management
- Policy analysis, quality control, and regulatory work
- Infertility and gynecological disorder in animals
- Rangeland and pasture development and sustainability
- Animal husbandry, quality production, and enhancement.
- Product diversification such as ilk cheese, dry meat, pashmina,
- Inspection and certification
- Quality seed and sapling production
- Bio-security and climate risk management
- Animal breeding, animal health care, and marketing,
- Fodder crop breeding and seed production
- Dairy, meat, and poultry business plan development
- Surgical and radiological services
- Dairy, meat, and poultry business plan development experts

E) National Farmers Commission (NFC)

NFC has been formed as per the Executive Order 2073 BS of the government to make Nepal self-reliant in agricultural production by modernizing, commercializing, and diversifying the agricultural sector which is the backbone of the country's economy. Its aim is also protecting and promoting the rights of farmers; to provide policy support to formulate necessary policies, laws, rules, and guidelines to achieve the desired objectives/outputs and expected achievements of the Agriculture Development Strategy (2015-35) which is approved by the Government of Nepal.

F) National Cooperative Development Board (NCDB)

NCDB was formed under the NCDB Act, 1992. The board has been constituted to promote and develop cooperatives, which is composed of two members representing government, private sector, and professionals. The Secretariat of the Board is headed by an Executive Director appointed by GoN. The NCDB is also responsible for mobilizing funds, entering into joint venture agreements, extending technical support, and coordinating the functions of non-government organizations involved in cooperatives activities.

G) Dairy Development Corporation (DDC)

DDC is the pioneer public sector dairy entity. It was created by the government in July 1969 under the Corporation Act of 1964. Its major objectives are to:

- Provide a guaranteed market for milk to the rural farmers with a fair price,
- Supply pasteurized milk and milk products to both urban and rural sector consumers,
- Develop an organized milk collection system to meet the increasing demand for pasteurized milk and milk products, and
- Develop an organized marketing system for milk and milk products in urban areas.

Board of Directors appointed by the GoN governs the DDC. The General Manager of the Executive Chairperson is also appointed by the Government. Currently, DDC operates 7 milk supply schemes (MSS) and a Milk Products Production and Supply Scheme (MPPSS). DDC's milk collection network exists in 45 districts, where 65 milk chilling centers (MCCs) and about 1200 MPCSs are operating.

4.1.12 Knowledge Management and Development Communication

Knowledge management is an instrument that helps organizations to provide an environment supportive of knowledge creation, sharing, and application. Information and communication technologies are often regarded as the enabler for the effective and especially efficient implementation of knowledge management.

Publication of different documents including success stories and knowledge notes are the knowledge products obtained during the implementation of any specific program of the MoALD. Developing appropriate Knowledge information shearing products (KISP) includes print media (flyers, brochures, reports, working papers, monographs, manuals), electronic/digital devices (CD ROMs, tapes, DVDs, multimedia, pen drive), participatory video media - live and animated, television, radio, telephone and internet (websites and emails) to enhancing information flow, learning and shearing at a different level of governance.

CHAPTER V

CAPACITY NEEDS IN PROVINCIAL LEVEL LIVESTOCK ORGANIZATIONS

5.1 Enabling Environment

A. Political Commitment and Vision; Policy, Legal, and Economic Frameworks

The Federal Constitution of Nepal 2015 has emphasized greater roles of the provincial government and local government on the implementation of animal health, livestock husbandry, environment protection, and disaster risk management programs to increase livestock production and productivity. However, due to the recent structuring process, and realignment of the professionals across the various tiers of the government, the competency and number of professional human resource and the scale of infrastructures of the provincial government are not adequate to manage all these activities and to provide efficient services to the farmers and other stakeholders.

Using the major functions (and outcome) of the livestock service of the major entities of the LS institutions at the provincial ministerial level (MoLMAC) policies and enabling environment are summarized below in Table 16.

Table 16: Livestock sector policy and enabling related issues to be provided/addressed by the provincial ministerial-level livestock institutions

Livestock Productivity	Livestock Health	Livestock Nutrition	Management	Diagnostic Laboratory
• Separate breeding strategy for various animal commodities • Standard settings for the quality of the animal breed. • Conservation of indigenous breed. • Review of insurance policy and price • The enhanced institutional linkage between teaching, development, and research.	• Regulation of veterinary drugs, disease, and pest epidemic control in livestock, • Implementation mechanism of one health • Effective surveillance of TADs and highly important zoonotic disease. • Vaccination policy towards various emerging disease	• Age and stage-wise feed formulation guideline • Data regarding ingredient content of new and existing fodder/forage • Standard and alternative growth promoter • Effective implementation of the feed act	• Non-living insurance, minimum support price, • Infrastructure planning for livestock production and marketing, database management system • SOP of stage-wise care and management of various domestic animal for good farming practice (GFP) • Hygienic and food safety.	• Management and regulation of Veterinary Diagnostic Laboratory • Involvement of private sector veterinarian for the establishment of veterinary laboratory • Instantly PCR diagnostic set up in the provincial veterinary diagnostic laboratory for highly important disease like ASF, PPR, FMD

B. Budget Allocation and Process for Provincial LS

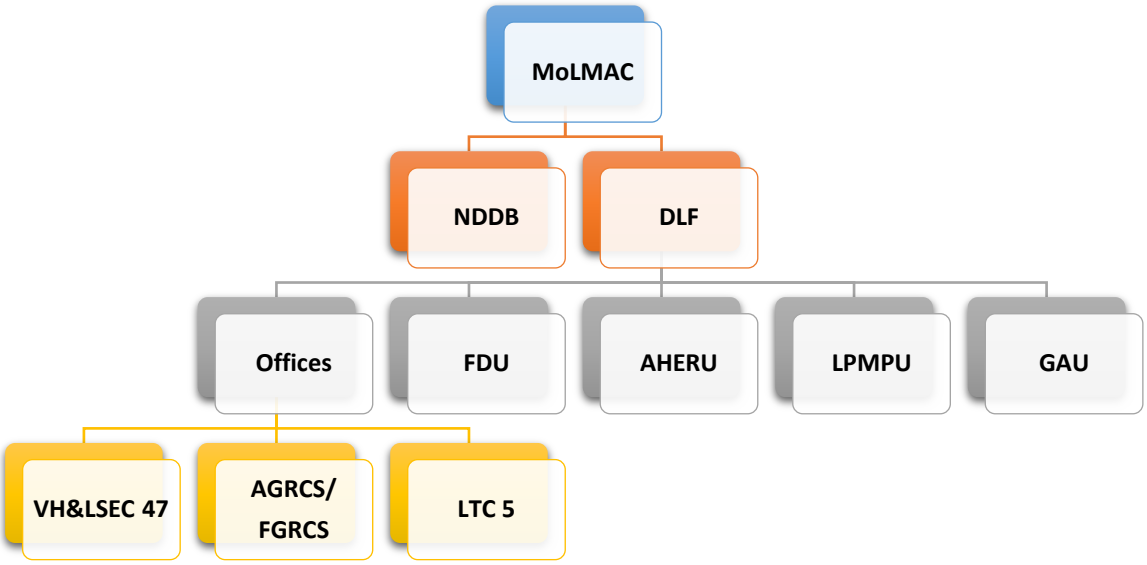
Large-part of the flow of budget is from the central government to the provincial government in terms of equalization budget, special grants, etc., which then further allocates the budget to the ministry of land management agriculture, and cooperative in each of the province (MoLMAC). The amount of budget to a provincial ministry (province) depends upon the planned program. The program planning on livestock-related activities is done in each province as per the provincial government priority, its policy document, and national policies such as ADS, SDGs, priority highlighted in the federal government five-year periodic plan, constitutional provision, and various other sectoral policies. There are altogether 12

budget heads under MoLMAC to distribute the budget as per the ceiling provided to each of the offices under the MoLMAC.

C. Organizational Governance and Power Flow Structure Across the Livestock Institutions and Organizations in a Typical Province

The major entities of LS organizations in the provinces and flow of administrative power from top to down are illustrated in Figure 10 below.

Figure 10: Organizational structure of provincial livestock service



Note: **MoLMAC** = Ministry of Land Management, Agriculture & Cooperative, **NDDB** =: National Dairy Development Board; **DLF** =: Directorate of Livestock and Fisheries; **FDU=** Fisheries Development Unit; **GAU** = General Administration Unit; **LTC** =: Livestock Training Unit; **AHERU =** Animal Health Epidemiology and Regulatory Unit; **LPMPU =** Livestock Production and Market Promotion Unit; **VH&LEC =** Veterinary Hospital and Livestock Service Expert Centre; AGRCS/FGRCS = Animal/Fish Genetic Resources Centre.

The number of livestock-related organizations that are in each province and under the jurisdictions of provincial-level ministry of livestock (MoLMAC)as shown in Table 17.

Table 17: The province-level position of technical professions across different organizations across the seven provinces

Office	Province 1	Province 2	Bagmati Province	Gandaki Province	Province 5	Karnali Province	Sudurpaschim Province	Total
MoLMAC	13	13	13	13	13	13	13	91
DoLFD	24	25	24	24	24	24	24	169
VH&LSEC	106	89	152	82	80	78	61	648
Farms	10	22	22	10	21	0	11	96
Training Centre	12	12	12	12	12	12	12	84
Total	**165**	**161**	**223**	**141**	**150**	**127**	**121**	**1,088**

Note 1) The position allocation depends upon geographical location, nature of service for livestock population.
2) The data are compiled in early 2020. Due to frequent changes and transfer of staffs across the provinces, there could be some changes on numbers of staffs across the provinces as well, when the report is reviewed/submitted than when this estimate was compiled).

5.2 Existing Capacity of MoLMAC (i.e., Province Ministry)

5.2.1 Strategic Planning and Policy formulations & implementation (Governance, and Niche Management)

The major capacity gaps for the strategic planning approach are as follows:

- Limited competency in program planning
- Inadequate capacity building plans
- Overburden of task (high workload) for planning officers
- Spending more time on contingency work and other administration work
- Inadequate consultative meeting during the planning phase and M&E feedback
- Poor database in planning and policy analysis capacity
- No or absence of linkage with municipality or planning and policy formulation

The focused prioritized animal commodities for each province is shown in Table 18. These are the priority area fixed by federal to the province level in the livestock sector development.

Table18: Priorities commodity for each province are listed

Provinces	No. of Districts	Priorities		Value chain and addition
		Livestock commodities	Animal feed	
1)Province No. 1	14	Dairy (Cow, buffalo, Yak and Chauries), Goat, Pigs, Poultry, Sheep.	Forage & pasture conventional feed	Dairy, meat& eggs
2)Province No. 2	8	Dairy, Goats, Poultry, fish	Forage &Fodder	Dairy, fish
3) Bagmati Province	13	Dairy (Cow, buffalo, Yak and Chauries), goat, pig, poultry	Forage &pasture	Dairy, meat, and eggs
4) Gandaki Province	11	Dairy, goat, sheep, pig	Range pasture and Fodder	Dairy, meat, wool, pashmina
5)Province No. 5	12	Dairy, goat, pig, poultry, fish	Forage &Fodder	Dairy, meat, fish
6) Karnali Province	10	Goat, sheep, dairy,	Pasture & fodder	Dairy, meat, wool, Pashmina
7) Sudurpaschim Province	9	Dairy, goat, sheep, poultry, Fish	Fodder & pasture	Dairy, Goat, wool

Source: The study team, based on review of various documents annual reports of agencies under MoALD

Strategic Planning and Policy Formulation

Strategic planning for MoLMAC is guided by the five years' development plan document, which was prepared by the provincial planning commission and sectoral ministries. Due to limited competency and inadequate human resources have been the major problems in the planning unit. Senior officers who have exposure and long experience in planning should be involved in the provincial planning process especially in livestock and fishery sectors. Province and local governments are the major foundations of livestock development. Planning based on a database, real field problems, and need is required for the provincial level.

Based on the consultations with officials in the provincial level offices, the major capacity gaps in planning and monitoring at provincial-level livestock organizations are as follow:

- Inadequate human resources to perform the mandated activities and tasks
- Inexperience human resource to address complex technical issues,

- Limited exposure of professionals to best practices and technologies,
- Lack of training on overall planning and M&E processes.

In sum, the field study has shown that the officers in the provincial organizations do not have an adequate level of specific knowledge on the planning process and implementation activities focusing on livestock production, marketing, and the value chain management of the products.

Monitoring of the Planned Strategies

Monitoring is rather a means to show the progress of the monitored activities rather than indicator-based monitoring. Lack of a separate monitoring unit is also the major constraint.

5.3 Program Management (Planning, Implementation, and Monitoring Programs and Projects)

The capacity gaps identified in program management are as follow:

a) not implemented in a planned way;
b) despite enough budget, proficient human resource is inadequate;
c) leading responsible person (nodal officer, planning officer, spokesperson) are not experienced; and
d) proper implementation of SOP and guidelines is lacking (orientation is deficient)

5.3.1 Process Management

Decision making is an important tool to solve the problem. There are different approaches and mechanisms to manage the process. Guidelines, policy documents, and SOP are prepared and published to manage these policies related issues. Specific skills and knowledge are required to manage these issues, to get an impactful result. Resource matching is necessary to manage the resource in the most impactful way. However, inadequate human resource and competency deficiency hinder the decision-making process and problem-solving approach.

5.3.2 Institutional Linkage

MoLMAC has different guidelines, policies, and programs to establish linkage with other institutions of the province to share the data, problem, output, extension service, etc. Linkage is not only limited to governmental institutes but also with other stakeholders like banking, cooperative, agro-industry, an umbrella of other agriculture sectors like dairy, meat, etc. However, the major capacity gaps underlying this are the expertise, lack of consultative meetings, exposure, and training, inadequate workshop in an annual program.

5.3.3 Structures (Flow of Information)

Job role definition, clear TOR, and correct channel for the flow of information are required for efficient job performance. Every newly recruited officer should be trained about their job roles, responsibility, authority, reporting mechanism, etc. This has been one of the bottlenecks in the current system.

5.3.4 Communication and Knowledge Management

Despite the establishment of the Provincial Training Center (PTC) for training and communication by MoLMAC, the knowledge management of PTC is weak. Some of the capacity gaps in knowledge management and communication are listed below.

a) Inadequate capacity in policy analysis and feedback system in C&K management issues;
b) Weak competency in the management of training and communication in the LS institutions;
c) Missing specific job responsibilities for communication and knowledge management function within the government regular systems of positions in MoALD;
d) Inadequate human resources to do basic critical functions on C&K management in the federal and provincial levels both, that will perform the identification and analysis of critical knowledge management processes
e) Inadequate absorptive capacity, knowledge transfer, and knowledge application in the development sectors, that will result in the creation of superior customer value.

5.3.5 Infrastructures (Facilities Management and Technology Management)

The infrastructure and facility should be strengthened for epidemic and pandemic control, mechanization, livestock industry, market promotion, disease diagnostic facilities, livestock quality management, and regulation, breed and seed quality control, pasture and rangeland related policy and program, database system livestock resource centers, livestock market infrastructure, veterinary drugs, and animal feed quality control and regulation of veterinary service. However, the current infrastructure and facility are not adequate to provide all these services based on a field survey.

The provision of livestock breeding office (LBO), animal nutrition, and livestock quality management labs should be developed in each province, which is still lacking. Similarly, disease diagnostic laboratory, veterinary hospital with standard equipment, and trained human resource are also lacking.

Table 19: Different animal disease diagnostic laboratory location across the provinces

Central/Province	Locations	Remarks
1. Province No. 1	Biratnagar	
2. Province No. 2	Janakpur	
3. Bagmati Province	Lalitpur	Planned to establish
4. Gandaki Province	Pokhara	
5. Province No. 5	Banke	Planned to establish
6. Karnali Province	Surkhet	
7. Sudurpaschim Province	Dhangadhi	

Existing health-related institutions are not enough to cover the animal population in the country. In the short run, each satellite veterinary laboratory (VL) should be expanded and integrated with livestock feed analysis laboratory components with adequate competent human resources (HR).

5.3.6 Production and Productivity Management (Dairy, Meat, Chyangra Pashmina, Fisheries)

The MoLMAC needs to identify the sector-wise priority area. The policy and program should be developed to support the farmers and guide the farmers. The policy should guide the linkage with other agriculture entities so that service could be delivered at the possible fastest rate. The MoLMAC should plan the inputs (breed, feed, fodder, infrastructure, clinical and medical facility, marketing, etc.). The policy should establish an integrated linkage between producers, traders, cooperative, and consumers. The monitoring plan, feedback system, and complaint registration mechanism (grievance redressed process) to be established to evaluate more effectively the farming practice, trade marketing channel, and food safety practices.

5.3.7 Agribusiness and Value Chain Development (Dairy, meat, Chyangra Pashmina, Fisheries)

With the growing awareness about the importance of agribusiness and value chain development in recent years, policy and strategy are also developed accordingly. However, the trained human resource for agribusiness development is scarce.

The major capacity gaps for dairy sector business promotion in provincial offices are

a) Assessment of market needs;
b) Standardization of input, process, and output;
c) Processing plant design
d) Product diversification and value-addition need assessment;
e) Formulation of food safety policy;
f) Formulation of the market regulation plan.

5.3.8 Financial Management (Financial Planning, Financial Accountability, Financial Statements, and Systems)

Authority for project expenditures is based upon the top to down approach. As per fiscal regulations, the secretary at MoLMAC receives authorization from the concerned secretary of the provincial government for the whole ministerial budget, and then it is transferred to other responsible officials deputed under different departments, offices, and other entities of ministry. Financial management, documentation, and planning are necessary to maximize the output efficiently. Grant management is also essential to obtain the outcomes at available resources Special functional capacity like procurement planning, financial governance, etc. among the various organizations in the province and local levels are lacking more than the technical competencies. Thus, training related to financial governance, procurement planning, accounting, and auditing is essential to finance and administration staff among these agencies of LS.

5.3.9 Cross-Cutting Issues (Gender, Climate-Smart Technology, etc.)

The gender equity and adaption of climate-smart technology on livestock, fodder production, product value chains are the main components to be considered. There is a special training package on these issues. There are mandatory to include gender, climate-smart issues by government agencies in their programs.

5.3.10 Other Major Stakeholders of MoLMAC

The major stakeholders of MoLMAC are provincial line ministries, directorate, and service delivery offices. In addition to these regional and satellite organizations of federal units especially DFTQC DDC NDDB central and provincial training center (AITC), district dairy cooperative unions, district livestock entrepreneur organization, professional organization, capacity building of those major recognized stakeholders in the special area need to be acknowledged.

5.4 Capacity Need for Directorate of Livestock and Fisheries (DLF)

5.4.1 Program Management (Planning, Implementation, and Monitoring Programs and Projects

The major gaps in program management in DLF are as follows:

a) Various positions still vacant in the position;
b) Job burden of a vacant position to other staff results in an overload of work;
c) The capacity building program is not incorporated in the annual program;
d) Training on job responsibility and authority with a proper TOR are identified.

5.4.2 Process Management (Problem-solving, Decision-making, Communication, M&E)

The capacity gaps for process management in DLF areas follow.

a) Weak M&E system;
b) Inadequate human resource and lack of competencies;
c) Poor database management system.

5.4.3 Institutional Linkages (Planning, Implementing, Monitoring Network, & Partnerships)

There is a huge capacity gap in the institutional linkage resulting in duplication of the activities across the agencies across the LS entities within DLF. Likewise, there is a complexity to maintain a proper database, resulting from inadequate planning, etc., in the DLF, as observed from the field survey across the provinces.

5.4.4 Structures (Flow of Information, Adequacy vs. its ToR of VH & LSEC

The major institute is VH&LSEC, which delivers major services to farmers and establish linkage between local levels. However, due to the poor association, the flow of information is inappropriate, resulting in poor service delivery. Furthermore, VH&LSEC is not present in all the districts, which are also major drawbacks in the livestock sector.

5.4.5 Communication and Knowledge Management Infrastructures (Facilities Management, and Technology Management)

There is a huge shortage of capacity (and numbers of) technical professionals (HR)and competent human resources related to knowledge management and dissemination activity at the provincial government managed livestock training centers. The roles and functions of these professionals become more critical since it is the main institute to develop the capacity of the provincial human resources.

5.4.6 Specialized Organizations

There are the following specialized organizations to support the livestock sector in the province. Technical capacity gaps are found with necessitating coordination as well as strong linkages between and among them as found in KIS analysis.

a) Vet Hospital & Livestock Service Expert Center (*Pashu Bigya Kendra*),
b) Provincial Veterinary Laboratory,
c) Provincial Livestock Farms,
d) Provincial AI and Breeding Centers,
e) Major Agribusiness Entity (service providers; breeding, health, forage, and feed & feeding.)

5.4.7 Other Major LS Related Entities (Organizations) at Province Level

a) Provincial Level DFTQC

Though DFTQC is under the central government, the regional offices of DFTQC can be coordinated to maintain the quality of feed, standardization of feed quality, food, and feed safety, value chain development. However, strong linkage and coordination need to be established with DFTQC by concerned provincial offices and food/foods related qualities. However inadequate human resource has been the major constraint of RFTQC (Regional Food Technology and Quality Control).

b) NDDB (Provincial Level)

NDDB needs to be linked with DLS to plan the agribusiness in the dairy sector and disseminate the product technology diversification. With the new structure, NDDB provincial level organizations have been established.

c) Laboratory

For quality health services, delivery of quality inputs such as fodder seed, vaccines, and an accredited laboratory is needed. For this purpose, at least one combine laboratory needs to be established in each province.

d) Nepal Agricultural Research Council (NARC)

NARC is an autonomous organization owned by the central government to carry out quality research in agriculture. Recently, NARC has planned an initiative to establish seven directorates in the country, one in each of the seven provinces to coordinate with the provincial government to carry out the agricultural research and development on the provincial level issues and constraints. However, the huge numbers of a vacant position in the NARC is another major limitation with regards to the capacity of the NARC, as well.

e) Dairy Development Corporation (DDC)

DDC can interlink with the provincial government to avoid milk holidays and integrate the local farmers' business with DDC, and effectively work on the development of the dairy sector in each of the provinces.

5.4.8 Other Related Major Stakeholders: Livestock Sector Linkage and Capacity

a. Banking and Financing Institutions

Banks are providing soft loans to the farmers and traders to promote the livestock commodities markets. But it has been learned that till now no MOU has been done between the BFIs and government level institutions to deliver the loan to the targeted sectors, but only a generic understanding as identified by the federal government policies.

b. Insurance

The government of Nepal has initiated a livestock insurance policy in the country since 2013. Livestock farmers are provided subsidies on insurance premium is up to 75 percent of payable premiums (fees) through the Insurance Board of Nepal. Twenty non-life insurance companies have been nominated for dealing with agriculture and livestock insurance in Nepal. For value chain development and agricultural-related businesses, the role of the insurance sector has critical roles to play. The risk arising in large-scale funding by entrepreneurs for financing in the livestock is to be minimized through adequate insurance. Therefore, the capacity of insurance of BFI also deserves significance for the overall livestock development in Nepal.

For the last five years, the government of Nepal has been encouraging for financial support and subsidy to the small-holding farmers to use the insurance facilities to protect the farm business from accidental losses. But, even the technical personnel of BFIs are not trained enough to facilitate the insurance in the live animal and need the training to make the input more useful at the provincial level. Furthermore,

large numbers of small-scale animal farms (animals) located in rural areas are still not insured by the insurance companies.

c. National Cooperative Development Board (NCDB)

NCDB was formed under the NCDB Act, 1992 to promote and develop cooperatives in the country. The executive committee (EC) of the board is composed of members representing government, private sector, and professionals. The Secretariat of the board is headed by an Executive Director appointed by GoN. The NCDB is also responsible for mobilizing funds, entering into joint venture agreements, extending technical support, and coordinating the functions of non-government organizations involved in cooperative activities.

5.4.9 Provincial FNCCI (DCCI and AEC)

Some service delivery institutions such as FNCCI (DCCI, AEC) need to work closely with the provincial and local level livestock promotional agencies to make use of resources more effectively. For this reason, the capacity of managing resources in coordination with a livestock-related agency is required. They wanted to be partners in development but agencies lack promotional activities and function.

5.5 Major Recommendations on Capacity Development on Provincial Level Livestock Organizations

Major recommendations for enhancing capacity (technical capacity) of the professionals at the provincial level livestock organizations are summarized below.

Recommendations for Enhancing Capacity (Technical Capacity)

A. **Policy and Programs**

1. Strengthening linkage between three tiers of government with the proper flow of information,
2. Strengthening linkage between insurance and bank to promote loan for livestock productivity, and agribusiness development,
3. Strengthening linkage between all the stakeholders (governmental and non-governmental working in the field of livestock sector),
4. Shot out the import and vaccination issue of various diseases of different livestock, poultry, wildlife, and fish sectors.

B. **Information**

1. Strengthening database of the respective agencies – human resources as well as program planning, program implementations, and so on.

C. **Training and Development**

1. Strengthening human resources through timely capacity building program (national and international training/exposure and higher studies),
2. SOP for feed formulation as per locally available feed ingredient is necessary to minimize production cost,
3. Fulfilling the vacant position soon, mainly the technical position more urgently,
4. Formulation of SOP of various farming commodities,

5. Facilitation with university graduates to establish livestock related business,
6. Effective utilization of arid land by seasonal grass cultivation after harvesting wheat until planting paddy, and Total Mixing Ration (TMR) can be fed future scarcity condition.
7. Defining TOR (job roles and responsibility).
8. Capacity enhancement and adoption of various reproductive technologies for breed improvement is necessary,
9. Introduction of silage making and TMR technologies to reduce the cost of production.
    a. Training about zoonotic disease management
    b. Training about laboratory management and setup
    c. Training about epidemiology data management
10. Training about value-chain for specific livestock (cattle, goat, buffalo, Chyangra, etc.) and its specific product (milk, meat, etc.)

D. Planning and Monitoring

1. Result-oriented planning approach through consultative meeting/workshop,
2. Prioritizing the issues to be addressed,
3. Market planning, linkage, coordination, and value-chain development for livestock sector (Hire the expert as a consultant),
4. Management of unproductive cattle population is necessary,
5. Disease surveillance, epidemiological study, and monitoring should be carried out for TADS and other zoonotic diseases.

CHAPTER VI

CAPACITY NEEDS AT MUNICIPALITY LEVEL LIVESTOCK ORGANIZATIONS

6.1 Enabling Environment (Local Level Livestock Organizations)

a) Political Commitment, Vision, Policy, Legal and Economic Frameworks

As per the new federal constitution 2015, there are 753 local level government units (municipalities or Palikas) in Nepal. There are six metropolitan cities, 11 Sub metropolitan cities, 276 Municipalities, and 460 rural municipalities in Nepal. Agriculture and Livestock units (or LS entities) are in each of the local government units (or municipalities). At each of the municipalities, there is a provision of a team of livestock and veterinary experts supported by the administration, financial, and other supporting staffs.

Schedule 9 statement of the constitution provides concurrent functions of federal, provincial, and local level governments (also in schedule 6 (20)). Schedule 8 provides list of exclusive functions of the local government. Most of the animal husbandry, agricultural production management, animal health, cooperatives, and agriculture activities come under the exclusive functions of the local government. Likewise, market developments and movements of live animals, etc., come under the functions of provincial-level government.

In the same way, the other major functions related to agriculture (livestock sector organization and functions) that come with the domain of local government units (municipalities) are listed below.

a) Management, operation, and control of agricultural extension has been enabling environment for local policies, laws, standards, plans, implementation;
b) Regulation related to agricultural extension, projection, management, and mobilization of agricultural extension and human resource at the local level;
c) Capacity building, technical services, support, skill development, and empowerment of farmers;
d) Supply, use, and regulation of seeds, breeds, fertilizers and chemicals, and medicines;
e) Coordination, management, and regulation of farmers' groups, cooperatives, and local affiliated organizations, preservation, and transfer of agricultural technology at the local level; and
f) Dissemination of information related to agriculture, development, and management of local-level resource centers.

b) Livestock Sector Human Resources Available at Rural Municipality

The trained technicians available at Municipality are presented in the table below (Table20). By and large, more numbers of Vet Medical Treatment; Vet Technician for Vaccination; and Trained Artificial Inseminator (Goat/ Cattle, Buffalo) are available more in the local organization. Whereas, the availability of lab technicians, trained forage and fodder technicians, animal nutritionists, and trained animal nutritionists are almost nil across the sample municipalities selected for survey in this study.

Table 20: Existing trained human resource (officers and technicians) in LS specialized services across the sample surveyed Municipality level units/offices (N= 32)

Technicians and Type of specialized activities being performed	Description	Frequency Resp. (N)	No of Person	Remarks
Laboratory technicians for lab diagnosis	Position	21	6	Negligible
	Available now	21	4	
Vet Medical Treatment	Position	25	43	Highly
	Available now	25	31	
Vet Technician Vaccination	Position	22	62	Highly
	Available now	22	37	
Trained Artificial Inseminator (Goat/ C & B)	Position	21	46	Highly
	Available now	21	19	
Trained forage and fodder technician	Positions	20	1	Negligible
	Available now	20	1	
Trained animal nutritionist	Position	20	3	Negligible
	Available now	20	2	

To get a more in-depth understanding of the topic, an in-depth analysis of the availability of technical personnel across the sampled municipalities was carried, and considering total household and number of technicians available to these municipalities for judging their sufficiency/adequacy, and comparing it with the standard service coverage. The result is presented below in Table 21. As the result shown in Table 21, on average, there is a shortfall of at least 3 livestock technicians in each rural municipality of the sample sets of 11 municipalities used for the analysis.

Table 21: Analysis of human resources allotments and adequacy and sufficiency of the livestock technicians (sample municipalities =11)

Description/ Particulars	Value (No)	Remarks
No. of Municipality	11	
Av. No. of Households	12,590	
Av. No. of Population	69,246	
Av. No. of technicians available	4.5	
No. of HH per Technicians	2,770	
No. of Additional Tech. required (deficit)	3	

Source: Institutional KIS analysis of (Rural) Municipalities, CENA-2020

Note: At the optimum level, one livestock sector technician can provide the optimum level of livestock-related service to about 1000 households (farm households) in a year

The number of shortages (additional needs) of human resource across the municipalities is summarized in Table 22. The demanded or needed personnel (technician) across the sample surveyed municipalities are, on an average of 3 persons per municipality (details are in Table 22).

Table 22: The needed positions and their average distribution by respondent across the 29 municipalities

Positions	Frequency of (Municipality)	Total No. of Specialists Needed	Av. position Required per Municipality
JTA	11	54	5
OVOT (JTA)	4	28	7
JT	2	23	12
Vet Officer	13	15	1
Lab technician	11	11	1
Livestock officer	10	11	1
Computer operator	1	1	1
Fishery Officer	1	1	1
Total (cumulative)	**53**	**144**	**29**

Source: Institutional KIS analysis cross 29 municipalities, CENA-2020 study team. The total respondents surveyed were 63.

Across the surveyed municipalities, from the respondent surveyed across the municipalities, we observed that more demand is for JT and JTA level technicians than that of others, but some specialized services such as laboratory technicians, livestock officers, and veterinary officers are also demanded by some municipalities.

The academic qualification of the head of the livestock unit, obtained from the KIS survey across the sampled municipalities (N= 29), has been presented in Table 23 below. The livestock units of the sample rural municipalities surveyed are largely run by Junior Technician (JT) level degree holders' human resources (50% of the cases), and for the rest of 50 percent of surveyed cases, they are run by lower degree holders

(JTAs). None of the LSC across these surveyed municipalities (N= 29) are led by graduate degree holders. More services of livestock are needed to the farmers on the ground, and the allocation of the trained technicians (professionals) is almost absent in the ground.

In sum, the local livestock services are needed for enhancement of the degree, training, and capacity of technical skills and knowledge.

Table 23: The degree of the head of Livestock Section at Municipality and Rural Municipality (n= 29 municipalities)

Degree	Numbers/ Frequency	Percentage
M.V.Sc./MS	-	-
B.V.Sc..&A.H/DVM\B. Sc Ag.	-	-
JT	14	50.0
JTA	11	39.3
I Sc. Ag	3	10.7
Total	**28**	**100.0**

Source: Individual KIS Rural Municipality survey across the sample municipalities by the study team, CENA -2020

Likewise, the actual human resource allocated to selected sampled municipalities is presented in Table 24. Considering the size of the municipalities, and scope of the livestock work, it is obvious that the presently available livestock human resource across these municipalities is inadequate to provide the basic livestock-related services to the farmers.

Similarly, at the individual level-specific job assigned and staffing positions approved (*darbandi*) to the livestock staffs are presented in Table 24, which shows that there is no darbandi (staffing position) of 7th or 8th gazetted veterinary officer at all local level governments, which is major constraints for the functioning of Municipal Veterinary Hospital (clinics). This is a structural problem that may need to be addressed soon.

Table 24: Darbandi (Positions) allocation status of technical staff at few of sampled rural municipality

S.N.	District	Name of Local Level	9th-10th GazetteOfficer (LPDD)	9th-10th Gazette Officer (Vet)	7th / 8th Gazette Officer (LPDD)	7th / 8th Gazette Officer (Vet)	7th / 8th Gazette Officer (Fisheries)	Assistance Technician 5th (LPDD)	Assistance Technician 5th (Vet)	Assistance Technician 4th (LPDD)	Assistance Technician 4 (Vet)	Assistance Technician 4th (Fisheries)	Total
1.	Lalitpur	Bagmati RMP	-	-	1	1	-	-	2		2	2	8
2.	Dhankuta	Pathibhara RMP	-	-	1	-	-	2	-	1	2	2	8
3.	Gulmi	Madane	-	-	1	-	-	1	2	-	2	2	8
4.	Kavre	Roshi RMP	-	-	1	-	-	1	1	-	1	1	5
5.	Udayapur	Sunkoshi RMP	-	-	1	-	-	1	1	-	1	1	5

Source: The study team's field survey 2020

The different constraints and difficulties in performing ToR and specific jobs have been explained in individual-level KIS done with the head of livestock service unit in these municipalities. Table 25represents the difficult situations faced by respondents across the sampled surveyed municipalities. Among the surveyed respondents, 13 types of difficulties are mentioned in performing their job smoothly. Among these issues, the highest percentage (21.4 %) was given on issues like "Inadequate skilled of the officials and &a smaller number of human resource to do the required jobs".

Table 25: Difficulties faced by rural municipalities livestock staffs in their job ToR

S.N.	Difficulties in completion of the assigned Job in the ToR	Frequency	Percentage Respondent (n= 70)
1.	Inadequate skilled of the officials and &a smaller number of human resource to do the required jobs	15	21.4
2.	Insufficient budget to operate normal activities	10	14.3
3.	Non-availability of adequate clinical materials, lab equipment, and lab facilities	9	12.9
4.	local political body are reluctant and non-priority to livestock sector program	8	11.4
5.	Complexity to identify new diseases due to lack of technician	4	5.7
6.	Inadequate AI training to do the basic core services on AI	4	5.7
7.	Lack of proper coordination of LS entities belonging to the municipality with respective to province-level LS	4	5.7
8.	Lack of transportation facilities	4	5.7
9.	Inadequate refresher training on treatment	3	4.3
10.	Unable to plan properly due to non-tech heads	3	4.3
11.	Difficult topography	2	2.9
12.	Non- availability of senior (trained) Vet. Officer in the municipality	2	2.9
13.	Less priority to livestock sector programs by the municipality officials	2	2.9
	Total	**70**	**100.0**

Source: Individual KIS Rural Municipality survey, CENA-study survey, 2020

c) Livestock Service Provided by Municipalities

The summaries of livestock services provided by livestock unit of the municipalities (Local Government Units) are summarized in Table 26. The blood examination, forage fodder plantation, forage seed distribution, pasture development, seedling distribution, and animal selection are the categories of performance provided by the organization. Similarly, a summary of Livestock Services provided by Livestock Unit of Municipality to Livestock farmers are summarized in Table 27; and stakeholder-specific jobs assigned to Municipality' level Livestock Service Staffs are summarized in Table 28.

Table 26: Darbandi allocation status of technical staffs across the selected municipalities

S.N.	District	Name of Local Level	9th÷10th Gazette Officer (LPDD)	9th÷10th Gazette Officer (Vet)	7th / 8th Gazette Officer (LPDD)	7th / 8th Gazette Officer (Vet)	7th / 8th Gazette Officer (Fisheries)	Assistance Technician 5th (LPDD)	Assistance Technician 5th (Vet)	Assistance Technician 4th (LPDD)	Assistance Technician 4th (Vet)	Assistance Technician 4th (Fisheries)	Total
1.	Jhapa	Arjundhara Municipality	-	-	-	1	-	1	1	1	1	1	6
2.	Morang	Sundar Harichha Municipality	-	-	1	-	-	1	1	1	1	1	6
3.	Kathmandu	Kirtipur Municipality	-	-	1	-	1	1	-	-	1	1	5
4.	Lalitpur	Bagmati Rural Municipality	-	-	1	1	-	-	2		2	2	8
5.	Bardiya	Guleria Municipality	-	-	-	1	-	1	1	1	1	1	6

Source: The study team's field survey 2020

The above *darbandi* statuses presented in these Tables in 24 and 26 clearly show that there is an acute shortage of qualified human resource (*darbandi*) for 7th /8th gazette veterinary officers at all local level governments for the smooth running of Municipal Veterinary Hospital. This is a serious capacity gap at the local level government (or even at the district level) in terms of providing technical services to smallholding farmers.

Table 27: Summary of livestock services provided by Livestock Unit of municipality to livestock farmers and another stakeholder

Services	Activities	Frequency Municipality	Value	Percent
Vaccination	FMD	22	19	86.4
	HS	23	15	65.2
	PPR	26	25	96.2
	BQ	22	14	63.6
	Enterotoxaemia	13	1	7.7
Diagnostic	Blood examination	16	2	12.5
	Fecal examination	25	17	68.0
Animal Nutrition Program	Forage/Fodder Plantation	24	8	33.3
	Forage seed distribution	25	13	52.0
	Pasture Development	20	2	10.0
	seeding distribution	23	10	43.5
Animal breeding	Artificial Insemination	24	22	91.7
	Bull or Buck Distribution	22	13	59.1
	Animal Selection	14	0	0.0

Source: Institutional KIS analysis of (Rural) Municipalities, CENA study field survey, -2020

Table 28: Specific jobs assigned to the Municipality's Livestock Service Staffs

Particulars	Frequency	Percent
Animal health management and treatment (surgical)	16	16
Counseling, livestock Extension	16	16
AI of cow & buffalo	12	12
Office management and documentation	12	12
Training to farmers and field visit	11	11
Lab work (sample collection and dispatch, Fecal test)	8	8
Planning and Implementation of approved programs	8	8
Compilation of data and information related to the livestock sector	4	4
Vaccination	4	4
Program Monitoring and reporting	3	3
Animal feed production and management	1	1
Castration	1	1
Coordination with different stakeholders	1	1
Counseling and organizing program related to livestock sector	1	1
Handle complain and inquiry related to livestock sector	1	1
Local level budgeting and planning	1	1
Total	**100**	**100**

Source: Individual KIS Rural Municipality survey, CENA-2020

d) Adequacy of Different Facilities

Using the KIS survey, the study team also compiled information on the adequacy of different infrastructures across the livestock units of the selected municipalities surveyed (Table 29). Only electricity and roads are at a high adequate category, whereas laboratory rooms, buildings, laboratory equipment, tools and machinery, clinical materials, and office accessories are very poor (or inadequate level) in the majority of the LSCs surveyed. This also suggests fir inadequacy of even basic facilities and equipment across these livestock units in providing services to the livestock farmers (Table29).

Table 29: Adequacy of different facilities in the livestock to smooth operation of Unit of Rural Municipalities, percentage of respondent

Facilities	Adequate/ Scarcity	Frequency (n)	Value	Percent	Remarks
Laboratory space facilities	Adequate	28	1	3.6	Poor
	Scarcity	28	27	96.4	
Electricity	Adequate	28	27	96.4	High
	Scarcity	28	1	3.6	
Road	Adequate	28	27	96.4	High
	Scarcity	28	1	3.6	
Building	Adequate	28	0	0	Very Poor
	Scarcity	28	28	100	
Laboratory equipment	Adequate	28	0	0	Very Poor
	Scarcity	28	28	100	
Instruments /Kits	Adequate	28	0	0	Very Poor
	Scarcity	28	28	100	
Machinery	Adequate	28	0	0	Poor
	Scarcity	28	28	100	
Clinical materials	Adequate	28	7	25	Medium
	Scarcity	28	21	75	
Office Accessories (Chair, Table, etc.)	Adequate	28	18	64.3	Good
	Scarcity	28	10	35.7	

Source: Institutional KIS analysis of (Rural) Municipalities, CENA-2020

e) Individual Level Skills and Knowledge of LS OfficialsWorking Across the Municipalities Surveyed

The individual skills and knowledge of livestock staff were assessed using the scoring method (1 to 5). Where, the higher the score index, the higher the skill and knowledge the officials have. The results of the analysis are presented in Table 30.

Out of the 28 specific traits of skill types mentioned by the individual experts, 17 skill traits are more important for livestock-related services to the farmers. The results in Table 30 suggest that the important traits and skills needed more in the livestock are: Agro-business Plan Development, Market Research and Demand, and Supply Estimation, and Monitoring and Evaluation. However, these subjects are ranked 4.44 to 4.40whichmeans the listed skills are of higher importance in their job performances. In other words, the local government (municipalities) also need more training and skill-enhancement training on these categories of skill and knowledge to the livestock officials at the local level. The other results summarized in Table 30 are self-explanatory.

Table 30: The skills and knowledge required for the smooth implementation of Livestock Service activities

Score on Skill and Knowledge of the officials to deal with the specific traits			Score on the importance of skills and Knowledge for improvement of livestock services		
Particulars	**Freq.**	**Avg. score**	**Particulars**	**Freq.**	**Avg. Score**
Agro-business Plan Development	26	2.54	Animal Health	25	4.44
Market Research and Demand and Supply Estimation	27	2.44	FFS Training	26	4.42
Monitoring and Evaluation	27	2.19	Animal Production	25	4.40
Animal Production	27	1.78	Extension and Communication	26	4.27
Animal Health	27	1.70	Project Planning	26	4.19
Resource Matching	27	1.70	Implementation	25	4.16
Extension &Communication	27	1.67	Monitoring and Evaluation	25	4.00
Implementation	27	1.52	Resource Matching	26	3.92
Project Planning	28	1.46	Agro-enterprise development	26	3.85

Post Livestock Management	27	1.37	Grant Management	24	3.83
Grant Management	26	1.23	Finance Management	26	3.81
Finance Management	26	1.15	Climate Smart Technology	26	3.81
Value Chain Development	27	1.11	Value Chain Development	25	3.80
FFS Training	27	1.07	Business Proposal Preparation	23	3.78
Climate Smart Technology	27	1.00	Market Research and Demand and Supply Estimation	26	3.73
Agro-Enterprise Development	27	0.96	Post Livestock Management	26	3.62
Business Proposal Preparation	27	0.85	Agro-business Plan Development	26	3.54

Source: Individual KIS Rural Municipality survey, CENA-2020

Likewise, 13 (54.2%) respondents out of 24 who reported on these issues mentioned that they did not have inadequate communication and report writing skills in relation to doing their job and providing services to the clients. The surveyed respondents even requested to the study team that two major training types like a) formal and proper communication technical skill training; and b) proper/systematic report writing & documentation training, are urgently needed to them for enhancing their capacity in delivering the jobs (Table 31).

Table 31: Acquaintance of communication skills by respondents

A. Particulars	**Frequency**	**Percent**
Yes, have communication skill and writing	11	45.8 %
No, have no communication skill and writing	13	54.2 %
Total	**24**	**100 %**
B. Training requested on:		
1. Formal and proper communication techniques and skill training	13	54.2 **%**
2. Proper/systematic report writing & documentation training	11	45.8 **%**
Total	**24**	**100 %**

Source: Individual KIS Rural Municipality survey, CENA-2020

f) Capacity gaps[5] on Local Level (Rural/ Municipality)

Capacity gaps have been identified among the LS officials working in municipalities surveyed using institutional and individual KIS of rural municipalities. To enhance LS sector service delivery of the local level livestock sectors, the capacity traits were suggested by the respondents are summarized below, and with priority.

i. Introduction Sector of Livestock Business

- Inadequate technical support for breed improvement and forage-based farming,
- Inadequate skill of AI and lower conception rate,
- Reproduction disorder and infertility management skill is not adequate,
- Coordination, facilitation, and monitoring of insurance and veterinary service are not sufficient
- Capacity and technological interventions are urgently needed to overcome seasonal milk production to be improved,
- Inadequate Capacity observed to disseminate and extension of commercial and modern farming practice and recent recommended forage and feed system, concentrate feed,
- Inadequate capacity to analyze cost reduction techniques in the commodity production system,

[5] Capacity gaps mentioned here also means the additional training or capacity development need on the specific areas.

- Inadequate capacity in technology communication and development communication,
- Inadequate capacity in the use of mobile phone app for tele-veterinary service.

ii. Processing and Post Harvesting Observed are as Follow:

- Capacity gap on dairy processing technology,
- Capacity gap on meat processing technology,
- Capacity gap on feed and forage processing technology,
- Capacity gaps in product diversification and value addition,
- Inadequate competent and skilled human resource in dairy technology and dairy engineering especially in SMP, UHT, and dairy processing industries,
- Capacity gap on slaughterhouse and abattoir engineering observed,
- Capacity gaps exist on slaughterhouse management;
- Wider-scale capacity gaps exist on the operation and maintenance of dairy machinery and equipment,
- Capacity gaps exist on Chyangra production; wool; and pashmina processing,
- No processing facilities to process pashmina and wool in the districts where they produced, but in other districts located at a far distance.
- No adequate facilities exist (and capacity gaps) on the processing of hide; and leather processing activities, or making bone meals, blood meals, etc.

iii. Marketing

- Inadequate knowledge and understanding and capacity gaps on development and operation of cold chain system necessary for livestock product marketing,
- Inadequate knowledge and capacity gaps on livestock product marketing demand, supply assessment, and supply chain management,
- Modern approach of livestock product marketing strategy and noble marketing scheme is not sufficient,
- Inadequate knowledge and capacity gap to promote domestic consumption of livestock product,
- Capacity and information gap to explore and identify foreign markets.

iv. Quality Control

- Inadequate knowledge and capacity gap on the standard setting of improved and climate change, friendly livestock shed, feed and feed ingredients, animal welfare practices, design and instruments, veterinary inspection, use of drugs and chemicals, service provided by authorized personals, drugs, and vaccine quality, quality inspection, and regulatory compliance.
- Capacity gap on research and study, high feeding cost, inadequate policies, and implementation practices poor coordination among the concerned organizations
- Inadequate and inefficient forage resource centers, inadequate feedstuffs, imbalanced feeding, and non-use of critical feed supplements responsible for low productivity and productive life, availability of green & dry fodder, concentrate feeds & unconventional feed resources from various sources.
- Facilities for quality testing (for potency and safety, reference standards, reference materials, etc.), suitable infrastructures to ensure the proper functioning of the lab is not adequate.

v. Animal Breeding

Artificial insemination and Assisted Reproductive Technology

To increase production and productivity of the livestock sector, animal breeding plays a vital role through AI tools, breeding strategies, and other assisted reproductive technologies. At the grassroots level, the livestock units of municipalities play the real functions and can be given more importance for their capacity enhancement. Based on analysis of existing and practical knowledge, the capacity gap of AI inseminators is very high, as about 3,000 inseminators fare needed in the country in the next 5 years, i.e., till the end of the 15th national plan period. (Details are in Box1 in Annexes section).

g) Capacity Development Needs

Human Resources and Capacity Building at Local Level

Specific questions were asked to the municipality level livestock service officials about the adequacy of human resources (professional capacity) to provide acceptable services to the livestock farmers(entrepreneurs) as per the demand for services in their respective locations. The results out of 30 sample respondents spread over 30 municipalities across the seven provinces are summarized in Table 32.

Table 32: Status of Human Resources (professional capacity) for providing adequate services for providing acceptable services to the farmers

Particulars	Unit	Municipality level LSC	Percentage	VH&LSEC	Percentage	Remarks
Yes Adequate	No.	6	20	0	0	
Not Adequate	No.	24	80	30	100	
Total Respondent No.	No.	30	100	30	100	

The results out of the KIS survey on demand for training services among LS professional staffs located across the 30 rural municipalities are summarized in Table 33. Where, lab training and general AI training stood at the top priority, followed by training on animal treatment. Among the academic courses, the demand of JT course; B Sc. Agriculture (animal science); B. Tech Livestock (KU); and I Sc. Agriculture/ Livestock (CTEVT) are the more demanded subjects by the surveyed respondent for enhancing capacity development in the livestock service across the municipality levels. It is obvious that the academic degrees they hold are JTA or SLC courses, that are not adequate to offer quality service to the clients, but only with a technical capacity to work as an assistant in Veterinary drugs& treatment services.

Table 33: Training demanded by Municipality's Technical Staffs to enhance their capacity at the workplace

Particulars	Frequency	Percent
Short-term Training Courses (total respondent n= 61))		
Additional laboratory training	17	23.6
General AI training	7	9.7
Animal treatment	5	6.9
Animal breeding training (C&B and goat)	4	5.6
Computer software ICT communication	4	5.6
Nutrition, fodder, and pasture training	4	5.6
Livestock commercial commodity (Dairy, Goat, and others) farming training	4	5.6
Advanced training such as Embryo Transfer cryopreservation of semen, semen collection, and processing training	3	4.2
Dairying and dairy processing training	3	4.2
Program Planning and organization	3	4.2
Field study and Monitoring training	2	2.8
Training on Proposal and Business plan writing	2	2.8
FFS /TOT Training	2	2.8
Veterinary drug retailer and wholesaler training	1	1.4
Academic Course (Respondent = 11)		
JT course	4	5.6
B. Sc. Agriculture (animal science)	3	4.2
B. Tech Livestock (KU)	2	2.8
I. Sc. Agriculture/ Livestock	2	2.8
Total	**72**	**100.0**

Source: Individual KIS Rural Municipality survey, CENA-2020

The respondent also proposed some sort of observation and study visits to selected sites to enhance their overall perspectives and capability, as well as to get a sort of incentive to the livestock worker, the results are summarized in Table 34.

Table 34: Demand for observation study abroad specifically to officials of the Rural Municipalities

Particulars	Duration	Country
Communication & extension Training (4)	1month	Selected sites in India
Data and Information management Training (4)	1 Month	Selected sites in Thailand
Training and visit seminar (3)	2 Weeks	India or SAARC
Advance AI training (4)	2 Weeks	Selected sites in Japan
Embryo production training (4)	1 Month	Selected sites in Japan
Observation trip to familiar with new technologies (4)	1 Month	India or SAARC
Well-equipped animal management training (4)	1 Month	India or SAARC
Observation field visit on processing (Dairy and Pashmina)	1 Month	India or SAARC, or magnolia, or South Korea for Pashmina

h) Constraints and Suggestions

The findings on constraints and suggestions with regards to resources like human resources, finance, physical facilities, technology, and inputs are presented in detail in the Annex Table 3of the report. An analysis with its frequency of respondents (municipalities) is ranked as higher the frequency higher the constraints on the resources available at the local level livestock unit. The local level institutions and the staffs working in the municipalities are at the heart (center) in terms of service provision to the farmers. Hence, enhancing technical (and soft-skill) capacity of the local level entities of the livestock services is critically to meet the objectives of the livestock institutions and better service provision by the LS organization to the vast number of farmers located across the different parts of the countries.

CHAPTER VII

SPECIFIC TOPICS ON CAPACITY DEVELOPMENT OF LS INSTITUTIONS

We have provided those sector-specific topics (or emerging issues) in livestock institutions in the country that are not adequately covered in the earlier sections when we analyzed the LS capacity development issues across the three tiers of the governments. These issues are cross-cutting to several tiers of the government and are also very important for enhancing capacity development related issues in the livestock sector entities. Each of them is summarized in an independent heading.

7.1 Enhancing Women Roles in Smallholding[6] Livestock Enterprises

Women are contributing over 70 percent of rural and subsistent livestock farming systems in Nepal. In this context, women's participation and gender issues are cross-cutting and they apply to all scales in the three tiers of government.

The relationship between men and women, along with their respective roles in livestock rearing, is not equal. It varies due to various socioeconomic, cultural, and institutional factors, and due to the development path and location of the communities, and so on. For example, access and control over resources, division of labor and needs, etc., affect the performance of livestock rearing in a community greatly vary between men and women members of the household. As a result, the ender relationship largely determines household food and income security, the well-being of the family members, farm business planning, production of both crops and livestock, and the all-around prosperity of the people and society at last (various literature from FAO).

In addition, due to the high pace of out-migration of the male population for foreign employments, in large part of rural Nepal, at present, women roles and their proper access to livestock services are very critical for the overall growth and acceleration of livestock enterprises in the country, then the case in one or two decades ago.

Some of the important factors that should ensure the provision of women-friendly livestock systems are empowerment, needs assessment is done at a disaggregated level, and access and control to resources. This can be ensured by emphasizing on following w=elements of capacity development related activities, as listed below.

- Better understanding of the complexities of gender roles in livestock raising activities
- Respective access to income from sales of livestock and livestock-related product
- Division of labor and specific needs
- Economic and cultural roles in the household/community.
- Eventually fulfilling the gender gaps, a balanced and prosperous community can be created in the country.
- On nutritional benefits from consumption of animal source food.

[6] The public sector livestock services are more concerned with providing services to small and medium scale farmers. Large-scale livestock production and marketing firms (industries) are operated by professional staffs, and also largely by private firm or business house, where capacity development theme from public sector has less important. Hence only gender issues in relation to smallholding livestock production and managements are discussed here.

7.1.1 Capacity Gaps and Constraints in Women's Access and Participation in Livestock Enterprises

After a careful field observation in the different parts of Nepal - the Mountain, Hills, and Terai - after discussions with the related key stakeholders, the following capacity gaps or constraints have been noted in terms of women access to livestock services in Nepal, as summarized below.

a) Inadequate access to capital, knowledge, control over assets, and more particularly on sale and purchase decisions of livestock enterprises.
b) Women do not have control of the resources (financial resources).
c) Mechanization can provide more opportunity for a woman to engage on dairy ad raising livestock animals, as doing manually such tasks needs more muscle power
d) Land ownership can alter the profitability and level of social security (and government supports and subsidy transfer) obtained from the government. Besides, types of animal breeds can affect the level and scale of livestock sector production, and impacting income generation in livestock sector production enterprise. Then the capacity development activities in livestock sectors need to be judged not only from the increasing production and productivity but also gender lenses and targeting the activities for gender balance-related activities in the society.
e) Less participation of women in training about the mechanization results in lagging in technology adoption compared to their counterparts. For example, para- veterinarians are getting training on new skill and knowledge of livestock services but the transfer of this knowledge and skill to women farmers are at a low level.
f) In sum, women livestock's farmers are also facing various problems in getting easy services from male livestock technicians for services like vaccination, breeding, culling, restocking, fodder production, and disease control, etc.

7.1.2 Options for Encouraging Women's' Participation in Livestock Production Systems

On the basis of capacity gaps in woman's' participation so far, the following suggestions are the suggestions for enhancing women participation in the livestock production systems, as listed below.

a. Review of loan and insurance price formulation process on agriculture and livestock insurance and corresponding institutional arrangements in the local/province level and explore special incentives for Women's' in terms of enhancing their access to financial agencies, insurance groups, and other BFIs.
b. While reviewing the national livestock policy of Nepal, it may need to be adjusted by properly integrating greater roles of women for economic development and related sectors, poverty alleviation, gender equality, capacity development and social inclusion (GESI), and inclusion of all indigenous and marginalized peasants in LS enterprises, and with positive incentives to the targeted groups.
c. In the aftermath of the global pandemic of the COVID-19, and changing national dynamics of labor markets, promoting more numbers of smallholding livestock enterprise could be options for generating more income and employment for large numbers of rural youth. This includes meeting the more pressing need of employment for both male and female members of rural households. A friendlier employment environment should be promoted for the participation of women members in livestock activities.
d. This is also the time for implementing gender and social inclusive LS production systems and LS value chain systems, targeting with more pronounced roles of women on training and capacity development and for institutional supports, especially on key decision-making process and business dealing related activities of LS production and marketing, LS enterprise management, and so on.

e. Women – friendly policies and programs to be initiated to provide soft loans (below 5% of interest rate) on a priority basis to more and more women entrepreneurs. Likewise, more incentives for livestock farmers, women workers, and animal health service providers are essential.
f. The livestock policymakers, implementers, and stakeholders should also need to pay great attention to the geographical diversity, other forms of social inequality, including GESI and women's participation related issues, and need to have sectoral compensation plans in case of natural disasters and diseases. Community (or municipality) level livestock training centers (C-LTC) could be the best venue for the training of women farmers in both commercial and subsistence livestock farming. Therefore, strengthening of human resources and infrastructure, including online training and ICT uses in training would need to be equipped at each of the C-LTC. Women members to be targeted on such LS development training programs and related activities of C-LTC. Previous experience in DLS has also proved this assertion.
g. All women members' cooperative to be promoted with positive financial incentives and market promotional activities through private-public partnership.
h. The important skills and knowledge by arranging regular workshops, seminars, training, and farmer exchange program between two communities within the country. Moreover, socio-economic issues, gender discrimination, and lack of self-respect in farming and occupations are unfavorable for reducing Sexual harassment in workplaces. This includes increasing women empowerment and participation in all the national and international platforms, which can enhance the capacity of officials in the country, and decrease gender baseness.
i. Capacity enhancement in various facets of the farmers is highly appreciated. Design policy to adopt a livestock program/scheme like 'One Village One Product', also working in collaboration with women's group working in the village.
j. Micro-finance lenders and banks should distribute loans to women farmers group under the guarantee of the Government of Nepal (GoN), as there is no provision of prioritized bank loans to the community-based group guarantee and monitoring, especially to women's' cooperatives engaged in livestock production and marketing systems.
k. Positive incentives to women in disadvantaged and marginalized communities for their engagement in livestock production systems.
l. Livestock insurance mitigates the risk of LS production to be reforms and these types of insurance to be more accessible to the women's' group and marginalized communities engaged in livestock production practices, which are inherently costly.

7.2 Establishing Four Tires of Veterinary Hospital Systems in the Country

Specialized veterinary services to be set up as per the changing context in the country (and global demand) to provide effective veterinary services to farmers and entrepreneurs. The existing organizational structure and infrastructure of Veterinary Services in the country are not sufficient to provide specialized veterinary and health services to the livestock farmers. Therefore, there are a need for veterinary hospitals (or specialized vet clinics) to each municipality, to the district (with little more facilities and services), and at the provincial level veterinary hospital which can provide specialized services to the livestock farmers, as per their need.

These new veterinary hospitals across the tiers of government (or market domains) can be established in phase-wise manners, depending upon the level and scope of commercialization of livestock production in each location (province), and annual funding allocated to the ministry for such tasks. Strengthening animal health and clinic services would reduce natural risk in raising livestock, as a result,

it will ultimately help in lowering of insurance costs across the board, and possibly also the development of vibrant livestock insurance markets in the country.

The basic level of animal health service at the municipal level should be provided by a team of experts consisted of a qualified veterinarian and veterinary para-professionals together with other supporting staff. The clinical case that cannot be handled at the municipal veterinary hospital would be then referred to the District Veterinary Hospital (VH&LSEC). For the more specialized type of animal health services, there should be a Provincial Veterinary Hospital, and a Central Veterinary and Referral Hospital at Kathmandu. Accordingly, the Veterinary Hospitals are categorized into four levels in Nepal, as follow:

I. Municipality Veterinary Hospital
II. District Veterinary Hospital
III. Province Veterinary Hospital[7]
IV. Central Veterinary and Referral Hospital

These veterinary hospitals (districts and provincial vet. Hospitals) should be established on different phases based on the priority of the geographical areas, the density of livestock populations, and by sharing its establishment costs and operational responsibility with the provincial government. Although detailed project report needs to be prepared on a comprehensive plan of equipment for each of the Veterinary hospital as noted above, through the consulting groups and KISs with several experts, the study team have provided here a rough estimation of the costs for the establishment of the three types of a veterinary hospital, as follow:

- Municipal Veterinary Hospital (MVH): @ approximate cost of Rs. 50 million per unit
- District Veterinary Hospital (DVH): @ approximate cost of Rs. 70 million per unit
- Provincial Veterinary Hospital (PVH): @ approximate cost of Rs. 120 million per unit

i. The overall management and other responsibilities should be borne by the respective governments and/ or their authorized bodies in the federal setup.
ii. In the first phase (during the first five years), veterinary hospitals to be established in the periphery of all metro municipalities and sub-metro municipalities, and outskirt areas of all major Urban Municipalities, because more numbers of commercial livestock farming is coming up in the peri-urban areas that need better animal health service and minimizing the risks of livestock production to the farmers. At the same time, at least a basic level of Vet. Clinic to be operated at each of the rural municipality operated LSC, which are at a very rudimentary level in many places.
iii. Then, in the second phase (5-10 years), to establish a fully functioning veterinary hospital at each of the Rural Municipalities, District level Vet. Hospitals, and finally also at a specialized vet. Hospital one at each of the provinces. (provincial level referral hospitals).

The need for the Provincial Veterinary Hospital has been realized due to its higher standards of service and to work as provincial-level referral hospital than that of the district veterinary hospital.

At a Provincial Veterinary hospital, clinical and surgical services are often available at all times and are equipped with full facilities for all kinds of examination, diagnosis, prophylaxis, medical treatment, and surgery. The limited number of provincial Veterinary hospitals at certain convenient locations (a cluster of 4-5 districts) would provide accommodation and nursing care for the patients (animals) and also the

[7] Organogram and detailed human resources (technical professionals) needed in each of the veterinary hospitals to be determined by the location-specific factors and level of intensity of livestock populations in its jurisdiction.

owner of the animal. This hospital should have designated rooms for a surgical theatre, an X-ray room, Ultrasound, and Video X-ray, and other facilities. Despite providing specialized services, these hospitals would also be a referral veterinary hospital in the province. This type of animal hospital can be also handled/managed to take on board of private sector organization, or in permitted PPP model, in each of the provinces.

Such provincial hospital to be managed by a committee formed by the province government, and to run the hospital on a no-profit no-loss basis. Unlike the case of other government-run hospitals, the clinical service will be a paid referral hospital. That is, the service taker, i.e., farmer / agro-entrepreneur can also be charged a modest fee to cover part of the costs for the provision of specialized animal health services. The charge of the various types of services would be fixed by the steering committee of the PVH. This will also reduce the burden upon the provincial government to in running these provincial veterinary hospitals.

7.3 Better Coordination of Agricultural Research, Education, Training, and Extensions Activities by MoALD

Present Context

a) At present, there is a Planning and Development Assistance Coordination Division (PDADD) headed by a joint secretary in MoALD. But its activities are largely limited within the ministry. At present, there is no any specific entity (organization) within the setup of MoALD to coordinate all the relevant organizations involved in agricultural (or livestock) research, agricultural education, agricultural training, and extensions in the country, all of them are a critical component of Capacity Development Plan of the agricultural sector in the country. This includes the capacity development of all entities of MoALD and its partners/affiliated institutions across the provinces.

b) At present, there is an MOU between MoALD and AFU/IAAS for higher study (BS and MS level) of a certain number of officials annually in these institutes, besides the project nominated candidates for the higher study. As several private colleagues have also been functioning in the country, hence the participants may be allowed to choose the colleagues across the country depending upon his convenience and other factors, which may help to strengthen the capacity of LS colleagues and institutes in the country.

c) Moreover, very little fund is available from the regular funding systems of the government for an academic degree or academic research programs in MoALD. In many cases, these training and capacity building efforts are Priority 2 (P2) type of project in the budget priority –allocation systems of the government.

d) The MoALD/ DLS and NARC should also facilitate university and veterinary (agricultural) college in identifying the needs and problems of farmers and involve university graduates in this action research in collaboration with NARC. Basic logistics and deliverables can be managed by DLS/MoALD through its annual budget and programs and involve those people for filed action research.

e) Agriculture education in Nepal is mainly undertaken by IAAS and AFU under TU, HICAST under PU, and CTEVT re under the Ministry of Education. These agricultural education institutions are under MOE, and with very little direct programmatic linkage (and/or research supports and linkages) with MoALD for funding and allocation of financial resources for regular research and education in these universities/colleagues. The lack of funding supports from MoALD to the agricultural and livestock sector educating sector is also a cause for a low level of programmatic

linkage and coordination of MoALD and involvement of education institutes in agriculture extension and research system in the country.

f) The partnership and effective operation among the different actors from policy coordination to technology dissemination up to farmers' fields are necessary for different tires of the agriculture system. This is now disintegrated into different places, and each one moving in different direction.

Suggest Recommendations and Alternate Institutional Arrangements

A. Capacity Building of Training Institutions under MoALD

a) For effective Coordination to be established among the three functions of Agricultural (Livestock Services) Research, Agricultural Education and Agricultural Extension activities, and with training and capacity development activities, it is suggested to establish a separate division (headed by the joint secretary), 'say Capacity Development and Research Collaboration Division (CDRCD)" in MoALD. This new division of CDRCD will then coordinate these four functions of agricultural development within an umbrella of MoALD, including channeling and additional financial and other organizational supports to all the entities more integrated way.

b) This new division (CDRCD) should also take initiative for the restructuring of training institutions under the federal set up, including better coordination of the training and capacity development, agricultural education, and agricultural research and development related subjects across the three tiers of the government, within the newly restructured federal set up, and as per the spirit of the federalism and the constitutional given mandates. At present, the secretary of agriculture attends the annual meetings of NARC council (or AFU, TU) once a year, which is not enough for the effective coordination and collaborations of these entities and coordinated and integrated activities. Hence, it is suggested that for a programmatic backup in the MoALD to be supported by institutional arrangements (supports) and regular flow of funds from MoALD to the provincial government and the selected universities. Even a provision of special grant or condition grants on research and education and training would better facilitate the suggested process and will ensure better results and outcome in coordination and collaborations across the agricultural education, agricultural research, and development in the country.

c) The proposed new division (CDRCD) in MoALD can also take a greater role in strengthening the training and capacity development activities across all three tiers of agricultural organizations under the umbrella of MoALD. It can also facilitate for providing some parts of core funding (special grants) from the MoALD to be provided also for strategic research and strategic training and capacity development activities across the provinces, or specific geographic reasons.

d) The proposed new division of MoALD (say, CDRCD) can also take a lead in preparing a detailed program and implementation of the "know our Soil by ourselves program", as mentioned in the present annual program and budget speech of the GoN for 2077/78 for both crop science, livestock, and forestry sector graduate and postgraduate students. This will be a one-semester (4-5 months) of agricultural and veterinary graduates (BS and MS) to stay in one of the rural municipalities in the country and work on Agricultural Developments, but in coordination with MoALD (linking with the respective *Gyan Kendra* in each of the districts. These students then submit an internship report – as a research-based case study at the end. This kind of semester-long compulsory internship[8] will strengthen the quality of research work of both MoALD and the concerned university and NARC. The core technology-related research adaptation work can be coordinated also by NARC. Moreover, the

[8] There is a practice of internship and on the job training of students (of livestock students) of IAAS and AFU at DLS. This kind of practice to be institutionalized with other discipline of agriculture- crop science, and also of forestry science, and with designated funding to this part of the program by MoALD and with special grant to the provincial ministries as well.

financial expenses for this program and the fieldwork and M&E of the student to be provided by MoALD through its annual special (or conditional) grant schemes.

e) It is a time that MoALD should initiate a Capacity Development task not on an ad-hoc basis, and as per the objectives and scope of any external funded projects or programs, but the CD activity to be institutionalized properly and it should be part of regular and predictable programs of MoALD. Accordingly, the MoALD should set up a separate Training and Capacity Development institute –like the MANAGE[9] institute of ICAR located in Hyderabad, India. MoALD should make in-depth interview on the experience of India, and may like to institutionalize the capacity development initiatives within its regular (annual) function.

f) The proposed MANAGE type of Training Institutions can then focus more on the training of technical officers and entrepreneurs, and adapting the innovation and new kind of development on agriculture and livestock sector enterprises into the location-specific variations of Nepal. The MANAGE can also be doing some pilot-scale adaptation of new concept in institutional innovations (or new business schemes) in the context of Nepal. It should be linked with livestock agribusiness start-ups and business incubation in collaboration with NABIC, AEC, and other private enterprises, as well.

g) The existing capacity and competency of professionals in MoALD need to be enhanced through the institutional provision of higher study or academic training. The MoALD should provide a priority for the capacity development task even with is regular funding from MoF. The capacity building activities should not be just left largely to the donor's (external partners') supported program/project, but it is to be supported by regular funding of the Government of Nepal, and on a priority basis and with focusing the task on developing human resource on subject-areas that the country is lacking most.

h) A large number of LS professionals and technicians that are reallocated to the provincial government and local governments have in general, are with a lower academic degree than that of their counterparts that have opted to be in federal governments. In this context, by creating a new division (CDRCD) in MoALD, as noted earlier. The government can increase its efforts for capacity building, and better coordination with the agricultural sector universities/institutes.

i) AITC should be restructured and transformed with its mandated with capacity building and training, human resource planning, communication, and policy research function under MoALD. Then, the AITC may also need to coordinate various training and CD program with the provincial government-operated training center, and by inviting participants (and instructors) other than the personnel from MoALD alone. This can be done on the payment of the full costs of the participants. AITC should take lead roles and provide guidance and resource pool centers) for strengthening the capacity and functioning of the provincial training center, as well. The capacity development and training program and activities to be coordinated also under the spirit of federalism, and by more empowering to the provincial and local training centers.

j) A separate section of Capacity Development and Training to be set up in DLS, under the overall domain of Planning Division, with the mandate of HRD planning and with increased funding for training and capacity building and collaboration. This section should be equipped with the latest technology of ICT – infrastructure and human resources (personnel) for managing and operating a dynamic Personal Information Systems (PIS) to be developed and operated to conducted CD and HRD planning effectively. Such a system could also be set up for automatically creating a cloud information platform for database and capacity building functions.

[9] The MANAGE institute of India regularly provides agricultural management and administration training to agricultural and rural development professionals in India, with the core funding from Government of India.

B. One Semester of Internship of Ag. & Livestock Graduates Funded by the MoALD

a) There should be a certain level of regular funding level being paid from MoALD to agricultural universities, coordinated through this division of MoALD for better collaboration and integrated research and development activities. This collaboration is also needed effective implementation of the annual policy and program of GON for 2077/78, especially for "know your soil by yourself" (i.e., *Anfno Mato Afain Chinau*).
b) The government of Nepal (and the ministry) ensures invested a huge amount of capital fund annual for the case study, field study, and survey research, which could be done by those interns at low cost and quite an effective way with good quality research outputs, and under the guidance of mentors from AFU, NARCC, and MoALD. In such field research (case of study), the municipal livestock or District Veterinary Hospital level veterinary officer should also be assigned as a supervisor as a part of mini-thesis work.
c) In addition to municipality and rural municipality, those graduates could be best utilized in different livestock farms of NARC of different commodities, laboratories, quarantine check posts, and veterinary hospitals. They could be the best resources for baseline survey (and situation analysis of location-specific issues) of different livestock development plans,
d) The field expense of the graduate students for one semester of rural internship to be paid by the special grant from the MoALD, and through the *Krishi Gyan Kendra(KGK*) or vet hospitals in each of the district, coordinated through the separate division of MoALD.
e) For training and capacity building efforts to agriculture and livestock professionals belonging to all seven provinces and753 municipalities, the ministry (MoALD) can operate a conditional grant for a 5-6 years' period, and facilitate the capacity building ad training infrastructures across all three tiers of the governments.
f) For all of these reforms and transformation in MoALD, and for the development of Standard Operating Procedures (SOP) in these issues, a separate comprehensive assessment of these specific topics may also be required, with analyzing various options and possibilities of inclusion of civil society (NGOs) and private sectors in all the three tiers of government for some of the collaborative work activities in capacity development. This is also to enhance performances of available human resources in the country through collaboration with educational institutions and with private sector livestock enterprises for an internship, or hand-holding training, etc.
g) The training and capacity building initiatives discussed in this section can also provide an opportunity to the capacity development process of professionals of agriculture and livestock from private sectors, and civil society, with the provision of sharing a substantial part of costs of training (at least 75% of the cost) to be shared by the private sector organizations sending technicians for trainings and CD in these training centers operated by the government.

7.4 Supporting Climate Smart Livestock Enterprises in the Country[10]

Livestock production systems contribute an estimated 18-22% of the global scale of anthropogenic Green House Gas (GHG) emissions (FAO, 2006, Uprate, 2019). Animal agriculture is responsible for 8–10.8% of global greenhouse gas (GHG) emissions as assessed by IPCC accounting and, based on lifecycle analysis.

[10]Global production of meat, milk and eggs has rapidly expanded during the last decades in response to growing demand for livestock products, which has also created excessive pressures on the local environment. This increase in demand, which has been particularly strong in developing regions, has largely been driven by expanding populations and increasing in incomes. For example, between 1960 and 2005 annual per capita consumption of meat more than tripled; consumption of milk almost doubled; and per capita consumption of eggs increased fivefold in the developing world.

These emissions represent a significant proportion for some countries, including New Zealand, Ireland, and the United Kingdom. The main sources and types of GHG that are generated from livestock systems are methane production from animals, carbon dioxide (CO2) from land use and its changes, and nitrous oxide (N2O) from manure and slurry management, these gases are usually converted to units of CO2 equivalent (CO2 eq.), as a common metric for gases that have varying global warming potential

The following mitigation tool can be applied in traditional LS production systems to reduce the carbon footprint of the LS production systems.

Improved Waste Management

- Manure should store under anaerobic conditions (considering better FYM production).
- GHG mitigation options include the capture of CH4 by covering manure storage facilities (biogas collectors).
- The captured CH4 can be flared or used as a source of energy for electric generators, heating, or lighting.
- Energy generated in this way can offset CO2 emissions from burning fossil fuels.

Improved Feed Conversion

- Improved feed conversion ratios have already greatly reduced the amount of feed required per unit of animal product.
- Feed management and livestock breeding can help improve the feed conversion ratio.
- Feed efficiency can be increased by developing breeds that grow faster, are hardier, gain weight more quickly, or produce more milk is limited feed intake.
- Improving herd health through better veterinary services, preventive health programs and improved water quality.
- Maintaining the roughage and concentrate ration as suggested to lower the GHG emission

Sourcing Low-emission Feed

- Use of specially prepared feed supplements such as UMMB, probiotics, etc.
- High levels of concentrate feed in the diets are in favor to generate more GHG in the rumen. Hence, better knowledge and extension services to the farmers for feed animal with prescribed level of roughage and concentrate on the ratio as per standard recommendation.
- Promotion of low-emission feeds, including targeted feed crops that have been produced through conservation agriculture practices or that have been grown in cropping areas that have-not been recently extended into forested land or natural pastures.
- Proper utilization of feed crop by-products and co-products from the agro-food industry in animal feeds.
- Improving energy use efficiency is an effective way to reduce production costs and lower emissions in livestock farming.

7.5 Capacity Development for Implementing One Health Policy

7.5.1 Background

One Health (OH) program is a collaborative effort to attain optimal health for people, animals, and the environment, and is affected by a zoonotic disease. Humans and animals live in the same environment and share several pathogens. The diseases that can be transmitted from animals to humans and vice versa are known as zoonosis. This group of pathogens can affect both humans and animals. In this case,

the environment plays the role of mixing vessel; a multi-sectoral approach is helpful to minimize the transmission of these zoonotic diseases.

One Health is a cost-effective, sustainable, and practical approach for attaining optimal health for human animals and the environment. The OH helps to solve health problems requiring holistic and multi-disciplinary approaches in a country like Nepal. It aims to "educate" and to "create" networks to improve health outcomes and the well-being of humans, animals, and the environment and to promote environmental resilience through a collaborative approach.

The one Health approach is useful also to control traditionally occurring zoonotic problems such as rabies and tuberculosis and has been practiced in some form for a few decades. The World Organization for Animal Health together, with the World Health Organization (WHO) and the Food and Agricultural Organization (FAO), has also been promoting this concept since the early 2000s.

The One Health approach of livestock services has recently gained momentum globally, especially during the time of the pandemic. The OH approach of work is expanded to include areas of food safety and problems like Anti-Microbial Resistance (AMR). Because of the complex nature of these diseases, specialists across various health sectors must work together to prevent, control, and avert possible epidemics.

7.5.2 Status of One Health Policy Implementation

The One Health approach was emphasized during the World Bank-funded Avian Influenza Control Project (AICP) (2007–2011) and Zoonotic Disease Control Project (2012–2014) in Nepal. Currently, GoN is taking an OH approach to tackling the AMR problem in Nepal. The OH program activity in Nepal is also done with active involvement from the Epidemiology and Disease Control Division (EDCD), Department of Health Services, and Directorate of Animal Health, Department of Livestock Services (DLS) to create a platform for networking, communication, and resource sharing.

Likewise, Relief International (RI) with its partner, Asia Network for Sustainable Agriculture and Bio-resources (ANSAB) implemented the One Health Asia Program in Nepal from March 2014 to March 2017 in three districts of Nepal, namely Chitwan, Banke, and Rupandehi with funding from European Union intending to alleviate the effect of zoonotic diseases in rural Nepal through behavior change and increased awareness. Under this program, the "One Health and Zoonosis" course was developed in collaboration.

7.5.3 Opportunities for One Health Initiatives

- There has been increasing closeness among the human population, domestic animals, and wildlife in the last couple of decades due to increasing human population and incaution onto forested areas which is making a favorable exchange of pathogens at the human and animal boundary.
- Further, awareness of zoonotic diseases among the general public is inadequate, hygiene and sanitation conditions are poor, and resources are insufficient increasing the vulnerability to zoonotic diseases.
- Local practices of drinking raw milk, raw blood, and partially cooked meat in some communities are creating an enabling environment to transmit zoonotic diseases.
- Further, several antibiotics that are used in humans are also used in livestock husbandry primarily for therapeutic purposes, but also occasionally as growth promoters, which may favor for contributing to the AMR problem in Nepal.

- Frequent outbreaks of highly pathogenic avian influenza (HPAI) after its first detection in 2009, anthrax, and rabies, and increasing problem of AMR have necessitated strong coordination among veterinary, human health, and environment-related professionals to control these problems.
- Food-borne outbreaks are also common in Nepal for which OH approaches will be helpful. These problems require a holistic approach and multi-sectoral involvement.
- Recent OH activities especially in HPAI and AMR have set up the platform to take OH initiatives forward in Nepal.

7.5.4 Strategy

a) "One Health Strategic Framework for Nepal" needs to be effectively implemented, which would provide a legal framework to promote OH approaching Nepal.
b) An independent dedicated functional institutional framework may be required to take forward OH initiatives in Nepal given the growing number of health challenges of multidisciplinary nature.
c) It might take some time for these bigger institutional reforms to take place. In the meantime, coordinated approaches that are being taken to tackle AMR and HPAI need to be continued for other possible OH problems.
d) Increasing mutual understanding through continuous collaboration across the various types of public entities would be more helpful for implementing the OH policy.
e) All three levels of government need to prioritize the problems where OH would be most helpful and provide funding for it. Also, it would be helpful to include OH related courses in the curriculum of schools and universities to raise awareness among the people.
f) A structure like the Center for Disease Control and Prevention (CDC) of the USA, where interdisciplinary human resources from human health, animal health, environment, and other relevant stakeholders can also work together, under the same umbrella to tackle multi-sectoral problems, would be helpful in Nepal also.
g) Provincial Veterinary Hospital, as envisioned it earlier, can also take more proactive roles and functions in promotions of OH related Policies and Program.

7.6 Stakeholder's Dialogue Platform for Profitable Livestock Agribusiness

7.6.1 The Context

The dialogue platform is a part of a multi-stakeholder stakeholders' platform, where all the key holders' representatives meet for the quality livestock production and delivery and promotion of livestock productivity along with climate resilience environment for its sustainable development. NLSIP developed the operational manual of the platform for its execution at three levels, viz. District level Dialogue Platform (DDP); Provincial level Dialogue Platform (PDP), and Central Level Dialogue Platform (CDP).

7.6.2 District LS Stakeholder Dialogue Platform[11]

The Directive of Stakeholders Dialogue Platform as arranged by MoALD in 2075 BS for implanting the NLSIP project has provided guidelines and norms for implementing the Livestock sector finance. The district coordination officer becomes the coordinator of the Dialogue Platform. Similarly, the chief of the Veterinary Hospital and Livestock Service Expert Center is the member secretary of the Dialogue Platform.

At present, the required budget for the functioning of DP is managed by NLSIP to different dialogue platforms which are now onward, authorized by MoALD through the directives that the dialogue platform will work till the project period only.

Importance/Rationale of scaling-up of the Dialogue Platform at a regular program of DLS

a) The dialogue platform has supported coordination between key stakeholders of LS in the district, who are now better concerned with district-level livestock business and development stakeholders. Such coordination has facilitated the formulation of the implementing programs.
b) The platform has also supported the livestock service management information system (LMIS), including assisting the process to make access to information for the stakeholders.
c) The dialogue platform has managed to implement the decisions, which are making from the discussions of stakeholders.
d) It has supported to make the records update of concerned offices.
e) It has assisted to acknowledge the role of stakeholders in livestock production, processing, and marketing.
f) It has helped to solve the problems about necessary things/materials like feed, pashmina, medicine, milk, meat, fodder, and sapling, etc. which are concerned with livestock business at the district level.
g) The dialogue platform has supported to the management the LS production and marketing problems locally. Similarly, it has also provided a coordinated approach for communication with the provincial and central level LS entities and private sectors, and to resolve programs at various scales (and agencies) of the government, in a coordinated manner.

7.6.3 Capacity Development and Alternate Options for Stakeholder Engagement

a) The overall DDP is the core entirety of the multi-stakeholder platform. Moreover, for conceptual clarity to implement these kinds of programs, the DDP activities should be coordinated in a way that

[11] Government of Nepal has formed municipality level, district level, province level and central level district dialogue platform. In practice, the district level dialogue platform is more actives and is regularly holding tits meeting, hence it is illustrated here. Similarly, there is provision of provincial and central level dialogues platforms also are working Nepal, with the relevant tiers of the government officials and representatives from the private sectors. To be brevity in writing, only description of district level dialogue platform is described in this paper. Explaining all tiers of dialogue platforms are also outside of scope of this report.

would motivate all stakeholders to regularly participate at the platform, and all should get benefits out of such a platform.

b) At present, the MSP (DDP, PDP, and the CDP) are working in the 28 districts – project command area of NLSIP, and only for the project period as per the information compiled so far, this platform has provided a good venue for meeting together with all key stakeholders of LS production and marketing systems at a forum.
c) After completion of the project, there is a possibility that this type of MSP related activity to be institutionalized and up-scale to all other districts as well. This should be done after a separate comprehensive review of the MSP after its functioning in these 2-3 years.
d) There is a greater role and interest of business communities for running MSP (DPP and PDP, CDP) at all scales, as they are sometimes the greater benefits of MSP due to expanded business opportunities. Hence, over the period, options may be sought to integrating the functioning of MSP more by inviting members from AEC and District Chambers of Commerce ((or municipality level entity of FNCCI). The FNCCI (or CNI) can represent voices and concerns of the private sector and of agri-business firms I a better way so several bottlenecks of the livestock industries can be debated and discussed at the dialogue and a local scale, as per the specific nature of the problems.
e) Due to the high variation of structure and functions of MSP of LS (DDPP, PDP CDP) across the scale and the provinces, the central level training institute or DLS may likely like to institutionalize and develop MSP concept of a program for the development of LS production and Marketing and VC Management in the country through learning by doing and allowing variations of programs and structures across the province (and districts) as per the variation of local constraints and opportunities.
f) Then, only a loose coordination of the activities through provincial entity and with more ownership of provincial government for success and failure of functioning of such MSPs in the country. Where, the MoALD/DLS would then plan to provide a special grant for some specific activities to be implemented through the MSP across the site, and based on a competitive basis and encouraging innovation in livestock production and marketing systems.

CHAPTER VIII

CAPACITY DEVELOPMENT STRATEGY AND TRAINING PLANS

8.1 Gap in Capacity in LS Sector

A Key Informant Survey was done by contacting about 33 national experts for an interview, those who have an active carrier in the livestock sector, and achieved longer experiences in livestock sector activities in the sector. The ranking scale of 1 to 10 was used for priority ranking in the capacity gap (Table 35). The higher ranking on capacity cap or more gap in the capacity of the livestock sector reveals that this is highly needed indifferent agencies of livestock institutions across the livestock institutions.

Using the individual-level survey checklists with the national experts of livestock (about 33 respondents), the study team used about 30 different potential sub-sectors or programmatic areas where there is a potential of capacity gaps on livestock sector institutions that are hindering the effective functioning of the livestock entities in Nepal now. In addition, there was also provision on adding other traits of capacity gaps by the individual respondents, based on the individual own felt importance often traits and to also give priority ranking for the traits, accordingly. Out of that 30 traits, the results on important 22 traits, along with its weightage ranking index are in Table 35.

The most deficits (i.e., a gap in capacity) of technical specialists for the smooth implementation of Livestock Sector services were as noted below. Though all thematic issues are of importance in overall livestock sector service, to be brevity, only the top 10 thematic subjects with their average ranking higher scores are listed below:

1. Project Implementation (average weightage ranking score 8.24);
2. M & E of LS activities (average weightage ranking score 8.03);
3. Value Chain Development (dairy) (average weightage ranking 7.79);
4. Agro-enterprise Development (average weightage ranking 7.93);
5. Project Planning and Management (average weightage ranking 7.69);
6. Animal Health Services (average weightage ranking 7.67);
7. Market Research and Demand & Supply Estimation (average weightage ranking 7.59);
8. Implementing One Health program (average weightage ranking 7.59);
9. Value Chain Development (meat) (average weightage ranking 7.56);
10. Livestock Product Management (average weightage ranking 7.31).

Table 35: Most important Capacity Gaps in the livestock sector with rank preference, as identified from national livestock experts' survey in May 2020 (N= 31)

S.N.	Thematic Subject area	Freq. of Respondent	Total Ranked Weight's	Weight's Ranking Order
1.	Project Implementation	29	239	8.24
2.	M& E of LS activities	29	233	8.03
3.	Value Chain Development (dairy)	29	231	7.97
4.	Agro-enterprise Development	30	230	7.93
5.	Project Planning and Manage211`rment	29	223	7.69
6.	Animal Health Services	30	230	7.67
7.	Market Research and Demand & Supply Estimation	29	220	7.59
8.	Implementing One Health program	27	220	7.59
9.	Value Chain Development (meat)	27	204	7.56
10.	Livestock Product Management	28	212	7.31
11.	Extension and Communication	28	211	7.28
12.	Value Chain Development (Poultry, Birds, and another non-ruminant)	25	180	7.20
13.	Climate Smart Technology	27	205	7.07
14.	Agro-business management & Business Plan Development	26	201	6.93
15.	Animal Production& Management	28	197	6.79
16.	Business Plan Preparation	26	197	6.79
17.	Grant Management	26	170	6.54
18.	Finance Management	27	187	6.45
19.	Implementing FFS in LS sector	25	179	6.17
20.	Use of participative management in practice	23	172	5.93
21.	Business Proposal Preparation	23	153	5.28
22.	Managing Online-based program implementation and online-capacity enhancement activity	15	93	3.21

Source: KIS email survey of 31 national experts on CENA 2020. Higher is the value of rank that indicates higher the gaps in the issue. These capacity constraints (gaps) are all levels, an overall picture of the livestock sector institutions of the country. About 30 traits were listed for priority ranking, then also there was a choice given to the respondents to add few more traits at the end if he/she thinks they are missing in the list and are also more critical capacity gaps in the LS institutions.

Note: The data and results in Table 35are very useful to us in developing the training development (or academic programs) plans in the subsequent section of the chapter.

8.2 Capacity Development Plan

Based on the capacity gaps on various levels of livestock institutions (organizations) as detailed presented in earlier sections of the report, the study team identified short-term training and academic-related capacity needs. Accordingly, the capacity training and capacity development activities related to skills and knowledge to be included in regular training activities (endorsed) in DLS and MoALD and their affiliated organizations and entities, and for farmer's level training, are summarized in Table 36.

The training has been proposed in two groups such as (1) Academic source and (2) Training (long & short term). Within academic training, the sub-component academic degree includes B.Sc., B.V.Sc., M.Sc., and Ph.D. Likewise, short-term training ranging from 3 days to 35 working days in different livestock commodities and disciplinary aspects such as (a) Animal health (b) Livestock management (c) Animal nutrition (d) products production and value chain management, and (e) cross-cutting issues such as Climate-smart livestock and fodder production.

The plan has e addressed slots required for the next 5 years and then 6 to 10 years' plan. The most imported training is put in the first 5-year plan. Similarly, the allocated training and academic study are

again prioritized as H=high and M=medium. It is done for the budgetary purpose to address the need for capacity development.

The skills and knowledge acquired by the training and academics are of great importance as the gap analysis of the national experts on livestock sectors indicated. The summary of the capacity development plan has been presented below.

Table 36: Summary of major types of short- term training courses in livestock services for the next 10 years (taking participants across all three levels of the governments)

Level of Participants	No. of Activity proposed	Total slots allocated	Total Participants	Total costs (Lakh NRs.)	Total Cost for 1-5 years (Lakh NRs.)	Total Cost for 6-10 years (Lakh NRs.)	Cost per participant (NRs.)
Farmers and SM level (Total)	30	650	12830	10195	5748	4447	79462
1. High priority	21		10405	7930			76213
2. Medium priority	9		2425	2265			93402
Non-Officers Level (Total)	43	245	4980	2637	1347	1290	52952
1. High priority	27		4098	887			21645
2. Medium priority	16		882	1750			198413
Officers Level	50	472	9391	5838	2089	3749	62166
1. High priority	35		8180	3573			43680
2. Medium priority	15		1211	2265			187036
Senior Officer level (SMT)	21	71	1404	1393	735	658	99217
1. High priority	12		911	1003			110099
2. Medium priority	9		493	390			79108
Total high prioritized: participants; cost and cost per participants			**23594**	**13393**			**251637**
Total Medium prioritized: participants; cost and cost per participants			**5011**	**6670**			**557958**
Total cost Year wise (1-5 and 6-10 years)				**200,63**	**99,19**	**10,144**	
Total cost Year wise (1-5 and 6-10 years in Crore Rs. (both High priority and Medium priority)				**200.6**	**99.19**	**101.4**	

Note: One Million Nepali Rupees = 10 Lakhs Nepali Rs. Lakh is commonly used for presenting this scale of activities and funding involved.
High priority = High priority training category; Low priority: Medium priority training category

Table 37: Summary of major types of Academic Training Courses in livestock services for the next 10 years (taking participants across all three levels of the governments**)**

Degree Course	No. of courses	No of Participants	Cost in 1-5 years (lakh NRs.)	Cost in 6-10 years (lakh NRs.)	Total Cost (lakh NRs.)	High Priority cost (lakh NRs.)	Medium Priority cost (lakh NRs.)
Bachelor Degree	5	85	344	336	680	600	**80**
Master Degree	18	204	646	586	1,232	935	**297**
Ph.D. Degree	10	54	156	156	312	244	**68**
Grand Total	**33**	**343**	**1,146**	**1,078**	**2,224**	**1,779**	**445**
Total Cost (in Crore Rs.).			**11.46**	**10.78**	**22.24**	**17.79**	**4.45**

Note 1: The detailed breakdown of item-wise costs is given in the annex tables.
2:1 million of Rupees = 10 Lakh Rupees. And 1 crore = 10 Million Rs. = 100 Lakh Rs.

In the training categories, more numbers of activities are included for non-officers and farmers group, which includes private sector service providers and farmers and entrepreneurs. Similarly, Officers are given better training to train farmers and other stakeholders. The item-wise details on both training and academic study are provided in Table 38.

Table 38: Academic courses/training needs for MoALD and DLS in the next 10 years planning horizon

S.N.	Name of Course	Duration (Years)	Total No. of participants in 10 years	Need in 1-5 years (No)	Need in 6-10 years (No	In Nepal /Univ.	In other countries	Unit Cost (NRs. lakh)	Cost in 1-5 years (NRs. lakh)	Cost in 6-10 years (NRs. lakh)	Total Cost (NRs. lakh)	Remarks	PRIORITY (H= High; M= Medium; L= Low)
I	**Bachelor Degree**												
1	B.V.Sc.& AH	5	20	10	**10**	AFU/PU		**8**	80	80	**160**		H
2	B Sc. Ag (Animal Sciences)	4	10	5	**5**	TU/IAAS/AFU		**8**	40	40	**80**		H
5	B Tech Feed/ food science	4	10	5	**5**	TU/Dharan		**8**	40	40	**80**		M
6	**B. Tech (livestock**	4	30	15	**15**	KU/TITI		**8**	120	120	**240**		H
7	**B.Sc. Ag. (Ag. Economics; or Livestock Economics)**	4	15	8	**7**	AFU/PU		**8**	64	56	**120**		H
5	**Subtotal**		**85**	**43**	**42**			**40**	**344**	**336**	**680**		
II	**Master Degree**												
1	**Animal breeding and genetics**	2.5	10	5	**5**	TU, AFU, PU	India	**5**	25	25	**50**	Include province	H
2	**Animal Nutrition**	2.5	10	5	**5**	TU, AFU, PU		**5**	25	25	**50**	Province, and high Himalayan	H
3	Livestock Production & Management	2.5	12	5	**7**		India, Hishar/ PAU	**5**	25	35	**60**		M
4	Fodder and Pasture (rangeland mgt.	2.5	8	4	**4**		India, Jhanshi	**10**	40	40	**80**	high Himalayan	H
5	Vet. Micro-biology (virology)	2.5	10	5	**5**	TU/FAU		**5**	25	25	**50**		M
6	Vet. Pathology	2.5	10	6	**4**	TU/FAU		**5**	30	20	**50**		M
7	Vet. Parasitology	2.5	11	8	**3**	TU/FAU		**5**	40	15	**55**		M
8	Vet. Surgery	2.5	12	5	**7**	TU/FAU		**5**	25	35	**60**		H

S.N.	Name of Course	Duration (Years)	Total No. of participants in 10 years	Need in 1-5 years (No)	Need in 6-10 years (No	In Nepal /Univ.	In other countries	Unit Cost (NRs. lakh)	Cost in 1-5 years (NRs. lakh)	Cost in 6-10 years (NRs. lakh)	Total Cost (NRs. lakh)	Remarks	PRIORITY (H= High; M= Medium; L= Low)
9	Vet. Theriogenology (AI, gynecology)	2.5	12	7	**5**	TU/FAU		**5**	35	25	**60**		H
10	Vet. Medicine	2.5	20	10	**10**	TU/FAU		**5**	50	50	**100**		H
11	Vet. Epidemiology	2.5	13	6	**7**	TU/FAU		**5**	30	35	**65**		H
12	Dairy Technology (& Eng.)	2.5	15	8	**7**	Nepal		**10**	80	70	**150**		H
13	Meat Technology	2.5	15	8	**7**	Nepal		**10**	80	70	**150**		H
14	Poultry Husbandry	2.5	12	6	**6**	TU/FAU		**5**	30	30	**60**		H
15	Vet. Biotech (vaccine production)	2.5	6	4	**2**		India/ IVRI	**10**	40	20	**60**		H
16	Agri-business Management (Livestock)	2.5	10	5	**5**	KU		**5**	25	25	**50**		M
18	Environmental Science (livestock)	2.5	8	4	**4**	PU/TU		**4**	16	16	**32**		M
19	Agricultural (Livestock) Statistics and planning	2.5	10	5	**5**	TU		**5**	25	25	**50**		M
18	**Subtotal**		**204**	**106**	**98**				**646**	**586**	**1232**		
III	**Ph.D. Degree**												
1	Livestock economics (Agricultural Economics)	3	7	2	**5**	TU		**4**	8	20	**28**		H
2	Animal Breeding and Genetics	3	7	2	**5**	TU/AFU	India	**4**	8	20	**28**		H
3	Reproductive Physiology	3	7	2	**5**	FAU/TU		**4**	8	20	**28**		H

S.N.	Name of Course	Duration (Years)	Total No. of participants in 10 years	Need in 1-5 years (No)	Need in 6-10 years (No	In Nepal /Univ.	In other countries	Unit Cost (NRs. lakh)	Cost in 1-5 years (NRs. lakh)	Cost in 6-10 years (NRs. lakh)	Total Cost (NRs. lakh)	Remarks	PRIORITY (H= High; M= Medium; L= Low)
4	Pasture and Rangeland Management	3	5	3	**2**	FAU/TU		**4**	12	8	**20**		M
5	Animal Feed and resource management	3	7	3	**4**		India ICAR/ Jhanshi	**8**	24	32	**56**		H
6	Animal Nutrition and Fodder Production	3	5	3	**2**		India ICAR/ Jhanshi	**8**	24	16	**40**		H
7	Veterinary Epidemiology	3	4	3	**1**		India IVRI	**8**	24	8	**32**		H
8	Veterinary Public Health and Zoonosis	3	4	3	**1**		India IVRI	**8**	24	8	**32**		H
9	Veterinary Jurisprudence	3	4	2	**2**		India IVRI	**8**	16	16	**32**		M
10	Veterinary Pathology	3	4	2	**2**		TU/FAU	**4**	8	8	**16**		M

CHAPTER IX

CONCLUSIONS AND RECOMMENDATIONS

Recommendations

The study on capacity enhancement and need assessment (CENA) for MoALD and DLS has been analyzed the various issues on Trainings and Capacity Development in MoALD, DLS, and organizations affiliated to these entities, and LS related provincial and municipality level institutions/organizations across the seven provinces and the municipalities. Based on the analysis and assessment done in the earlier sections, the following conclusions and recommendations have been forwarded to enhance the professional capacity (and technical working competency) of livestock services institutions for delivery of acceptable quality of services to the smallholder livestock farmers in the country. These elements are summarized by major thematic groups below

9.1 Overall Capacity Enhancement in Livestock Institutions – Federal Organizations

a) Existing policy, rule, regulations, and guidelines regarding livestock sector development should be updated or amended as per the changing context of local markets and for better service provisions to the livestock services, and as per the newly adopted federal context of the governance, since a large number of these policies and programs were prepared in the case of centralized systems of the governance system earlier.

b) Livestock Master Plan has not been amended since it was prepared in 1995, with a roadmap of its 20-years. Hence, a new livestock master plan to be prepared timely and as per the context of federal governance structures in the country, and as per the constraints on various levels identified in this study as well.

c) The existing Human Resource (HR) capacity (professional) allocated in MoALD (Livestock Sector), DLS, DLSU, Provincial Ministry (directorate), veterinary hospitals, municipality, and rural municipality is not adequate to provide quality services to the livestock farmers all over the country. Hence, more numbers of capacity enhancement activities to be initiated to meet the increasing demand for trained professions in the country, especially to meet the more urgent needs relate to capacity enhancement of technicians and professionals working in provincial, district level, and municipality level organization.

d) As envisioned by ADS, enhancing the governance system of the agricultural institutions is the key outcome indicator of agrarian sector development in the country. Enhancing the capacity of an employee of livestock institutions (all public entities) on the nitty-gritty of various public procurement acts economic procedures and accountability related acts, civil service acts.

e) There is always a need for the "**Right man in the right place**", but in practice, this policy is followed least while allocating and reallocating professions across the units/divisions.

f) To ensure a better output of LS institutions, a separate mechanism (unit) for **monitoring and evaluation** should be set up within MoALD, and in DLS, wherein, the persons involved in such activities of M&E should be made accountable for ensuring overall monitoring of the overall outcome and performances of the respective organizations.

g) Department of livestock services to initiative a separate section of human resource development (HRD), within the planning division, to focus on the need assessment of its staffs in the

organizations on regular basis. This is to be done with the application of modern practices and ICT and customized in the daily work for enhancing efficiency and work performance.

h) DLS should be equipped with modern tools and techniques of ICT and use it for betterment of management of the organization and human resources allocations/planning. This is also to be updated with the latest development and innovation on LS and veterinary services to farmers in the South Asia regions and in globally.

i) Appropriate performance (and incentive) based human resource development and utilization plan should be initiated in three tiers of government/.

j) Capacity of the livestock sector professionals (of all levels) to be enhanced so that they will be able to use CT and utilize other office physical facilities at its maximum level.

k) There is a low priority in the functioning of the Government of Nepal for capacity development within the agriculture and livestock sector. Capacity development policy and programs (with its budget) should be given high priority in MoALD/DLS, and linking/sharing the efforts with the program planning of provincial and municipality level livestock organization, as well.

l) Specific area/field of training are usually not identified and prioritized as per the need of the country, but largely based on academic degree programs. Specific area/field of training should be identified as per the need of the country.

m) There is a high level of ambiguity due to the delay in the approval of the civil services act for the federal and provincial levels.

n) HRD strategy in the federal context to be finalized soon and it is to be followed by the HRD plan to capacitate federal, provincial, and municipality level human resources development rules and regulations and ensuring for competent services delivery

o) The courses, syllabus/curriculum of colleagues, and university (AFU, IAAS, PU) need to be amended massively to suit it more of job requirements in the country.

p) HRD plans to address the HR needs of the private sectors besides meeting the demand of the public sector service providers (as they are also part of the LS institutions).

q) Likewise, available machinery and tools and infrastructure facilities for officer level training in the livestock sector are not adequate in the country to tackle all the emerging issues in livestock sector.

9.2 Capacity Development at Provincial and Local Level Institutions

9.2.1 Strategy (Four Tiers Veterinary Hospital)

a) Government of Nepal (and the MoALD) to adopt a policy of four-tier veterinary hospitals (central, provincial, district hospital, and municipality level veterinary hospital) for better veterinary services to the farmers, as described in an earlier section.

b) The government should initiate setting up “Provincial level Referral Veterinary hospital at certain locations serving LS farmers (entrepreneurs) of 4-5 districts in a cluster. Provision of veterinary hospital services to farmers. This is also to reduce the risk of diseases spread, to implement One health policy, and possibly reduces livestock insurance costs in the long run as well.

c) At the local level, a municipal veterinary hospital/veterinary service clinic to be set up. Where, health and treatment services, as well as primary laboratory facilities for disease diagnosis (such as fecal examination, urine analysis, mastitis test, post-mortem examination, sample collection, and dispatch), including minor surgical treatment, and other primary veterinary services, are to be provided to the livestock farmers.

d) Priority to animal breeding and artificial insemination training should be provided for government technicians and private Para-vets.

e) Training on animal nutrition and fodder production and conservation including fodder seed production, processing, and storage should be emphasized.
f) Exposure visit and interaction training/workshop at local levels with field staffs are recommended to conduct for capacity development.

9.2.2 Livestock and Veterinary Service

a) Livestock Sector needs the adoption of modern and efficient and climate-smart technology, improved support services, market access, and infrastructural development to stimulate increased productivity.
b) About 60% of human pathogens are of animal origin, 75% of emerging animal diseases can be transmitted to humans and 80% of pathogens that could potentially be used for bioterrorism are of animal origin. (OIE, 2015), and the plan should have addressed these issues.
c) Veterinary JT/JTA knowledge and skill in other 3 pillars viz. Animal Feeding, animal breeding, and management are weak at the professional level. Hence, each of them in the service should be provided regular training in specialized areas, where one is functioning now.
d) Those groups of Private JT/JTA, who are interested to establish self-business and turn out from OVOT, as to be supported by making a project/subsided Bank Loan. They are to be encouraged for the establishment of public-private partnership (PPP) point for preliminary private livestock and veterinary service in those dense animal populated ward levels.
e) From the overall study of both concerned documents and field study, the study team has recommended different kinds of study, training, exposure visits to the management teams. So, the NLSIP with the help of MoALD, DLS, the World Bank, and other related offices/authorities should implement the recommendations/suggestions as to more as possible for the capacity enhancement of the overall livestock sector.

9.3 Improvement of Other Co-ordination Functional Institution

a) An independent dedicated functional institutional framework is required to take forward OH initiatives in Nepal given the growing number of health challenges of multidisciplinary nature.
b) A structure like the Center for Disease Control and Prevention (CDC) of the USA, where interdisciplinary human resources from human health, animal health, environment, and other relevant stakeholders can work together under the same umbrella to tackle multi-sectoral problems would be helpful in Nepal also.
c) To enhance linkage, coordination, collaboration within these organizations and agencies with proper MOU among them is most essential. At present, there is weak linkage, coordination, and collaboration among organizations within the ministry, department, different offices related to agencies like NARC, AFU, BFIs, etc.
d) The higher level of officers needs to be encouraged to get trained on executive MBA to understand their practical business planning for the organization. (KU course).
e) Personnel with acquired training should be posted in respective organizations/ offices as per his/her expertise. Personnel expertise should be properly utilized by increasing the motivational factors.
f) Adequate laboratory materials and equipment to be ensured at LSCs managed across the municipalities to provide a better quality of services to the livestock services.
g) Hat Bazaar should be managed very well so that the local community can organize themselves to raise bulls and buffaloes for breeding. Veterinary hospital and laboratory facilities should be improved to provide better service.

h) Bank should simplify the process of providing loans to the farmers. Unnecessary paper works should be omitted. Co-operative should decrease the interest rate that they are charged to the farmers. The role of insurance and other concerned financial institutions should be made functional forwards livestock sector.

i) Co-operation and linkage among different levels of government organizations, province government, district co-ordinations committee, various district offices, municipality, and rural municipality should be strengthened.

j) Different Acts, policies, strategies, regulations, standards, and guidelines should be formulated more by the central government (according to needs) to make easy to work for provincial and local government.

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ANNEXES

Annex Note 1: Work Activities Assigned as Core Functions of the MoALD, as per Sharing Work Activities Across the Three Tiers of the Government

1. Policy, legislation standard, and regulation of agriculture and agriculture-related biodiversity and biotechnology especially, animal genetic resources and animal biotechnology
2. Policy, legislation standard and regulation of food security right to food, foods food quality, and food safety especially, animal source food
3. Policy, legislation standard, and regulation of veterinary drugs use and management
4. Policy, legislation standard execution, and regulation of animal quarantine function
5. Livestock related international trade facilitation
6. Livestock statistics system
7. International laboratory accreditation, certification, laboratory development and management of agriculture and food
8. Epidemic control of livestock and fisheries
9. Agricultural industrialization fisheries, livestock industries, entrepreneurship inter-provincial development promotion, and coordination collaboration
10. Breed related national standard setting and regulation
11. Policy legislation and regulation related to transboundary pasture and rangeland management
12. Policy legislation standard quality setting import permission and regulation of animal feed
13. National policy legislation standard and management of veterinary service
14. Registration permission renewal suspend and regulation of veterinarians
15. Policy legislation standard and regulation of meat and meat products hide, leather, and other products
16. Livestock insurance policy and standard
17. Treaty, MOU, contact point, coordination related to agriculture and livestock related national and international organization.

Annex Note 2: Function and Structure of MoALD in Nepal

A. MoALD and DLS at a Glance

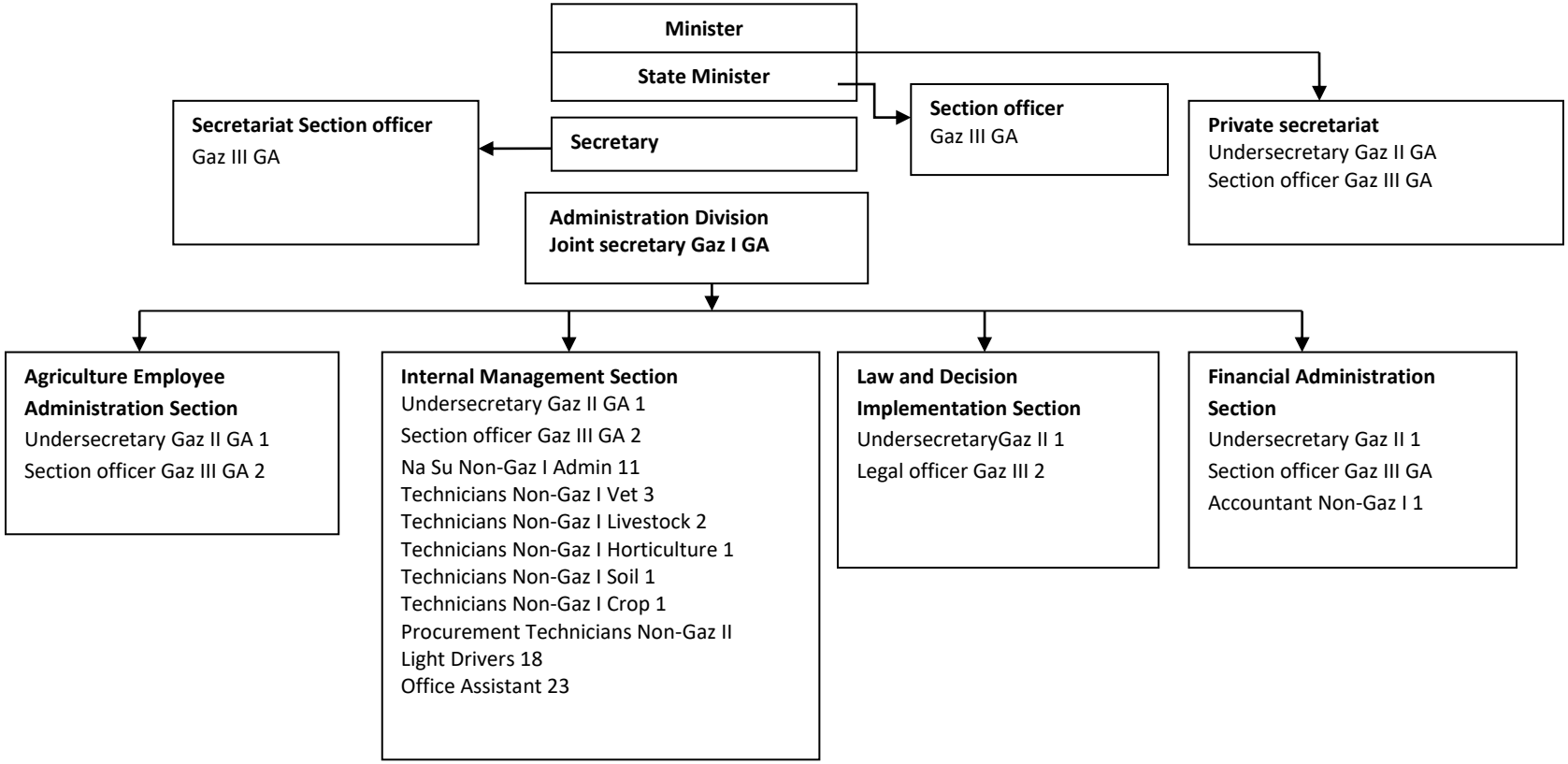
A1. Ministry of Agriculture and Livestock Development

The contribution of agriculture towards the Gross Domestic Product (GDP) of Nepal is 27 percent, with livestock accounting for 27 percent of agricultural GDP (Economic Survey of Nepal, 2019). Agriculture in Nepal is largely subsistence with on average landholding of 0.96 ha. 80 percent of the population resides in rural areas and 65 percent is engaged in agriculture. Of the population engaged in agriculture, 70 percent keeps livestock. Recognizing the role of agriculture in the Nepalese economy, the Government of Nepal has established the Ministry of Agriculture and Livestock Development (MoALD), a government body of Nepal responsible for the growth and development of agriculture and livestock sector in the country.

Assigned Activities – ToR of MoALD

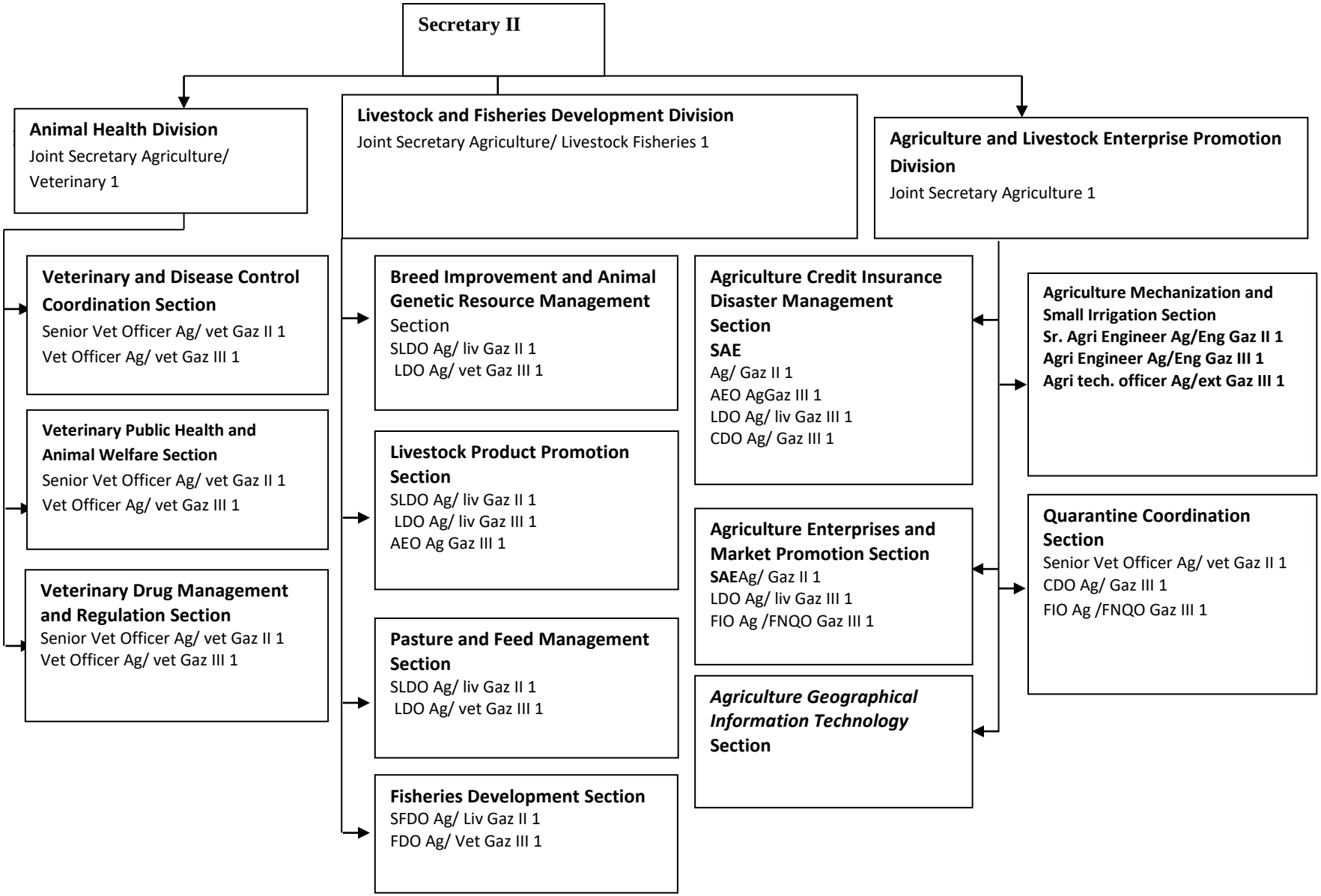
- Work on making policy, law, standard, and regulation about livestock related medicine microelement and bio-hazardous
- Work on implementation of policy, law, standard, implementation, and regulation about food quarantine livestock sector
- Standardization, information, collection, classification, information flow, and regulation of hazardous things
- Control of epidemic about the livestock sector
- Inter-provincial government-related agricultural development, promotion, and coordination of the livestock sector industry and business
- Works related to policy, law, standard, quality determination, import approval, and regulation about veterinary medicine and feeds
- Works related to National policy, law, standard, and management about veterinary medicine
- Registration, acceptance, renewal, cancellation, and regulation of veterinarian
- Works related to research and development of milk and milk products
- Works related to policy, law, standard, regulation about meat and meat-related products, leather, and related other things
- Equivalency of Livestock related laboratories

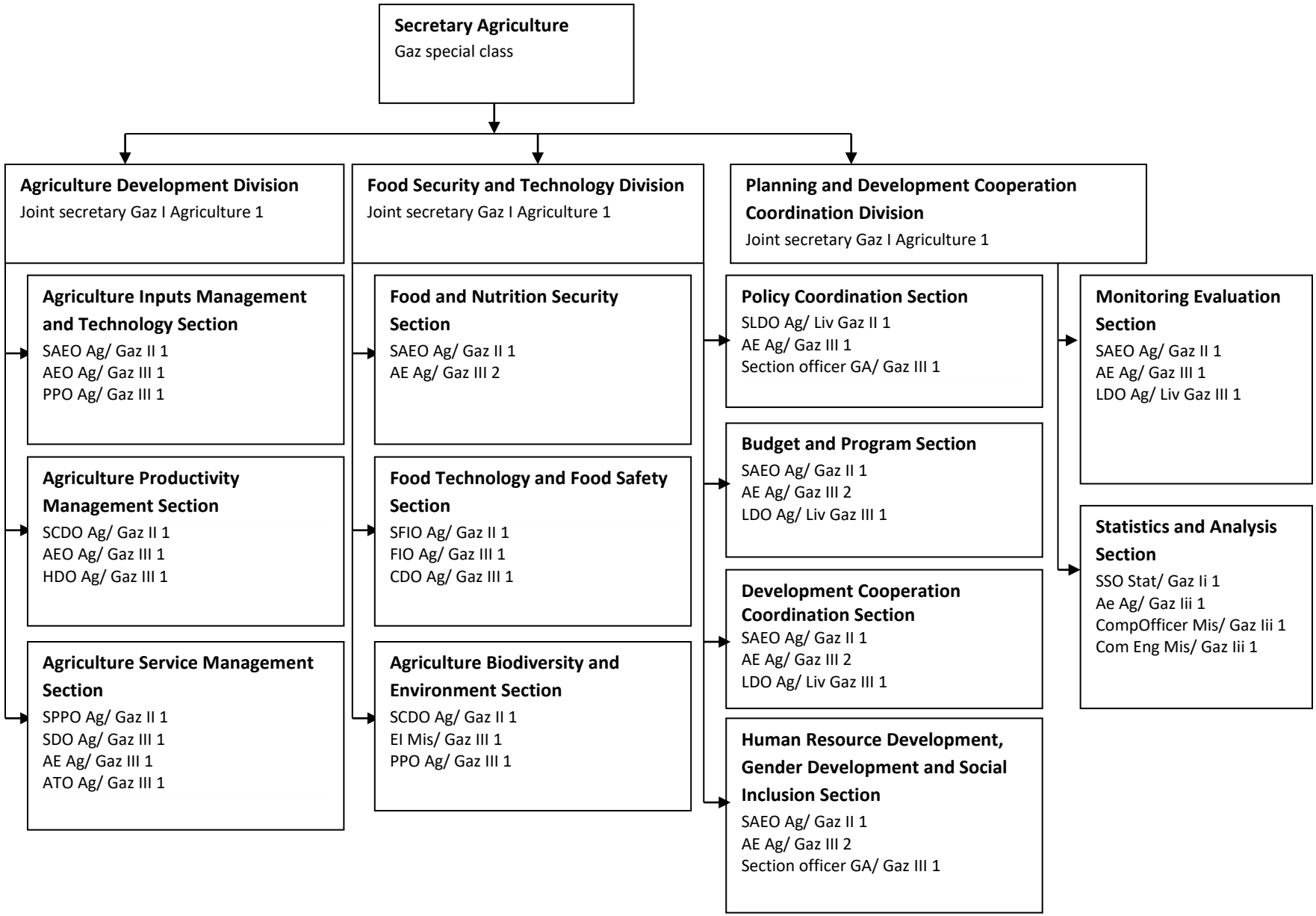
Annex Figure 1: Organization Structure of Ministry of Agriculture and Livestock Development



Note: At present, there is no provision of state minister

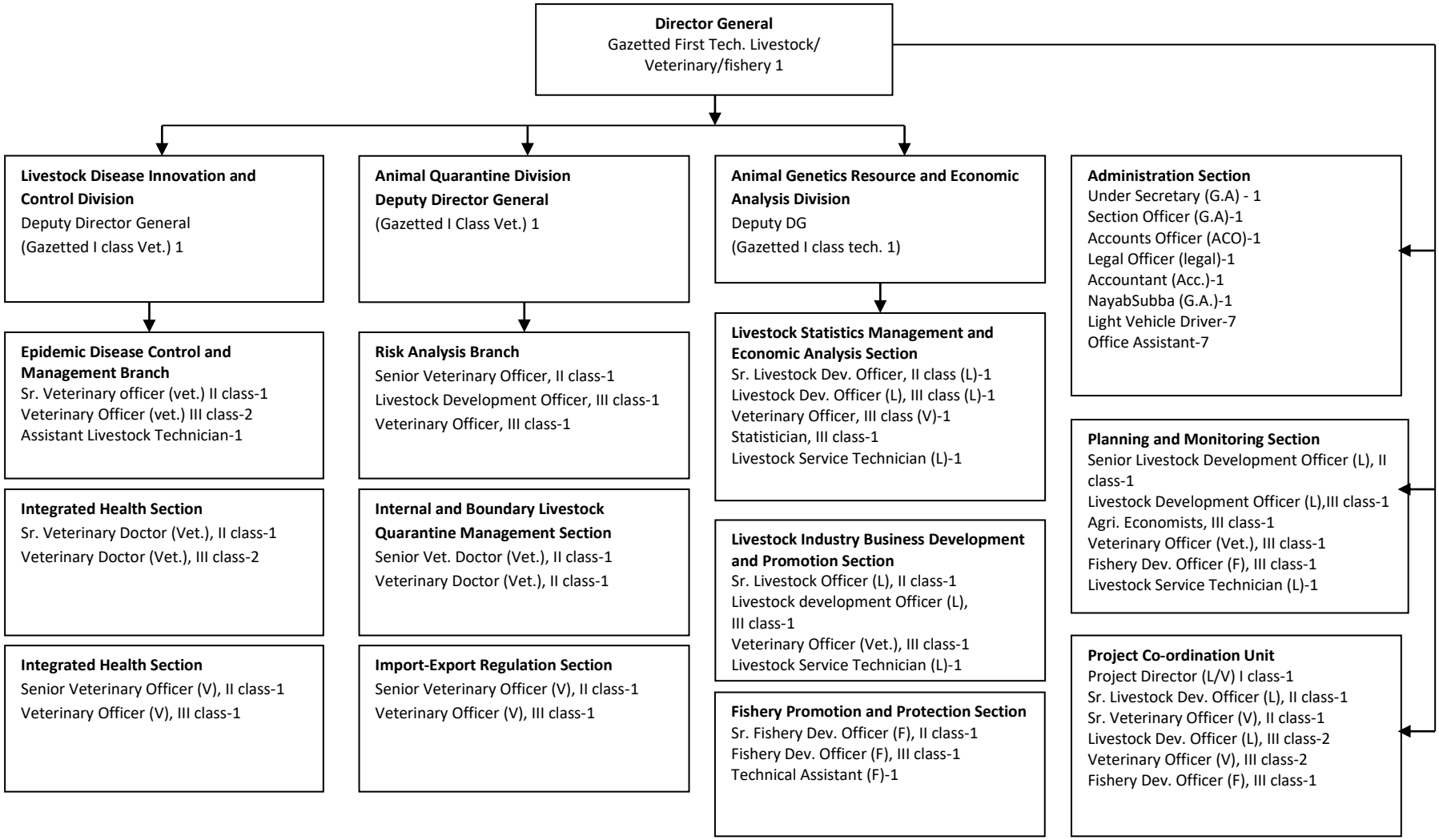
Annex Figure 2: Organization Structure of Ministry of Agriculture and Livestock Development




Secretary Agriculture
Gaz special class
Agriculture Development Division
Joint secretary Gaz I Agriculture 1
Food Security and Technology Division
Joint secretary Gaz I Agriculture 1
Planning and Development Cooperation Coordination Division
Joint secretary Gaz I Agriculture 1
Agriculture Inputs Management and Technology Section
SAEO Ag/ Gaz II 1
AEO Ag/ Gaz III 1
PPO Ag/ Gaz III 1
Agriculture Productivity Management Section
SCDO Ag/ Gaz II 1
AEO Ag/ Gaz III 1
HDO Ag/ Gaz III 1
Agriculture Service Management Section
SPPO Ag/ Gaz II 1
SDO Ag/ Gaz III 1
AE Ag/ Gaz III 1
ATO Ag/ Gaz III 1
Food and Nutrition Security Section
SAEO Ag/ Gaz II 1
AE Ag/ Gaz III 2
Food Technology and Food Safety Section
SFIO Ag/ Gaz II 1
FIO Ag/ Gaz III 1
CDO Ag/ Gaz III 1
Agriculture Biodiversity and Environment Section
SCDO Ag/ Gaz II 1
EI Mis/ Gaz III 1
PPO Ag/ Gaz III 1
Policy Coordination Section
SLDO Ag/ Liv Gaz II 1
AE Ag/ Gaz III 1
Section officer GA/ Gaz III 1
Budget and Program Section
SAEO Ag/ Gaz II 1
AE Ag/ Gaz III 2
LDO Ag/ Liv Gaz III 1
Development Cooperation Coordination Section
SAEO Ag/ Gaz II 1
AE Ag/ Gaz III 2
LDO Ag/ Liv Gaz III 1
Human Resource Development, Gender Development and Social Inclusion Section
SAEO Ag/ Gaz II 1
AE Ag/ Gaz III 2
Section officer GA/ Gaz III 1
Monitoring Evaluation Section
SAEO Ag/ Gaz II 1
AE Ag/ Gaz III 1
LDO Ag/ Liv Gaz III 1
Statistics and Analysis Section
SSO Stat/ Gaz Ii 1
Ae Ag/ Gaz Iii 1
CompOfficer Mis/ Gaz Iii 1
Com Eng Mis/ Gaz Iii 1

Annex Figure 3: Organization Structure of Department of Livestock Service

Government of Nepal
Ministry of Agriculture and Livestock Development
Organizational Structure of Department of Livestock Services

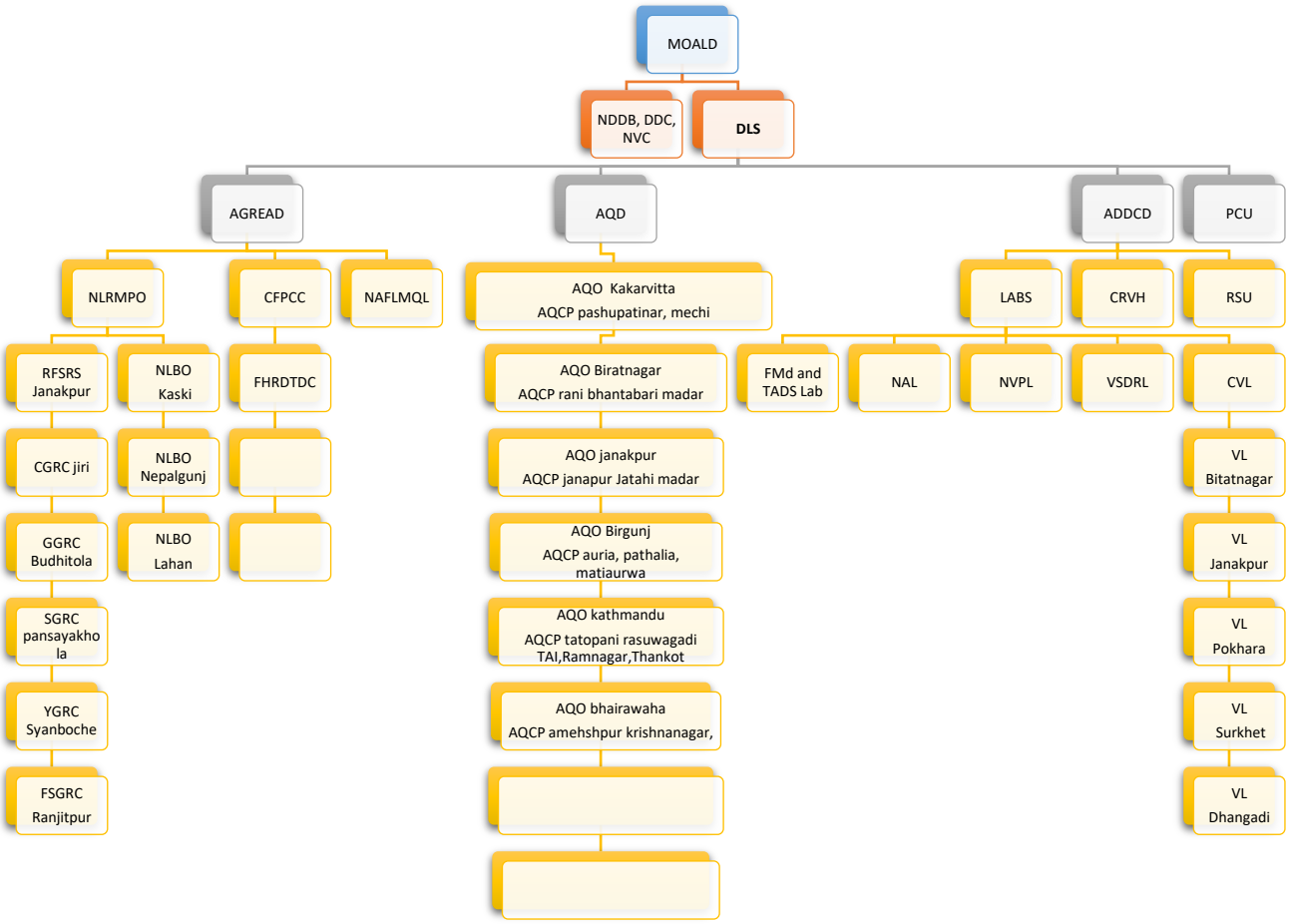


Annex None3: Positions (Darbandi Structures in Municipality) Across the Seven Provinces

Province	District No.	Municipality No.	Darbandi of livestock sector			
			9/10th level	7/8th level	Assistant 5th level	Assistant 4th Level
Province No. 1	14	137	3	140	349	391
Province No. 2	8	136	4	143	432	459
Bagmati Province	13	119	4	124	285	322
Gandaki Province	11	85	1	87	255	243
Province No. 5	12	109	4	115	268	310
Karnali Province	10	79	0	79	237	226
Sudurpaschim Province	9	88	1	91	264	255
Total	**77**	**753**	**17**	**779**	**2090**	**2206**

Note: The positions structures (Darbandi) listed here are as of available the information in mid of 2019.

Annex Figure 4: Institutional Linkage (Planning, Implementation, Monitoring, Network, Partnership)



Institutional Linkage (Planning, Implementation, Monitoring, Network, Partnership) (Continue…)

MoALD	Ministry of Agriculture and Livestock Development	NLRMPO	National Livestock Resources Management and Promotion Office	CVL	Central Veterinary Laboratory
NDDB	National Dairy Development Board	CFPCC	Central Fisheries Promotion and Conservation Centre	NLBO	National Livestock Breeding Office
DDC	Dairy Development Corporation	NAFLMQL	National Animal Feed and Livestock Quality Management Laboratory	AGRCS/FGRCS	Animal/ Forage Genetic Resources Centre
NVC	Nepal Veterinary Council	AQO	Animal Quarantine Office	VL	Veterinary Diagnostic Laboratory
DLS	Department of Livestock Services	CRVH	Central Referral Veterinary Hospital	FHRDTDC	
AGREAD	Animal Genetic Resources and Economic Analysis Division	SAARC RSU	SAARC Regional Support Unit		
AQD	Animal Quarantine Division	NAL	National Avian Disease Diagnostic Laboratory		
ADDCD	Animal Disease Diagnosis and Control Division	NVPL	National Vaccine Production Laboratory		
PCU	Project Coordination Unit	VSDRL	Veterinary Standard and Drug Regulatory Laboratory		

Annex Table 1: Number of approved positions (darbandi)

Level/Class	Special	Gazetted 1st Class (T)	Gazetted 2nd Class (T)	Gazetted 3rd Class (T)	Non-gazetted 1st class	Non-gazetted 2nd class	Total Darbandi
Federal	2	52	292	609	486	116	1557
Province 1		3	41	123	105	27	299
Province 2		3	36	102	85	22	248
Bagmati Province		3	47	121	116	49	336
Gandaki Province		3	33	91	84	22	233
Province 5		3	36	110	85	20	254
Karnali Province		3	31	92	74	27	227
Far Western Province		3	33	88	76	24	224
Local Level			34	1516	3423	2751	7724
Total Approved no. of required employees *(darbandi)*	2	73	583	2852	4534	3058	11102

Note: According to the record of MoALD found in 2076, Mansir, the approved no. of required employees *(darbandi)* of agriculture services is 11,102 in total. Out of this, the no. of required employees *(darbandi)* is allocated among federal, province and local level.

[Obtained from office Record of MoALD]

Annex Note 4: Groups Division of Agriculture Service

According to the nature of jobs, minimum qualification as to perform the job and job specification, following eleven types of position groups are determined in Nepal agriculture service.

1. Agri-extension
2. Horticulture
3. Fisheries
4. Livestock, Poultry, and Dairy Development
5. Agronomy
6. Plant protection
7. Agri-economics and marketing
8. Soil Science
9. Veterinary
10. Agri-engineering
11. Food nutrition and quality control

A1.2 Department of Livestock Development (DLS) at a Glance

DLS works under the Ministry of Agriculture and Livestock Development. It has a very important crucial role in the development of livestock sectors such as co-ordination and facilitation with different organizations, authorities, offices regarding the development of livestock sectors across the countries. To work as a national veterinary authority in livestock sector is its overall responsibility.

Major Functions/roles of the Department of Livestock Services

The major functions of DLS are given below.

- Assist ministry to prepare policy, acts, regulations, directives, and norms about the livestock sector
- Implement a national disease control program for controlling the national important disease
- Make disaster management on epidemic and disaster for the livestock sector
- Implement regulatory measures
- Management of veterinary and animal health management
- Strengthen veterinary laboratory and support for acceleration and certification of laboratories
- Strengthen capacity development of all authorities and agencies who are involved in the livestock sector by technical support and co-ordination
- To work as a National Veterinary Authority on the livestock sector and take overall responsibility for that sector
- To promote animal welfare activities in the different works for the assurance of welfare in the livestock sector
- To manage the information system regarding the livestock sector
- To make zoning and compartmentalization for the control of epidemic and transboundary diseases
- Assist the municipality to formulate and implement One Health Policy
- To make coordination with different stakeholders (government and non-government authorities) engaged in livestock activities
- To work as the National Technical Authority and take overall responsibility on the livestock Quarantine Sector
- To conduct and manage quarantine management information system; to formulate and implement the short-term, mid-term, and long-term programs for animal quarantine

- To manage, implement, monitor, and evaluate the livestock quarantine offices effectively to prevent the transfer of the disease from one place to another
- To co-ordinate all the programs for making effective, participative, and result-oriented monitoring and evaluation system
- To make coordination and facilitation with those NGOs and INGOs who are involved in the livestock sector
- To conduct a review meeting and prepare progress report quarterly and annually
- To make coordination, joint work, and facilitation with the national project including PMAMP
- To make a consultation, joint work, and coordination with national and international professional bodies nationally and internationally level institutions such as WVA, WASAVA, NVA, NASA, NEVLA, etc.
- To make a consultation, correspondence, and renewal of membership, etc. with different international organizations like World Bank, ADB, SAARC, FAO, OIE, APHCA, WTO, USAID, GIZ, JICA, KOICA, IFAD, WSPA, HSI, etc.
- To co-ordinate and work together with a different government, non-government, co-operative, and private sector for making the fishery development programs more effective
- To function as the co-ordination center of World Trade Organization (WTO)

Annex Note 5: National Policy Review and Implication

A team of national experts for the livestock sector was asked to critically comment on the following 10 policies, Acts, and Regulations regarding the challenges and suggestions to improve, and feedback responses are listed here.

1. *Slaughterhouse and meat inspection Act 2055 BS*
2. *Rangeland Policy 2068 BS*
3. *Animal Health and Livestock Services Act (2055 BS) and Regulation (2056 BS)*
4. *Food act 2023 BS*
5. *Crop and livestock Insurance Directives 2069 BS*
6. *Feed material act 2033 BS*
7. *Slaughterhouse and meat inspection Technical Directives 2064 BS*
8. *Agriculture Development Strategy 2015 AD*
9. *Climate Change Policy 2067 BS*
10. *Agri-business Promotion Policy 2063*

Except for crop and livestock insurance directives 2069 BS, all other acts and policies are not effective and need a rigorous amendment in view with new federal setups and addressing the innovation for Livestock sector services. The rangeland policy 2068 which is not implemented well till now should be amended as a requirement for Chyangra Pashmina value chain farmers. Similarly, the Slaughterhouse and meat inspection Act 2055 BS as well as Animal Health and Livestock Services Act (2055 BS) and Regulation (2056 BS) are also very important to NLSIP and needs an update for smooth implementation. Slaughterhouse and meat inspection Technical Directives 2064 BS is not in use to facilitate the meat goat promotion activity.

Annex Table 2: Major challenges and suggestions to improve the prevailing Policies, Acts and Regulations of Livestock Sector Services

1. Slaughterhouse and meat inspection Act 2055 BS			
Major challenges	**Resp.**	**Major Suggestions**	**Resp.**
The Act has not been implemented Strictly and lack of awareness in butchers.	26	Amendment in the act is required and must be strictly implemented by municipalities.	**26**
3. Animal Health and Livestock service Act (2055 BS) and Regulation (2056 BS)			
Major challenges	**Resp.**	**Major Suggestions**	**Resp.**
It is implemented but not seriously implemented since 2055 and 2056	26	Strictly policy be implemented and maybe an amendment	26
4. Food act 2023 BS			
Major challenges	**Resp.**	**Major Suggestions**	**Resp.**
Livestock products neglected	5	Either separate act needed or DLS must be enabled to act	5
It is implemented but not seriously	7	Need amendments to meet the present requirements	7
Inadequate food inspection staffs.	5	Food Inspectors should be adequate.	5
Food safety relations of animals sourced of food not well reflected in the present food Act	9	Amend legislation to include animal products in food	9
6. Feed material act 2033 BS			
Major challenges	**Resp.**	**Major Suggestions**	**Resp.**
Implementation is weak, irrelevant authority is DFTQC	9	Either separate act needed or DLS must be enabled to act	9
Lack of implementing ability with the DLS	9	Bring the act under DLS jurisdictions	9
Not effective& not in use	8	Need amendments on many issues and the role of Livestock officer should be in	8

2. Rangeland Policy 2068 BS			
Major challenges	**Resp.**	**Major Suggestions**	**Resp.**
Conflicts with the Ministry of Forest on sharing of land for pasture land	6	Community Rangeland users group act (Like com forest user group) should be promulgated especially for highlands	6
Very weak and no seriously and properly implementation	8	First, execute and update based on policy review process/policy feedback	5
Alliance with federal system implementation	4	Need amendment according to the federal system of the government.	6
Policy not in execution	6	government regular program needed	7
5. Crop and livestock Insurance Directives 2069 BS			
Major challenges	**Resp.**	**Major Suggestions**	**Resp.**
Implemented but not to the required level	6	Farm registration and provision of insurance should be compulsory, automatic renewal until reporting, policy should be favor on farmers	8
Highly infectious diseases like Bird flu not covered.	7	Need to cover all diseases with awareness programs	7
No Access in a remote area	5	Doing good, but needs to expand it in remote and rural areas.	5
Proper implementation is lacking	8	Need to updated considering the new political structure.	6
7. Slaughterhouse and meat inspection Technical Directives 2064 BS			
Major challenges	**Resp.**	**Major Suggestions**	**Resp.**
Low priority in Municipalities work plan	6	Re- formulate align with province	6
Partially and poorly Implemented	7	Directives should be strictly followed	7
Not in enforcement, consumers not aware	8	Strong coordination with Municipalities	8

		addressed in this act						
8. Agriculture Development Strategy 2015 AD					**9. Climate Change Policy 2067 BS**			
Major challenges	Resp.	**Major Suggestions**	Resp.		**Major challenges**	Resp.	**Major Suggestions**	Resp.
Is not applicable in the Federal Gov. system	4	Need amendments as per federalism system	4		Lack of specific sector-wise directives	5	Prepare sector-wise directives	6
Budget allocation not as per the strategy	6	Adequate budget provision and need to focus on smallholding farms.	5		Low level of awareness, activities not included	8	The program of DLS should be aligned with the policy and implemented.	7
More focused on Agriculture	5	A sub-strategy and master plan based on the ADS targets be formulated	6		Not effective and seriously implemented	6	Need to update considering the new political structure.	6
Sector-wise development approach not provided	8	Programs and projects in LS should align with ADS.	7		*Source: Based on National expert KIS analysis*			
Too complex based on growth models simulation Not specific for Nepal livestock sector programs.	4	Make provincial and local governments own ADS in 2015.	5					
10. Agri-business Promotion Policy 2063								
Major challenges	Resp.	**Major Suggestions**	Resp.					
Implemented but not to the required level	**6**	Need amendments to meet the present requirements	6					
Less consultation with DLS	5	Amend to ensure adequate provision for the Livestock sector	6					
No program and activities	6	Prepare more comprehensive policy incorporating livestock issues	5					
Alliance with federal system implementation	4	The policy should be in accordance with the present government structure and separate law is needed	4					

Annex Note 6: Provincial and Local Level Livestock Sector Stakeholders

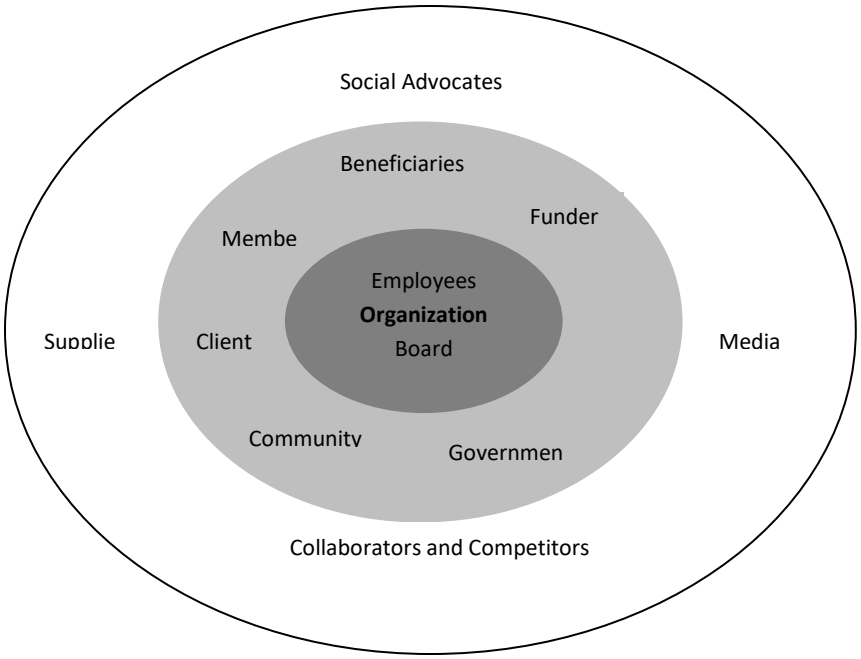
According to the federal system, Nepal has been divided into seven (7) provinces, 77) districts, and 753 local levels. Out of 753 local level units, there are 6 metropolises, 11 sub-metropolises, 276 municipalities, and 460 rural municipalities. The constitution of Nepal has provided the powers and responsibilities of the federal, provincial, and local governments. According to the constitution, laws, and regulations, they are functioning for the welfare of the people and nation.

A. Stakeholder Mapping of the DLS and Flow of its Activities

Stakeholders are individuals or organizations that will be affected in some significant way by the outcome of the self-assessment process or that are affected by the performance of the organization or both. Not all stakeholders have some stake in the organization, and it is important to recognize the level of influence each stakeholder has on our organization.

There are many stakeholders linked with the Department of Livestock Sector (DLS), as shown in the figure below. The stakeholders are so spread that it covers all the livestock sectors from MoALD to local level rural municipalities and from livestock service provider to traders. Similarly, DLS is linked with all related agencies/authorities that do the service/work of producing, processing, marketing the live animals as well as livestock products. Major stakeholders of DLS about the flow of its activities are as follows.

Annex Figure 5: Identified Stakeholders



Following are the organizations, authorities, and institution which are the stakeholders of DLS for capacity development and work performance.

1. Ministry of Agriculture and Livestock Development
2. Department of Food Technology and Quality Control (DFTQC)
3. Nepal Livestock Sector Innovation Project (NLSIP)
4. Decentralized Level Support Units (DLSU)
5. Dialogue Platform (DP)
6. National Environment and Health Study Center (NSCEH)
7. Nepal Agro-business Incubation Center (NABIC)
8. Veterinary Hospital & Livestock Service Expert Center (VH&LSEC)
9. Provincial Ministry (Agriculture)
10. National Planning Commission (NPC)
11. Municipalities (urban and rural)
12. Rural Municipalities
13. Banks and Financial Institutions
14. Co-operatives
15. Producers/Processors/Marketers
16. Agro-vets
17. Farmers
18. Media, etc.

B. Key Features of the Capacity of DLS

The "Capacity" is considered as the ability of people, organizations, and society to manage affairs successfully. In other words, the "Capacity Building" of a sector can be addressed at three levels as institutional level, organizational level, and individual level.

Annex Note 7: Table Key features of the Capacity Development Activities

AREA	COMPONENTS
Strategic leadership	Leadership, strategic planning, governance, structure, and niche management
Human resource	Planning, staffing, developing, appraising, rewarding, and maintaining effective human-resources relations
Financial management	Financial planning, financial accountability, and financial statements and systems
Infrastructure	Facilities management and technology management
Program management	Planning, implementing and monitoring programs and projects
Process management	Problem-solving, decision-making, communications and monitoring and evaluation
Inter-institutional linkages	Planning, implementing, and monitoring networks, and coordination with partnerships.

Annex Note 8: Different Infrastructures Under MoALD for Livestock Sectors

Different infrastructures under MoALD for livestock sectors are as follows:

Infrastructures (facilities management, and technology management)

a) Existing infrastructures related to livestock sectors

- Veterinary hospital
- Vet Laboratory
- Resource center
- Livestock Production Farms
- Quarantine offices and check posts
- Semen producing laboratory
- Liquid nitrogen producing plant
- Forage seed-producing farms
- Seed processing unit
- Veterinary Standards and Drug Regulatory Laboratory (VSDR)
- Vaccine production laboratories
- Feed analysis laboratory
- Dairy processing plant
- Poultry Hatchery
- Feed production plant
- Fisheries hatcheries
- Fish Farm

b) Existing facilities related to livestock sectors

- Disease diagnosis
- Animal Treatment
- Basic veterinary medicine dispensary
- Training research and extension
- Livestock/poultry/ fish breed/chick/ fingerling distribution
- Health and origin of certification
- Grass/Seed /Sets distribution
- Import permission livestock-related issues
- Animal welfare facilitation
- Conservation of native breed
- AI associated services and availability of the improved breed
- Collaboration with farmer/group for the establishment of the animal resource center
- Collaborative work on one health approach with another stakeholder.
- Facilitation to livestock insurance
- Facilitation for small grant and other subsides of a soft loan from a bank

c) Existing human resources

- Meat inspectors
- Feed inspectors
- Feed formulators
- Veterinary inspectors

- Quarantine officers
- AI technicians/ inseminators
- Epidemiologist
- Public health officers
- Drug inspectors
- Vaccinators
- Veterinarian
- Para Veterinarian
- Veterinary para-professional
- Dairy technologist
- Dairy technicians
- Fishery experts
- Fishery technicians
- Monitoring experts/ reporting personnel
- Planning experts
- Vaccine producing experts
- Veterinary Microbiologist
- Veterinary Theriogenologist
- Veterinary biotechnologist Molecular biologist
- Pasture expert
- Animal nutritionist
- Animal welfare expert
- Animal breeder
- Training expert
- Nursery operators
- Butcher
- Poultry entrepreneurs
- Dairy entrepreneurs
- Meat entrepreneurs

Annex Note 9: Functional Gaps in Artificial Insemination (AI)

AI functional Gap and Need:

1. Total number of AI in the next 5 years in the 15th plan period, 20 Lakhs (2 million) AI in cattle buffalo and goat, average no of AI that an inseminator can do in each day.
2. As per the strategy we will require 3000 inseminators (1114 are active now and the additional 1900 to 2000 AI Inseminators will be needed) to make AI in 1800 thousand in cattle and buffalo. The assumption is one technician will make 600 AI/year [At present the average figure is 513 but ranges up to 928.
3. Assumptions made in deriving the total umbers of AI
    a. 4 inseminations in Terai x 360= 1440,
    b. 2 inseminations in hills x 360=720,
    c. 1 insemination in high hills and mountain x 360=360

Out of 20 lakhs (2 million) animal population.

4. 60% from Terai 12 lacs AI needs 16666 inseminators,

    30% from hills 6 lacs AI needs 8333 inseminators,
    10 % from high hills and mountain 2 lacs AI needs 555 inseminators.
    Total inseminators required=16666+8333+555= 25,550 inseminator
    Existing inseminators:
    i. Government inseminators=722,
    ii. Private sector inseminators=1557,
    iii. Community/cooperative sector inseminators=395,
    iv. Total= 2674 out of which active inseminators are only=1952,

    Additional inseminators needed around 23,000

Annex Table 3: Constraints faced by LS organizations at a local level and suggestions

Constraints HUMAN RESOURCE			Suggestions HUMAN RESOURCE	
Particulars	**Frequency**		**Particulars**	**Frequency**
Lack of properly trained technical human resource	13		Providing specific training opportunities to technicians	8
Lack of proper management of human resource	7		Fulfilling all the required position	4
HR is not allocated for a specific job	4		Manage the Human resource for efficient	4
Vacant positions are there for a technician	2		Trainings provided to lab	4
Need for OVOT are there with lab training	2		Allot specific job to Human resource	3
Total	**28**		**Total**	**23**

Constraints FINANCE			Suggestions FINANCE	
Particulars	**Frequency**		**Particulars**	**Frequency**
Proper allocation of budget is not done	10		Allowance to risk	3
Low Budget allocation	6		Allocate budget rationally.	6
No Incentive (as risk allowance)	4		Provide timely budget from the province as well	5
No support from project and Municipalities	4		Systematic budget expenditure	3
Total	**24**		**Total**	**17**

Constraints PHYSICAL FACILITIES			Suggestions PHYSICAL FACILITIES	
Particulars	**Frequency**		**Particulars**	**Frequency**
Lack of lab, buildings, and laboratory equipment.	10		New & well-equipped veterinary units with lab is required	8
Difficulties in movements	7		At least two-wheeler equipped with mobile veterinary facilities are needed	2
Office building are on hire	4		Need to construct office building	1
Total	**21**		**Total**	**11**

Constraints TECHNOLOGY			Suggestions TECHNOLOGY	
Particulars	**Frequency**		**Particulars**	**Frequency**
Difficult to tackle big technical problems in field	3		Well trained and experienced technicians are required	3
Poor laboratory practice without equipment	3		High level and qualified technician needed.	4
Technical knowledge at decreasing trend	3		Modern technology should be introduced in lab technology	4
Lack of technician and modern technology	4		Provide scheduled long and short training	4
Lack of new technical training for staff	8			
Total	**21**		**Total**	**15**

Constraints INPUTS			Suggestions INPUTS	
Particulars	**Frequency**		**Particulars**	**Frequency**
Inputs like vaccines, medicines are limited	4		Provision of basic lab equipment with kits should be granted	3
Limited with proper machinery and equipment at lab works	4		Scheduled training on the use of kits	2
No veterinary kits and surgery equipment	3		Regular supply of vaccines, medicines, and Vet. kits be scheduled	4
Total	**11**		**Total**	**9**

Annex Note 10: Four Tires of Veterinary Hospitals and Kind of Services Provided and Equipment Kept at Each Tier of the Vet Hospitals

A. Municipal Veterinary Hospital (MVH):

MVH should provide the following animal health services at a minimal level:

a) Primary laboratory for disease diagnosis:

- Fecal examination
- Urine analysis
- Mastitis test
- Post-mortem examination
- Sample collection and dispatch

b) Treatment services:

- Medical treatment
- Minor surgical treatment

c) Disease control service:

- Epidemic control
- Local specific disease control
- Preventive vaccination

d) Epidemiological surveillance and reporting

- Veterinary extension service
- Seminar on zoonosis
- School teaching program
- Demonstration of disease control strategy
- Animal health campaign inclusive of infertility
- Rabies control campaign

The list of the required equipment is presented. The hospital will be under the administrative control of the related municipality. The service taker should pay the charge of the service. The service charge for different types of service will be fixed by the local government. The collected revenue will be deposited in the respective municipality treasury.

B. District Veterinary Hospital (DVH)

Present Scenario

At present, there are no district veterinary hospitals as such in each district. There is Veterinary Hospital and Livestock Expert Service Center (VHLESC) that provides services for one to three districts whose objectives are more focused on livestock extension rather than animal health. Out of many objectives, only one objective has focused on animal health as follow:

- To improve the environment and minimize the incidence of animal disease based on One Health Approach

The programs of VHLESC on animal health are as follows:

- Identification and diagnosis of disease through effective epidemiological surveillance of animal disease.
- Operation of one primary veterinary laboratory in each municipality.
- Operation of one basic veterinary laboratory in VHLESC.
- Implementation of programs like animal vaccination, parasite control; animal health camp, animal castration camp in the coordination of local government.
- Programs to minimize the losses due to epidemic diseases
- Develop animal disease information system to obtain disease information promptly

The program that has been identified in the VHLESC cannot meet the real need for animal health services in the district, which can only be met by DVH. These DVHs are better equipped in terms of infrastructure, logistics, and human resources. This will provide specialized animal health services to the farmers and will also act as a referral center for MVH. After a case of a diseased animal brought to the veterinary hospital, the following activities would be performed at MVH:

- Collecting a case record of the information about disease suspected animal.
- Diagnosed a disease based on various methods of examinations and tests like visual examination, palpation, percussion, auscultation, smells, and other miscellaneous diagnostic procedures
- After the general inspection of an animal, a more thorough clinical examination of different parts of the body together with measuring pulse rate and the temperature is necessary.
- The final diagnosis of animal disease is dependent upon a laboratory test.

This DVH should provide the following services at a minimal level:

a) Basic laboratory service for disease diagnosis

- Bacterial culture, antibiotic sensitivity test
- Fecal examination
- Urine analysis
- Blood examination
- Mastitis test
- Skin scrapping examination
- Post-mortem examination
- Tuberculin test
- Plate angulations test
- Sample collection and dispatch

b) Treatment services

Treatment of animal diseases includes the different aspects of diagnosis and treatment of various veterinary diseases which include bacterial, viral, and fungal diseases, injuries caused due to external and internal factors, and various disorders seen in animals. So, the following treatment services are to be provided at a minimal level:

- Medical treatment
- Minor surgical treatment
- Major surgical treatment
- Gynecological treatment

c) Disease control service

- Epidemic control in coordination with MVH
- Local specific disease control
- Preventive vaccination

d) Epidemiological surveillance and reporting in coordination with MVH

e) Veterinary extension service in coordination with MVH.

The hospital will be under the administrative control of the Province government. The service taker should pay the charge of the service. The service charge for a different type of service will be fixed by the province government. The collected revenue will be deposited in the provincial treasury.

C. Provincial Veterinary Hospital

Livestock farming is changing its shape from a traditional farming system to a commercial level in different pocket areas of different districts of the provinces. Some of the districts are commercialized on dairy farming, while others are leading on poultry, pig, and so on. Famers have invested millions of rupees for the establishment of livestock and poultry farms. High productive animals are more prone to different diseases and have a possibility of getting injury, trauma and so many health-related problems. So, the government has to provide specialized animal health services to protect the property of the farmers as well as for animal welfare. Therefore, there is a need for the establishment of Province Veterinary Hospitals (PVH) in all the provinces.

Province Veterinary Hospitals offer higher standards of service then district veterinary hospital. At a veterinary hospital, services are often available at all times and there are full facilities for all kinds of examination, diagnosis, prophylaxis, medical treatment, and surgery. This type of Vet hospital would be able to provide accommodation and nursing care for the patients and also the owner of the animal. This hospital should have designated rooms for a surgical theatre, an X-ray room, a reception area, and other facilities. Despite providing specialized services, this hospital would be a referral veterinary hospital in the province.

Such a hospital will be managed by a committee formed by the province government. The hospital will run on a no-profit no-loss basis. The service will not be free of cost. The service taker i.e. farmer/agri-entrepreneur should pay a fee for the service. The charge of the various types of services would be fixed by the decision of the steering committee of the PVH. There would not be any liability for the government in running the hospital.

D. Central Veterinary and Referral Hospital

Central Referral Veterinary Hospital is the foremost institute of animal health services in Nepal. In the beginning, it was established as Veterinary Dispensary in 1996 BS (1940 AD). The Veterinary Dispensary was upgraded as Veterinary Hospital in 1997 BS. Then B.S 2016 developed in a center veterinary hospital. This Hospital was established with the impression of the necessity of veterinary services to the domesticated animals like cattle, buffalo, sheep, goat, and horses in the Kathmandu valley and nearby locality. The Hospital was situated in the outer part of the city at the time of the establishment, but due to the rapid expansion of Kathmandu city, it has now become the heart of the city. This hospital is well-equipped and provides all kinds of advanced treatment services. It has facilities for the treatment of large and small companion animals and cattle, 24-hour emergency service, ECG machine, ultrasound machine, x-ray device, and will be able to carry out an endoscopy and other surgeries.

Besides, the hospital will have a ramp facility to lift animals onto ambulances, in-patient care treatment. This hospital also aims to operate ambulatory services. But due to urbanization, commercial livestock farms have shifted to rural areas. The urban people started to keep pet animals. So, this hospital has now become a hospital for pet animals rather than a hospital for animals like cows, buffaloes, goats, chickens, and birds. To provide better animal health services to the livestock farmers, the present location is not appropriate. Therefore, either this hospital has to be shifted to nearby districts where livestock farming has become commercialized like in the east part of Bhaktapur district, or in and around high way track of Bhaktapur to Dhulikhel track or another referral hospital should be established outside of KTM to meet these emerging demands of these services of large ruminant animals.

Annex Note 11: Operational Framework for Capacity Enhancement Needs Assessment (CENA) of the Livestock Institutions (MoALD)

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline Short term or, Long term
I. Enabling Environment					
1.1 Policy and Strategy Context	• Agriculture Development Strategy (2015-2030 A.D.) and Master Plan • National Agriculture Policy (NAP), 2061 B.S. • 15th five year plan (2019/20 – 2023/24 A.D.) • Sustainable Development Goals (2019/20 A.D.) • Constitution of Nepal and other policies and acts • Uplifting of poor through livestock development is mostly prioritized	• No recent specific livestock policy and the master plan developed • Most of the policies and acts not updated • Implementation of policy not being effective • Very weak monitoring and evaluation part of the policy • Livestock development not getting significance as nationally prioritized • Problem of making linkages and coordination among federal, provincial, and local organizations • Result based and Strategic planning approach- lacking competencies and capacity building	• Livestock Policy and Master Plan should be formulated • Old policies and acts should be updated • Effective implementation of policy in practice • Monitoring and evaluation of the effectiveness of policy should be strengthened • Linkage and coordination among line agencies to be more effective • Livestock development should be prioritized in national economy • Develop competencies and capacity for result based and Strategic planning	High	1.5 Year
1.2 Management Accountability	• All three tiers- Federal, Province and Local level institutions are made accountable for livestock development • From the constitution itself, the specific roles, and functions for the development of agricultural and livestock sectors of each of three tiers - federal, provincial, and local governments are spelled out. • Approval of the budget is also the approval of AWPB in LMBIS • Practice of project steering committee under the chairmanship of MoALD secretary to run the	• New system of the province and local governments in practice, but not functioning well. • Problems regarding the adjustment of employees are not fully solved • Federal Civil Services Act not approved until now • No clear-cut job description is given to the assigned officer and technicians • No effective functional linkage within the center, province, and local levels making somewhere	• Well set up of provinces and local levels solving the problems of adjustment of employees • Lobbying to get an approval of the federal civil service act from the parliament sooner. • Mutual coordination and linkage mechanism • Avoiding duplication of works • Clear cut job description to the staff and performance evaluation. • Implement development &service activities in time	H	Continuous

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline Short term or, Long term
	donor-funded projects • Plan of action with a system of budget and authorization for achieving results • Local-level units as the foundation of agricultural and livestock activities	duplication of works • Livestock development activities not implemented according to timeline			
1.3 Human Resource	• Technical staff deployment (Officers& Assistant level) • Livestock Organization and their effective function depends upon the effectiveness of Federal, Provincial and Local Government • Employees are not interested to work at field level	• MoALD is overstaffed at the center but, a shortage of technical staff at the province and local level • Problem of brain drain • Unpredictability of capacity development opportunity • Non -application of proper reward and punishment system	• Deployment based on motivation • Fulfill the shortage of staff at the province and local level • Increase frontline technical service provider staff positions at the local level. • Ensure capacity development opportunity • Implement the policy of reward and punishment	H	Immediately and continuous
1.4 Co-ordination with other stakeholders	• A large number of stakeholders are linked with MoALD and DLS functions, such as central lab, etc. • Province, municipality, and rural municipality • Non-governmental organization • Agro-enterprises • Farmer's organization • District co-operatives • Banks/ Financial Institution • Dialogue Platforms • Insurance company	• Lack of strong coordination among different stakeholders for the livestock development • LMIS has not been well established and not working for smooth coordination among stakeholders	• Creating an environment of close coordination among responsible partners • Coordination and collaboration skills in working staff • Effective design and implementation of LMIS	H	Continuous
II. Organizational Level					
2.1 Process Implementation Ability	• Acts, regulations, and manuals of government for guiding performance • Planning, budgeting, and service delivery procedures of MoALD,	• Weak extension and outreach services • Process implementation ability of staff not so strong • Lengthy and complicated process	• Make a strong process implementation plan through capacity development • Simplified procedures and strong coordination among responsible units • Maintain good work culture and	M	Continuous

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline Short term or, Long term
	Provincial ministries, and local levels • Team of ministry, department, and other responsible units involved in livestock development and promotional functions • Citizen Engagement Strategy in the whole process	to be followed for implementation • Province and local level organizations doing work in their way • No dialogue platforms effectively used as an integral part of the process	coordination • Capacity enhancement through training and development activity • Enhance participation of dialogue platforms • Develop a result-based monitoring and evaluation system		
2.2 Technical Capacity	• Technicians at service centers and municipalities	• Inadequate basic diagnostic facilities • Shortage of field livestock technicians	• Demand-driven support to livestock producers, businesses, and sub-projects	H	1-2 years
2.3 Financial Management	• System of fund disbursement from national treasury & loans and grants from donor • Budget allocation for agriculture and livestock is around 2% or even sometimes less than this • Line ministry budget information system (LMBIS), Provincial Line ministry budget information system (PLMBIS), Sub-national treasury regulatory application (SuTRA) in use as implementing tools for financial management • Grant providing policy for the development of the livestock sector and credit to farmers at a subsidized interest rate	• Donor fund spending procedure involving many complications • Mostly livestock projects categorized in P2 (nationally less prioritized) projects in MoALD • Finance managers lack the skill and have low- absorptive capacity • Real and marginal farmers not benefitted from grants and soft loan scheme • Limited accessibility of banks, increasing cost of a loan to farmers • Low level of awareness to take benefit from insurance grants and soft loan	• Priority of livestock development programs as(P1) in the national budget • Monitoring the financial management practice in the implementation level • Enhancing the capabilities of employees engaged in financial transactions • Improve and finalized a grant distribution mechanism • Increase awareness about grants and minimize transaction costs of warding loans to farmers. • Adequate incentive to the private sector for investments in livestock	M	Continuous
2.4 Information management and flow of mechanism	• Use of telephone, mobile, and internet service • Plan to execute central level Livestock Management Information System (LMIS)	• There is no efficiency in communication with the province and local level • No ICT software used to connect all stakeholders • LMIS has not yet fully established	• Prompt development of ICT software and create infrastructure at all levels • Enhance IT skills of public services providers	M	Continuous

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline Short term or, Long term
2.5 Existing Infrastructure	• Ministry, Departments, Provinces, and local levels have premises and infrastructures • Some of the infrastructures are at a construction level	• The office space in the center is congested having no sufficient area • Local levels have no labs & sufficient infrastructure for service delivery	• Enhancing required infrastructure facilities • Providing lab. services in implementation level and enhancing lab capability	H	Continuous
III. Individual level					
3.1 Job Specific skills and experience	• Qualified staff selected from the competitive process and deputed at MoALD, departments, and other entity • More workload at field level	• Workload and distribution of staff mismatched • Uncertain capacity development opportunity • Not all technical staff updated to deliver service • Poor competency of frontline service providers	• Implement the policy of right man in the right place • Improve day-one competency massive revision of curriculum or courses of study, and skill development from • Regulation of TVET training provider • Enhancing job skill • Making attraction to deserving staff	H	1 year
3.2 Professional development and opportunity	• Staff development and opportunity as per MoALD criteria • Agriculture services should be separate services from health services such as health services. • The general provisions of the civil service are detrimental for the performances of the overall; livestock sector for example lab, Farm, quarantine, trade, extension policy, etc.	• No ensured promotion, career development opportunity • System of reward and punishment system not properly used	• Ensure promotion and career development opportunity • Provide adequate training for capacity development • Promote the policy of reward and punishment in practice • Ensure a provision of the right person in the right place.	M	2-3 year
3.3 Use and ability of ICT at the workplace	• Line Ministry Budgeting and Information (LMBIS)in operation • Livestock Management Information System (LSMIS)is under construction	• Non-availability of all required information • Lack of disease monitoring tools • M&E system is not functional as required	• Develop and use ICT • Connecting system with field-level offices • Strengthening M & E system	H	1-2 Years

Dimension of Capacity	Existing Capacity	Capacity Gap	Proposed Intervention Measures	Capacity Priority Ranking H=High M=Medium L=Low	Timeline Short term or, Long term
3.4 Motivational Incentive at Workplace	• Motivational aspects determined as per civil services rules • Municipality legislations are also in operation	• Uncertain capacity development opportunity • No additional incentive to technical staff at field level • No ensured promotion, career development opportunity • Lack of training and staff development facility • Lack of exposure visit	• Clear framework for capacity development • Career development plan in place • Additional incentive • Ensure promotion and career development opportunity • Provide training and exposure visit as required	H	1-3 Years

*Designed for information given here are adapted from **Capacity Need Assessment Report of Is Iolo County**, Kenya, by USAID,2017**)***

Annex Note 12: Item-wise Narratives and Costings of Training Courses Proposed Over the Next 10 Years of Planning Horizon

Annex Table 12.1: Item-wise narratives and costings of training for farmers and LS entrepreneurs

SN	Name of Training Course	Themes	Duration	Total No. of Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost NRs. In Lakh)	Total Cost (NRs. In Lakh)	Country / Agency	Remarks	Total Participants	PRIORITY (H= High; M=Medium L= Low
IV	**Farmers & LS entrepreneurs**												
A	**Theme: Dairy**												
1	FFS on improved Dairy animals' husbandry	Dairy	Cycle	30	15	15	15	**20**	**600**	Master trainer of Vet. Hospital / DLSU	9-month cycle	450	**H**
2	Low cost Milk production Farmer Coop	Dairy	7 days	50	20	25	25	**7**	**350**	Livestock Training Centers	Regular Training to Farmers	1000	**H**
3	Commercial Dairy Farm Production and Business Management Plan	Dairy	14 days	20	15	10	10	**13**	**260**	Livestock Training Centers	Regular Training to Farmers	300	**M**
4	Safe Milk and Dairy Products Diversification (dairy boy course for coop)	Dairy	70 days	50	20	30	20	**40**	**2000**	**CTEVT training Center**	**CTEVT course to develop Dairy Boy in MPS**	1000	**H**
5	Clean & Safe milk production for Coop farmers	Dairy	7 days	50	25	25	25	**7**	**350**	Livestock Training Centers	Regular Training to Farmers	1250	**H**
6	Milk Processing and Dairy entrepreneur's management	Dairy	7 days	20	15	14	6	**7**	**140**	Livestock Training Centers	Dairy industries and Chilling centers	300	**M**
7	Dairy Value Chain Management	Marketing & VC Management	7 days	15	20	10	5	**7**	**105**	**External firms**	Contract basis	300	**H**
8	Silage and TMR production (Coop Society)	Feed Resource	7 days	2	15	2	0	**7**	**14**	Livestock Training Centers	Regular Training to Farmers	30	**H**
9	FFS Year the Round Forage Production System	Feed Resource	Cycle	20	25	15	5	**20**	**400**	Livestock Training Centers	6-month Cycle	500	**H**
B	**Theme: GOAT**												

1	FFS Goat meat and Pashmina	Meat- goat /Pashmina	Cycle	20	25	15	5	**12**	**240**	Master trainer of Vet. Hospital / DLSU	9-month cycle	500	**H**
2	Goat Production Practices-Goat	Meat-goat	7 days	30	25	20	10	**7**	**210**	Livestock Training Cents	Regular Training to Farmers	750	**H**
3	Low cost Goat Meat production (Farmer Coop)	Meat - goat	7 days	20	25	14	6	**7**	**140**	Livestock Training Centers	Regular Training to Farmers	500	**H**
4	Clean Meat and Meat Item Production	Meat - goat	7 days	8	25	6	2	**7**	**56**	Livestock Training Centers	Butchers	200	**H**
5	Quality forage and Pasture Seed Production	Feed Resource	7 days	10	20	5	5	**7**	**70**	Livestock Training Centers	Registered Forage seed growers/ Nursery man	200	**H**
6	Good Vet Management Practice (GVMP)	Management	7 days	20	15	12	8	**7**	**140**	Livestock Training Centers	Regular Training to Farmers	300	**H**
7	Good Manufacturing Practices (GMP)	Management	7 days	20	15	15	5	**7**	**140**	Livestock Training Centers	For both Milk and Meat	300	**M**
8	Good Animal Husbandry Practice	Management	7 days	20	15	15	5	**7**	**140**	Livestock Training Centers	For both Dairy and Goat Meat	300	**H**
9	Pasture land and forage production Management	Feed Resource	10 days	6	3	3	3	**25**	**150**	China	for Chandra Pashmina farmers	18	**M**
10	Meat Value Chain	Market & Value Chain	7 days	20	12	12	8	**7**	**140**	Livestock Training Centers	Regular Training to Farmers	240	**M**
11	Forage and Seed Production & Utilization (TMR producers. Silage)	Feed Resource	14 days	10	20	5	5	**14**	**140**	**External firms**	Contract basis	200	**H**
C	**Theme: Study Observation and Workshops**												
1	Farm Operation & Management observation visit study	Dairy	15 days	10	20	5	5	**22**	**220**	India	Haryana, Punjab, India (Buffalo and Cattle)	200	**H**
2	Dairy Industries Development and Management visit study	Dairy	15 days	10	16	6	4	**18**	**180**	India	Haryana, Punjab, Gujarat, India (Annand Coop)	160	**M**

3	Forage and Seed production and management Observation visit study	Feed Resource	15 days	10	15	6	4	**17**	**170**	India	India (suitable for Forage, pasture, and seed production Centers	150	**M**
4	Goat production System Observation	Meat Goat	10 days	10	15	5	5	**17**	**170**	India	Makhdoom (Goat Center), India	150	**H**
5	Pashmina production, processing, and marketing Observation	Chandra Pashmina	10 days	5	5	3	2	**25**	**125**	China /Magnolia	Pashmina production Location in China and Magnolia	25	**H**
D	**Others**												
1	A I training (PRIVATE JTA)	privet	15 days	50	20	25	25	**15**	**750**	Nepal	Regular, NLBO. PLTC	1000	**H**
2	A I training (Refresher)	privet	**7 days**	25	20	13	12	**7**	**175**	Nepal	Regular, NLBO. PLTC	500	**H**
3	Vet Drug orientation Training	fee based	**35 Days**	**30**	**25**	15	15	**30**	**900**	Nepal	Regular,	750	**M**
4	livestock Entrepreneurs/business plan preparation	Agro. Vet, dairy, feed, hatchery, etc.	**7 days**	**50**	**20**	**25**	25	**30**	**1500**	Nepal	Regular,	1000	**H**
5	Live Meat Goat Marketing and Slaughterhouse Operation Tour	Goat Meat	10 days	5	15	3	2	**17**	**85**	India	UP, Punjab, and MP Goat production area and Slaughterhouse	75	**M**

Annex Table 12.2: Item-wise narratives and costings of training for Non-Officer Level

SN	Name of Course	Duration	Total No Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. In Lakh)	Total Cost (NRs. In Lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
III	**Non-Officers Level**											
	Theme: Animal Breeding											
1	Training on PPRS (Data Collection & Recording)	2 wks.	3	20	2	1	**15**	**45**	One slot Each year	NDDB, India	60	**H**
2	Semen Collection & Processing	2 wks.	4	15	2	2	**15**	**60**	Regular		60	**H**
3	Breeding Animal Management and breed selection	2 wks.	2	15	1	1	**15**	**30**	Regular	Pokhara, Nepal	30	**H**
4	AI Training	2 Weeks	20	20	10	10	**15**	**300**	Regular	Pokhara, Nepal	400	**H**
	Theme: Animal Feed & Feeding							**0**			0	**H**
1	Ration Formulation and Ration Balancing for Dairy & Meat Animals	2 weeks	2	25	1	1	**15**	**30**	2 times in 10 years	NDRI, India	50	**H**
2	Feed Quality Assessment Lab operation and quality	2 weeks	2	20	1	1	**15**	**30**	2 times in 10 years	Nepal	40	**H**
3	Forage Production, Conservation & Utilization	7 Days	5	25	3	2	**7**	**35**	5 times in 10 years	Nepal	125	**M**
4	Quality Seed Production and management training	7 Days	10	25	5	5	**7**	**70**	10 times in 10 years	Nepal	250	**H**
	Theme: A Health							**0**				
1	Vet. Lab Technique & Management	2 weeks	5	20	3	2	**14**	**70**	Regular	Nepal	100	**H**
2	Training on laboratory techniques (Micro., pathos., parasitotic.)	2 weeks	5	15	3	2	**15**	**75**	Regular	Nepal	75	**H**
3	Hand on Lab training	2 weeks	5	15	3	2	**14**	**70**	Regular, Municipalities	Nepal	75	**H**
4	Bio-Safety issues	2 weeks	5	15	3	2	**14**	**70**	Regular, Municipalities	Nepal	75	**M**
5	Identification, labeling, maintenance, standardization, and calibration of equipment	2 weeks	5	15	3	2	**14**	**70**	Regular, Municipalities	Nepal	75	**M**
6	Vet Clinic and Hospital management (Ultra sound, X- ray, Surgery & radiology)	2 weeks	10	20	3	7	**15**	**150**	Regular, Municipalities	Nepal	200	**H**

SN	Name of Course	Duration	Total No Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. In Lakh)	Total Cost (NRs. In Lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
7	Field case diagnosis and treatment	1 week	10	20	5	5	**7**	**70**	Regular, Municipalities	Nepal	200	**H**
8	Lab Techniques for Vaccine Production	1 week	2	15	1	1	**7**	**14**	Regular	central Lab	30	**M**
9	Animal Quarantine Management	1 weeks	3	20	2	1	**7**	**21**	Regular	Quarantine, DLS	60	**M**
10	Vet. Epidemiology (Data Collection & Processing)	1 week	10	20	2	8	**7**	**70**	Regular	Nepal	200	**H**
11	Disease Recognition and Reporting	1 week	10	20	2	8	**7**	**70**	Regular, Municipalities	Nepal	200	**M**
12	Active Surveillance	1 week	10	20	2	8	**7**	**70**	Regular, Municipalities	Nepal	200	**H**
13	Use of GPS and Data collection, recording and reporting	1 week	10	20	2	8	**7**	**70**	Regular, Municipalities	Nepal	200	**M**
14	Practical training on meat hygiene and product diversification (1week)	1 week	10	20	2	8	**7**	**70**	Regular, Municipalities	Nepal	200	**M**
15	Practical training on milk hygiene, product diversification (1 week)	1 week	5	15	3	2	**7**	**35**	Regular, Municipalities	Nepal	75	**M**
	Theme: Production Technology							**0**				
1	Training on good practices GAP/GVP/GHP/GMP/	2 weeks	4	15	3	1	**14**	**56**	Regular, Municipalities	Nepal	60	**M**
2	Training on-farm registration and traceability, etc.	2 weeks	4	15	3	1	**14**	**56**	Regular, Municipalities	Nepal	60	**M**
3	Training on IEE/EIA	2 weeks	4	15	3	1	**14**	**56**	Regular, Municipalities	Nepal	60	**M**
4	Training on dairy processing and product diversification	2 weeks	3	15	3	0	**15**	**45**	Regular, Municipalities	Nepal	45	**H**
5	Training on Meat Products (New) and Processing, & product diversification	1 week	4	15	2	2	**7**	**28**	Regular, Municipalities	Nepal	60	**H**
6	Pashmina Products and Processing	2 weeks	2	15	1	1	**25**	**50**	Manang and Mustang	Tibet, China	30	**M**
7	Climate Smart Livestock Production Technology (Mitigation and Adaptation)	2 weeks	5	25	3	2	**14**	**70**		Nepal	125	**M**

SN	Name of Course	Duration	Total No Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. In Lakh)	Total Cost (NRs. In Lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
	Market and Value Chain							**0**				
1	Value Chain analysis of Dairy & Meat	2 weeks	10	25	5	5	**15**	**150**	Regular, Municipalities	Nepal	250	**H**
2	Agribusiness, F M & entrepreneurship Management (livestock)	1 week	4	20	2	2	**7**	**28**	Regular	Nepal	80	**H**
3	Basic survey and market research	1 week	4	20	2	2	**7**	**28**			80	**H**
	Theme: Mgmt. & Support							**0**				
1	Program Management and Planning based on statistical data	1 week	4	25	2	2	**7**	**28**	Regular	Nepal	100	**H**
2	Data need for M&E and learning (Including IT tools and techniques)	1 week	5	25	3	2	**7**	**35**	Regular	Nepal	125	**H**
3	MIS and ICT Training (hand-holding)	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**H**
	Theme: TOT Training							**0**				
1	FFS - TOT on Improved Management of Goat	2 Weeks	4	30	2	2	**15**	**60**	Regular	Nepal	120	**M**
2	FFS -TOT on Improved Management of dairy animals	2 Weeks	4	30	2	2	**15**	**60**	Regular	Nepal	120	**H**
3	TOT on Business Plan Preparation of livestock enterprises	2 Weeks	5	30	3	2	**15**	**75**	Regular	Nepal	150	**H**
4	TOT on Good Husbandry Practices and Strengthening LS Cooperatives operations	2 Weeks	8	30	5	3	**15**	**120**	Regular	Nepal	240	**M**

Annex Table 12.3 Item-wise narratives and costings of training for Officer Level

SN	Name of Course	Duration	Total No. of Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. In lakh)	Total Cost (NRs. In lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
II	**Officers Level Training**											
	Theme: Animal Breeding											
1	Training on PPRS	2 weeks	4	20	3	1	**15**	**60**	One batch Each year	Nepal	80	**H**
2	Semen Processing & Utilization (Biotech)	2 weeks	3	10	2	1	**20**	**60**	One batch each 2 year	ICAR India	30	**M**
3	Training on breeding value estimation for the efficacy of the cross-breeding program	2 wks.	5	15	2	3	**15**	**75**	One batch Each year	Nepal	75	**M**
4	Reproductive disorder management	2 wks.	10	20	5	5	**15**	**150**	Regular	Nepal	200	**M**
5	Good laboratory practice (GLP) and ISO 17025 for NLBO officers	2 wks.	3	15	1	2	**15**	**45**	Regular	Nepal	45	**H**
	Theme: Animal Feeding					0		**0**				
1	Quality Feed Production & Utilization Ration Balancing	2 weeks	2	15	1	1	**20**	**40**	Regular	ICAR India	30	**H**
2	Forage and Seed Production & Utilization	2 weeks	2	15	2	0	**20**	**40**	Regular	India Jhansi	30	**H**
3	Feed inspection and quality control	2 weeks	10	15	2	8	**20**	**200**	Regular	India	150	**M**
4	Complete mixed ration and feed blocking	2 wks.	3	15	2	1	**20**	**60**	Regular	India Jhansi	45	**H**
5	Feed and ration balancing (forage-based)	2 wks.	2	15	1	1	**20**	**40**	Regular	India Jhansi	30	**H**
	Theme: Animal Health					0		**0**				
1	Vet. Lab Technique & Management	2 weeks	50	20	3	47	15	**750**	Regular	Nepal	1000	**H**
2	Vet Clinic and Hospital management (Ultra sound, X- ray, Surgery & radiology)	2 Weeks	50	20	2	48	20	**1000**	Regular	Nepal	1000	**H**
3	PCR Operation	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**H**

SN	Name of Course	Duration	Total No. of Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. In lakh)	Total Cost (NRs. In lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
4	Laboratory information management system and safety plan of laboratory	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**H**
5	Basic surgery training	1 week	6	20	3	3	**7**	**42**	Regular	Nepal	120	**M**
6	Tele (VEDIO) veterinary medicine	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**H**
7	Good veterinary practices	1 week	10	20	3	7	**7**	**70**	Regular	Nepal	200	**H**
8	Vaccine quality control	1 week	2	20	2	0	**7**	**14**	Regular	Nepal	40	**H**
9	Animal Quarantine Management	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**H**
10	Vet. Drug quality assay	1 weeks	3	12	1	2	**7**	**21**	Regular	IVRI India	36	**H**
11	Vet. Epidemiology	1 week	40	20	20	20	**7**	**280**	Regular	IVRI India	800	**M**
12	Modeling and disease forecasting	2 Weeks	3	20	2	1	**15**	**45**	Regular	Nepal	60	**M**
13	Farm registration and traceability of animals, animal products, and diseases	2 Week	40	20	20	20	**15**	**600**	Regular	Nepal	800	**H**
	Theme: Production Technology					0		**0**				
1	MTOT on Dairy Products (new) and processing	2 Weeks	6	20	3	3	**15**	**90**	Regular	Nepal	120	**H**
2	Training on livestock marketing for notch products	1 week	2	20	2	0	**13**	**26**	Regular	Nepal	40	**H**
3	MTOT on Meat Products (New) and Processing	2 weeks	6	20	1	5	**20**	**120**	Regular	Nepal	120	**M**
5	Veterinary Meat Inspector Training	2 Weeks	5	20	2	3	**15**	**75**	Regular	**Nepal**	100	**M**
6	Use of biotechnology in Livestock Production	1 week	2	20	1	1	**7**	**14**	Regular	Nepal	40	**H**
7	Training on WTO-SPS provisions	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**M**
8	Good practices GAP/GVP/GHP/GMP/ etc.)	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**H**

SN	Name of Course	Duration	Total No. of Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. In lakh)	Total Cost (NRs. In lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
9	Training on IEE/EIA	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**M**
10	GIS and Spatial epidemiology and Data management and analysis	1 week	4	20	2	2	**7**	**28**	Regular	Nepal	80	**M**
11	EDIT members training on outbreak investigation and disease management	1 week	2	20	1	1	**7**	**14**	Regular	Nepal	40	**H**
	Theme: Market and VC					0		**0**			0	**H**
1	Livestock Agribusiness Marketing management	1 week.	6	20	3	3	**7**	**42**	Regular	Staff College, Nepal	120	**H**
2	Livestock business Plan Preparation	1 week	8	20	4	4	**7**	**56**	Regular	Staff College, Nepal	160	**H**
3	Livestock entrepreneurship management	1 week	8	20	4	4	**7**	**56**	Regular	Staff College, Nepal	160	**H**
4	LS Business Startup and Innovation Management	1 week	6	20	3	3	**15**	**90**	Regular	Staff College, Nepal	120	**H**
5	MTOT on Business Management of LS industries	1 week	4	20	2	2	**7**	**28**	Regular	Nepal	80	**H**
6	MTOT on Financial Mgmt. & Insurance of LS	1 week	5	20	3	2	**7**	**35**	Regular	Nepal	100	**M**
	Theme: Project Mgmt. &Support					0		**0**				
1	Project Planning, Management, and Appraisal	15 days	8	20	3	5	**15**	**120**	Regular	Nepal	160	**H**
2	M&E and learning Systems of Livestock Service Program	15 days	8	20	4	4	**15**	**120**	Regular	Nepal	160	**H**
3	LS survey and Database and Knowledge Management	15 days	20	20	10	10	**15**	**300**	Regular	Nepal	400	**H**
4	Development Communication & Management	7 days	30	20	20	10	**7**	**210**	Regular	Nepal	600	**H**

SN	Name of Course	Duration	Total No. of Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. In lakh)	Total Cost (NRs. In lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
5	Proposal, Concept Notes, and TOR Preparation	7 days	30	20	10	20	**7**	**210**	Regular	Nepal	600	**H**
6	Office Management and Communication	1 weeks	**5**	**20**	**3**	2	**7**	**35**	Regular	Staff college	100	**H**
7	Training one governance and related issues					0		**0**				
8	International trade Promotion and Facilitation	1 weeks	**3**	**20**	**2**	1	**7**	**21**	Regular	Staff college	60	**M**
9	Financial and Fiduciary management training	1 weeks	**6**	**20**	**3**	3	**7**	**42**	Regular	Staff college	120	**H**
10	Teleconferencing, videoconferencing and tele veterinary medicine services	1 week	**6**	**20**	**3**	3	**7**	**42**	Regular	Staff college	120	**H**
11	Technical and Report writing and Presentations	1 week	**10**	**20**	**5**	5	**7**	**70**	sourcing out firms	Nepal	200	**M**

Annex Table 12.4: Item-wise narratives and costings of training for Senior Officer Level

SN	Name of Course	Duration	Total No. of Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. lakh)	Total Cost (NRs. lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
IV	**Senior Officer level (Sr. Officers)**											
1	Molecular based breeding, Sex semen & Karyotyping	2 weeks	2	12	1	1	**15**	**30**	**One batch each 2 year**	ICAR India	24	**H**
2	Quality Feed Management (Lab operation and quality)	2 weeks	6	15	2	4	**15**	**90**	**One batch each 2 year**	ICAR India	90	**H**
3	Public Procurement Management Training	1 week	**6**	**15**	**2**	**4**	**7**	**42**	Regular	Staff college	90	**H**
4	National and international regulations on livestock trade	2 weeks	**4**	**15**	**2**	**2**	**15**	**60**	Regular	Staff college	60	**M**
5	General administration and management training	1 week	**4**	**15**	**2**	**2**	**7**	**28**	Regular	Staff college	60	**M**
6	Food Technology & Engineering	1 months	2	10	2	0	**30**	**60**	**Regular**	Nepal	20	**M**
7	Training on meat inspection and certification	2 weeks	2	20	2	0	**15**	**30**	**Regular**	Nepal	40	**H**
8	Value Chain Analysis of Dairy; meat and Goat; poultry and pig	2 weeks	3	20	2	1	**15**	**45**	**Regular**	Nepal	60	**H**
9	Livestock Sector Planning Social Impacts of Livestock Industry	2 weeks	3	20	1	2	**15**	**45**	**Regular**	Nepal	60	**M**
10	Public Procurement Management	7 days	2	20	2	0	**7**	**14**	**Regular**	Nepal	40	**H**
11	MIS and ICT Training	7 days	3	20	2	1	**7**	**21**	**Regular**	Nepal	60	**H**
C	**Theme: Study; Observation; Workshops and others**											

SN	Name of Course	Duration	Total No. of Slot	Participants per slot	Slot allocated for 1-5 yr.	Slot allocated for 6-10 yr.	Unit Cost (NRs. lakh)	Total Cost (NRs. lakh)	Remarks	Possible Country	Total Participants	PRIORITY (H= High; M= Medium)
1	National workshop on Goat Value Chain Management (including international paper)	4 days	**2**	**55**	**1**	1	**40**	**80**	Once in every 2 Years to be organized by NASA (or NGA)	Nepal	110	**H**
2	Study Visit on Goat producing location in India and Chandra pashmina Producing in China	10 day	**4**	**20**	**2**	2	**40**	**160**	one in China and one in India for 2 times in 10 years	China / India	80	**M**
3	National workshop on Dairy Value Chain (including international paper)	4 days	**2**	**55**	**1**	1	**40**	**80**	Once in every 2 Year be organized by NASA or NARC, MoALD fund	Nepal	110	**H**
4	National workshop on Animal Diseases management (including international paper)	4 days	**2**	**60**	**1**	1	**40**	**80**	Once in every 3 Year be organized by NVA or NVC with NARC and NASA	Nepal	120	**H**
5	Training cum study and visit workshops for different Livestock in India-Thailand	10 days	**2**	**15**	**1**	**1**	**40**	**80**	Once in every 2 Year be organized by MoALD /DLS or any project	India /NDRI and NDDB	30	**M**
6	Financial and Fiduciary management training	1 week	**2**	**15**	**1**	**1**	**13**	**26**	Regular	Staff college	30	**H**
7	Case study on teleconferencing, video conferencing/tele veterinary medicine services	1 week	**3**	**15**	**2**	**1**	**50**	**150**	one slot each 2 year	Thailand AIT	45	**H**
8	Case study-based training on PBIS, PBMS.	1 week	**4**	**15**	**2**	**2**	**13**	**52**	one slot every 2 year	NASA	60	**H**
9	Result based M&E and business case study	2 weeks	**5**	**15**	**3**	**2**	**20**	**100**	Regular	Staff college	75	**H**

Government of Nepal

Ministry of Agriculture and Livestock Development

Nepal Livestock Sector Innovation Project

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